JANUARY 1977

BM/E

BROADCAST MANAGEMENT/ENGINEERING

Beginning New Feature
Radio Programming
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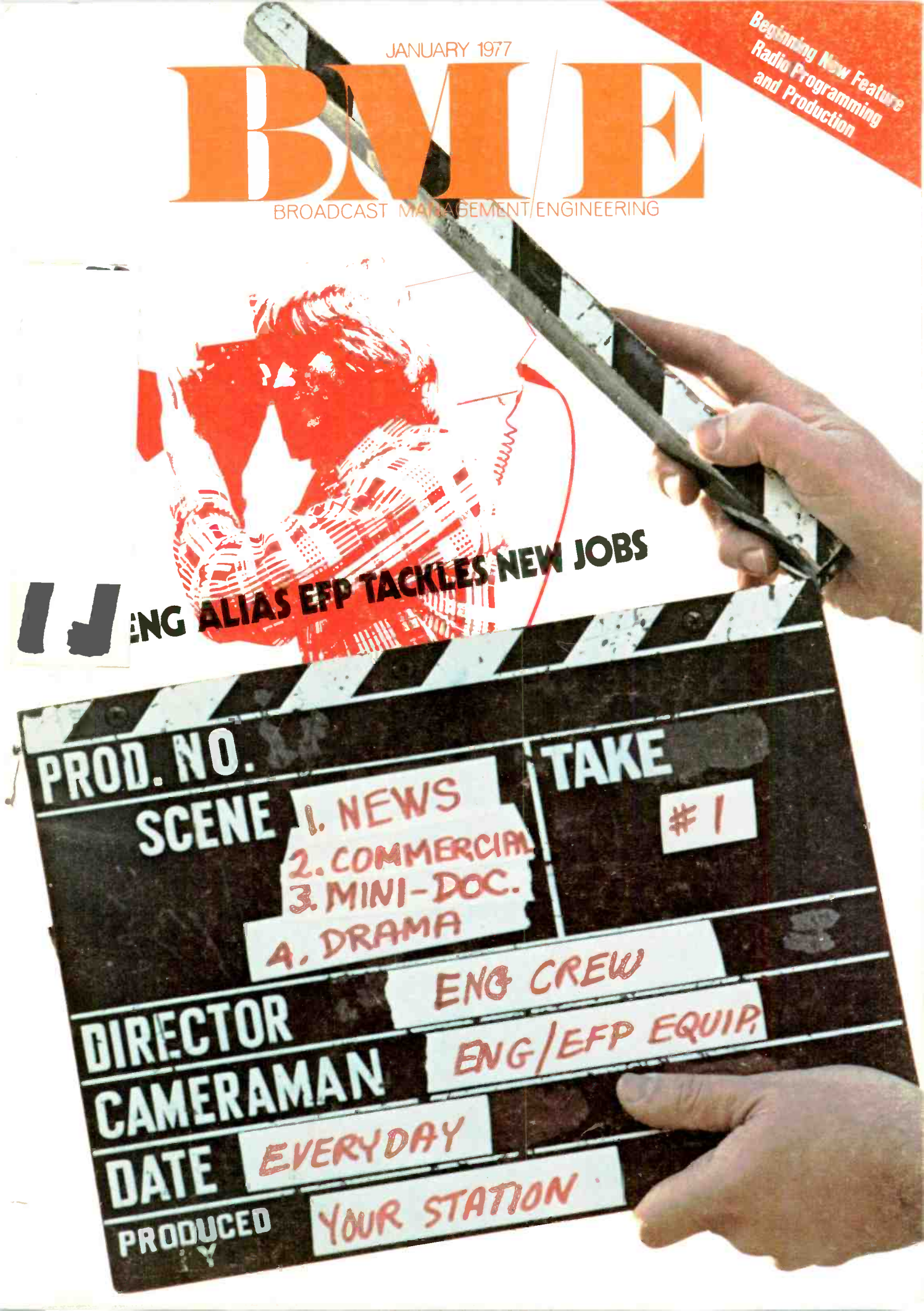

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BM/E
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ENG alias EFP is moving into the teleproduction scene as this month's cover depicts. *See article beginning p. 39.*

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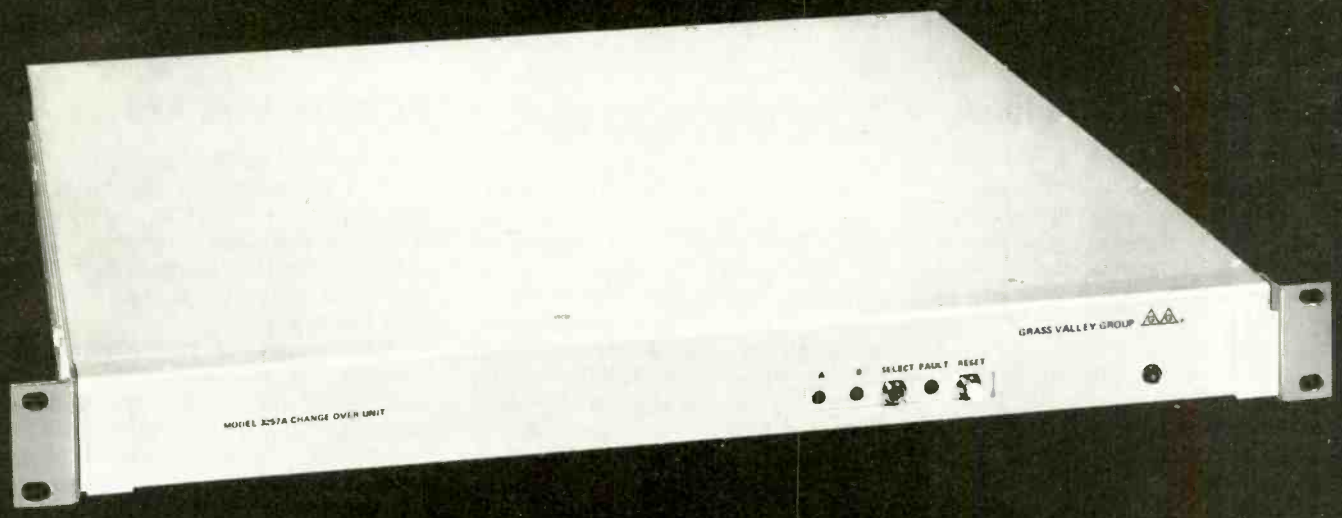

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MODEL 3257A

AUTOMATIC CHANGE-OVER SWITCH

The 3257A is a 9-pole, 2-position switching device intended for use with television synchronizing generators. The switching action can be initiated either manually or automatically. In the automatic mode, operation is controlled by sensing circuitry which samples the output lines. If a fault is detected on any line, a transfer is made to the opposite group of inputs.

The switch is constructed in a unique manner to maximize reliability. The switching elements are sealed reeds arranged in a circular array. The latter are actuated by permanent magnets mounted on a circular rotor.

Detectors are provided for 8 of the 9 output lines and can be set to operate either with 2 volt or 4 volt pulses, as well as 1 volt or 2 volt subcarrier signals. The system will also sense a low level, steady state signal, such as color black or encoded pulse reference. Internal switches are provided to individually disable any or all of the detectors.

The system can be controlled both locally and remotely. A relay with isolated C contacts is provided for remote alarm use. The 3257A can be used on any TV standard, as well as with any type of synchronizing generator. Input voltage is 115/230V, 50-60 Hz. BNC connectors.

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BROADCAST INDUSTRY NEWS

Sex and Violence In Rock Meets Resistance

The Reverend Jesse Jackson, director of PUSH (People United to Save Humanity) and two feminist organizations have come out to combat what they see as flagrant abuses of responsibility in the record industry where sex and violence is concerned.

According to reports in *Variety*, Reverend Jackson sees a direct relationship between suggestive "sexy" lyrics and rhythms and an increase in sexual irresponsibility among youths. Jackson implies that record companies, radio stations, artists and lyricists that do not do something to decrease the use of such material may face a boycott of their products and services by PUSH and others.

Whereas Jackson is concerned about the content of rock music, the California NOW, a branch of the National Organization for Women, and Women Against Violence Against Women (WAVAW), are threatening a boycott of seven Warner record labels if the companies do not withdraw objectionable album covers and advertisements before a December 6th deadline.

The seven labels—Atco, Atlantic, Asylum, Elektra, Nonesuch, Reprise, and Warner Brothers are accused by the organizations of using pictures and graphics on their album covers which depict women as objects of sexual violence. An example cited is a billboard advertisement for a Rolling Stone's album, "Black & Blue" that pictures a woman in torn clothing, covered with bruises and a caption that reads "I'm Black & Blue from the Rolling Stones, and I love it."

Meanwhile, another possible flood of violent sexually oriented rock is shaping up in England. Called "Punk Rock," it is played by such groups and artists with names like The Sex Pistols, Johnny Rotten and Sid Vicious. The live performance of their music is gaining popularity on the disco circuit. It features unfettered obscenity and explicit violence. Major English record companies like EMI, UA, and Island are reportedly gearing up to market Punk Rock.

'76 National Elections Turning Point In Electronic Coverage

As reported extensively in *BM/E's* special reports this issue, pages 39 and 80, ENG was used almost exclusively by networks in covering candidates travels on TV. On election night, roving ENG crews replaced fixed remote broadcast feeds. In the studios, character generators combined with computer storage reached new heights in effective graphic presentations and NBC and Chyron are now at work resolving how enhanced graphics can be used more effectively and easily in daily news operations. Arvin disc storage was used by a number of stations and, at CBS network headquarters, New York, the 1500-video frames on-line for random access Electronic Still Store (ESS/System) designed by Ampex got a tryout.

FCC Approves ATS

Commission and staff members of the FCC participating in the NAB fall meeting, New York City, and the Society of Broadcast Engineers' Long Island regional meeting in late 1976, predicted action on the ATS rule in late December.

BM/E goes to press before the commission will have acted, but we understand only AM non-directional antenna stations will be authorized for Automatic Transmission Systems operation initially. A go, no-go approach will be adopted, i.e. the transmitter must be able to shut itself off if it goes out of tolerance. With ATS, no first-class radio-telephone operator need be employed full time.

The Commission is scheduled to act on VHF drop-ins. Commissioner James Quello, speaking in New York, said he was not sure how the final vote would go. He is opposed to drop-ins. If they are authorized, it is likely to be in a few cities only.

In early 1977 some action on four channel quadraphonic FM broadcasting can be expected as well as a ruling on AM stereo.

Daytime Broadcasters Seek Breakdown Of "Super Power" Stations

The Daytime Broadcasters Association (DBA) filed comments with the FCC urging the Commission to break down the Clear Channels in a manner to provide additional Class IV local channels.

Citing the need for more full-time local broadcast service, DBA presented an analysis of the FCC obtained Arbitron listenership survey of the 25 Class 1-A clear channel stations, "outside their home market areas." According to the DBA analysis, 23.36% of the AM broadcast spectrum was serving only 1.3% of their "wide area" potential listenership. Furthermore, according to the DBA, the distant "skipping" skywave is no longer an acceptable service to the distant listener. DBA went on to cite the absence of ascertainment procedure on such clear channel stations regarding their distant listeners and suggested that clear channels should not be protected beyond their "home market."

continued on page 8

Introducing the Duca-Richardson Series 4000. Simply the most advanced production switcher ever created!

Booth 529 (Shoreham) at the NAB show.

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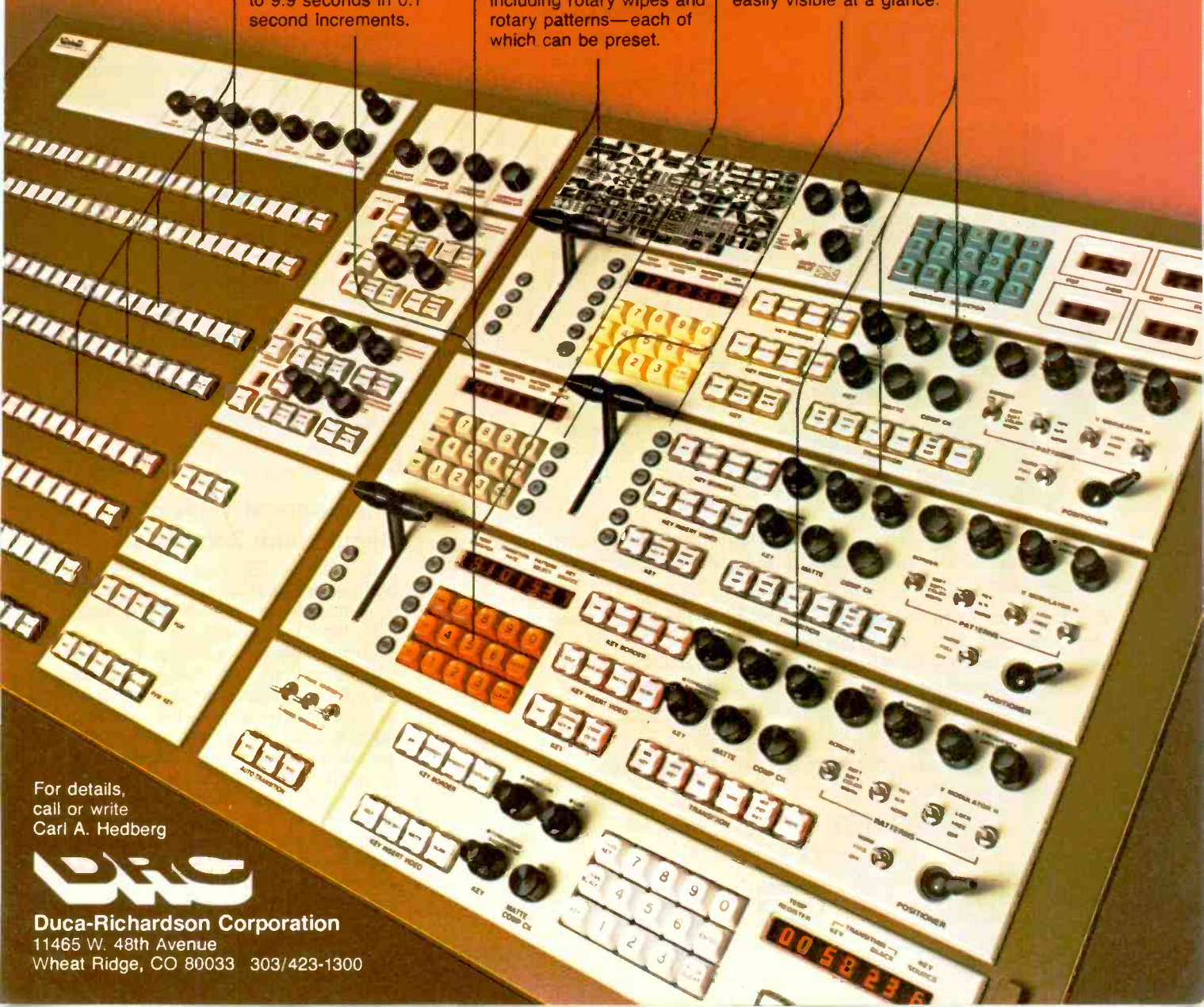

For details, call or write Carl A. Hedberg

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NEWS

Betamax Gets Legal Interference

Walt Disney Productions and Universal City Studios have instituted a suit in Los Angeles U.S. District Court seeking an injunction against Sony Corporation of America to prevent it from the further sale, advertising or use of its Betamax wherever it involves the issue of copyright abridgement.

Named in the suit as co-defendents are the Sony advertising agency, Doyle Dane Bernback, four L.A. retail Betamax dealers and a Mr. William Griffiths, who is thought to be a Betamax owner sued for the purpose of raising the issue of copyright infringement by individual owners recording programs off the air at home.

Essentially the suit charges that Sony, its ad agency and dealers encourage the infringement of copyrights held by movie producers. The dealers are further charged with specific infringement of copyright by virtue of having used recorded segments of certain programs in the course of demonstrating the Betamax to prospective customers.

Harvey Schein, president of Sony Corp. of America, indicates that the suit will be vigorously fought through every level of the justice system. Sony is confident that the Betamax will win, citing the argument that the off-air recording device actually enlarges audience and does not actually cause the producer of TV programming any financial loss since the producers have already been paid by the broadcasters. Sale of such personal recordings are already prohibited by appropriate legislation.

Some speculation going on in informed circles questions the impact the suit might have on other manufacturers comtemplating entry into the market of similar machines and the motives of Universal in bringing the suit. Universal is a subsidiary of MCA which has a great interest in the MCA/Philips video disc machines, a possible Betamax competitor though it does not offer home recording.

Philips Splits Its Division

North American Philips split its professional and non-professional audio and video product lines.

To accomplish the reorganization, Philips has resurrected the Philips Broadcast Equipment Corp., a subsidiary it had dissolved last year in an earlier attempt at reorganization. The re-established division will be responsible for television cameras, transmitters, and other broadcast standard equipment.

Philips Audio Video Systems, which was born during the last reorganization will continue to market non-broadcast video products and the AKG microphone line.

Heading up the Broadcast Equipment Corp., will be Paul Berquist, a former RCA regional sales manager.

International Television Symposium Scheduled

The 10th International Television Symposium and Technical Exhibition of Montreux will be held at that Swiss city, June 3rd through the 10th.

Broadcasters from around the world will gather there to exchange ideas and view the latest hardware developed for the broadcast industry by the more than 90 exhibitors. Some of the activities include a "round table" discussion of "Trends in Video Systems under the impact of New Technology, 1985 Horizon"; split technical sessions covering such topics as new program production systems, post-production systems, program continuity systems, terrestial TV broadcasting, electronic

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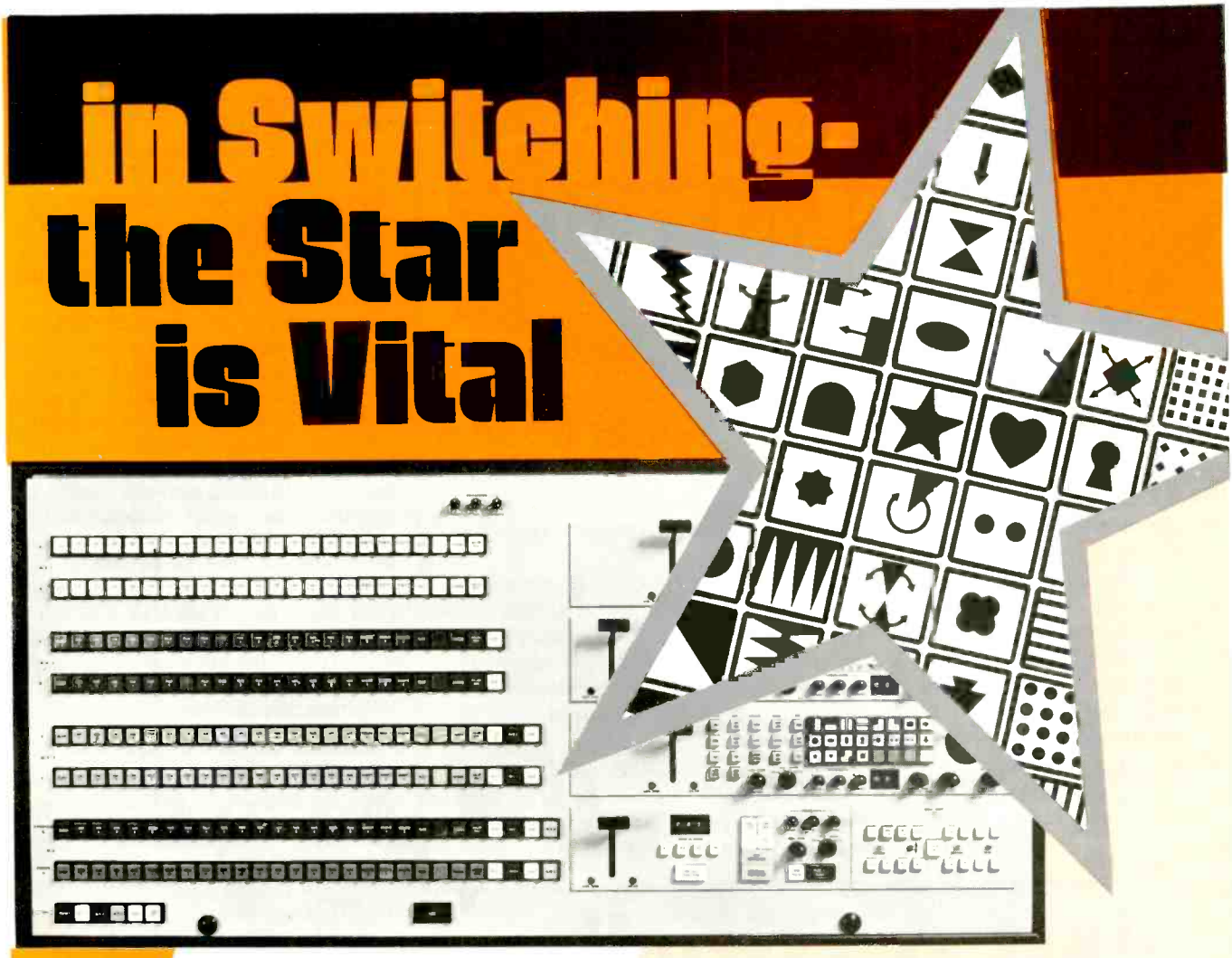
in Switching- the Star is Vital



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NEWS

TV pick-up and film scanning techniques in point-to-point transmission, satellites, digital video and signal processing and CATV.

Exhibitors come from many countries and several from the U.S. will be sharing a large attractive area being arranged by *BM/E*. The exhibit will include bilingual hostesses and its own private lounge section in keeping with the continental style. The '77 Symposium appears to be oversubscribed both in terms of desirable exhibit space and hotel accommodations. *BM/E* was able to secure the latter only for its participating exhibitors. (Consequently, *BM/E* will not offer broadcasters an air travel/lodging package as it did in '73 and '75. Broadcasters who wish to attend should contact SwissAir which is booking visitors into the resort area of Villars, 40 km above Montreux. Contact Fred Waldhorn, SwissAir, 608 Fifth Ave., New York, NY 10020.)

More conference details are available from International Television Symposium, P.O. Box 97, CH-1820, Montreux, Switzerland.

Rewrite Of '34 Comm Act Top NCTA Goal For 1977

At the final 1976 meeting of the NCTA Board of Directors, the rewrite of the Communications Act of 1934 was set as the top priority of the organization for 1977.

NCTA Chairman Burt I. Harris named Ralph M. Baruch, president of Viacom International, Inc., to head a select committee that will formulate major cable industry positions on all aspects of the new communications legislation for consideration by the NCTA Board and presentation to Congress.

NBC Settles Antitrust Suit

NBC agreed to settle a long pending suit brought by the Justice Department charging it with violation of the Sherman Act.

Nearly identical suits have been instituted against CBS and ABC but each of those networks has vowed to carry on the litigation on the basis that the only governmental agency with regulatory power over them is the FCC.

The settlement does not appear to require any serious changes in network policy as it has evolved over recent years. Much of what the Justice Department had sought to achieve in the suit had already been adopted by the networks as a result of FCC regulations in the past few years or in response to changing business philosophy.

For instance, the settlement calls on the network to give up lucrative syndication rights to programs produced

continued on page 13

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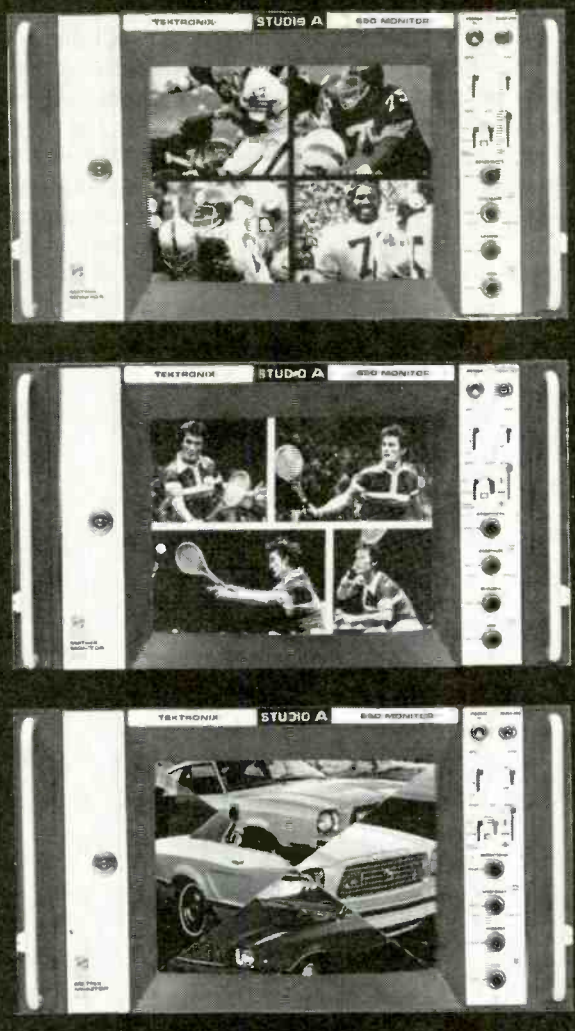
Two years ago we introduced the 1290 OBQS (One Bus Quad Split). It afforded you with new versatility in both studio and remote applications.

Today we bring you a new and more versatile package which offers an optional **Quad Pattern Selector**. Now standard splits **and** split vertical displays are available — along with a new diagonal split. Each display provides adjustable positioning and adjustable width borders on standard and split vertical displays. Also available is an internal border colorizer and full relay tally. As the 1290, the 1290B can be used with **any** switcher or used as a stand alone device.



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And only Harris provides automatic switchable modulators, switchable low-level VSB and switchable color correction for 100% redundancy.

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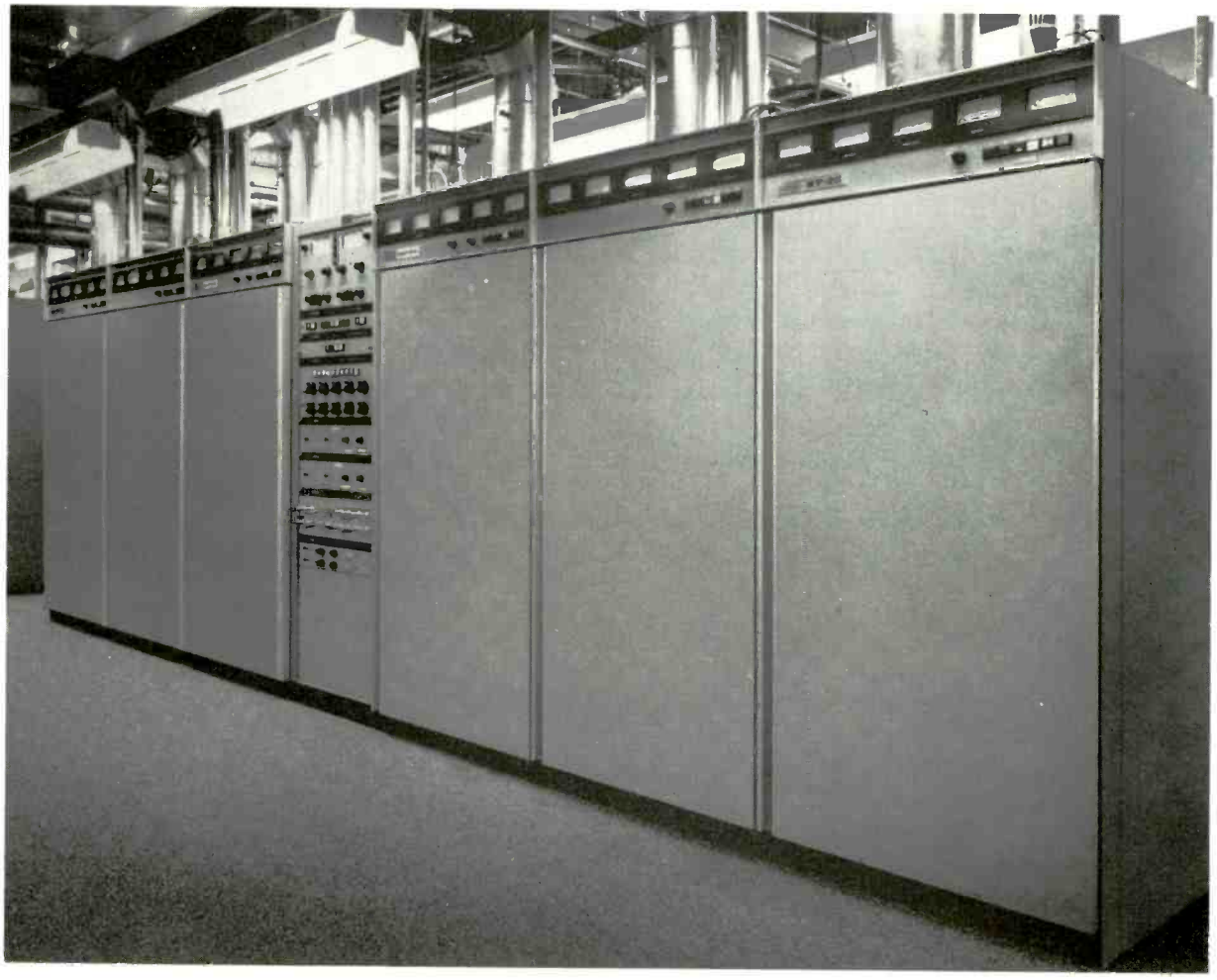

Circle 108 on Reader Service Card

for it though all networks have been forbidden these rights since new FCC regulations were promulgated governing the issue in 1972.

One of the few issues that could have considerable impact on the industry prohibits NBC from retaining options on more than 35% of the programs presented to it but not selected for actual broadcast. This prohibition could restrict the alleged practice of taking options on programs for the sole purpose of denying them to the competition.

The problem with this restriction, and many of the other more significant ones called for in the settlement, is that NBC does not have to abide by it unless the other networks agree, or are forced to abide by the same rules.

In at least one instance, the network actually gained the right to a practice it does not now exercise. The settlement calls for NBC to limit itself to no more than 2½ hours of prime time programming which it can own or have a financial interest in. At present, NBC owns only one hour of prime time programming, "Little House On The Prairie."

Justice Department Joins Group W Request For Web Investigation

The Group W petition requesting an investigation of network relations with affiliates presented to the FCC last summer got unexpected support from the Justice Department in November. The Justice Dept. asked the FCC to investigate the three networks to determine whether or not they should be forced to divest some or all of their O&O stations.

The original Group W request for an investigation has been picking up support from network affiliate stations and public interest groups but did not raise the issue of network divestiture of O&Os. It was not Group W's intention to attack station ownership (Westinghouse is the parent corporation of Group W and owns several stations itself.) Group W president Joe McGannon was quoted as saying that a challenge to network O&Os was "not our bag."

The issue raised by Group W was essentially a question of the power of networks over the programming decisions of individual affiliates. The affiliates are concerned over encroachment by the nets into local commercial time. The issue of O&Os is wholly new and raised only by the Justice Department.

The networks were unanimous in their rejections of the various calls for an investigation claiming that none of

continued on page 14

IT'S DECADE TWO

...and the company whose innovations over the past 10 years revolutionized color television cameras in the U.S. and throughout the world, now puts its 3-Plumbicon picture and a beam-splitter prism into the most exciting new lightweight camera value on the market.

The PHILIPS LDK-11. Full broadcast quality for both ENG and commercial production!

With the LDK-11 no longer must broadcasters or production companies sacrifice picture quality or operational features for portability. Broadcasters started using the LDK-11 in January, 1976 and the reactions have been outstanding. A typical report from one of the first stations to get delivery..."the field pictures look as if they were shot in our studio!"

Battery or AC powered and with full production control either remotely or at the backpack, the LDK-11 has all the key Philips engineering features that make it like no other comparable camera in the world. These features include Philips famed 3-Plumbicon* tube picture, beam-split prism with bias light and Philips linear matrix for superb colorimetry. Also included are H & V contours, auto iris, auto white balance, genlock sync generator, switchable gain and gamma, built-in color bars, remote VTR and zoom controls, and two audio channels.

All this and more add up to the utmost flexibility and economy for ENG, local remote and studio production...*without* compromise. And the LDK-11 is available now!

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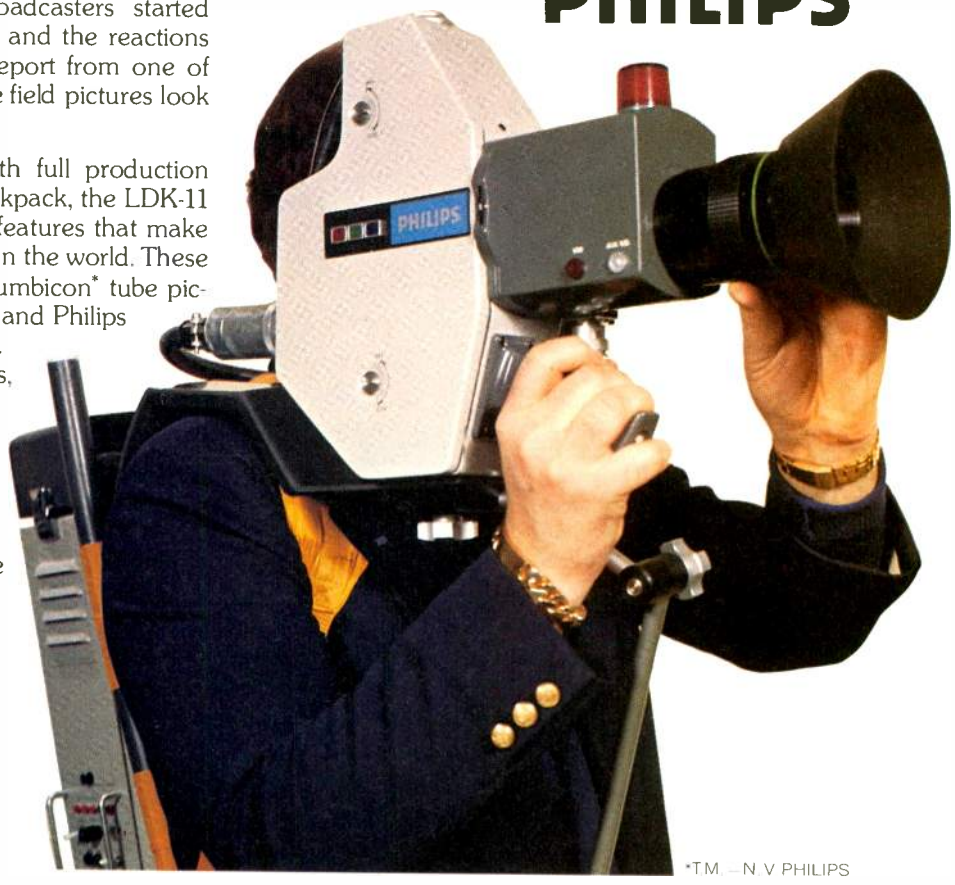

*T.M.—N.V PHILIPS

Circle 110 on Reader Service Card for a demonstration
Circle 111 on Reader Service Card for literature

the arguments raised had any merit and that an investigation of network practices had only just been completed in 1975 and, among other things, had issued several new restrictions such as the Prime Time Access Rule.

FCC Asks: Has Syndicated Exclusivity Worked?

The Commission has opened an inquiry into every aspect of the rules which protect broadcast stations from importation of syndicated programs by cable systems. The "syndicated program exclusivity" rules allow a broadcaster in the top 50 markets to request deletion of a syndicated program brought in by a cable system from a distant station, if the local station has bought exclusive rights to the program in that market. Noting that the rule was adopted in 1972, the FCC points out that a lot has happened since then and asks more than a score of questions on the past effects and most desirable future of the rule. Interested broadcasters and cable operators should ask for FCC report No. 12449. Comments are due February 14, 1977, replies, March 16.

Also Under Scrutiny: Cable Franchise, Filing Rules

Another proposal for a major rule change would reduce substantially the filing requirements for cable operators seeking certificates of compliance and would modify or eliminate the present standards on local franchises. As part of the action, the FCC stayed the March 31, 1977 deadline for uncertified cable operators to get their franchises up to the FCC standard. On certification filing, the FCC asked if the procedures in effect since 1972 had achieved their purpose of educating cable operators on their responsibilities, and if not, how they should be changed. On the franchise standards, the FCC pointed to legal ambiguities in federal enforcement of a local franchise, among other questions. (Report No. 12496; comments by Jan. 31, 1977, replies by March 2, 1977.)

License Applicant Can Use Ascertainment of Assignor

The Commission has clarified its rules on ascertainment surveys to allow an applicant or assignee in a license transfer to incorporate the community needs ascertainment of the transferor or assignor, if the ascertainment was made within six months of the filing of the assignment or transfer application. The clarification was made in response to

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requests of several law firms. The FCC agreed with the general contention that repeating the ascertainment survey in such a short period would not serve the public interest.

FCC Briefs

The **"composite week dates"** for the Annual Programming Report, due February 1, 1977, are: January 14, March 26, April 6, June 21, July 10, September 16, and October 3, all 1976 . . . . The **tolerance standard on UHF tuning,** without fine tuning, is maintained at ±2 MHz; the requirement for ±1 MHz tolerance, due July 1, 1977, is postponed . . . . The reallocation of certain frequencies in the **450 MHz band to the Business Radio Service,** requested by the National Association of Business and Educational Radio, was denied by the FCC (see story on another page on revised assignments for remote broadcast service in this band).

News Briefs

The NAB announced that all **exhibit space** for the 1977 annual convention to be held in Washington, D.C. this March 27-30th, has been sold . . . . Industrial Marketing Advisory Services (IMAS) has begun a **new service to broadcasters.** The Arlington, VA company operates as a clearinghouse for broadcast equipment orders by soliciting bids from companies around the country on specifications set by the buyer. The service is free to the buyer but costs the seller a fee based on the number of leads generated. To take advantage of the system, the buyer calls, toll-free, 800-336-3045.

A national survey of radio and television **station policy relating to the broadcast of PSAs** is being conducted by Voter Education Project (VEP) of Atlanta, GA. The survey is intended to help VEP measure the effectiveness of its 1976 voter participation campaign and provide guidance to VEP and other non-profit groups when planning future public service campaigns. The results will be provided to all participating stations . . . . **"Check Your Local Station"** is the name for a new program to help community organizations foster better radio and TV programming. The program is conducted by the Office of Communication of the United Church of Christ under a grant of $24,000 from the Veatch Program of the No. Shore Unitarian Society, Plandome, N.Y.

BJA Systems, Inc. has introduced a **new process for colorizing black and white film.** The process brings bright realistic color to old b&w prints by basically assigning color based on grey level information found in the video signal and using animation techniques to keep the color consistent as the picture changes . . . . **Gerald M. Levin, chairman of HBO, Inc.,** told an audience attending the Alabama Cable TV Conference, that HBO and its parent company, Time, Inc., believe it is wrong to depend too heavily on theatrical motion picutres for the future development for pay TV.

Video Expo/Chicago, the largest non-broadcast midwest video trade show, expects more than 3,000 people to attend its upcoming exhibit to be held May 17th through the 19th at the new expocenter/Chicago . . . . **The New York State 2nd Annual Video Conference** will be held March 26th through the 27th at the Rochester Institute of Technology. For details, contact: Student Television Systems, 1 Lomb Dr., Rochester, NY 14623.

In comments filed with the FCC, NCTA said it would continue its efforts to **increase CATV industry employment of minorities and women**

continued on page 18

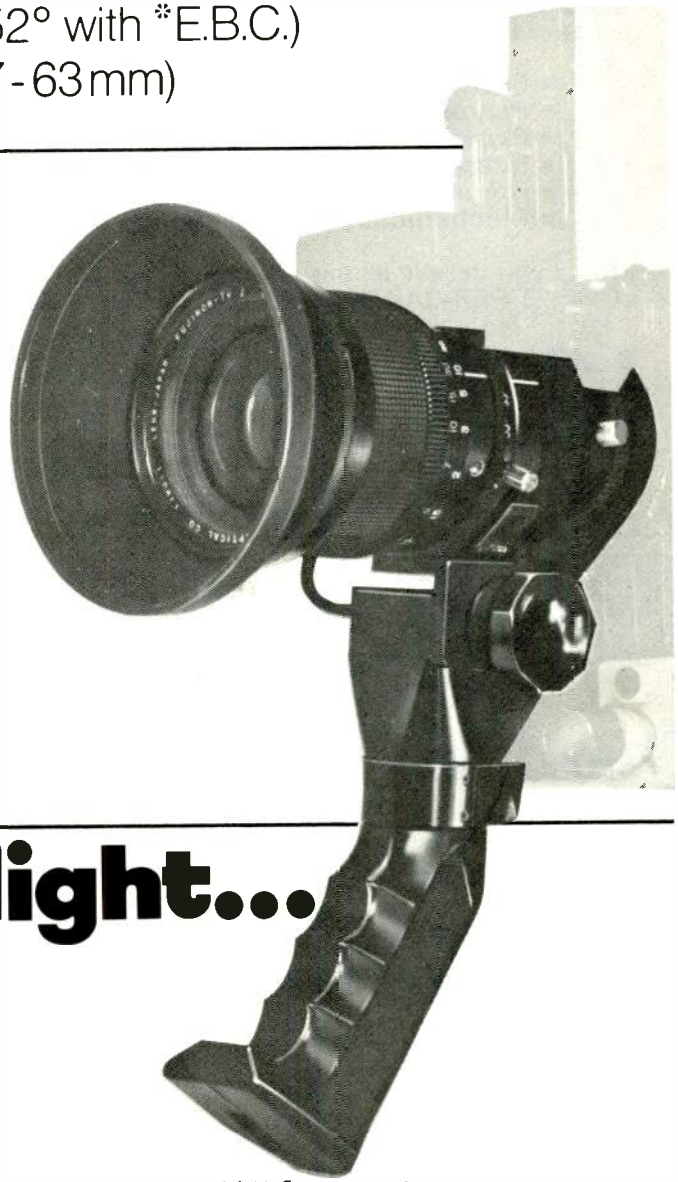
what, no light?

try the FUJINON 6mm f/1.4
(70° 36° superwide angle)
it stays in focus, from 6″ to infinity

—OR—
the FUJINON A 7x9 f/1.4
(52° with *E.B.C.)
(7-63mm)

some light...

try the FUJINON
12x9 f/1.7
(9-108mm)
with macro focus,
adjustable back focus,
3 way servo zoom,
31″ close focus,
remote focus,
lightweight (3 lbs),
*E.B.C.



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try the FUJINON
14x10 f/1.9
BUILT IN 2X EXTENDER
(10-140mm)
with extender (20-280mm)
equivalent to 544mm on a 1¼″ format
with macro focus, adjustable back focus, 3 way servo zoom,
31″ close focus, lightweight (4 lbs), remote focus,* E.B.C.

* (Electron Beam Coating)

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News

but questioned the jurisdiction of the FCC over the cable industry in the matter of EEO . . . . NCTA announced that it has accepted the proposal of a New York consulting firm, Clark, Phipps, Clark & Harris, Inc., to help **design and develop a comprehensive Employment Opportunity/Affirmative Action** program for the cable television industry.

Texas Tech University has dedicated a new $3 million Mass Communications Building which will provide new facilities for Journalism, Advertising, Telecommunication and Photography/Film and the Division of Speech Communication . . . . **The Annenberg School of Communications** dedicated its new $3.7 million facility at the University of Southern California.

The **National Association of Television Program Executives** will hold its annual conference at the Fountainbleau in Miami Beach under the theme of "The Changing Role of the Programming Executive" this February 12th through the 16th . . . . A **WNCN Citizen's Advisory Committee,** composed of leading figures in the musical and cultural activities of the metropolitan area, has been formed to assist the classical music station in activities relating to the cultural life of the community.

RCA American Communications, Inc. has begun providing satellite services to the Southeast through its new Atlanta earth station. The major user of the satellite service immediately is WTCG, Channel 17, programmed 24 hours a day. Southern Satellite Systems, Inc. proposes to take off the air Channel 17's programming (mostly pro-sports) and distribute it via satellite to cable systems across the country.

Business Briefs

BCS, a division of **Kaman Sciences Corp.** signed 16 small and medium sized radio stations to its recently inaugurated BCS 100 System for automated traffic and accounting . . . . All EZ Communications radio stations, of which there are four, have selected **Compu/Net, Inc.** to provide automated business operations. The first station to receive the service will be WEZR-FM, Fairfax, VA, with others soon to follow . . . . **Tuesday Productions** has signed McGraw-Hill's KGMH, Denver, WRTV, Indianapolis, and KERO, Bakersfield to its "News People" promotion package completing its agreement with that group of stations.

WSAZ-TV, Huntington, WV, will equip its dual-location news operation

with **RCA** ENG systems consisting of 2 TK-76 cameras, 3 HR-1020 videocassette recorders and 4 HR-1060 editing recorder/reproducers . . . . **RCA** also announced that it had taken orders valued at more than $700,000 for RCA color television equipment from CTC, Channel 7, a Canberra, Australia commercial television station.

CCA Electronics Corp. announced the recent award of new contracts for AM, FM, and TV broadcasting equipment valued at more than $1.5 million. The orders for AM, FM, and TV transmitters came from Canada, the West Indies, Kuwait and Greece . . . . **Raytheon Company** plans to acquire **Switchcraft, Inc.** of Chicago, according to a joint announcement by the two companies . . . . **EECO** completed a 3-day training seminar for 12 technical staff members of RCA's Broadcast System Division, covering the installation and operation of the new AE 600 Automatic Time Code Editing System developed and manufactured by EECO for RCA.

The **ZEI-MARK Corp.** announced the formation of **ZM Telesystems Ltd.** to market and sell ZIE-MARK products internationally . . . . William J. Overhauser, founder and, for 15 years, president of Sparta Electronic Corp., announced the formation of a new company, **Corinthian Marketing.** Headquartered in Incline Village, Nevada, Corinthian will act as sales reps and consultants to the broadcast industry.

Video Tape Associates of Florida has expanded its production capacity with the acquisition of 3 additional IVC 9000 videotape recorders, 2 new Bosch-Fernseh recording systems and a new IVC 7000P hand-held camera . . . . **Audio Services Company** of New York has introduced a new audio rental service featuring professional equipment such as Nagra recorders, Sela mixers, microphones and accessories.

The **Spanish Television Network** stations brought their viewers instant network-quality election results tallied and displayed through the combined efforts of **Telesource,** which handled the design and implementation of the system, and **Tymshare, Inc.,** which used its data network and computers to compute election returns . . . . **KCPT** and **KCMO** broadcast stations jointly announced an agreement for the purchase by KCPT of the KCMO studios and offices in Kansas City, MO.

WMEX, Boston, announced that it will become an **NBC Radio Network** affiliate beginning this month . . . . **WDCN-TV,** the public broadcasting station, has moved to a new location, 161 Rains Ave., Nashville, TN . . . . The FCC has granted a change in call letters for **Swanco Broadcasting**'s radio station, KWXI-FM to KFJZ-FM in the Dallas-Fort Worth market . . . . **Tuesday Productions, Inc.,** the promotional jingle producers, began operation of five watt AM facility capable of braodcasting a signal 30 yards—for the purpose of air testing their jingles.

Southern Satellite Systems, Inc. launched a new service designed to assist CATV operators with the planning and implementation of earth station installations . . . . **Western Union**'s new transportable earth station installed at the company's area headquarters in McLean, VA, has gone on the air with a nightly half-hour news feed from Washington, D.C. to member stations of the **Independent Television News Assoc.**

Scientific-Atlanta, Inc. has been awarded orders for five satellite earth stations by **Cox Cable Communications, Inc.** . . . . **Optical Systems Corp.,** the parent company of Channel 100, announced an application with the Federal Communications Commission to construct the company's first satellite earth receive station.

The CATV Equipment & Installation Operation of **GTE Sylvania Inc.** has received a contract from **Con-**

NEWS

tinental Cablevision of Miami Valley, Inc., Dayton, OH, to supply broadband communications equipment for a 700 mile system . . . . **Jerrold Electronics Corp.** recently completed an agreement with **Cable Communications of Iowa, Inc.** for the construction of a 21 mile turnkey cable facility and Jerrold will construct a 40 mile extension of the Ft. Lee, NJ, cable system for **Vision Cable Communication Inc.** of New York . . . . **Magnavox CATV Division** of North American Philips Corporation has recently become **Magnavox CATV Systems, Inc.,** a wholly owned subsidiary of North American Philips.

People

Bo Donovan has recently accepted the position of vice president, Broadcast Division at Tuesday Productions, Inc. Creative Services . . . . **Loring S. Fisher** has been appointed executive vice-president of Bonneville Broadcast Consultants.

Guy M. Lewis was appointed manager, Northern Broadcast Sales, for RCA Broadcast Systems . . . . **Mark Sanders** and **Arnold Taylor** have been appointed to the newly created positions of senior product managers for Ampex Corp.

Jerrold Electronics Corp. has placed its CATV, MATV and Consumer Electronics Sales Forces under the direction of **Bert Wolf,** who has been appointed vice president-sales.

Projection Systems, Inc. announced the appointment of **Stephen Zahorian,** vice president of marketing . . . . The Society of Broadcast Engineers Certification Board has awarded the Senior Broadcast Engineer Certificate to **Mr. Donald E. Lefebvre,** managing director of TeleMation, Ltd., London, England . . . . **Michael Fleming** has joined JVC Industries, Inc. as the West Coast regional sales manager.

Robert E. Knowles has joined Fuji Video Tape Division's sales staff to handle accounts in the Rocky Mountain region, working out of Denver . . . . **Edward M. Fitzgerald** was named product manager for the Broadcast Audio Sales group at Telex Communcations, Inc., Minneapolis . . . . **Mr. James Roach** was named service manager of the CATV system for Suffolk Cablevision.

J. Terry Davis has been named general manager of the Warner Cable Corp. television system in Ft. Walton Beach, Fla. . . . . **Frank D. Murphy** has been promoted to director of creative services for Bonneville Broadcast Consultants . . . . Advent Corp. of Cambridge, Mass., announced the appointment of **Mark M. Obenzinger** as director of video marketing . . . . **Mr. Frank A. Zoeller** joined CMX as customer services manager.

Appointment of **James A. Gimbel** as manager, sales, with executive responsibility for marketing RCA Broadcast systems in Europe, Africa and the Middle East, was announced by RCA International Ltd. (United Kingdom) . . . . **Ed Wennerstrand** has been named vice president and general manager of Audio Dynamics Corp. . . . . **Robert J. Garbutt** has joined Sharp Electronics Corp. as manager of its Professional Products Department.

Jim DeSorrento was appointed vice president and broker for the northeastern United States for Daniels and Associates . . . . **Robert L. Brown** has joined Daniels and Associates as vice president and broker for the western United States . . . . Berkey Manhattan Filmstrip and Slide Laboratories announced the appointment of **Chuck Iannazzo** as production manager.

Dave Norman has joined Jefferson Production's directional staff

AES In New York: Another High Point In Society's Show History

Continued upswing in work on digital techniques for audio; more multipurpose testing systems of higher sophistication; continued expansion in a number of audio processing systems; new audio cart format, were among developments at the Audio Engineering Society's New York convention of special interest to broadcasters.

With the highest first day registration in the Society's history, and a total of more than 4,000 for the four days, the Audio Engineering Society's 55th Convention, at the Waldorf-Astoria in New York, October 29 through November 1st, set standards that will be hard to match in the future. Both the exhibits and technical program were unusually fine.

The technical sessions nearly all attracted full houses and many had standees in considerable numbers. The nearly 90 manufacturers on the exhibit floor represented virtually the entire industry, with a number of new firms added to the many long-term participants.

Probably the biggest crowd, with a large number of standees, came for the sessions on digital technology. Other sessions that pulled full houses were those on measuring and instrumentation, signal processing and transmission, magnetic recording, and sound reinforcement. It was the judgement of many observers that the proportion of papers making solid contributions to the advance or understanding of audio technology was larger than at any previous New York AES convention.

Engineers who missed the show may want to write the AES (60 E. 42nd St., NY, NY 10017) for a copy of the program and a list of preprints available. About 50 of the papers (more than at any earlier convention) were put into preprint form and these can be ordered from the Society at any time. The preprints were another hit of the show: the Society sold more than $6000 worth just in the first two days.

For broadcasters, the exhibit floor had a wealth of interest in three areas: audio processing, testing systems, and, as always, audio consoles. So many hardware makers are developing audio processing equipment that a number of units shown on the floor were new enough to have missed *BM/E*'s November directory. Important new equalizer systems were shown by Sound Workshop, Klark Teknik (UK—imported by Revox), Pioneer, White Instruments, Shure Brothers, Audio Processing Systems.

continued on page 23

Ivie Electronics showed a hand held spectrum analyzer.

Scientific Consultants Marketing showed the S.S. Smith Co. stereo vectorscope.

There's News Out There...

and Farinon's Portable, Frequency-Agile Microwave Gets It On The Air!

The new FV Portable Microwave system is available for all bands from 1.99 to 13.25 GHz.

You dial-tune to your operating frequency on the spot. There's no need for bench-work before you set up a remote pick-up. No filter pre-selection. You don't even need a screwdriver.

You can plug in video monitors, or clampers, or up to three sub-carrier channels.

You can run 500 feet of cable between the RF head and the FMT or FMR remote unit without roll-off or equalization.

And you get 1-watt output level from 6.875 to 13.25 GHz, 5-watt output (optional 20-watt) from 1.99 to 2.11 GHz, ±0.002% frequency stability; 60-dB signal-hum ratio from dc to 10 kHz, and 70-dB signal-noise ratio from 10 kHz to 5 MHz.

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AES IN NEW YORK

New special effects devices, using time delay, came from Micmix, Marshall; reverb units from Sound Workshop.

One of the spectacular demos of the show was that of the new EMT 250 reverb unit, imported by Gotham Audio (which *was* in the November directory). This $15,000 machine, built around a computer and using 19 separate delay units, produced every variety of naturalistic "hall sound" plus a basketful of often stunning far-out effects, covering those usually associated with time delay devices, obviously barely skimming its potentialities.

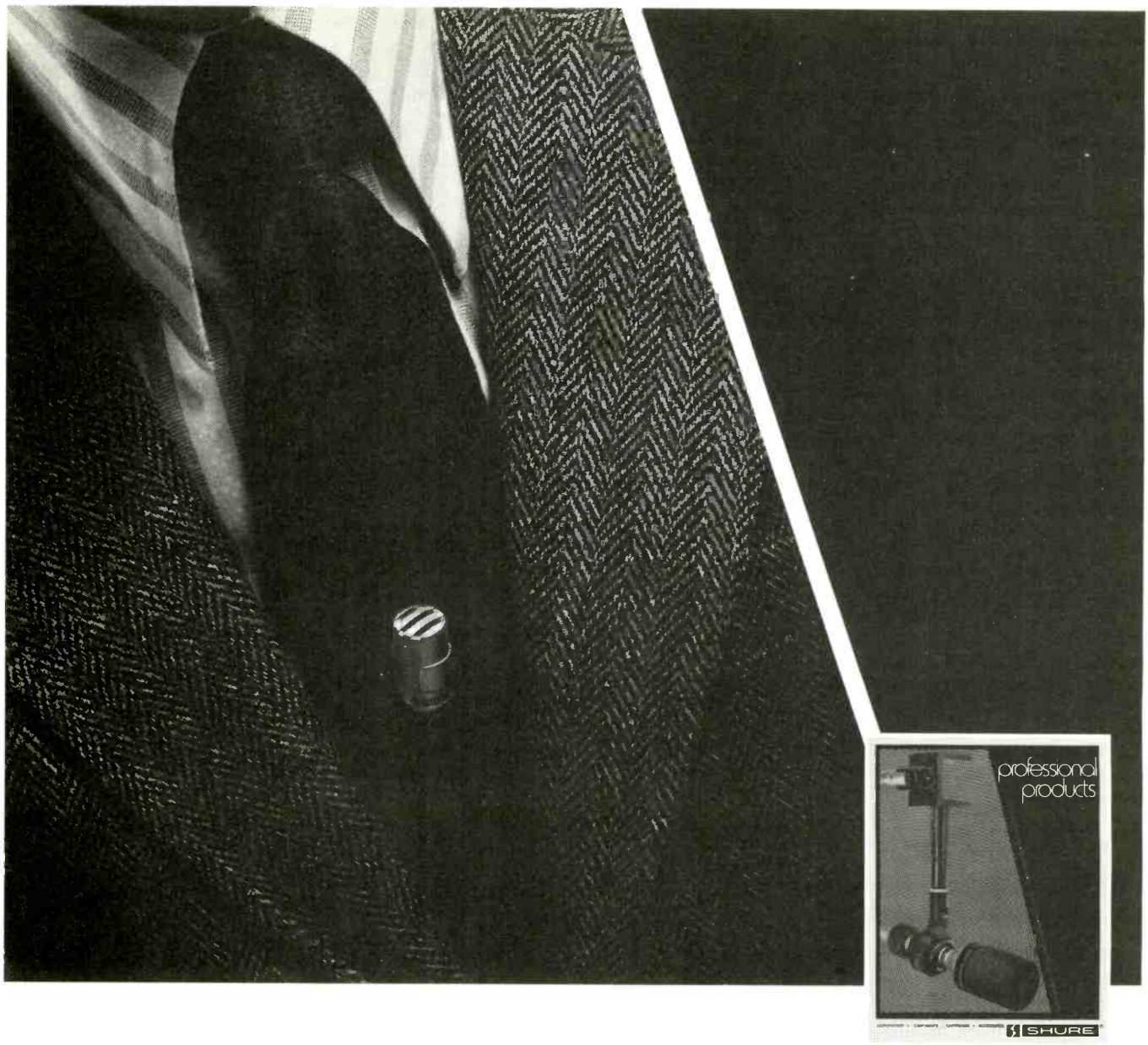
Among the systems for testing was another spectacular demo: the B&K $17,000 spectrum analyzer, which not only shows the reproduced spectrum in 1/3 octave vertical bands on a CRT screen, but also, in response to pushbuttons, measures each band to 1/10 dB, with digital readout; allows two patterns to be compared at once; allows a pattern to be stored and held; provides one-octave bands if they are wanted, etc., combining graphic display with precise measurement.

Less expensive spectrum analyzers, with definite usefulness for most applications, came from Ivie Electronics (a hand-held display unit, $487, plus a pink noise generator, very handy for set-up of sound reinforcement systems); Amber Electronics (complete multipurpose testing systems including spectrum analyzers); Shure Brothers (complete system with mic input, an octave band analyzer using LED display); and Tektronix (which emphasized multi-unit systems for carrying out the "recipes" in its "cookbook of audio testing"). Sound Technology showed their multipurpose distortion meter. Acoustilog introduced a new kind of test unit: their Reverb Timer measures the decay time of a room or hall (or of an artificial reverb device) in seven octave bands, with digital time display. The S.S. Smith Co. exhibited a new CRT display of stereo waveform showing amplitude, phase shift, etc.

Consoles, as usual, were superabundant. Automation of consoles emerged as a strong trend. Automated Processes, MCI, Spectra Sonics, Neve were among those showing consoles "ready" for automation.

Tape machines were also superabundant. Ampex introduced at the show their new ATR-700, incorporating many characteristics of their new ATR-100 system but at a much lower price—$1695. Otari had a new series of machines, the Mark II, with separate transport and electronics, DC capstan servo with speed control, choice of ½ in. or ¼ in. tape format. Other new tape machines were shown by Pioneer, Teac, Yamaha, MCI, Tandberg, Studer, Panasonic: the last showed the new RS 1500, aimed primarily at the hi-fi market but with characteristics claimed that were well beyond those of many "broadcast" machines.

Panasonic also showed a brand new kind of tape recording that is potentially of great long-range interest to broadcasters: the Elcaset, a reel-to-reel cassette considerably larger than the standard Philips audio cassette. Elcaset uses ¼ in. tape moving at 3¾ ips. The claimed performance characteristics are *far* beyond those of the smaller, standard audio cassette and also far beyond those of the standard broadcast cart system. Elcaset, which is being jointly developed by Panasonic, Sony, and JVC, is aimed, again, at the hi-fi market and will reach it early in 1977. Representatives of Panasonic said there were no plans on the part of the three firms to develop a broadcaster's version, but the design would be available on easy licensing terms to a manufacturer who *did* want to make a broadcaster's version. **BM/E**



Small wonder.

The world's smallest dynamic-element lavalier microphone is designed to be heard, not seen. Other mini-mics may be O.K. at first, but, as you know, there have been problems with sudden failures . . . sometimes on the air! The new Shure SM11 lavalier solves the problem with an unusually high quality dynamic element that delivers all the reliability of a desk microphone–yet it weighs less than a third of an ounce.

Rugged, all-around durability and a field-serviceable design keeps this new breed of lavalier on the air when you need it most. Without batteries or unnecessary wiring. And without a big price tag either.

The SM11 has everything: size, performance, durability, price. That's not just small talk!

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222 Hartrey Ave.
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In Canada:
A. C. Simmonds & Sons Limited

TECHNICORNER
Frequency Response: 50 to 15,000 Hz
Polar Pattern: Omnidirectional
Impedance: 150 ohms (200 ohms actual) for connection to microphone inputs rated at 25 to 200 ohms
Hum Pickup: Less than 35.3 dB equivalent SPL in a 1 millioersted field
Accessories Supplied: Specially designed lavalier assembly; clip-on clasp; tie-tack assembly; connector belt clip.

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MANUFACTURERS OF HIGH FIDELITY COMPONENTS, MICROPHONES, SOUND SYSTEMS AND RELATED CIRCUITRY.

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RADIO

PROGRAMMING & PRODUCTION FOR PROFIT

"All News" Is Here To Stay

New every-issue feature

Beginning this month, BM/E inaugurates a regular new feature for radio management—programming and production for profit. We'll be discussing program formats that win listeners in your market and production techniques that sell listeners—to stay tuned to your station (effective promos, IDs) and to buy the products and services advertised in your commercials.

We'll include reports on syndicated programs in your market and how they are doing, profiles of syndicators and news about syndicated features. These reports will be designed to help each station management choose the most effective programming for the station's market and audience. With the number of syndicated programs offered to radio stations growing by leaps and bounds, we believe that many radio station managements will welcome evaluations, reports, guidelines, aimed to help in sorting the programs out.

The ALL-News ideas, as 1977 begins, is stronger than ever in the radio broadcast industry, even though the National Broadcasting Company has announced the closing of its News and Information Services (NIS) in May of this year. NIS is being shuttered essentially because NBC did not get the 200 subscribers they needed to continue: the total at year end was around 65.

But the influence of the NIS story has been far greater than that number might suggest. In fact, the manager of one NIS subscriber gave *BM/E his opinion that NIS had been a "success" in the ironic sense of giving the all-news idea great exposure to the industry. Supporting that view, a survey of about 20 NIS subscribers by BM/E* uncovered a heavy majority determined to stay with all news. The managers were confident that they could find attractive talk material to fill their programming; and a quick preliminary survey by *BM/E* of talk material available for radio did indicate that there is a wealth of such material on the program market.

Finding what kinds of programs from this storehouse really work for various radio markets will be a continuing enterprise of *BM/E*'s programming department, inaugurated in this issue and to appear every month. We will present directories and surveys of organizations producing such programs, "profiles" of individual producers, case histories of success or non-success with particular programs.

Already emerging are some overall rules which station managements experienced in all-news say are essential to success. The number one rule seems to be: have a very strong, fast, flexible, comprehensive local news operation. The all-news station, in other words, is not likely to make it by signing up for a batch of syndicated material and just feeding it to the transmitter as it comes in.

One negative corollary is that a station on a *very* small budget, with not enough resources for a comprehensive news operation, is probably better off away from all-news. The imperatives vary from station to station and market to market. The manager has to scan his competition carefully, count the cost of a big local news operation (which might involve only two or three people in a small community), plus an array of syndication subscriptions, as against the cost of music programming, produced by his staff or bought from a syndicator.

An important consideration is that, in many small communities, there will not be enough important "spot" news to make heavy local coverage a strong program backbone. We can frankly admit that radio news is, in various proportions, partly important information, partly entertainment. The volume of "programmable" news in a small community may be too small to power a successful news operation.

Against this, of course, are the high value and success of nearly straight "information" of some specialized kinds in small communities, particularly the farm-news stations that flourish in a number of agricultural areas. And local sports are very strong for many stations.

In medium-sized to big cities, though, expanded local news, with syndicated national and world coverage added, can be a big winner. As one example of many, consider WINZ, in Miami, a NIS subscriber, where manager Dick Casper has decided to stay all-news. He told *BM/E* that losing NIS will not have a substantial effect because the station had been moving toward self-sufficiency in any case. He is fielding one of the largest news crews in the country, with a fleet of mobile units, connected to the station by microwave. WINZ is 24-hours all news; the facilities include a plane for instant traffic reports, one of the station's most popular services during morning and afternoon drive times. Casper said he is talking to the networks about national and international news and other syndicated material, has signed up with UPI audio for more coverage. WINZ has been in the top of the local ratings for some time and the management is happy with the programming plans.

Somewhat similar are the plans of manager Michael Corbett of WPOM in Riviera Beach, Florida. His news operation is necessarily a smaller one than that of WINZ, with a much smaller community to cover, but he also has expanded local coverage greatly and considers it an essential to his continuation of all-news. He uses 14 minutes of local news every hour during drive times, 6 minutes every hour at other times. He is looking at such additional sources as AP Radio and another network to help fill the programming time.

Manager Winn Hott of WRBC in Jackson, Mississippi, another NIS subscriber staying with all-news, draws in some more elements of the picture. His station has a very big following for its many live sports programs—he says he put on about 230 live sports shows in 1976. The station covers most of the professional and college sports events of large interest in the Jackson and New Orleans area. Games from further away come by the Mutual or CBS net. Hott also will build up use of such sources as the Wall Street Journal teletype service (available on a "barter" basis), material from such "feature syndicators" as O'Connor Creative Services (a long

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RADIO PROGRAMMING

series of commentaries by Ronald Reagan, for example), and a series on diet from Cinema Sound.

The last items emphasize that "all-news" will, in many cases, include material that is not strictly news: documentary studies, political commentary, financial, health, educational information, etc., over an extremely wide range. Some of this is related to the news but a lot of it is simply talk material of highly variable quality and interest. The volume of such material offered to radio stations is immense and station managers running all-news operations will have to scan it for the nuggets of profitable material. As already noted in this story, *BM/E* hopes to aid in the process with summaries, case histories, evaluations.

Here are brief notes on a few more of the NIS subscribers who will stay with all-news (generally meaning "all-talk"):

WCSH, Portland, Maine — Manager Herb Crosby says he will work with one or more of the networks, and with UP or AP's radio feed, for broad news coverage. His local news is well set up for the coverage he believes he needs. He is studying sources of talk material, to be ready to fill the NIS slots in May.

WNNS, Louisville — Manager Glenn Bastin is also actively investigating sources of talk material, for his continuation of all-talk programming. He applauds the *BM/E* plan to gather information on program sources for its readers.

WERE, Cleveland — Manager Paul Neuhoff also emphasizes the essentiality of being strongly oriented locally. He is continuing the automation of the station's all-talk format, as described in detail in *BM/E*, August, 1975, and strongly recommends similar operation for other all-talk stations. The format includes not only fast spot news from the city but a wide variety of community studies, interviews, specials. For national and international news, Neuhoff is using national network services.

WSOC, Charlotte, NC — Lee Morris, manager of this Cox station, says his decision to stay with all-news was strongly encouraged by the station's latest Arbitron, which showed a doubling of the audience as a result of the adoption of the news format. He is investigating the AP and UP radio feeds, the network news services, and a wide sweep of syndicated talk material. He has no doubt that he will find a mix that works for the station.

WRR, Dallas — Manager Bill Micholson will use AP or UP audio feeds plus a network affiliation for

broad-based news. He, too, is looking over the sources of syndicated material, has total faith in an all-news (or all-talk) format for the station's future.

Only one station of those called by *BM/E* reported that the folding of NIS will push the station off the all-news format. Manager Frank Siebold of WITT-FM, in Tuscola, Illinois, said his small-market operation would not support an expanded news program of his own. News will be locally oriented, about 15% of air time going to local sports, about 10% to farm information and news. He intends to institute an "easy listening" format, and is leaning to Bonneville's new "Soft Rock." (See Program Marketplace)

News sources—a partial listing

The announced folding of NIS and the steadfast loyalty of so many stations to the all-news idea, have stimulated many sources of syndicated news to expand, rearrange, diversify their services. The listing that follows is very preliminary since information was not available at press time on all substantial syndicated news sources. The listing will be expanded in future issues.

American Broadcasting Company. A full array of news feeds, throughout the program day. The network is reported to be considering a number of expansions of news coverage (possibly TV star Barbara Walters on radio, for example).

Associated Broadcast News Service, 854 National Press Bldg., Wash., D.C. Acts as Washington news bureau for local stations in many communities; follows stories of direct interest to the local, makes audio feed as required. Also planning regular audio feeds on capital news for stations everywhere.

Associated Press Radio, 1825 K St., NW, Wash. 202-833-5300. A very comprehensive array of audio news feeds throughout the programming day. Should be investigated by every station looking for out-of-town news by syndication. Features, specials, documentaries, etc.

Black Audio Network, 166 Madison Ave., NY, NY, 212-686-6850. Calls itself a "minority news service" with twice daily 5-minute feed covering news of all minorities—Blacks, Hispanics, Indians, etc. Also news features and actualities on topics of interest to minorities, 25 to 30 seconds each.

Capitol Broadcast News, 1337 22nd St., NW, Washington, 202-785-2889. Two to five feeds a week on Washington news of special interest to subscribing stations. Report given station identity. Also, starting in 1977, a daily general feed, 3 minutes to 25

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RCA

ANTENNA AND TRANSMITTER USER REPORT

WHN-AM, NEW YORK CITY, ADDS 50 kW AMPLIPHASE TRANSMITTER

"WHN-AM delivers great sound around the clock," reports Bob Walton, Chief Engineer of this Storer station.

"Our RCA 50 kW Ampliphase transmitter comes through with a standout signal in the tough New York market," Mr. Walton says. "It's a Type BTA-50J, located at the antenna site in East Rutherford, N.J., and remote-controlled from our Manhattan studio.

"We operate the Ampliphase and an older transmitter as an Alternate-Main system, with a weekly changeover. The common point reactance presented no matching problem for the Ampliphase transmitter, nor does our directional antenna system.

"50 kW Ampliphase transmitter delivers a standout signal"

"I like the BTA-50J's wideband sound and low distortion. It doesn't use a modulation transformer or any audio transformers—which gives us a cleaner signal over a wider frequency range. And, although we operate at 100% modulation, it is good to know that the transmitter is capable of 125% modulation.

"The RCA transmitter sounds great and gives no trouble."

WBEN, BUFFALO, UPGRADES WITH REMOTE-CONTROLLED TV AND FM TRANSMITTERS

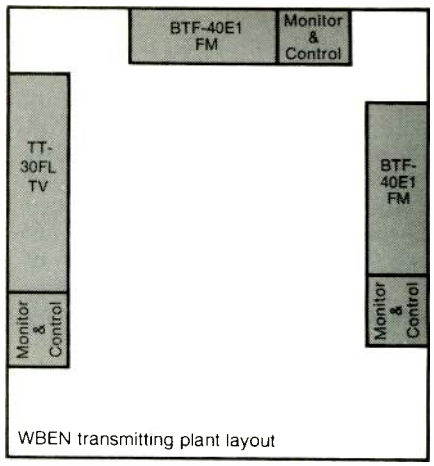
"We used RCA on our TV-FM modernization program for good reason," says Frank Maser, Director of Engineering for WBEN, Inc.

"When you're investing nearly a million dollars in new plant facilities, more than equipment is involved. Technical expertise in system design and installation is important —and RCA was able to provide this valuable support.

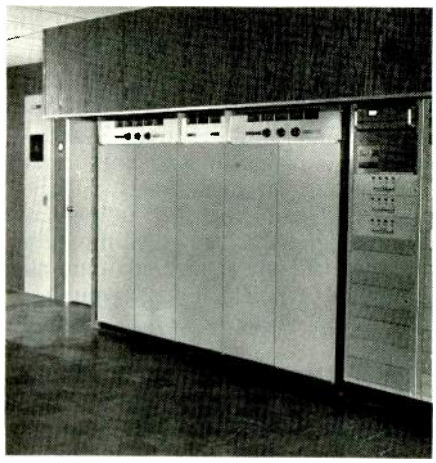
"The automated transmitters for FM and TV completed our initial master updating program. Both systems are remote-controlled from the studio, with full redundancy in circuitry, STL, power, and transmitter functions.

"Technical expertise in system design...important"

"For TV, we installed a TT-30FL, 30 kW transmitting system with OPTO-Switcher and bi-level switching capability. This arrangement gives us full flexibility to operate in parallel, or one side only, maintaining optimum VSWR without need for re-tuning.



WBEN transmitting plant layout



"Rock 102, our 24-hour-a-day automated FM stereo station, operates twin BTF-40E1 40 kW transmitters as Alternate-Main systems. With this configuration and our custom logic systems, we're well protected against transmitter outages. The transmitters are fully automated, including automatic power level control. Our FM plant also includes a new BFG-8 circularly polarized antenna with de-icers.

"With the new transmitting systems behind us, we're moving on into the next phase of our master plan for improving technical operations."

"...transmitters are fully automated, including automatic power level control"

RCA

RADIO PROGRAMMING

minutes, in-depth stories looking into the how and why of news; developed by 7 reporters in Washington, 14 around the country. A third service will be a daily commentary series, 90 seconds each, with nationally known commentators and columnists, on social and political topics.

CBS News, 51 W. 52nd St., NY, NY, 212-975-4321. Comprehensive array of news feeds throughout program day. Many specials, weekend series on particular topics, etc., etc.

Fairchild Broadcast News, Room 371, UN Bldg., NY, NY 10017, 212-593-3294. Daily audio feed, UN actualities, interviews reports; also a weekly 15-minute tape, world political news in depth. Also covers all political and cultural events in NY area as desired by clients.

Mutual Broadcasting System, 60 E. 42nd St., NY, NY, 212-277-7575. Has complete array of news feeds throughout program day. Features, specials, documentaries, very strong on major sports, events.

National Black Network, 1350 Ave. of Americas, NY, NY, 212-586-0610. Feeds 19 newscasts a day, on top of each hour, 5 minutes each, oriented toward Black interests. Also: weekly a 30-minute press conference, interview on important political or social topic. Daily: a 2½ minute commentary by Roy Wood. Also: "Story Hour," cultural and entertainment, 1 hour, once a week, with Ossie Davis and Ruby Dee—poetry, interviews with cultural and entertainment leaders, story readings, salutes to famous characters.

National Broadcasting Co., 30 Rockefeller Plaza, NY 10020, 212-CI7-8300. Comprehensive news feeds throughout program day (regular network news will be continued although NIS is dropped); many specials, documentaries, etc.

Reuters, 1700 Broadway, NY, NY 212-582-4030. World-wide newsgatherer, offices in every city, every country, long established for news from whole world. Audio feeds throughout program day; subscriber's choice of foreign or domestic news or combination.

UPI Audio Network, 220 E. 42nd St., NY, NY 212-682-0400. Foreign and domestic news, audio feeds throughout program day. Features, specials, documentaries.

Farm Radio News, P.O. Box 6053, Leewood, Kansas, 913-642-7373. In depth coverage of future markets, grain and livestock; major terminal livestock markets; other news affecting farm interests including legislative news from Washington; weather, crop reports, etc; presently by Teletype, bulletins, 6AM to 7PM.

BM/E's PROGRAM MARKETPLACE

Syndicators For Radio

With this issue, BM/E *begins a series of "profiles" of radio program syndicators. We will describe one or more syndicators in each issue, telling briefly how each operates, the programs offered, the qualities each seeks to get into the material. We will welcome comments from readers on what they would like to see.*

Bonneville Broadcast Consultants

274 County Road, Tenafly, NJ. Tel: 201-567-8800

THIS IS A DIVISION of Bonneville International Corporation, Salt Lake City. The parent corporation owns and operates six broadcast stations: WRFM, NY; KBIG, Los Angeles; WCLR, Chicago, KSEA, Seattle; KMBR, Kansas City; and KSL, Salt Lake City.

Bonneville Broadcast Consultants was established in 1971 to market tapes of the highly successful programming of WRFM, in New York. This was one of the earliest of the "beautiful music" formats and Bonneville became known as a pioneer in this area.

The WRFM programs were mainly the creation of Marlin Taylor, then program director there. Mr. Taylor came over to be president of Bonneville Broadcast Consultants. He is currently still directly in charge of the division's "Beautiful Music" format, with assistance of other creative personnel (see below), and has general creative direction of all the program services.

Loring Fisher, formerly of Gates Radio, also came to Bonneville Broadcast Consultants in 1971. He is executive vice president, and works closely with Marlin Taylor and with station clients in the development of "total programming" concepts for each client, as described in detail below. He also has general direction of production services, including master-

continued on page 30

ing, duplication, etc.

Bonneville Broadcast Consultants has added three additional formats (see following listing). The subscriber list has grown steadily, reaching just over 100 on January 1st, up from about 60 a year earlier. Bonneville was thus one of the first, and is currently one of the three or four largest (in terms of subscribers) of the syndicators of radio programs.

Clients range from smallest to largest stations

Fees Bonneville charges are based on the services supplied and on the station's market size. A minimum is around $5000 a year and Loring Fisher points out that there are in fact, several stations at that general level. Although a station would get a minimum of services at that price, the music supplied is more than sufficient for total programming.

Bonneville also programs stations in a number of the largest markets, and many at all levels between. Fees range up to about $50,000 a year.

Bonneville, as a successful syndicator, has a full complement of stations that are doing especially well with its programming. Two of the owned stations, (using Bonneville programming) WRFM in NY and KBIG in Los Angeles, have the largest listenership of any FM stations in the country, and KBIG is actually No 1, of all AM and FM, in its very large market. A few of the other stations at or near the top in their respective markets: WMEF, Fort Wayne; WEZO, Rochester; WAIA, Miami; WRRN, Warren, PA; WKTZ, Jacksonville. There are many others.

The programs—and the services

All Bonneville programs are distributed on 10½" reels, with recording at 7½ ips. This essentially "hi fi" format is considered necessary to the technical quality the company wants.

The individual formats are detailed in the next section. But the music is only a part of what Bonneville does. In an interview for BM/E, Loring Fisher, a most effective spokesman for Bonneville, emphasizes their "total programming" objective, in which every aspect of a station's operation is considered. The service starts with a market analysis, and this leads to a recommendation as to format, sequencing, "flow," (see below on this special quality). The analysis may lead to a decision *not* to recommend a Bonneville format, if the chance for success seems extremely small.

Once a station management decides on Bonneville, Fisher and other personnel work closely with the station in

continued on page 32

Whether you're the producer, director, cameraman or video man, field remote isn't getting any easier. Neither is big studio work.

Assignments are tougher. Production standards, higher. And schedules, shorter than ever.

As you can see, we've been listening. Our new PV25x20B is proof. A single, rugged 22Kg unit that packs a lot of performance into a compact 546mm-long package.

Consider: A master-lens range of 20-500mm, with built-in 1½ and 2x servo-operated extenders, to give you complete flexibility with excellent relative apertures (1.8 @ 20-297 mm; 2.7 @ 30-445; 3.6 @ 40-594 and 6.0 @ 1000). A short M.O.D. of 2.5m. Zero barrel distortion and vanishingly low pincushion. Plus manual/plug-in servo operation. And much, much more.

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De Boelelaan 8, Amsterdam, Netherlands

*PV25x20B is 20-1000mm in 25mm format.
P25x27B is 27-1350mm in 30mm format.

Circle 126 on Reader Service Card

setting the programming up, training station personnel in the operation, working out sequencing, rotation, etc.

Bonneville maintains a constant check, too, on station performance, after launching the station with the Bonneville program. This is done by visits to the market, by commercial air checks, or, in the case of a number of stations, by using "telephone couplers" that allow the ongoing program to be dialed up from anywhere in the US. For any problems that emerge from the air checks, Bonneville immediately offers the station assistance.

Bonneville can also supply promotional ideas; critique a station's technical facilities, with recommendations; make continuing market studies for station development.

The formats

1. Beautiful Music/Easy Listening. This is the original format, and Bonneville (along with one other syndicator) was responsible for creating the idea and popularizing it widely in the industry. It is still being created by Marlin Taylor, generally credited with being one of the originators.

Most station managements by this time have had some contact at least, with "beautiful music." Bonneville says their format could be called "Adult MOR." It emphasizes instrumental and group numbers, with some vocals for variety. It is more of a "background" sound than the other formats. It is designed to appeal to an adult audience.

The service is unannounced, and can be used by automated or non-automated stations. It comes with complete music sheet for each tape, daily scheduling instructions, suggestions for day-part and week-by-week rotation, and other guidance for use.

The original basic library is updated monthly; there are specials for Christmas and other occasions. Assisting Mr. Taylor in creating the format are Frank Murphy, director of creative services, and other staff members.

2. Traditional MOR. This is a "foreground" sound emphasizing vocals, with a blending of familiar past hits and current and recent hits. Typical artists are Andy Williams, Frank Sinatra, Seals and Crofts, the Carpenters, etc. It is unannounced, for automated and non-automated stations. The basic library is designed for full program coverage, and is updated regularly with fresh tapes. The format is created by Mr. Taylor, Mr. Murphy, and other staff members.

3. Contemporary MOR. This is another "foreground" sound, emphasizing vocals of the highest current popularity. It is primarily the creation of Mr. Murphy. Like the others, it is supplied unannounced, and is for automated and non-automated stations. The original basic library is constantly updated with new replacements.

4. Soft Rock. This is the newest Bonneville format, reaching its first regular on-air use as this issue of BM/E is distributed. (WYNY New York, formerly WNBC-FM, was scheduled to go on the air with it on January 1st; at least four other stations were set to follow within a few weeks).

The "Soft Rock," says Bonneville, is just that: it is current top rock hits, mixed with older "gold," but without any "hardness," extremes or obtrusiveness. It is being created by Bob Henabery as a consultant to Bonneville—he was widely known for creating the successful rock programming of WABC, NY, and the ABC owned stations, and is now an independent consultant. Working with him is Dick Drury of the Bonneville staff. Drury came to Bonneville in July 1976, with about 25 years experience as a DJ, programming consultant and program director of a dozen or so radio stations.

Drury sees the soft rock as the "MOR" of the upcoming generation, the post-war babies, now teen-agers and young adults, who were raised on the Beatles and the rock revolution of the late 50's and early 60's. The format, says Bonneville, is aimed for the listener's "comfort zone:" it is pleasing, easy, non-grabby. A few typical artists are: John Denver; James Taylor; Simon and Garfunkel; Carly Simon; Olivia Newton-John; Crosby, Stills and Nash; The Eagles; Bread; Stevie Wonder. The basic library will be constantly updated with fresh tapes.

Flow makes the difference

Bonneville puts forward the idea of "matched flow" as the quality of their programming which is most characteristic of it, and moreover is most essential to the success of the radio station. The sequence of numbers establishes the character, the feel, the "message" the listener gets, and to which he responds or doesn't respond.

Bonneville says their matched flow produces a consistency of sound that is vital to establish and maintain the image of the station. But within that consistency they strive for variety, unpredictability, as a spur to listener interest, to draw the listener storngly in, tie him to the station.

Commercials should flow too

A station's effect on the listener, says Loring Fisher, depends on everything put on the air, including commercials as well as music. Thus

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PROGRAM MARKETPLACE

Bonneville works closely with station personnel in evaluating commercials as consistent or non-consistent with the format. Recommendations are frequently made that certain commercials be re-cast, or rejected entirely on the ground that the damage to listener acceptance is far more costly than the price of the commercial. Compatibile, "good-sounding" commercials pull listeners just as good programming does.

Dick Drury put it another way: a station should run hit music, hit commercials, even "hit" talk, that is, talk programs should be designed for real interest, rather than just dumped on the air to fill a time slot. All Bonneville's top personnel are active in working with station personnel on the "total programming" concept, helping to find ways to make everything the station does work *for* the program concept, rather than against it.

Getting salesmen on board

A vital part of the total effort often overlooked, according to Bonneville, is getting the sales people to understand the format completely and to be enthusiastic about it. Thus Bonneville sometimes recommends to management, and institutes, training sessions for the sales staff, and finds this quite often a big element in station success. If a station gets a big jump in listeners but not in sales, says Loring Fisher, the sales staff is not doing its job.

Top technical quality—a major aim

A final essential of the operation, according to Bonneville, is the highest possible technical quality of the tapes distributed. The music must be totally free of pops, clicks and scratches, and must have technical quality close to perfection, better than what the station ordinarily achieves with its own origination.

Bonneville makes it master tapes in a series of studios at Tenafly headquarters with professional-grade audio equipment. Copies of records used for listening and choice are never used for making the tapes: fresh, unplayed copies are used for the "dubbing." Every tape is reviewed from end to end and the slightest technical faults corrected.

To keep the number of "generations" between disc and playing tape to a minimum, Bonneville duplicates from the original master tape: there is no intermediate "dubbing master" to add to quality loss.

A plant capable of handling up to 3 million feet of tape a day carries out the duplication to strict Bonneville specifications **BM/E**

Circle 200 on Reader Service Card →

"TRI, 2½ years after shipping it's first product, looks at $4,000,000 in sales this year. Why not? we've earned our place."

Robert M. Cezar
President, Cezar Industries Limited
Television Research International, Inc.

Once upon a time, we were sitting around doodling with logos and trying to come up with a name for a corporation. Two and one-half years later the name Television Research International, Inc. and its logo are well known and respected around the world.

Now the last thing I want to do is make it sound as though success in the professional television manufacturing business is easy; by contrast, it can be a "bear." But, there is a formula we've adhered to, and it's working for us.

Of the products we sell, we've created the marketplace. We found a niche! We're not trying to take on the big guys, primarily because they've been building their products so long, the bugs are out, and their profits are high, but, moreover, we don't necessarily believe that what they're supplying the end-user with is all that right in the first place. And furthermore, RCA, Ampex, and IVC sell our products anyway.

Someone once said to me, "Cezar, most people look at things ten times, then they nail it; you nail things ten times, look at it, and if it doesn't fit, you kick it." Well, I think that's somewhat of an over simplification of a basic truism. But all too often, people plan things so well that by the time they get around to the implementation stage, someone else has already done it.

Notwithstanding the fact that good planning is required in any kind of business venture, I also understand that one of the other key elements is timing.

A solid five year game plan in the television industry is possible, if you are willing to accept the fact that your corporation must lead, not be led.

I am proud of TRI. I am especially proud of the people who have worked so hard with me to make TRI the dynamic corporation that it is.

We started with four people; we now are 88. We started with a 1,200 square foot office in Mountain View, California; we now occupy a modern 32,000 square foot building in Palo Alto. We started with one product; we now have 22. We've also shipped more editing equipment than any other company in the world.

We are now entering Phase II of our growth.

What is Phase II? Simply put, the EA-6, 8080 microprocessor system, offers sophistication yet simplicity of operation in editing, never before offered. How about vertical as well as horizontal expansion of controlled devices in an editing session. As an example, a video tape recorder plus two audio decks, considered as the "A" machine. The EA-6 expansion capability permits handling of up to 84 transports. I admit that's kind of an overkill... but what the hell.

The interfaced VTR or ATR is equipped with smart interfaces so that when a transport is plugged into a port of the EA-6, a weighted code tells the CPU all of the pertinent data about that device. Example, record delays, pre-roll requirements, etc., etc.

Anyway, grab a spec sheet and look it over. The EA-6 will be followed by the EA-E. I'd like to tell you about this, but you'll just have to wait until NAB.

Now there is another very important part of Phase II which I haven't touched upon. That's people! Suffice to say, our family must grow as fast as our family of products. For example, ten openings in the Sales/Service Department alone will have to be filled by NAB.

If the challenge of changing professional television is your thing, and a close-knit group environment is your pleasure, maybe we should talk. Call me directly at 415/969-6600

Cezar Industries Limited
1003 Elwell Court, Suite A
Palo Alto, California 94303

Thank you.

Ø II ...
(PHASE TWO)

...we've gone far beyond the needs of ENG.

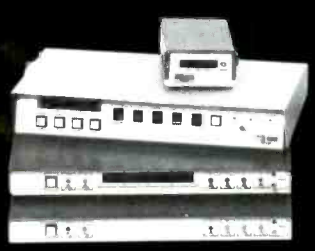
PPC-1

FF-1
UBG-1

BAA
SUN III
STEP-1
STEP-P

VPG-1
DDT-1

EA-6



SUN II
EA-4
SUN IV
SUN IMP

TSC-1
SUN I
SUN V

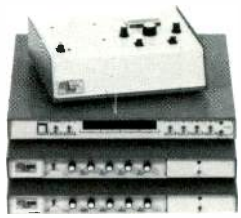
EA-3
SUN VI

EA-5

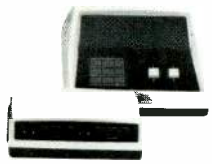
Ø II...we've gone far beyond the needs of ENG.
(PHASE TWO)

PPC-1

FF-1
UBG-1

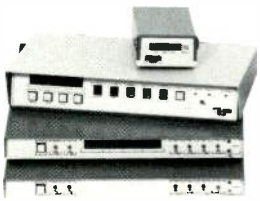


BAA
SUN III
STEP-1
STEP-P



DDT-1

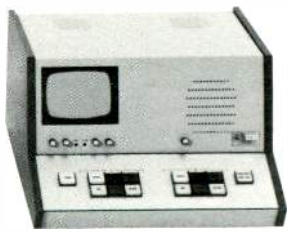
VPG-1



SUN II
EA-4
SUN IV
SUN IMP

TSC-1
SUN I
SUN V

EA-3
SUN VI



EA-5

Ø III: TRICHROMA....furthering our committment to the development of video products for the professional
(PhaseThree)

Ever increasing sophistication in production editing processes has placed enormous burdens on video signal recording and processing systems. The NTSC signal structure, which was designed for the sole purpose of *transmitting* a compatable composite color image through the air, limits the quality of recorded signals. The most keenly felt limitation is perhaps that of multi-generation signal-to-noise degradation.

TRI is committed to maximizing the end video product. This commitment has encouraged our engineers to explore new technologies far beyond the limiting capabilities of NTSC color standards. TRI's latest response to this commitment is TRICHROMA. With TRICHROMA only the *real* video signals are recorded. These real signals, luminance and color difference, are recorded on separate carriers, each of which is optimized for the task it is to perform. In the color channel, the unreal signals, SYNC, BURST, and NTSC subcarrier, are left behind prior to recording, so they do not waste valuable spectrum space on tape. On playback, the signal is re-constituted in NTSC form for conventional distribution and processing. However, in editing and dubbing, only the real signals are transferred.

Further improvements in treatment of NTSC signals are beyond the capabilities of realistically priced equipment. If the full capabilities of present recording hardware are to be realized, it must be accepted that NTSC, which was developed prior to video recording, is not the ideal storage method. As a better alternative, TRICHROMA allows substantial improvement in signal-to-noise over your present first generation tapes. Losses per generation are also significantly reduced and, because TRICHROMA was designed to be affordable, it can reside in your VTR Side-By-Side with the standard signal system.

For hands-on proof of TRICHROMA performance, call us or the best video distributor in your area. Chances are he's our distributor.

Television Research International, Inc.
1003 Elwell Court
Palo Alto, California 94303
415/961-7475

"Manufacturers and Distributors of Creative Freedom."

TRI

ENG Sweeps The Newsroom; Invades New Areas Of Teleproduction

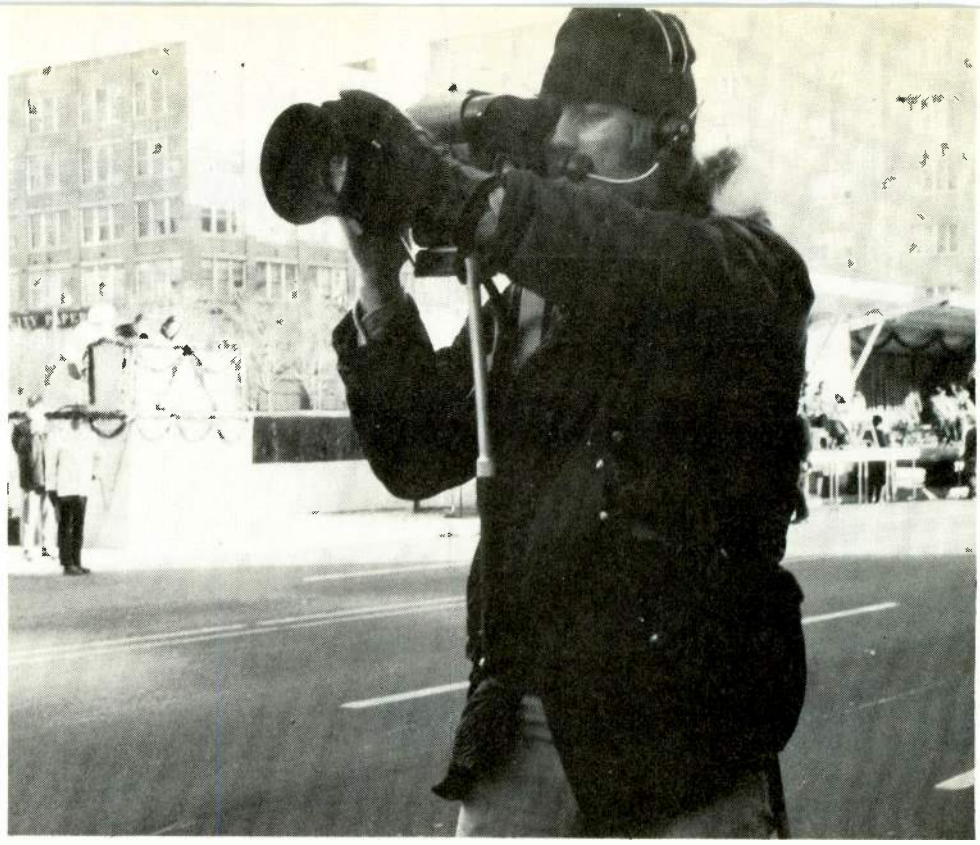
With the news operations of most stations irrevocably changed, electronic field production equipment has begun to take on new territory and former strongholds of other media.

IN A RELATIVELY SHORT TIME, we have come to accept the "live" mini cam report, the extended news day and the smaller field crew. In this report, *BM/E* takes a look at the depth and breadth of the changes wrought by ENG in the newsroom and reports on the new areas opened by electronic equipment in commercial production and the production of mini-documentaries at stations around the country. As the industry gains confidence in electronic field production, the impetus for further applications grows.

Stations have begun to produce revenue as well as news with the new equipment and, with the achieved economies of time and money, have revived and expanded the art of documentary production, and have taken advantage of the quick turn-around time for tape to assault the retail commercial market. Now, in a stage of experimentation, some producers are beginning to wonder if the advantages of electronic field production cannot be turned to drama production. The technology and techniques are not quite here but the current equipment and the strength of demand strongly imply that electronic field production is moving in that direction.

What follows is a look at what is happening in four areas:

News—ENG Extends the Reporter's Day
Commercials—Mini Cam and ¾ in. Tape Score in Producing Commercials
Documentaries—ENG Equipment Revives Documentary Production
Drama—Drama Shows Next To Be Done By ENG-type Equipment?



Cameraman follows one parade as ENG leads its own.
Photo courtesy WCPO-TV.

ENG Extends The Reporter's Day

The EJ/ENG bandwagon continues to roll as station after station continues to climb aboard. At a recent meeting of 80 news directors of NBC affiliate stations, 75% were found to be into electronic journalism. Jim Kitchell, general manager of NBC News Service, says this is double the 1975 figure. A primary reason for taping news rather than filming, is the fast turn around time. A reporter's day can be extended right up to the five o'clock news—and into it if microwave is available.

Many of these stations are going 100% into ENG. But no longer is it always an all or nothing commitment and some of today's news directors would just as soon not have all of their eggs in one basket, i.e. ENG only or film only. At some stations, it's four ENG crews for one film crew but at others, it's the other way around—the latter preferring to get their feet wet with the mini gear before plunging in. But the trend is definitely more and more ENG. At some stations, such as the Meredith group, film per se is not ruled out, but film processors are. Thus, whatever film is used will have to be processed elsewhere.

One-hundred percent ENG or even more ENG crews than film crews doesn't necessarily mean live coverage. While most stations want to have some microwave capability, the majority have more tape crews out in the field than microwave crews. Small and medium market stations, such as WKRG-TV, Mobile, Alabama, find tape alone rewarding.

What can we say has been learned after some 30 months of intensive ENG activity? Is a live news capability a genuine boon? Are there real cost savings? Has picture quality suffered? Is equipment reliable? Do new union problems offset any gains? If ENG is hailed as a newsman's tool, have news directors learned how to use the tool or has the whole thing become a promotional gimmick?

Brief answers to these specific questions are as follows: "Yes" to the first one, although rarely does a station interrupt a program to deliver instant news. Cost saving may not be significant but that is not the main reason to go into ENG in the first place—immediacy is. Picture quality has suffered—too many blue clips—but it doesn't necessarily have to be that way. Equipment is surprisingly reliable although there are maintenance costs to be experienced. Union problems have tended to be resolvable although not all studio cameramen turn out to be good news cameramen. (Lack of familiarity with electronic cameras hurts and cameras that are easy to operate are best.) Finally, ENG is a new tool but stations are using it wisely and profitably—although too often there's nothing more going into the lens than a reporter talking into a microphone. One would opt to see more of what the reporter saw and a little less of the reporter himself.

All in all, ENG is having a profound effect. It is very greatly impacting specific markets, says Mitch Farris, who is the director of Frank Magid and Associates, TV news' consulting arm. TV stations that learn how to use ENG effectively have narrowed the advantage radio stations have historically had, Farris says. ENG can impress viewers because ENG generated stories show how TV can function to serve them. Stations that use the new tool superficially, however, gain little.

Farris cautions that ENG is only one facet of about a dozen that can bear on how well a station rates with viewers. A film-only station can still stay on top in a ratings contest even when its competition goes to ENG if it does other things smartly. The important thing, according to Farris, is to give the viewer the impression that the station is ultimately concerned about its own community and the people in that community. Viewers look most favorably on the station that informs them about what is

happening locally. They watch that station which helps them run their daily lives. A station can do this by reporting faithfully what the city council does, on the one hand, and providing helpful consumer information on the other.

ENG can get into places such as city council meetings and school board meetings where film crews with their glaring lights were unwelcome, NBC's Kitchell, points out, because of the keener light sensitivity of quality ENG cameras.

New terms being used

There are some different terms being used today to describe the benefits of ENG other than immediacy, etc. One is improved quality—we're speaking about the quality of the news show as a whole and not necessarily picture quality—although at some stations ENG picture quality is better than film (see box on innovations at KCMO-TV). Why does ENG lead to higher quality? It's primarily because producers can see what is available to them earlier. It's not the live cam that's important but rather the insta-cam feature. As Jay Feldman, news director, WBBM-TV, Chicago, (one of the recent CBS O&O's to go nearly all ENG), puts it, "our producers are happier because they can see a cut as soon as it's taped. With more time, the quality of our stories is

At KABC-TV Faster Editing Yields More Creative Results

The rapid acceptance of ENG since the days of the SLA shootout broadcast live in Los Angeles has not been without problems. One of them was using the Sony RM-400 editor originally designed for industrial editing purposes.

At KABC-TV, Los Angeles (an ABC O&O), chief engineer Bill Dryer found editing to be a real bottleneck. "We were, in effect, back to editing single system sound," Dryer states, "and it was a slow and sometimes clumsy procedure. Few reporters and new writers liked it. It tied them up longer than they wanted, the ability to A and B roll was gone, and they never really felt in control."

The answer at KABC-TV was to install the Convergence ECS-1 Editing Control System. There is no totally accurate way of comparing edit times, Dryer points out, since there have to be qualitative as well as quantitative measures. However, in one early test it took an experienced editor using Sony industrial-type editing equipment almost three hours to do approximately the same work as another person did in 45 minutes using the Convergence joystick editor.

Dryer says that the more than 3:1 time advantage is representative. Another measure is that video tape editing time under early systems was virtually the same as news film. This is of considerable importance because as ENG takes hold, there are more stories to edit closer to air-time. Typically, a KABC-TV ENG crew covers three to four stories every afternoon. Unless one or more is fast-breaking news, these stories are brought in (usually by courier) for editing, while the van stays out to handle "live" late-breaking news.

Dryer adds that there is no comparing the precision to industrial videotape editors. "With our previous equipment we had seven to ten frames of error with each cut. There was no way to really edit a story without losing either some sound or visuals." Based upon his experience with newer systems, Dryer predicts that time-code editing will virtually disappear from broadcast news and production studios during the next five years.

Bill Dryer, chief engineer at KABC-TV, predicts time code editing will virtually disappear in the next five years.

KABC-TV editor, Susan Cope, can keep track of accumulated program time easily with the Convergence PC-3 program computer.

At KABC-TV, two people are assigned to ENG editing full-time, and several others are cross-trained to utilize the editing system. Regular ENG editor, Susan Cope, does a lot of A and B roll work. Cope says she generally lays the sound track down first, going from the original videotape onto prerecorded black tape (the black is the equivalent of sprocket holes on film). Voice-over narrations can also be recorded later.

Then she builds the visuals. Using the ECS-1 in conjunction with the Convergence TT-4 Tape Timer and PC-3 Program Computer, Cope can count control track pulses in either forward or reverse modes, time assemble edits for accumulated program time, and automatically program bi-directional tape search in fast wind modes on the VCRs.

"If a newswriter comes in with a cassette from a fire story and says 'I've got a great cover shot about 15 minutes into the tape,' I can punch in 15:00 on the PC-3 and immediately search to that scene area and then find the exact frame by using the joystick control. The result is the elimination of all the time and hassle previously required in searching for independent time codes. We now have the same overall perspective you get with film on a Moviola," she comments.

Late-breaking stories at KABC-TV are often shown live the first time around, however tape is usually recorded off the air for editing and time-base correction for the next regularly scheduled news program. Some segments of the 'A.M. America Show' have been edited with the same equipment.

better."

Increased productivity is often cited as a benefit of ENG. If a station is able to reduce the size of a news crew in the switch to ENG from 3 to 2 or 2 to 1, productivity per total manhours expended does go up. But in terms of productivity per crew, output may or may not increase.

At WBBM, Feldman does not get more stories per ENG crew compared to film crews nor does the station try to put more items into a news program even though there is more time to produce a show. He feels overall efficiency is up but that's because of the excitement felt by a crew as a result of working with a new tool.*

Reduced savings as a result of going to ENG has been claimed in the past as a benefit. Significant savings come about only if one drops film processing completely. While the trend in news operations is to go all ENG, film is still used at most stations for documentary purposes (to get the necessary quality is better). However, as we report later, stations doing local hour-long news stories are beginning to find field-portable, easy-edit electronic systems are a real boon to mini-documentaries particularly because costs are lowered.

*The size of an ENG crew at Chicago is smaller than a film crew however. A film crew includes a cameraman, a soundman, and a lighting man. The ENG crew consists of a cameraman and base operator (who handles the VTR or microwave or both).

News rooms growing in size

There is no question but that news is growing in importance to stations in terms of ratings and profitability. This has caused some stations to greatly expand their facilities. WBBM-TV, Chicago, is a case in point. WBBM recently doubled its news room operation. To get the increased room, it simply closed down one of its big studios and gave the space to the news operation. The system at WBBM is similar to that at KMOX-TV, St. Louis, the first CBS O&O to be converted to an all ENG operation.

At one end of the gigantic open room is the assignment desk. WBBM does not use the term ENC (electronic news coordinator) as does KMOX, but the assignment desk is obviously the nerve center for the operation. It is equipped with monitors, police band scanning equipment, radio mobile gear and radio telephones. On the periphery of the command seat are assistant assignment personnel who keep all communications lines open. Producers, news writers and reporters desks fill the middle of the room between the assignment desk at one end and the on-camera area at the other.

Immediately behind the assignment desk are editing rooms and behind the editing area is the microwave receiving room along with racks of gear consisting of Sony cassette recorders (BVH 200s) and TBCs (CVS 504s).

At WBBM, news stories are either microwaved into

WBBM-TV enlarged its news operation by incorporating a former studio into one large area. View here is from raised assignment control center looking straight ahead.

Schedule back of assignment center shows where ENG crews are.

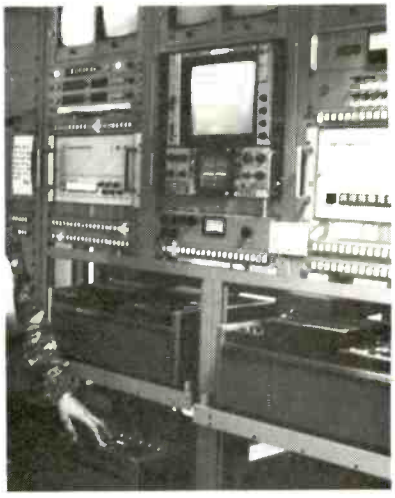
Assistants to assignment chief are co-located on assignment control center platform. This view is to the right.

Off to left are producers, reporters, editors.

WBBM-TV's vans ready to go out on assignment.

Vans include microwave equipment, audio patching equipment for studio-to-reporter communications. See text for run down of all equipment.

Director of engineering, Al Pearce, tunes in ENG story coming in via microwave. WBBM-TV has two relay stations. This room is next to news room.



Opposite the microwave receive station is the video recorder rack.

the station or tapes made in the field, run in by courier. The receiving room at the station has two sets of microwave receivers. One picks up the signal being relayed in from the Hancock building, the other is tuned to the Standard building. Between the two, signals from anywhere in the Chicago area can be received. The control panels (Plectron) select the relay point and the desirable horn (N,S,E or W) and the polarization—either horizontal or vertical and CW or CCW, depending on how best to minimize ghosting.

The setup permits recording two channels simultaneously and feeding out two signals simultaneously (the latter would be edited-tape for transfer to the videotape room for dubbing onto quad video cassettes).

The key to gathering the news is the ENG crews themselves. WBBM has four all equipped with microwave facilities. The news operation also has one film crew.

WBBM's vans are not exactly stripped down but then neither are they field studios. The barest essentials for a news operation was the objective of Al Pearce, director of engineering.

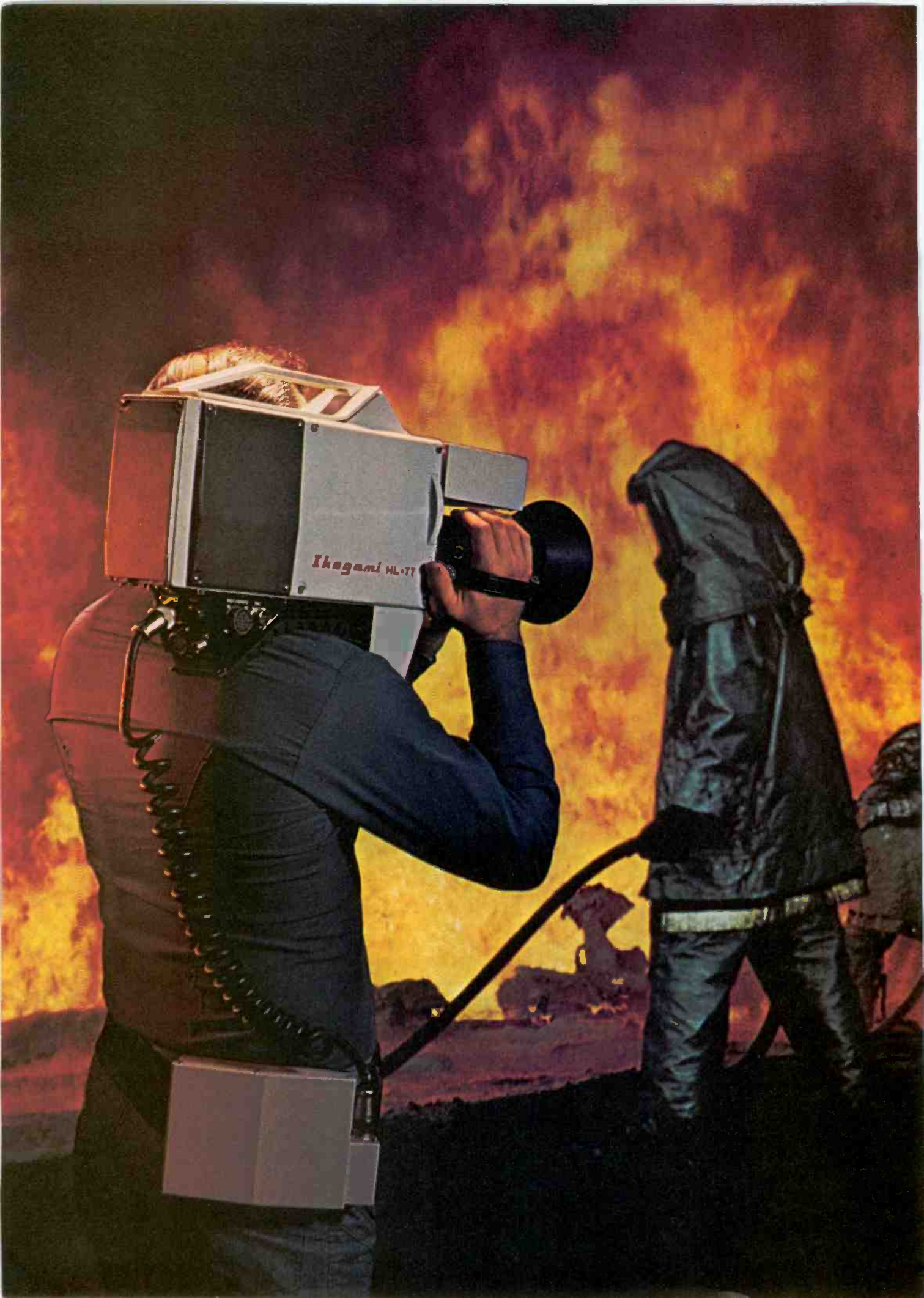
The key to a successful van operation is a good stable power supply system. This means reliance on batteries and not motor-generators. WBBM uses four large 96 Amp/hr. batteries. These are constantly charged by an oversized alternator—105 Amp/hr. capacity which normally keeps batteries charged. A pair of 500 watt inverters will put out 1 kW ac when paralleled to run the microwave gear, communications gear, etc. (the truck is wired for 4 ac outlets connected to the inverters).

The trucks (vans) are equipped with 4 foot dishes which, in conjunction with Farinon or Microwave Associates microwave gear, is adequate for links up to 35 miles distance. If the signal is blocked by a building, the truck either moves or tries bouncing off another building. In establishing a good microwave link, the base operator can talk to the studio either by radio telephone or 450 MHz remote pick-up gear.

The antenna mount is simple and has tilt and pan cranks but no elevation. Gear inside the truck includes microwave transmitter and power amplifier; two audio mixers (Shure); a home base talk back switcher which can take audio off the on-air monitor and pipe it to the cameraman and reporter (thus permitting the studio anchorman to talk to the reporter); a Tektronix 140 test generator (for camera set-up); three video DAs (feeding monitors, microwave, etc.).

A truck has one color monitor and one b&w monitor (for use when a director goes with the truck on some field production assignments—not news). A truck also carries, in separate cases, a 13GHz window microwave system, an accessory box (cables, headphone) and a portable lighting kit.

Feldman reports the use of ENG crews greatly facilitated coverage election night. In previous elections, as many as 8 remote sites would be set up and stations had

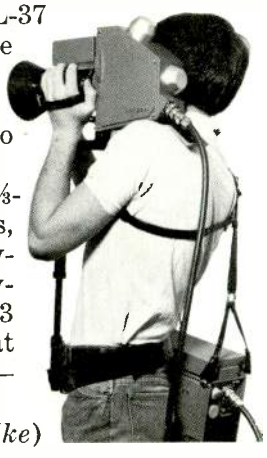

Ikegami HL-77

"The real disaster is when your ENG camera doesn't work."

Talk with a broadcast TV news cameraman and that's what he'll tell you. And that's why more TV news teams use Ikegami ENG cameras than all others combined. When you get only one chance to cover a news event, a dependable Ikegami is the one ENG camera to use.

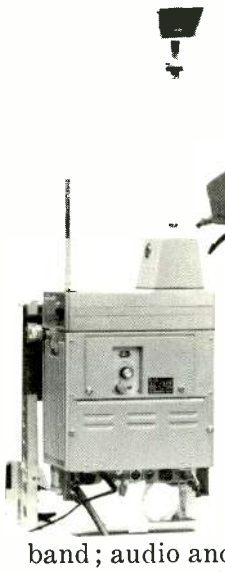
The reason: The prime features built into Ikegami ENG cameras are dependability and colorimetry. Everything else is icing on the cake. And the Ikegami combination of dependability with ruggedness, light weight, image stability, and simplified controls, is why all three networks used the Ikegami HL-33 and HL-35 ENG cameras at the 1976 Democratic and Republican Conventions. And why they were used at the 1976 Summer Olympics.

Now we have two cameras that are even better: the Ikegami HL-77 and HL-37. In the HL-77 we've done away with the 26½-lb backpack and tucked its functions inside the camera body—and still reduced the HL-77's weight (less lens, but with viewfinder) to a pound less than the HL-35 head alone. The HL-77 weighs in at 13½ lb. In the HL-37 we've split the package so the head weight (without lens) is even less, and the shoulder-sling process pack comes to 6½ lb.



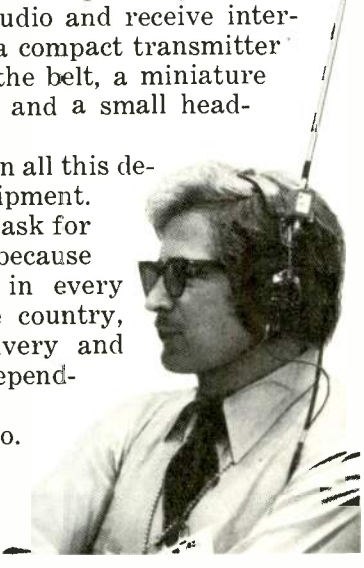
Both cameras use three ⅔-inch Plumbicon* pickup tubes, and f/1.4 prism optics. The viewfinder is 1½ inches. And everything else that made the HL-33 and HL-35 the real winners at the conventions is still there—just smaller and lighter.

Both the new HL-77 (the *Ike*) and the HL-37 (the *Mini-mate*) produce broadcast-quality coverage with good color, brightness, stability, high sensitivity even in low light, and reduced lag due to bias light. Both can feed video and audio to a local or remote video tape recorder, or via microwave transmitter receiver for remote pickup.



For microwave transmission from our HL-33 and HL-35 ENG cameras to a remote pickup point, we offer the Ikegami PF71 portable microwave relay system. This backpack unit transmits the video signal on the 13-GHz microwave band; audio and command signals on the 950-MHz uhf band. Maximum range is about 1800 feet with omni antenna, 3700 feet with 60-degree horn, two miles with a 20-degree horn.

For the sound portion of the program, the Ikegami PFM-091 wireless microphone system is used to transmit program audio and receive intercom audio. It includes a compact transmitter and receiver worn on the belt, a miniature condenser microphone, and a small headset/whip antenna.



We've got the specs on all this dependable portable equipment. Just write for them, or ask for a demonstration. And because we have distributors in every major area across the country, you can get fast delivery and service. If you want dependability, you get it from Ikegami. More people do.

Ikegami

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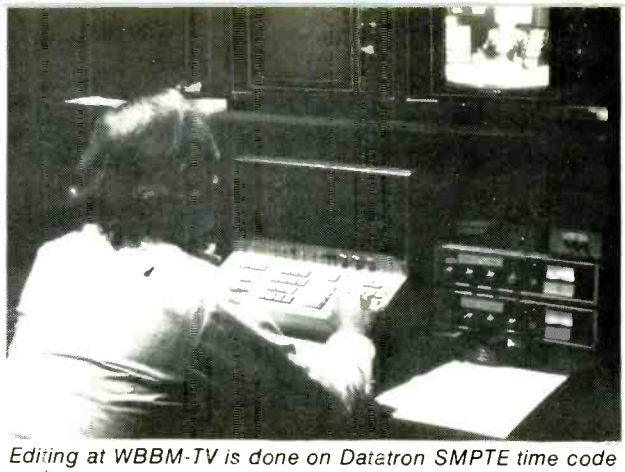
Circle 130 on Reader Service Card

to pool and share equipment and personnel. With ENG, experienced WBBM crews could travel from spot to spot and do a quality job consistent with the station's normal standards.

Another station that has expanded its news operation tremendously is KSTP-TV, St. Paul-Minneapolis. A floor plan and photos of KSTP appeared in last month's *BM/E* as a Best Station Award entry. KSTP's news room is more posh and colorful than WBBM's, but in terms of equipment, they are quite similar. The KSTP Dispatch Center, specially built by Motorola, is compact and neat. It boasts three 160 MHz channels and one 450 MHz channel for communications with the feed.

The Dispatch Center includes the microwave receiving system and the bank of tape recorders for taping all stories coming in from the field. KSTP also boasts a frame synchronizer for feeding field shots directly onto the air.

As noted last month, KSTP uses one microwave equipped van and three Mercedes-Benz limousines. News shows consist of both film (30%) and tape (70%) segments. News director Stan Turner tries to get some live news on each show, depending on what's happening. The other day, when it started snowing, the weatherman did his report from outside. Sports personalities are frequently interviewed live and, of course, if a fire is raging, the microwave van is likely there. The live touch adds vitality to the news show and KSTP is first in news in its market.



Editing at WBBM-TV is done on Datatron SMPTE time code system.

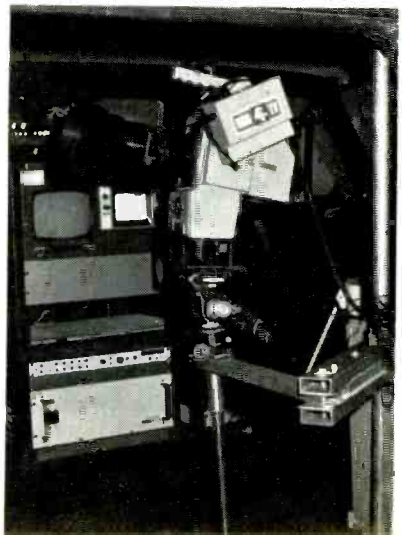
Microwave is used very effectively at KSTP-TV's sister station, KOB-TV, Albuquerque. The mini-cam unit at KOB-TV was assembled to take advantage of the unobstructed panorama provided by its transmitter site located, (4,200 ft AAT), on Sandia Crest, a 10,678-foot mountain east of Albuquerque.

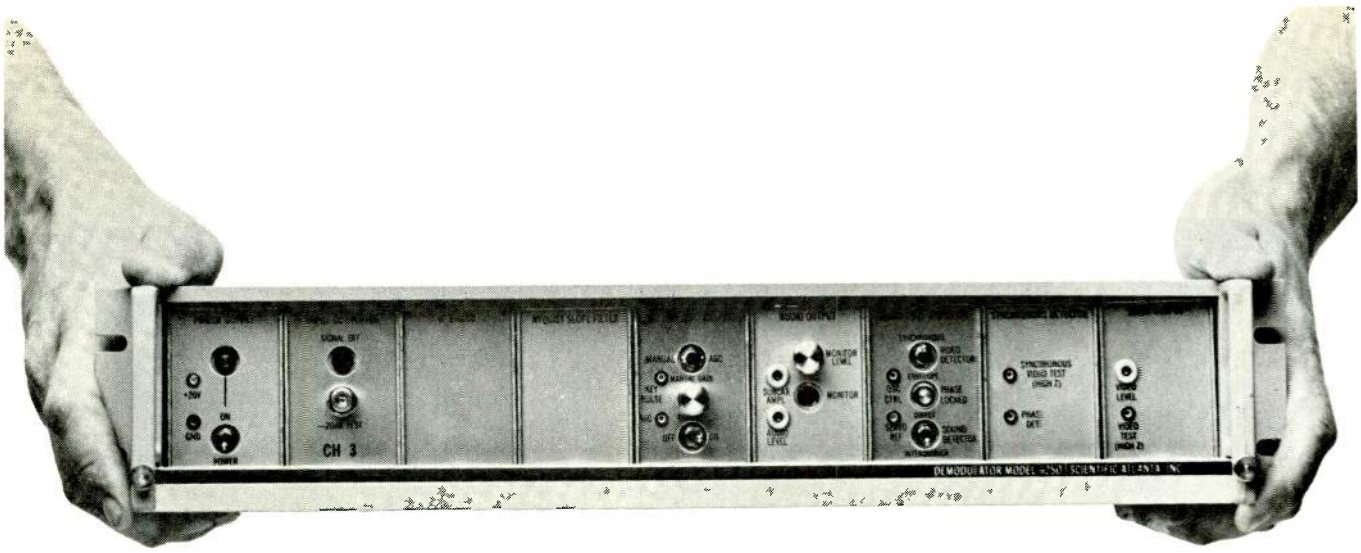
The mini-cam unit is equipped with a 13 GHz portable microwave link and a 2 GHz microwave transmitter with a 12-watt amplifier. The 2 GHz microwave transmitter feeds a 4-foot dish attached to a CP feed. The 2 GHz microwave is beamed to the receiver site on Sandia Crest where it is relayed to the studio via a 7 GHz IC microwave link. The receive antennas on Sandia Crest are Nurad horns, mounted above the transmitter building.

continued on page 49

KOB-TV uses a 13 GHz microwave transmitter to relay audio & video back to the mini cam van. Cameraman is Dan Bibeau.

Raising the 2 GHz microwave transmitting dish and aligning it towards the receive site on Sandia Crest.





Our new demod. $1700 and a zero chopper too.

If you've been looking for a good, basic demodulator, Scientific-Atlanta can show you one that's more than just basic for the same money.

With our classy new 6250 you get an envelope detector to closely match the characteristics of the average home television receiver, but with high video fidelity. There's a handy zero chopper built right in so you can accurately measure the depth of modulation of the transmitted signal.

And just take a look at these specs: 100 uv input sensitivity; video response ± 0.5 dB to 4.18 MHz; ± 2.5% differential gain and ± 1% differential phase. Audio response ± 0.5 dB, 30 Hz to 15 KHz. All for no more than $1700.

The new 6250 also brings you an optional synchronous detector to provide superior transient response free of quadrature distortion.

No wonder after comparative bench tests with a unit costing $5000 more, one engineer wrote, "We are amazed at your demod's performance."

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You have one-inch in the studio and ENG in the field.

TBC-1 cleans up your act.

TBC-1 brings stability to the ENG environment. Hit it with a gross overload, say 20 television lines, and it'll still hold the picture together better than any other TBC on the market. Used with any non-segmented helical scan VTR, this new Ampex product will produce unsurpassed picture stability.

Correction range of a TBC-1 is more than six horizontal lines. Memory is 10 lines. Options include drop-out and velocity compensation, heterodyne color, and a special accessory to handle non-servoed helical VTRs.

The remarkable performance of a TBC-1 comes from a unique combination of "averaging" and line-by-line correction techniques. No other time base corrector uses both; no other time base corrector can match TBC-1 performance.

You'll probably buy your TBC-1 because it's so easy to use. Uncrate it, plug it in and forget it. It thrives on neglect, and works without fans, filters, moving parts or "tweaking."

There's a built-in sync generator in the TBC-1, and advanced diagnostics (should the need ever arise). But there's one more enormous capability that sets the TBC-1 apart from all other time base correctors: It's the only one in the world that can deliver broadcast quality slow motion and freeze frame material from an Ampex VPR-1.

TBC-1. The wide-application digital time base corrector Ampex developed for helical users who can't take chances.

AMPEX

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The appropriate horn and polarity are selected by remote control from the studio location.

The mini-cam unit was assembled in a ¾ ton Dodge Sportsman van. Because of the hot summers, an additional air conditioning coil was added in the ceiling at the rear of the unit which provides approximately 3½ tons of air conditioning.

A separate electrical system was installed in the unit consisting of a Leece-Neville 12V-180 Amp/hr alternator and a large truck battery. This system provides power for 12-volt outdoor lighting, porta-pac charges, miscellaneous small equipment and a Topaz inverter. The Topaz inverter is locked to the sync generator giving a very accurate, stable 120 V power. This power permits good operation of the Sony tape machine.

The mini-cam unit gets a good work out at KOB-TV. It may be used for on-the-spot news coverage, producing commercials on the clients premises or for sporting events using one or two cameras. They may be taped at the scene or fed back to the studio and taped either on quad or helical machines for future editing.

Recent coverage of the Celebrity Golf tournament from Socorro, New Mexico is the most distant feed attempted. This path is 83 miles from the transmitter site. Fernand A. Bibeau, chief engineer, reports the picture quality was excellent.

Public Stations Use Mini Cams

Cutting cost is a big advantage of a mini cam/portable recorder combo, two stations told an NAEB audience at that association's 52nd Annual Conference in Chicago.

WXXI, Rochester, NY, does a 1-½ hour show that gets into news in more depth than do commercial stations. The station has used a Sony DCX 1600 camera along with the Rover 3800 recorder. Station is switching to an Ikegami HL-77 camera to avoid need for lighting (the Sony requires 250 ft. candles) and is getting a new BVU-100 portable recorder. James Zeigler says 100 ft. of film costs $9 plus 11¢ to 15-½¢ for processing. For this same price, one can get a cassette that can be used 50 times.

WTTW, Chicago, also uses a Sony DCX 1600 camera but will probably stick with it despite the need for a lighting man. Camera is simple to operate and extremely reliable, reported Robert Lorentzen. A single crew does about four stories a day.

Mini Cam And ¾ in. Tape Score In Producing Commercials

Some of the strongest boosters of ENG-Type equipment this last year are sales managers and production heads. The mini cam in conjunction with a ¾ inch tape recorder is the way to cash in on the retail spot boom. Don Moeller, general manager of the western Missouri station, KYTV, Springfield, says he even gets unsolicited calls from heretofore non-advertisers. "Ah want to do me one of them mini cam commercials," is the way one caller put it. Moeller is happy to oblige and out goes a salesman (to help compose the copy) and a cameraman (equipped with a TK-76 camera and a ¾ in. recorder). That's all the crew that is necessary. If lighting is needed or if a reflector is desirable, a garage mechanic is pressed into service. (Biggest customers in Springfield are car dealers and tire stores.) "Anybody standing on the side line looking on will do," says Moeller.

The success of the mini cam is "wild," says Moeller. Clients come up with ideas for commercials. "We've done shots of guys driving cars blindfolded," says Moeller. "It's crazy." KYTV shares one camera for news and production but a separate Convergence editing system has been purchased for production work so as not to interfere with news operations. ENG-made commercials have doubled KYTV's production income up from 9% of station revenue to 18% this last year.

The phenominal success of the mini cam in getting brand new retail business, whether in Springfield, Houston, Cincinnati or Timbuctoo, seems to be wrapped up in that unsolicited phone call Moeller got, "Ah want to do me one of them mini cam commercials." Jon Campbell of KPRC-TV, Houston, and Rick Reeves of WCPO-TV, Cincinnati, both of whom appeared at a recent TVB panel on the subject of producing ENG commercials, report a similar reaction. Campbell describes it as "total fascination" on the part of the client who has up until then shunned TV and has been only in newspapers. Once somebody sees how easy it is, they, too, want to get involved. Rick Reeves sees the kicker as the ". . . ego reinforcement the participant gets. It's his store and him talking." Of course, the ability to play back on the spot what was just shot makes this possible.

Both KPRC and WCPO are doing extremely well with the mini cam but the two stations are an interesting study in contrasts. At KPRC, the mini cam is but an extension of an already booming business in producing studio-style commercials. The station has a long history of production. At WCPO, moving into the production of commercials is a recent event—but one that has been a route to profits. Previous other expansion efforts, such as getting into syndication, were not successful. There are other contrasts as will be seen from their separate stories.

KPRC-TV was the first station in the Houston market to go into electronic journalism and an Ikegami was its mainstay. KPRC does a local 6-7 PM show and another ½ hour local show at 10PM for a total of 1½ hours daily. It has cut into news programs live with drama from the court house, etc. On some days, the news effort has been pretty much a total ENG effort although the station maintains an extensive film lab and expects to continue to do so.

Film is very important to KPRC's commercial production effort. Last year, two stores alone, Foleys and Joskes, accounted for over 700 commercials and the majority were film. But videotape has always been a substantial part of KPRC's business and last year it produced over 357 master tape commercials. Most of these have been produced in KPRC's studios but more and more, spots are being created right in the store itself and that is the significance of the mini cam.

For one thing, it's a matter of logistics. In preparing for the Christmas season, the studios are locked up tight around the clock for months. The only way to add to the schedule is to go out into the field with the mini cam.

ENG COMMERCIALS

It has been this shooting activity in the store that has won brand new converts to TV commercials. Within a big store, there would always be certain department heads who were hold outs. Once they saw how easily a commercial was actually produced, however, they, too, got excited.

One important aspect for the uninitiated was to realize that moving in a mini cam crew didn't mean tearing up the store. To the delight of both the station and store personnel was the realization that essentially no extra lighting is necessary. KPRC uses both Fernseh and Hitachi cameras on location. Campbell speaks very highly of the sensitivity of the SK-80 Hitachi; "At most we only have to kick in a little portable light to dress up skin tones." Campbell adds, "We've really produced some stunning commercials in stores as I'm sure advertisers anywhere would attest to."

Pioneer in shooting commercials via videotape (quad) was Jefferson Productions, Charlotte, NC. Here, JP is doing a Buick commercial.

WCPO-TV, Cincinnati, goes right into a store to do a commercial.

WBTV, Charlotte, NC, uses Philips LDK-11 cameras for both news and commercials.

KPRC-TV does go for top quality in its commercials and, therefore, unlike most stations going into the mini cam commercial business, it records on quad (and, of course, later edits on computer-controlled on-line editors). Quad recorders are usually located in vans outside the store and cables run to them. KPRC is checking out use of portable 13 GHz microwave gear for getting to the van and this mode may replace cables.

Although the station uses ¾ in. cassettes extensively in its news and sports shows, it is not yet ready to entrust commercials to this format. With production revenues exceeding $1 million annually, you don't tamper with success. KPRC's clients pay well for their commercials—the station won't say exactly how much but it probably is in the range of $800 to $1200 for a spot—so they deserve the best.

A typical commercial at WCPO, Cincinnati, edited, sound-sweetened and with special effects added, may cost in the range of $400 to $600 to produce. While lower than KPRC-TV, it is higher than the $100 to $200 charged by small stations. It is ¾ in. tape quality but well done. Reeves quoted typical prices: $200 per hour to go out into the field to shoot (this price includes a crew of two—a camerasman and audioman). One hour of free travel and setup time is offered. If the footage is silent, price drops to $175 per hour. Editing on ¾ in. equipment runs $75 per hour. Up dubbing to quad including mixing in music and other effects runs $150 per hour.

The production of commercials at WCPO has been very profitable. Reeves puts it this way. "The station spent over $80,000 for ENG type mini equipment, divided between news and production. Assuming an eight year period of amortization, our production profits alone more than pay for the equipment. You can say we got into ENG journalism for no cost. That is most significant." WCPO has Ikegami cameras, ¾ in. Sony recording equipment, editors, a TBC and 13 MHz microwave.

It is the ability to incorporate news-type live camera shots into commercials that makes this new field so tre-

continued on page 52

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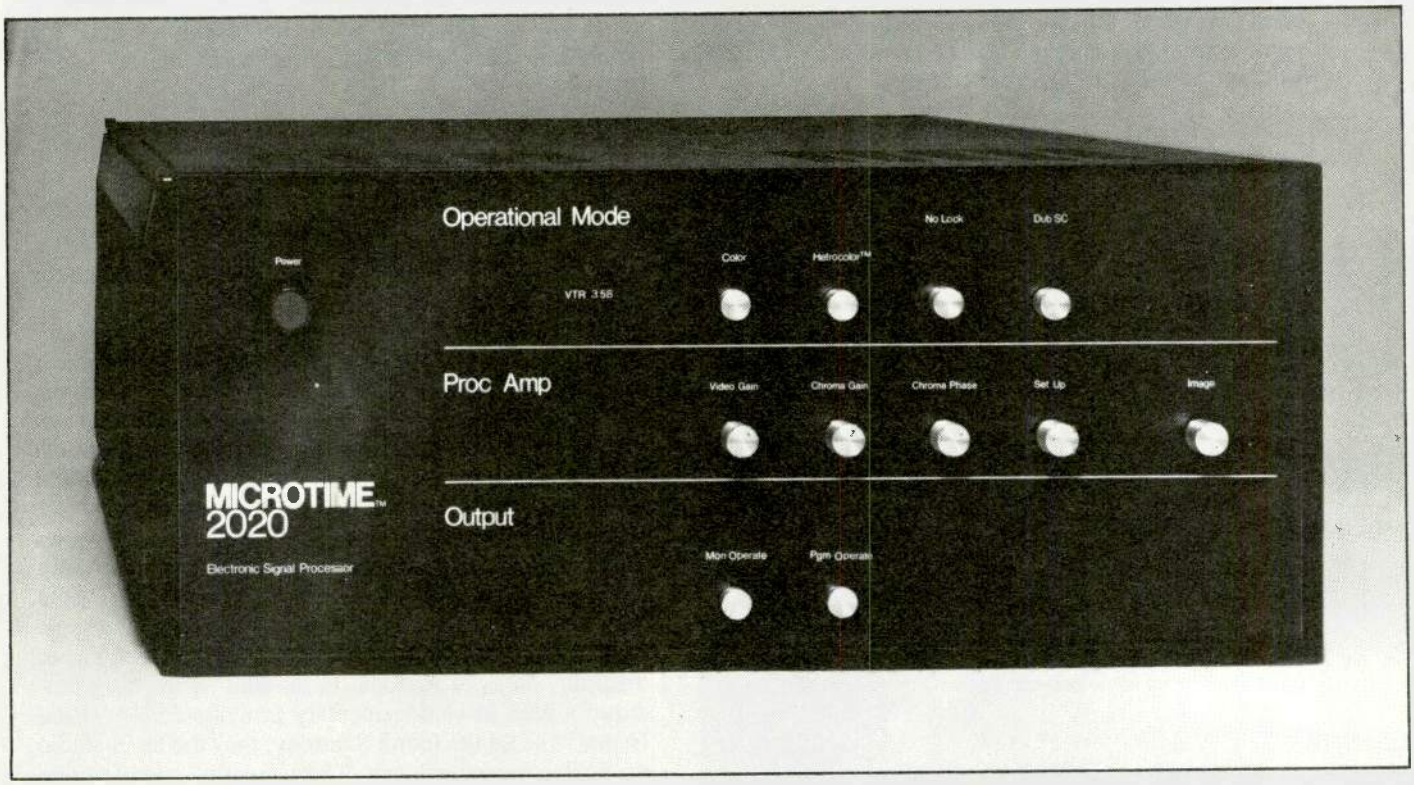

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mendously successful. This is beautifully illustrated by the way promoters of the Moscow Circus were helped by WCPO when it hit town. Knowing the circus was going to be in trouble as a result of poor advance sales, effective immediate advertising was needed. The solution was to send a mini cam to the circus opening night to interview patrons during intermission. Their spontaneous enthusiasm was the essence of a commercial that was shown later that same opening night on the 11 o'clock news. The next day the commercial was vertically rotated throughout the day. Box office receipts the second night were much improved and the house was practically sold out on the third and fourth nights.

On another occasion, legitimate news coverage by the live cam was parlayed into advertising sponsorship. The World Champion Cincinnati Reds rode in open Jeeps during their homecoming parade. The ball players were obviously seen in the Jeeps as the parade proceeded and it was a simple matter to get a tie-in from the local Jeep dealer who bought several spots expressing his pride in being of service to the Champions. Incidentally, during the parade, the live news cam caught the action, not just from the reviewing stand, but from several vantage points. It was an easy matter to shoot from one location then move a few blocks to another, using the portable 13 GHz microwave system to get to the studio.

Reeves says interesting all-day vertical rotations are a cinch with the mini cam. Such applications are ideal for promoting sale days at shopping malls, all-day warehouse sales, etc.

ENG Equipment Revives Documentary Production

Public broadcast station KFME, Fargo, N. Dakota, does a lot of statewide documentaries. The Philips LDK-11 is used both in the studio and on location.

The impact of ENG equipment is quickly changing the role of documentary programming at stations around the country. At KOOL-TV in Phoenix, AZ, documentary had always been a major commitment of the station, though an expensive one. The watershed for ENG use in documentary work came when the news department began an investigation of the criminal justice system. A recent murder shocked the community and KOOL news decided to give the law enforcement agencies an opportunity to explain just where and how the system was failing.

Burt Kennedy, writer/producer, now with Special Projects, figured that such a documentary would require an inordinate amount of interviewing, allowing the official to go on until he felt at ease and was willing to identify the real problem areas. "Frequently," said Kennedy, "these interviews might take 40 minutes to an hour before we could get what we wanted." Economically, film would have been out of the question. But beyond that, the ability to have the writer/producer control the entire creative process from beginning to end is what Kennedy feels adds up to the greatest advantage for electronic equipment.

The criminal justice system story led to a documentary on the county attorney's office which, again, became a story demanding lengthy interviewing. To get it, hours and hours of interviewing were conducted and then reviewed for three weeks by the producers and station lawyers to identify and index the portions that could legally be used.

KOOL-TV had been doing four documentary shows monthly. The first Saturday of every month a half-hour documentary was shown on the topic of "what's right with America"; the second week, they produced a show called "Copper State Cavalcade," a sort of travelogue of the pretty areas of Arizona. In the third week, they produced a hard news documentary program called "Vital Issues" and on the fourth Saturday, they did an in-studio medical opinion program. Occasionally, when certain months had a fifth Saturday, they did a program called "Arizona Biography" about a person, place or thing distinctly Arizonian.

The station staff felt that they were scattering their efforts and, having witnessed the success of "60 Minutes" and "Weekend," decided that these different concepts, if combined in a magazine format, might make a more interesting show. The new program was called "Chronicle 10" and was turned over to the Special Projects branch. With the success of ENG proven during the earlier projects on the criminal justice program and county attorney piece, ENG was selected to play a major role in the new show's production.

News manager for KOOL, Bill Miller, states that the station plans to do about 40 half-hour documentaries in the next year. Ninety percent of these will be shot on tape. But savings in cost are not the only advantages of ENG. Both Miller and Kennedy feel that it's the flexibility of budgeting time that makes the biggest difference. To be able to let an interview go on without concern about burning up film and permitting the interviewee to become accustomed to the process, creates better journalism.

KOOL uses a modified Ikegami HL-35 and HL-33 coupled to Sony VO 3800 recorders. The quality and

continued on page 56

Which of our 18 editor keyboards would make your life easier?

The tremendous range of needs in videotape editing has dictated that the ideal editor must be all things to all people. Do you want capability or economy? Two VTR or three VTR control? SMPTE Time Code or Control Track? An overabundant or barely adequate keyboard?

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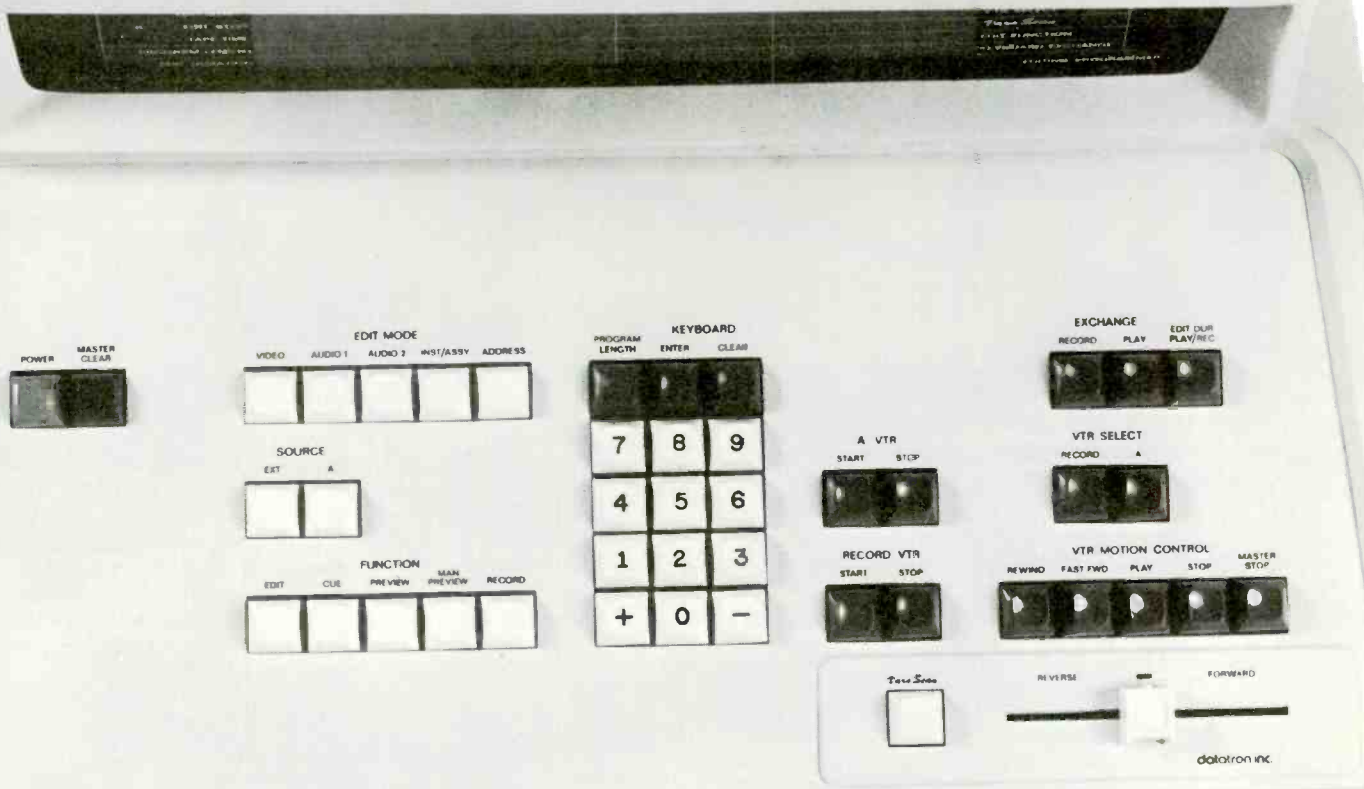

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SM-2 Joystick Search Module gives you incredibly flexible tape handling and remote control on a stand-alone VCR. The unique Convergence joystick allows you to see pictures at speeds continuously variable from still frame to three times normal play in forward and reverse. The LED tape timer lets you quickly screen and log news stories or commercials for pre-edit decision making. The SM-2 also programs precise on-air roll cues and lets you slave extra playback machines for A/B rolls.

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TT-4 Digital LED Tape Timer fits neatly under the monitor on a standard ECS-1. It counts control track pulses to let you know where you're at and where you're going. It's just what helical video tape editors have been looking for. The TT-4 counts up and down and can be reset to zero or preset to any number. It even times assemble edits to give you accumulated program time. Buy it now or add it later.

PC-3 Program Computer combined with the ECS-1 gives you precise end insert timing and scene duration timing. Insert and stopwatch functions are programmable with the simple-to-operate PC-3 computer keyboard. Now you can automatically preview insert edits as many times as you want and trim them up to ±99 frames from the keyboard. What's more, plug your PC-3 into a TT-4 and get keyboard access to automatic bidirectional tape search.

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performance of this equipment is highly rated by station personnel. Since getting into ENG about two years ago, the only major changes in this setup have been the addition of a mic mixer for field production and the mounting of the units on video crash carts for greater mobility.

The editing of all ENG footage is handled in KOOL's three editing stations, which are equipped with Sony VO 2850 cassette recorders and are controlled by either a Convergence ECS-1 edit controller or the Sony RM-400. Kennedy rates the Convergence as fastest but complains of some untimely breakdowns. Currently, an engineer is assigned fulltime to the ENG editing systems to keep them running.

Kennedy does not feel that ENG will or should replace film entirely. "Our Copper State Cavalcade program," said Kennedy, "is a first rate, artsy-craftsy, use of film production techniques." One segment involved the story of an Arizona cowboy and relied heavily on moody shots of dusty plains and silhouettes of the cowboy and his horse framed by the setting desert sun. These kinds of mood just can't be captured on tape, said Kennedy.

One award winning min-doc done by KOOL involved riding with the Phoenix police. At one time, the crew got involved in a high speed chase that ended in some hot pursuit on foot. "The CP-16 we were carrying got footage we could never have gotten with the current ENG

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KTVU Finds Happy Medium Between Film And ENG

KTVU, Oakland, Calif., an independent station owned by the Cox Broadcasting Corporation, usually rates second in Arbitron counted viewers in the Bay area and it has also won consistent critical acclaim. For example, in 1975, peers in the Academy of Television Arts and Sciences awarded an Emmy to KTVU as the best news station in Northern California. A poll of TV columnists brought similar recognition.

KTVU makes effective use of ENG and film. ENG was very effective in covering the elections of 1976, both primaries and the national election. During the California medical malpractice insurance crisis last year, the ENG crew interviewed doctors live at a Bay area hospital, while two anchor people at the studio interacted. Two-way communications have proved to be a very effective way of utilizing electronic journalism, said KTVU former news director, Sherman Bazell.

But Bazell and his successor, Ted Kavanaugh, rely on film for early breaking stories. A one-man film crew at KTVU is cheaper to send out than a microwave-equipped two-man van—which also guzzles a lot of gas. If an early breaking story is important, the electronic camera is used for a live or late breaking up-date on the 10 to 11 PM weekday newscast.

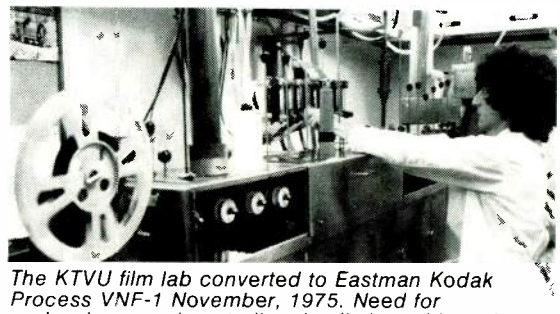
KTVU has built its audience by giving viewers the hard news they want, often with a creative twist, and also feature stories that other stations aren't getting.

The station pioneered the mini-documentary concept in 1973, and both Bazell and Kavanaugh believe that it is an effective way to handle meaningful subjects in depth without sacrificing the fast pace of any single program.

Between 16 and 18 news stories are scheduled daily, usually including the mini-doc feature which is called "Focus." Viewers see four, five or six cuts in every 30-45 second story, a lot of B roll and very few talking heads.

Despite flexibility of the Ikegami camera, there is still much more freedom of movement with a CP 16 camera. KTVU cameramen lie on the floor, jump over a wall or run after a crowd, if necessary, to record interesting and timely visuals.

At KTVU a newsfilm cameraman is trained to operate the Ikegami ENG camera. An electronics technician handles the videorecorder.



The KTVU film lab converted to Eastman Kodak Process VNF-1 November, 1975. Need for prehardener and neutralizer is eliminated lowering costs and shaving time.

The station has more creative flexibility in editing film, although the chief engineer, John Swanson, says that gap will close when the Datatron computerized videotape editor is delivered.

Aside from live transmissions, videotape and film usually take around the same time to get on the air once it is at the station. The dry-to-dry time for film processing is between 15 and 20 minutes with the new Process VNF-1.

The new Kodak Ektachrome video news film 7240 being used by KTVU is rated for the same exposure index as Ektachrome EF film—125 in tungsten light, Swanson says. "However, it definitely has more latitude for television. We get more scale and much better blacks. This allows camera operators to shoot in very dark areas without the contrast falling apart on the air. A big part of the credit has to go to our film camera operators, who understand the limitations of the television system. We get the best scale by shooting at a 15:1 contrast ration, and they have been hitting that right on the head consistently."

The new film is also "more pushable," says film lab supervisor Jerry Kock, and this is where the improved granularity shows up. "When our camera operators have to push in a low-light situation, they routinely use an E.I. of 500, a two-stop jump, and we have adapted our big Houston Fearless processing machine for a quick and easy adjustment."

The new film has also been exposed at very low light levels. "We covered the aftermath of a bombing at night, where the operator just put the film in the camera and took his best guess. I figured that it was an E.I. of 2400, and we got some very good footage," says Kock. "In that case, we also had an ENG unit at the scene, but because the crew wasn't able to set up and transmit right away, we actually got the film on the air faster. So, there are exceptions to every rule. We don't burn up excessive amounts of film either. A typical five-parter takes around 5,000 feet of film. It's not just saving film that we are concerned with. Unless a story is extraordinary, we don't feel it is worth the time of the crew and editor to shoot more film than that."

Introducing a Color Corrector for Electronic News Gathering.

Electronic News Gathering makes tough demands upon the broadcaster. Color imbalance and colorimetry problems are frequently encountered. Matching remote camera shots to indoor studio programs or assembling tapes from different locations or cameras is "chancy" at best. Often that fast-breaking story doesn't allow for camera rebalancing!

Thomson-CSF Laboratories now provides a solution to such difficult encoded signal color problems. With the Model 5500A Color Corrector, you'll be able to rebalance and match video signals *after* encoding. It can be used either after the play-back tape machine or following the microwave receiver during live coverage. In most cases, a noticeably improved color picture will result. For ease of operation, a Remote Control unit is included as standard equipment.

As an added feature, an optional automatic Sensor unit is also available to control the Color Corrector for telecine use.

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"We used the Compositor for the first time on election night. We were very pleased with the clarity and color. I'm sure we had the best election show in town that night." —Donald Loose, Manager WTMJ News Operations

"We used our new Compositor system during the election and were very happy with it. It seemed to me that the character edging made our display easier to read than the competitions'. We moved ahead of the other stations soon after the election results started coming in." —Terry Harrison, KTVK-TV Engineer

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"...the election went like clockwork--I couldn't have asked for anything better. The Compositor display is clear and easy to read...you just glance at it and you've got it. We were ahead of the competition getting numbers on the air." —Tom Craven, KGW Production Manager

"We were well ahead of the competition election night... the reason, I feel, was in large measure due to the Compositor. It's easy to use, and prevents a great deal of possible error. Where the TM unit really shines is its computer interface with the character generator, which eliminates the extra step of manually entering the election results."
—Bill Gill, WOTV News Director

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These broadcasters agree: with or without the TED election reporting option, the new Compositor I Titling/Graphics System offers a superior on-air look. With graphic-quality fonts and instant access to any page in memory at any time, the software-based Compositor I provides the fast on-air operation demanded by production personnel, the artistic quality demanded by advertisers, and the competitive edge that broadcast management is looking for. For details, please call Jack Daniels at (801) 972-8000.

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cameras."

"What we've learned," however, said Kennedy, is that you can use both film and tape very effectively within the same program. At first, station people were concerned that the difference in visual quality would be so glaring that "it would disturb the folks at home." After a while of using the film/tape mix more and more, and after never receiving any mention of it from the viewers, the KOOL staff decided that it was a fine technique.

"Live" mini-doc from inside a city prision

One area of electronic field production where no one questions its superiority is the live remote. WNBC-TV, New York, had an unusual opportunity to demonstrate this recently.

One of the WNBC Newscenter 4 reporters, Felipe Luciano had been convicted 10 years ago in connection with a gang related homicide and served two years in the Brooklyn House of Detention. Since then, Manhattan has built a spanking new Adolescent Reception and Detention Center (ADRC) at its Rikers Island complex and Luciano wondered how juvenile facilities had changed.

After discussing the idea of a series of live reports from inside the prison with news operations manager Laura Lawrence and news director Norm Fein, Luciano contacted New York City's Commissioner of Corrections, Benjamin Malcolm. Commissioner Malcolm was enthusiastic about the idea and offered the complete cooperation of the department.

It was decided that the series would consist of five segments averaging six to seven minutes in length. This is normal for what Newscenter 4 calls its "Topic A" reports. Newscenter 4 has an expanded two hour format and features numerous special segments in addition to covering hard news.

Luciano moved out to Rikers Island a week in advance of the series and lived there establishing rapport with the prison officials, correction officers, and inmates. For two nights, Luciano was actually locked in at the adolescent facility. On the Thursday preceding the scheduled Monday start of the series, Laura Lawrence and an EJ (NBC prefers to substitute EJ: Electronic Journalism, for the acronym, ENG) manager visited the island to determine the best feed for the series.

From the roof of ARDC, there was a perfect line of sight to one of NBC's four microwave relays at the 84th floor of the Empire State Building. The plan was to tape the bulk of the story on the mornings preceding the day of broadcast. Openings and closings for each report would be broadcast live by Luciano from inside the prison and microwaved back to Newscenter 4.

After recording a story, Luciano reviewed it and recorded his narration and sent the cassettes and editing instructions back to the station. There it was edited and timed for broadcast the next evening during the 6 to 7 time period. At about 1:30 in the afternoon, the crew would carry the microwave transmitter up three flights of stairs to the roof and position it directly above the room from which Luciano would do his live portion. The cables were dropped over the side of the building and fished in through a window. At about 4:30, the station would call for pictures and check out the system. At 5:45 or at the top of the 6 pm segment, Luciano would do a live promo for his 6:45 report. The system worked flawlessly after one minor mishap on Monday when they were late setting up the microwave and missed the live promo. Afterwards, the crew got used to working with the tight security arrangements and schedule of the institution and began setting up much earlier.

The camera used on the taping was a TK-76 which received wide praise for its low light level imaging. The two 650W quartz lamps carried by the 3 man EJ crew were needed only on rare occasions during the week and adequate visuals were frequently achieved with as little as 15 fc. The cameraman was a recently converted film camera operator and did a magnificient job of getting dynamic visuals that a few months before he would probably have sworn could only be gotten with a film camera.

The five part story from inside Rikers Island was a genuine credit to the Newscenter 4 technical and reporting staffs. Laura Lawrence indicated that such live "documentaries" will be an expanding part of the Newscenter 4 format.

There are, of course, documentaries that pretty much

continued on page 62

Rapid Recharge Battery Packs Win Votes in '76

Some observers attribute the rise of President-elect Jimmy Carter from an unknown ex-governor of Georgia to the highest office in the land to intensified TV coverage which characterized the '76 elections. Actually both President Ford and Gov. Carter were televised more extensively than candidates in previous years thanks to ENG. All three networks used ENG exclusively on the presidential trail. And President Ford hired his own ENG crew to produce paid regional half-hour TV programs to enlarge his exposure—see article in this issue, "President Ford's Traveling TV Circus." So whether or not Carter's win can be attributed to the advent of ENG is dubious. What ENG coverage of the candidates did do, however, was to win exposure for "F" type ENG high-capacity and rapid-recharging battery packs for Frezzolini Electronics.

It all began in February of '76 with the CBS-TV Mobile Headquarters in Americus, Georgia. There, John Smith, TV cameraman, found he could get two hours and 38 minutes of time on an Ikegami 33 or 35 camera using nickel cadmium F-model packs. Further, using the F rapid recharger, he could typically recharge fully in half an hour, although the rated time is one hour. By mid-year CBS had ordered several more such units and at the Democratic Convention, ABC-TV showed up with two dozen F battery packs. They were used throughout both the Democratic and Republican Conventions.

This network exposure was not lost on the out-of-town broadcasters. Now, Larry Widman, associate news director, KPRC-TV, Houston, Charles Kocker, chief engineer at WXYZ-TV and Gene Wilczak, ENG supervisor at WJBK-TV (both the latter two in Detroit) are among the enthusiastic users of the fast recharge "Frezzi" F model battery pack. Belt versions are used on back-packless cameras.

In addition to the high capacity—6 Amp hrs. for 2½ hours of operation on Ikegamis—and rapid recharge, the batteries are highly reliable as a result of a patented undervoltage dropout circuit that prevents over discharge. This eliminates battery damage reported so often. Such packs are available now, or will be in early '77, for all portable cameras and tape recorders now in use.

Mix an ENG camera with a studio camera, and what do you get?

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The Sony BVP-100, to be exact. A new kind of portable color video camera, from Sony Broadcast.

There have been portable ENG cameras before. Field production cameras, too. But the BVP-100 is a camera deliberately designed to give you the best of both worlds.

The BVP-100 combines the lightweight body, economy, and simple setup procedure of an ENG camera with the broadcast picture quality, manual controls, and built-in professional features of a field production camera.

It's like having two cameras in one.

In the field, the BVP-100 is fully portable, easy to handle, completely automatic. You can depend on it to cover fast-breaking news, sports events, any ENG situation you run into.

But when you're in commercial or documentary production, you need more than an automatic ENG camera. You need a camera you can control manually. A camera you can interface with other cameras. A camera like the BVP-100.

Take a look at some of the special advantages the Sony BVP-100 can offer you:

1. Beam-splitting prism optics. Three 2/3" Plumbicons* with beam-splitting prism optics provide broadcast quality signal resolution, high sensitivity, low registration error, and extremely stable operation—at a signal-to-noise ratio of better than 50db.

2. Built-in masking generator. Unlike many portable color cameras, the BVP-100 has built-in masking circuitry. This insures optimum predictable colorimetry at all times, and of course allows matching the BVP-100's colorimetry to that of other cameras.

3. Built-in test generators. On location, you can make many necessary balance and test monitoring adjustments without accessory equipment. And the less accessory equipment you need, the faster you can move.

4. Quick adjustment to changing light. The BVP-100 special black stability circuit and automatic white balance help maintain correct color proportion levels. Even in rapidly changing lighting conditions.

5. Flare compensation. The BVP-100 has fully adjustable flare compensation circuitry to remove any annoying distortion in black balance created by an optical disturbance.

6. Recorder playback through viewfinder. For field situations, the recorded video signal is switchable to the BVP-100 viewfinder. You can monitor and review instantly.

7. Easy access to controls. The BVP-100 is designed with all setup and operating controls conveniently located for quick adjustments while the camera is in use.

And there's more. Much more. Built-in filters. Image enhancement. Easy setup. Operation with battery or AC adaptor. Plus a single 10-pin connector cable that links to the new Sony BVU-100 Portable Videocassette Recorder, or to any other Sony portable recorder.

For further information on the BVP-100 Color Video Camera, write to Sony Broadcast.

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demand the use of film cameras—at least for some portions of a production. Such a situation was recently described by Michael Hirst, a producer at WTTW, Chicago's non-commercial station. In doing a documentary on new cars, "Auto Test '76," a camera had to be mounted on the side of a car by a suction cup grip. No one was willing to risk an Asaca TV camera for this application. Operating a videotape recorder inside a car on a test track presented its own problems. Hirst swears his best scenes were broken up because of inertial effects on the recorder. Another frustration was the improper setting of the electronic camera during some of the shooting in the field due to the unfamiliarity of a studio cameraman with the portable unit. This normally shouldn't be a factor but it does demonstrate that film can be a surer tool until all are initiated in the proper use of ENG TV cameras.

Those who heard Hirst's presentation at the NAEB Annual Convention will recall other peccadillos attributed to ENG equipment in producing documentaries—wrong pedestal settings, inexplicable shift in color, etc.—all of which lead Hirst to conclude ". . . and that's why I like film." But Hirst did admit the documentary in question, and another he produced on censorship, couldn't have been done on budget if it were not for the lower cost of tape. Technical personnel at WTTW see no reason why equipment can't be made to work properly and WTTW's executive news producer Robert Lorentzen, has no problems with his ENG operation.

Drama Shows Next To Be Done By ENG Type Equipment?

If news, commercials and documentaries are being shot by single camera electronic techniques and edited off-line in a post production fashion, can electronic production of drama, the last nearly sacrosanct domain of film, be far behind? Indeed, there have already been theatrical releases and TV drama shows done entirely with TV cameras and recorded on quad. Among some of the better ones has been "Jenny" produced in Great Britain. One of the latest motion pictures shot on video tape and certainly a major one in terms of box office success is "Norman . . . Is That You" (UA).

But "Norman . . ." was not all tape. At least 20% was shot on location using film. And the super action TV drama "Kojak" (CBS), is done entirely by film. Such a show requires a camera on the run, a lot of raw footage, and post-production editing to achieve the artistic effects desired.

Nonetheless, at least four developments that have made ENG successful are now ready for application in the field of drama.

The first is the development of a quality portable TV camera nearly as flexible as 35mm film cameras. CBS has been running tests comparing a Thomson-CSF studio camera with that of the new 11 lb. Microcam, all against 35mm film cameras. The results, as closely as we can determine, are very promising—and the Microcam is smaller than a 35 mm film job.

ENG became practical because broadcasters learned that they could live with the quality produced on a ¾ helical scan cassette recorder—particularly if the tape was played through the third major advance, the digital time base corrector. The ¾-in. cassette *is not* good enough for producing dramatic shows, especially since quality suffers every time a dub is made (as is necessary in the editing process). But now there are full quality one-in. helical scan recorders available in the form of the Sony BVH-1000 and the Ampex VPR-1. There is also the segmented scan, Bosch Fernseh BCN series. These systems are much smaller than their quad counterparts, lower in cost, and much less expensive to run since they use less tape.

It is feasible and practical to assign one of these recorders to a single TV camera and record everything captured by that camera—just like it is now done in film.

ENG became an operational news system because of yet another recent development, the fast, easy-to-operate

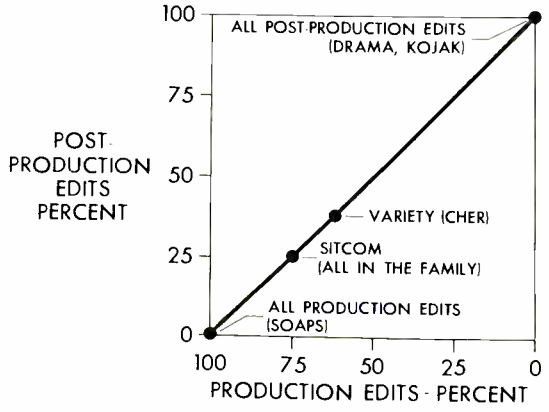
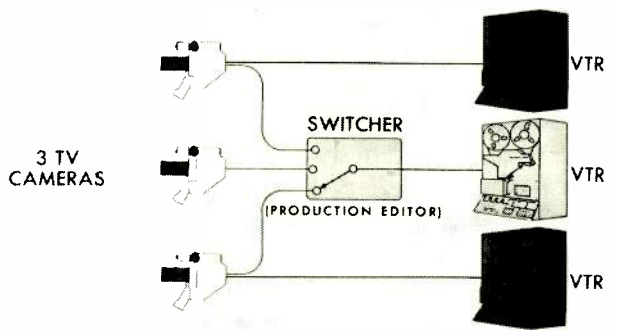


Chart produced by CBS network shows types of edits now made for various programs. Soaps are 100% edited by production switching. "Cher" is 60% production edited, 40% post-production. "Kojak" is all post-production edited.



CBS, Hollywood, is currently using the set-up as shown. If a proper job is not done in production, raw tape is available for post-production editing.

editor. TRI, for example, with its EA-5 editing system, pioneered the concept of Moviola type editing—editing just like it is done in film. Tape could be shuttled or jogged in both directions until the desired edit point was found. Through pulse counting and a little memory in IC circuits, the editor would give you an automatic preview and then park itself waiting for the final edit command to be made. Convergence Corp. made a name for itself in news editing by incorporating a joy stick control for convenient tape shuttling. Both of these systems offered

continued on page 65

Old-New Reel Time Recorder

Telex/Magnecord series 1400 broadcast quality recorder/reproducer. An old name that spells reliability. A new design for today's state of the art.

• The Old. Telex/Magnecord products are still made in the USA so parts and service are always available. The series 1400 is still built on a solid die cast aluminum main frame for reliable operation around the clock. It's still available in full, half and quarter track configurations, has fail safe differential brakes and accepts 8¼ inch reels. It also still comes with three motors—but then, that's touching on the new.

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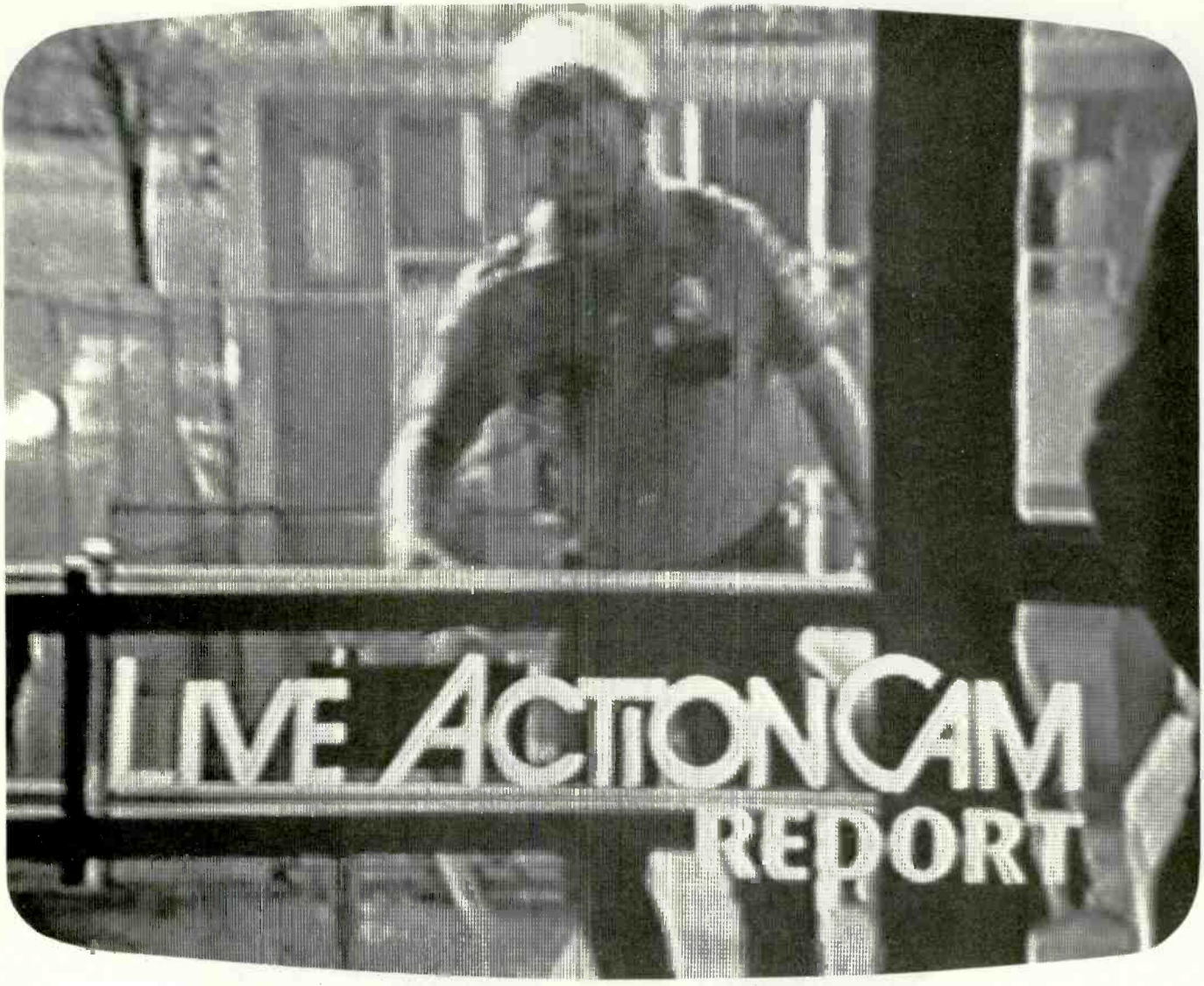

ON SEPTEMBER 11, 1975, THIS WAS THE SECOND HALF OF "THE HOLLYWOOD SQUARES."

On September 11, 1975, WTVF scooped all the Nashville news media with live, on-the-scene coverage of a riot in progress at Tennessee State Prison. They did it using some of the most advanced Electronic News Gathering (ENG) equipment available today. Equipment which included, not surprisingly, an ENG microwave system from the Communications Equipment Division of Microwave Associates.

We at MA's Communications Equipment Division pioneered in microwave systems for ENG applications and are now the only company making a complete line of equipment. Everything from miniature battery operated transmitters to portable van models to fixed location transmitter/receivers. And we not only make them, we also do site surveys, installation, training, and servicing – nationwide.

Small wonder we're now number one in microwave for ENG.

Microwave Associates, Communication Equipment Division, Burlington, MA 01803. 617-272-3000.

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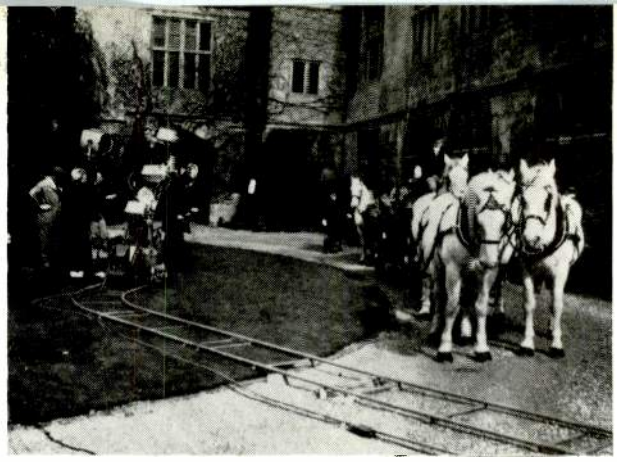


British used electronic cameras to produce the TV drama, "Jenny."

more than the simpler "industrial-type" editors and they point the way to what is needed in ease of operation.

Simultaneously, on a higher-technology level, film editors were beginning to learn the tricks of SMPTE time code editing thanks to an assist from the computer. The CMX-50 began to break down the resistance to tape. Today there are a variety of editors that make tape editing easy for film editors. CMX has developed the 340 X. Datatron's Tempo system is extremely flexible. It offers a fast pulse code mode that can be upgraded to SMPTE code if desired. TRI has introduced a SUN system which quite closely parallels concepts familiar to film editors. TRI says more is coming to completely close the tape-film gap.

Thus all of the elements* are now available to make all-electronic systems a viable alternative for film and further editing refinements are sure to come. The promise is equivalent quality, the see-it-now monitoring capability of TV and lower costs.

Indeed these were the points underscored at the 118th SMPTE Technical Conference by several speakers, as reported in *BM/E*, December, "ENG Sets Sights On Other Film Domain." Dave MacDonald of Sony also speaks directly to this point in his Speak Out in the December issue, "Dave MacDonald Looks Beyond ENG."

This new role of electronic equipment is a major theme of the SMPTE Winter Television Conference later this month in San Francisco, Jan. 28 and 29.

A glimpse of possible new directions was covered by J.A. Flaherty and R.L. Stow of CBS Television Network at the 118th SMPTE meeting. Very simply, this new direction is the increased adoption of taping by single camera techniques in which a videotape recorder is dedicated to a single camera. This calls for more editing in the post-production phase but that is now feasible with new editors.

A transition is already underway. Flaherty and Stow point to the special case of the multi-camera technique using three recorders. One of the tape systems records the switched output—see illustrations—while the other two record the entire output of any two of the three cameras.

Flaherty and Stow say this technique combines the efficiency of production-switcher editing with some of the flexibility of film style post-production editing.

This approach has worked well for certain program categories such as variety, situation comedy and serial drama (the soaps). In 1976, CBS produced as many as 70% of its situation comedies on tape. This is up from 42% in 1975.

What will happen in the future will depend on how many editing decisions move out of the "production editing" category (which was the original concept of TV production) into the post-production phase. This is illustrated by the editing chart prepared by CBS. Right now the industry practice is reflected by the variety show, "Cher." About 35% of this show is edited while shooting, with the remainder done in post-production. By comparison, "Kojak" is all post-production edited.

Say Flaherty and Stow, "It is the great promise of the videotape medium and the development of videotape editing equipment, that we may now produce a television program using any intermediate percentage of post-production edits which we desire. The percentage of post-production edits used will depend upon the type of program, and also upon the personal preferences of the director."

Until recently, the gap between "Cher" and "Kojak" has been the gap in suitable equipment and the editor has been the biggest drawback. This basic problem, as described by CBS, is the fact that the editing equipment has to be able to handle a great many edits. Dramas and documentaries call for 300 to 400 edits per hour compared to 200 to 280 for variety and situation comedy. And, of course, the more edits, the more important it is that the edits be made quickly and precisely for artistic purposes.

It is especially important that edit dubs be made from machine to machine with no discernable degradation.

Flaherty and Stow were very specific about the future in their "conclusions" in their SMPTE paper.

"1. The most recent advances in technology have demonstrated that all the needs of electronic production can be satisfied.

2. Television cameras, whether for studio or field use, now offer a performance, a compactness and flexibility, matching the 35mm film camera.

3. Experience indicates that when the director can observe a scene on a monitor while shooting is taking place, he is immediately assured whether the 'take' is good and thus, unnecessary re-shooting is avoided.

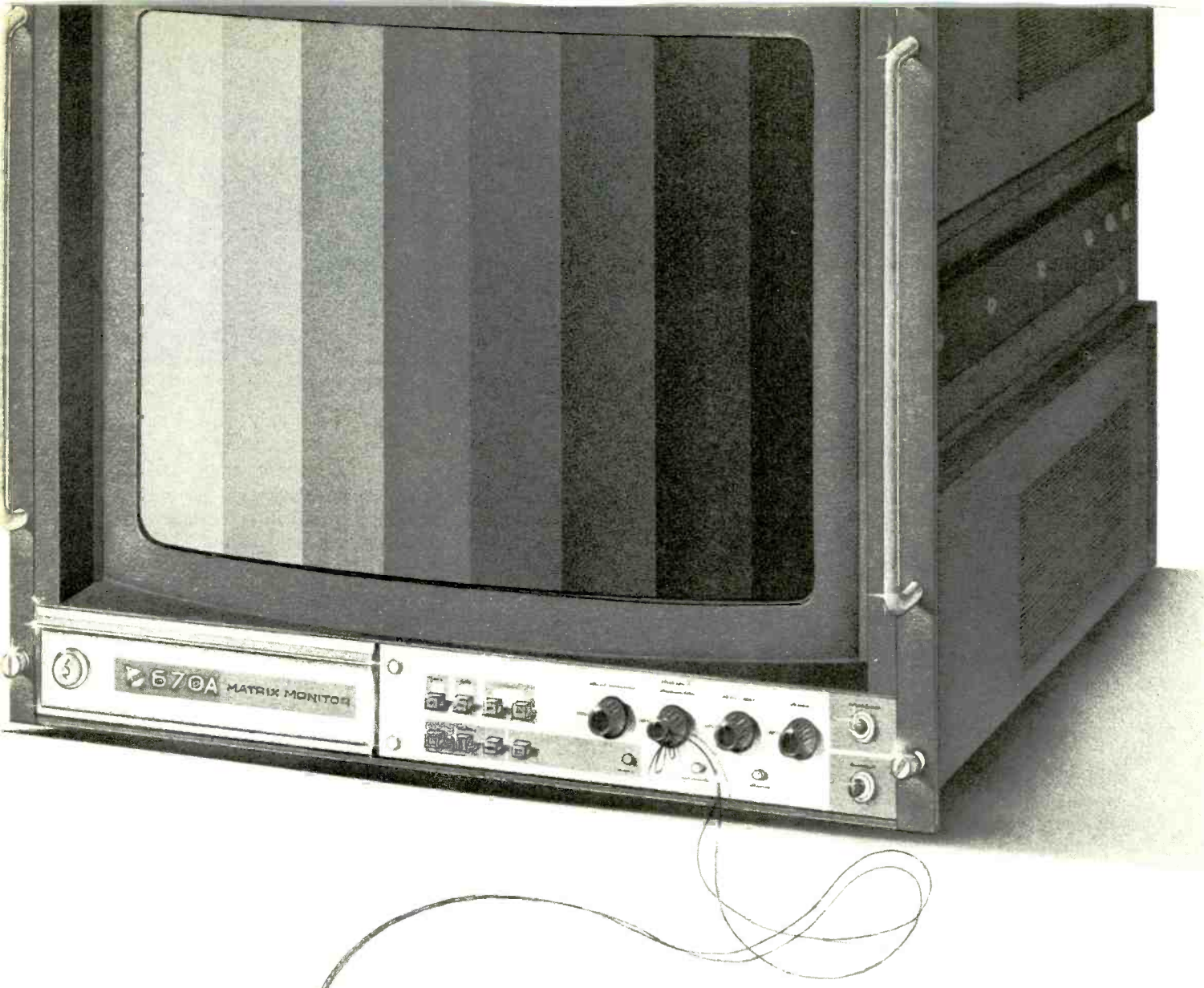
4. Early experience has shown also that lighting can be set more quickly when the scene can be viewed on a monitor during the lighting process.

5. The latest generation of videotape recorders, employing a one-inch helical scan format, demonstrate outstanding quality, and possess all the operational flexibility of the Moviola when working as part of an editing system. Editing systems of this type provide the flexibility long sought by directors and editors.

6. In the editing process, significant savings in time can be achieved by the electronic technique, compared with the film editing process. The efficiency of production switching can be combined with the creative freedom of any desired number of post-production edits."

The producer and the director now have nearly every facility they need for shooting, editing, and assembling dramatic productions all electronically and we are likely to see great changes in the near future. **BM/E**

*Last month another labor roadblock was lowered by a new IATSE/film industry labor contract which will facilitate video tape production in film studios.



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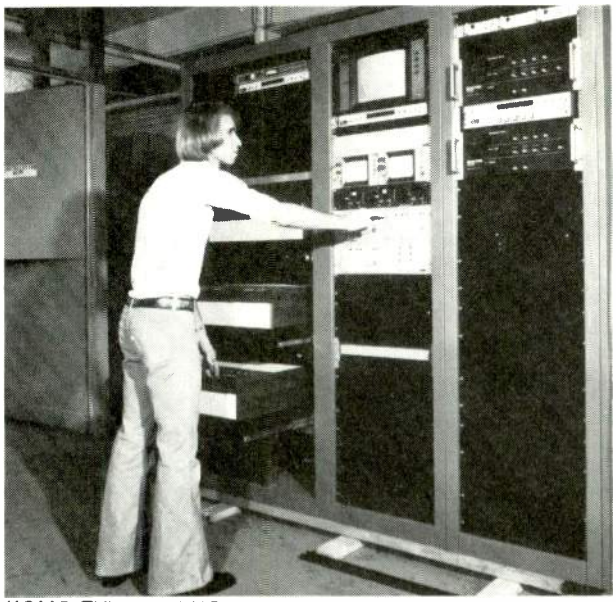
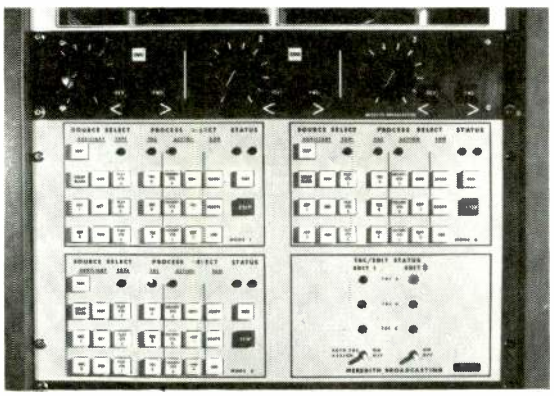
Most Innovative ENG System In Country Is KCMO-TV, Kansas City

Other stations have spent more money to get into ENG than KCMO-TV but it's not likely that they have any more flexibility, versatility or quality. An ENG switcher is a first.

WHEN *BM/E* PREPARED ITS FIRST in-depth report on Electronic News Gathering two years ago, we focused on KMOX-TV, St. Louis, as the first major market station to go completely all electronic in its news reporting. KMOX-TV's switching to all ENG in September of 1974 was a milestone in the history of broadcasting.



KCMO-TV's new ENG tecr center includes an ENG switcher.



Close up of ENG switcher panels for routing TBCs to VTRs.

Since then, that station has been the "model"* which many a broadcaster has followed. But two years later and 230 miles west, we find a new model, so-to-speak, in KCMO-TV, Kansas City, MO. KMOX-TV was designed to produce live news instantly "as good as film" quality, KCMO's objective is news *better in quality* than film.

KCMO, as the pilot Meredith station, is distinguished by a number of systems and operating innovations.

- It is the first station to have a computerized ENG switching system designed exclusively for ENG use.
- Its microwave van has the antenna affixed to a "cherry picker" for clearing trees and roof tops.
- For live feeds from tall buildings, KCMO microwaves direct to the studio via 2 GHz equipment mounted on a hand cart, using a Nurad Goldenrod Antenna.
- News trucks are only minimally equipped.
- Editing code information is laid down in the field using TRI Sun system.
- To improve quality, cassette recorders in the studio are normally operating through a TBC—even during editing operations.

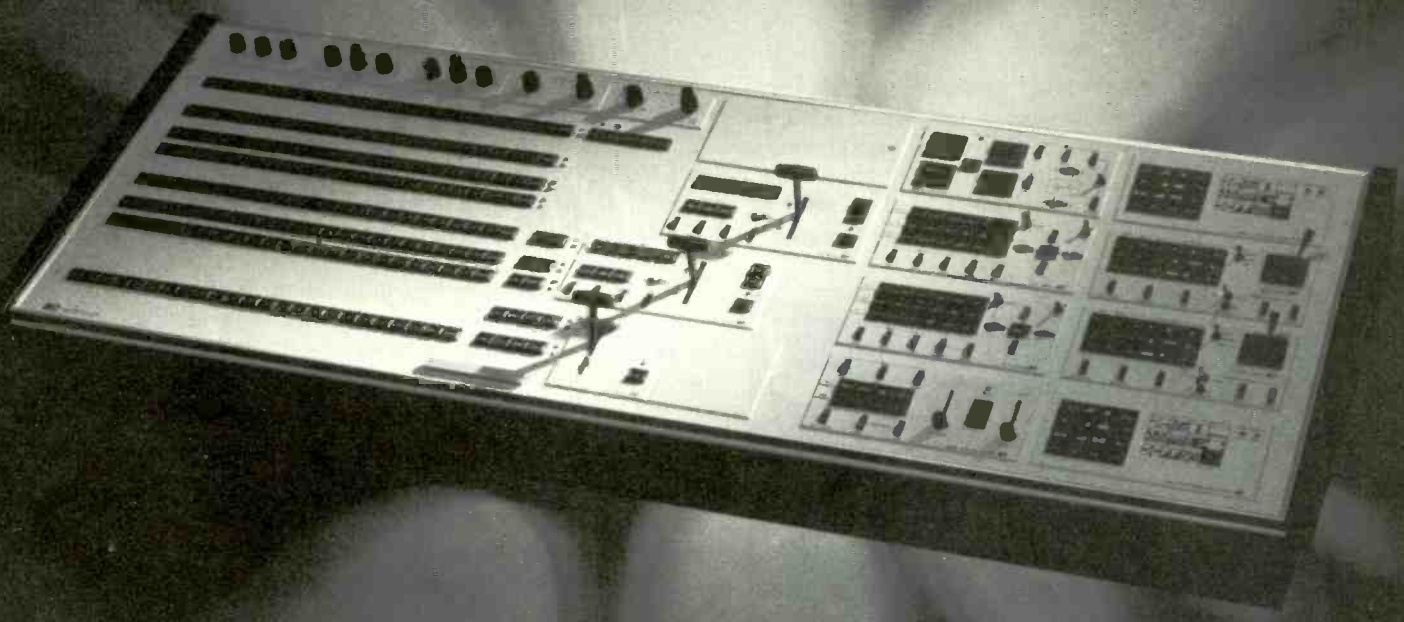
KCMO-TV, and its sister stations in the Meredith Broadcasting Group,** developed a master plan for the transition into ENG. A Meredith Standard ENG System was designed for use in all Meredith Stations. KCMO-TV started switching to ENG in April, 1976. As of December 6, KCMO-TV completed the transition. The other Meredith Stations are in various stages of the transition to ENG.

An overriding consideration for Meredith was to improve quality. "We didn't want to get out of the film business and into ENG unless we could improve the quality," says Steve Smith, chief engineer of KCMO and director of TV engineering for Meredith. Smith said, "After observing the success of KMOX, there was no doubt that we could match film quality which was our initial objective. The final objective was to exceed film quality."

Smith added, "Two years ago, the investment cost and performance of ENG hardware were judged to be excessive and risky. Investments in cameras and tape recorders were judged technologically as a high risk. The

*Battery-powered Plumbicon cameras, portable ¾ in. cassettes for field recording; microwave from Van to Studio cassette recording at the studio for editing and the use of TBC's to achieve a broadcast-stable picture.
**WTVH-TV, Syracuse, NY: KPHO-TV, Phoenix: and WNEM-TV, Bay City-Saginaw-Flint, MI.

smart switcher



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turning point occurred in 1975 with the introduction of the RCA TK-76 camera. (The TK-76 camera, as has been noted before in *BM/E*, puts out a picture often undistinguishable from a studio camera). The introduction of the JVC CR-4400 recorder in late 1975 was the "icing on the cake."

The Meredith goal was not simply replacing film (and indeed the Meredith stations will continue a film capability to various degrees at each station); rather the strategy was to achieve a live capability with an improvement in quality—at a reasonable cost. The Meredith ENG investment was justified by the operating cost savings of substantial reductions immediately and eventually getting out of the film processing business.

The Meredith operational objectives were (1) using ¾" cassettes for all news programming including network feeds and on-air play-back (quad machines should be freed of news responsibility), (2) a limited (1 vehicle) live capability initially with the option of more live capability in the future, (3) the improvement in audio wild sound via double channel recording in field and mix-down during editing.

Many of the ENG "traditional" approaches to ENG were challenged during the development and design of the Meredith Standard ENG system. No hardware decisions were made until available equipment on the market was compared on a matrix chart. If equipment wasn't essential, it was put on a "want" list until its need was justified.

In many cases, side-by-side equipment evaluations were made. "During time-base corrector evaluations, it became apparent that the quality loss of two or three generations of dubbing was excessive unless a time-base corrector was used at each generation," says Smith. "Since there is a significant difference, and we were going to be airing second and third generation tape, we decided to use TBC's at all times. Patch panels were not operationally acceptable. TBCs were too expensive to dedicate one for each tape recorder. Therefore, we needed an ENG switcher that didn't exist"—more about the switcher later.

The TRI EA/4 editing system was selected because "we liked the Moviola features of the TRI system, particularly the 5 times search speed," reports Smith. Also, TRI uses time code for reference and decision making, not the actual editing process. "We didn't want our decision makers and operators to think like mathematicians," he added. "We had space problems at all of our stations. The traditional arrangement of ENG editing hardware consumed too much space. We worked with Windstead who designed a modular cabinet for our ENG editing equipment that occupied the same space (5' wide) as on film editing benches," said Smith.

"The TRI Sun time code system, a video encoded SMPTE code, was selected over the standard audio encoded SMPTE code for several reasons. First, Sun code is put onto the video track and thus both audio tracks are free—one for the interviewer, the other for wild sound. Second, because there is no separate time code track, it is easier to send a tape playback over microwave," says Smith. Third, Sun permits accurate frame count while still framed and during single frame stepping.

In addition to decision making and editing, the Sun time code is used to cue up machines for on air playback (along with the TRI 5 times search mode feature). A cue sheet of time codes goes with the tape to the engineer which is used to quickly still frame to the starting point (which is 2 seconds before the desired picture to allow for pre-roll).

KCMO-TV's editing room uses TRI editors including the Sun time code system, rote compact arrangement.

Meredith stations have two kinds of field units. Type I (microwave) and Type II (non-microwave). At Kansas City, KCMO has three type II's and one type I.

The type II vehicle is a Chevrolet Blazer (selected for its ruggedness) which carries the TK-76 camera, the JVC recorder, Sennheiser shot gun mike, Comrex wireless mike, time code generator, and a portable two-way radio. The type II units are operated by one person—the one-man band. There is nothing more except battery chargers.

A type I truck is a Ford Econo van equipped with a Van Ladder "cherry picker" (aerial ladder) with a microwave dish mounted on the bucket which extends to 35 feet. With this altitude, the truck can stop almost anyplace and complete the link to the studio in less than two minutes. The cherry picker and dish alignment can be operated from the truck roof or from the bucket if some fine pointing is necessary. Although there is a 3 db loss in the flexible microwave cable and rotary joint between the truck and the dish, the loss is not significant due to superior line of site path. Smith says "We have only missed one or two microwave shots. We do not have preselected points, we don't mark curbs or maintain a microwave map. We go to the scene with little, if any, consideration about microwave path problems." This system works well also in the Phoenix, Syracuse and Saginaw markets. Cost of the ladder adds about $7000.

Compared to other stations, Meredith microwave trucks are quite empty—no inverters, no motor generators, no scopes, no sync generator or waveform monitor etc.. Six Sears Diehard batteries can operate all of the equipment for at least 16 hours of continuous operation. The Type I truck carries two dollies. One is a microwave dolly (2 MHz gear, battery, microphone pre-amps, and a Nurad Goldenrod). TerraCom microwave equipment was selected because of its compact size, portability, DC operation and excellent qual-

Van (Type I) has very little built-in gear. Most is on portable dollies.

Aerial ladder on Type I vans extends 35 feet to clear tree tops and house roofs.

ENG Type II vehicle is rugged 4WD Blazer. Has no built-in gear except two-way radios and battery chargers.

ities of construction. KCMO uses no 13 GHz gear for economy reasons. In the future, Meredith hopes to add 13 GHz system when a small manpack version becomes available. When the microwave dolly is in the truck, the 4′ dish on its cherry picker is used; when the dolly is taken out of the truck, the Goldenrod antenna is used. The second dolly has a small rack including a tuner for receiving an off-air signal, a 12-in Unimedia color monitor with its own DC-AC convertor (a KCMO mod), two 4×1 video switchers (for microwave input, tape recorder input, monitoring, and multiple camera coverage) plus the second JVC recorder for relaying Type II tapes. This second dolly, incidentally, can also go into a building which permits setting up the entire truck electronics in a building within minutes. Type I's have a second man, an engineer, who either helps the cameraman, sets up the microwave for live broadcast, or relays tapes from Type II units. This man is essentially field support and can aid Type II operators.

Smith notes, "The RCA TK- 76 camera and JVC 4400 provide a go anywhere, get everything portability with quality superior to and more consistent than 16 mm." The decision to use CR-4400's was based on the unit's light weight, field assemble edit, built-in color playback, superior signal to noise ratio, separate audio mix capability and low power drain. Separate batteries in each equipment is a real hassle. However, we are investigating a single, universal battery which can operate all equipment at least one hour."

Except for outdoors at night, ambient light is sufficient for the TK-76 camera. However, for more aesthetically pleasing pictures, KCMO uses a modified "Sun Gun" light over the lens for key or fill. KCMO has found that a 20 watt quartz lamp (the size of a No. 47 pilot lamp) is sufficient for distance up to 15 feet and the lamp operates on 12 volts drawing less than 2 amps of power.

Back at the KCMO studios, a Nurad quad 2GHz receiver system feeds the microwave system to engineering for live broadcast and recording tapes relayed by the Type I unit.

The news operation is separated into two areas: the news department and engineering management control. The news department has two TRI EA-4/5 editing systems with two each Sony 2850's, two TRI Sun time code readers, color monitor, audio cart recorder, and Shure audio mixer and ENG decision station with a Sony 2850 (including TRI high speed search) with color monitor and time code reader.

Engineering master control has an ENG tech center which contains all the ENG equipment in engineering. Three Sony 2800's for recording microwave and on air playback, two Microtime 2020's, ENG switcher, two TRI Sun I time code generator/reader, one TRI Sun III time code reader, color monitor, etc.

The ENG switcher is the heart of ENG operation in the station. As mentioned previously, the requirement to time base correct every time ¾" tape is played back necessitated a sophisticated switching system because TBCs are too expensive to dedicate a TBC for each recorder. The three Sony 2800's in the tech center need time base correction on input to record ¾" tapes from the field, and on output for on-air playback. The two edit stations require time base correction between the play and record Sony 2850's everytime an edit is performed.

Smith, after an extensive systems analysis, developed the specifications for an ENG switcher: to time share two TBCs between the editing equipment and simply and quickly switch the TBCs to the recorder inputs/outputs in the tech center.

continued on page 72

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MOST INNOVATIVE ENG

The specification consisted of a switcher requirement matrix, which indicated the minimum cross point configuration, functional control panel layouts (designed for easy operation) and the software program specification (a narrative description of operations and definition of the various cross point configurations for every mode of operation).

ComTec was selected as the ENG switcher supplier because of their excellent quality, low cost switchers, and their interest and capability in building a custom switcher for Meredith. Smith reports "a single switcher with microprocessor control was less expensive and simpler to manufacture than using several discrete switchers and IC and diode logic. A programmable ROM is used to store the programs and can be changed in the future if requirements dictate it. The switcher can handle three different operations simultaneously."

The switcher does more than switch TBCs. It is a "total" switcher for KCMO's ENG operations and includes monitoring and routing functions and even switches external 3.58 and V reference Sync from each TBC to each tape recorder.

Smith says "the whole switcher system not only facilitated editing but it meant an ACR-25 was not necessary for airing the news. The cost of the switcher was far less than the cost of buying more TBCs."

The tech center installation is quite elaborate as can be inferred from the description of the ENG switcher. Smith chose Alexander Electronics of Kansas City as the contractor to install the new equipment. Alexander was also low bidder on the group purchase of the ENG equipment.

KCMO incidentally does not use image enhancement—it simply isn't necessary. The Sony 2800s and 2850s were modified however (factory mods plus some of KCMO's own). The result is a picture better than film even though some of the TK-76 resolution is lost in the ¾ in. format. "The reason enhancers don't help," says Smith, "is that the station is getting more quality out of the recorders than theoretically possible based on the ¾ in. equipment specs. ENG enhancers that have been evaluated haven't improved performance since they were designed based on the ¾ in. equipment specs."

Among some of the mods made to tape recorders (aside from Sony mods) were: automatic 3.58 MHz (ext. 3.58 is used rather than the crystals in the machine); automatic V reference; DOC deinhibit for playback (TRI inhibits DOC for high speed search mod); an inhibit to turn off color correction circuits during playback (for use during dubbing and editing when a TBC is not available). KCMO regularly airs 2nd or 3rd generation tapes without sacrificing its quality goals.

While Smith considers the present ¾ in. tape format "excellent for news," he looks forward to the emergence of an improved generation. "It will approach the same basic performance that we now have with one inch tape (excluding the recent super quality 1" formats)." He predicts, "A gradual improvement in tape as well as mechanics and electronics signal processing will bring this about. With better picture quality and increased reliability," he added, "broadcasters will be able to phase out the film chain for showing movies and syndicated programs." **BM/E**

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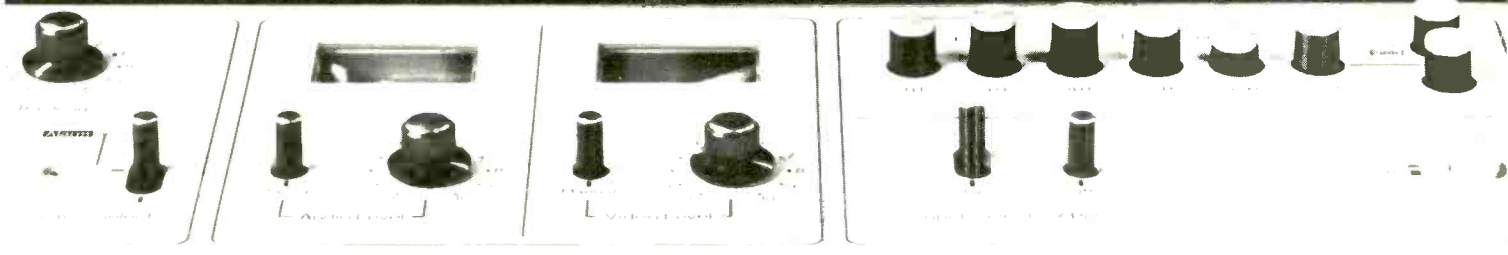

At WISH-TV, the CBS affiliate in Indianapolis, they're using a video tape system primarily designed to stop robbers . . . to stop another kind of loss—false claims for make-goods.

The system is the new Panasonic time lapse video tape recorder NV-8030. As Joe Missick, WISH-TV's director of engineering, explains it: "When an advertiser refuses payment because he says his commercial didn't run, or didn't go off right, we don't argue—we just show him a video tape.

"Now there is no question of what was run. There it is for our advertisers to look at, and there are no areas of contention. We have already saved the cost of the Panasonic time lapse video tape recorder in the first 30 days by eliminating false claims for advertisers' make-goods."

The Panasonic VTR not only verifies that the spots ran, but that the video reception was good.

In addition to high resolution, the Panasonic NV-8030 is versatile. WISH-TV also uses it for log verification, to check on commercial loudness and to pinpoint any transmitter interruption.

The NV-8030 can record pictures from an off-air monitor, continuously in different time sequences—9, 18, 72 and up to 108 hours (that's 4½ days) all on one reel of tape. WISH-TV uses it in the 18-hour mode—so one tape monitors virtually an entire broadcast day.

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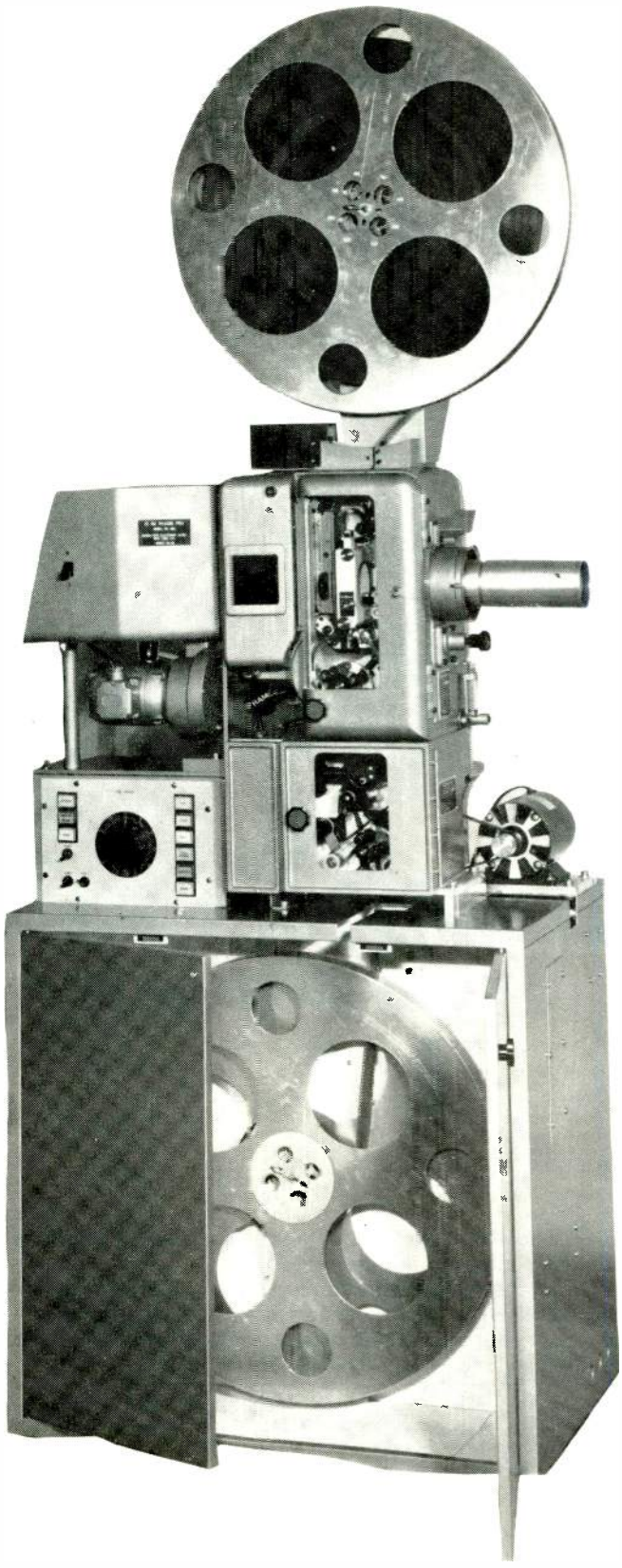

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Radio's ENG, Fifty-Five Years Old, Is Transforming Itself Into A New, Better Service

Stirred by video Electronic News Gathering's demonstrations of the impact of news fed in immediately from every part of a coverage area, radio broadcasters and the manufacturers of remote equipment for radio are right now evolving a new kind of radio ENG with new higher levels of immediacy, reliability, and fidelity.

RIGHT FROM THE DAWN of broadcasting, ENG has naturally been the way for a radio broadcaster to cover the news in his area. By the middle 1920's, we had learned to expect, in any photo of a set news event taking place, one or more microphones placed to feed the "sound" of the event to one or more radio broadcast transmitters. Those classic microphones of the 1920's and 1930's established the national habit of being at the front line via radio, whether it was for the inauguration of Calvin Coolidge, the defeat of Jack Dempsey by Gene Tunney, the bombing of London by the Nazis, or the fiery end of the airship Hindenburg over Lakehurst, New Jersey (still the most terrifying disaster report ever put on the air).

Over the decades since the 1930's, through those thousands of college football games, world series championships, country fairs, man-in-the-street interviews, there were two main limitations on the quality of radio's ENG. First, the use of so much input equipment of subtelephonic quality established the sense that the reporter was not really out there, at the scene of the news, unless he was nearly buried in noise and seemed to have his head in a small barrel and a towel stuffed in his mouth. The missing "esses" had to be inferred from the context.

Second, radio news gatherers could not really report, on the spot, every happening of note in a community. Remotes usually required some advance planning (the shattering Hindenburg report would not have existed unless the station had planned to "greet" the incoming airship). In recent years, the "news car" with mobile microwave equipment has become something of a staple, but even that will not generally give a radio station in a very large city or in mountainous terrain thorough coverage of the area: there will be too many spots from which the mobile transmitter cannot be picked up at the home studios.

Moreover, in the past, too much of the available mobile microwave equipment continued the tradition of audio with severe mid-frequency peaks, high distortion, and no highs of any kind. But a major change from all that is now underway and it means for greater effectiveness, speed, and coverage ability for radio's ENG. Here are the main elements:

Equipment. A few manufacturers are now making portable microwave equipment for radio with decent audio quality, including hand-held units of 2 pounds and less, as well as the larger car-borne variety. And some broadcasters are undertaking the modification of older microwave equipment for better audio. It is evidence of a spreading realization that the old "spaceman" quality is not really an essential element of a newscast. In fact, as one news director put it to *BM/E*, high distortion in the remote equipment is dangerous, especially for an all-news station; because of the well-known phenomenon of "listener fatigue." Listeners will tend to tune the station out without knowing why. As the following station stories show, nearly all have made special effort to clean up the audio in their remote operations.

System concepts. Another spreading realization is that the old "get it back if you easily can" attitude is no longer viable with video ENG showing more and more how to get in the news immediately from anywhere. Stations in large cities are now swinging to the installation of a number of permanent repeaters or receivers throughout the area, linked by telephone line or microwave to the studio. These stations can be placed so that the mobile microwave, or the hand-held microwave, or a combination of the two, can reach at least one receiving antenna from anywhere in the city.

Stations in small communities will usually not need a large array of receivers and may, in fact, get away with a single antenna, which may, with good luck, work well right at the studio location That is an old tradition; what is new is the idea that the news system *can* be designed for total coverage of the area whether it takes four repeaters or one repeater or none.

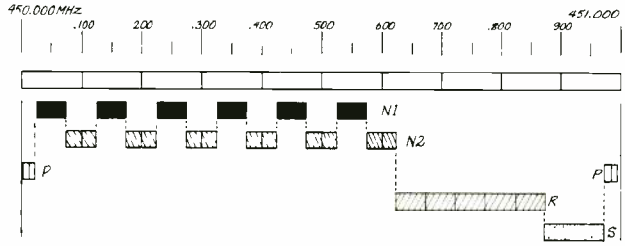
continued on page 76

Probably the most outstanding example to date of this new system concept is the news-gathering operation which is being set up as this is written, by CBS Radio in Washington, DC, with plans for later extention to other cities.

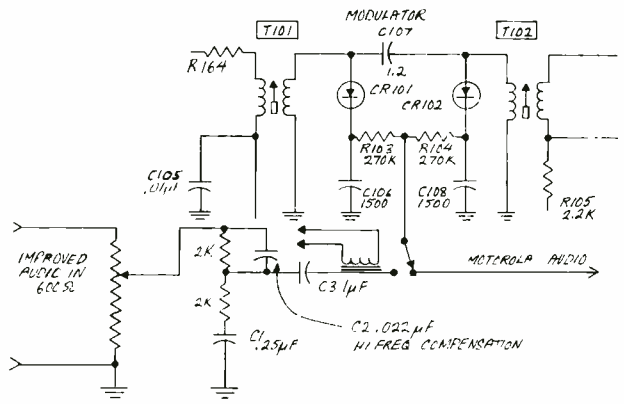
Spectrum assignments. The Federal Communications Commission is facilitating the elaboration of radio ENG, for more efficiency and flexibility, with the new alterations in and additions to the assignments in the 450 MHz band. Another story in this issue describes those changes in some detail. The largest negative aspect of the new microwave system concept is the difficulty of getting space on the air in the large cities, and of keeping it relatively free of interference once the station puts it to use. The new frequency assignments are intended to be helpful in this direction.

Most of these themes can be seen in an actual operation at **WDIF, a 3 kW FM station in Marion, Ohio.** George Scantland, owner and general manager, has several of the new Marti RPT 1-450, a 1½ pound walkie talkie designed expressly for radio news gathering which provides the new kind of (decent) audio quality. With 1 watt output on 450 MHz, it reaches the station directly from up to about a mile away. For longer hauls the small unit can feed a 40 watt Marti microwave unit in a news van.

Scantland got election tallys on the air as they were being officially counted by taking the small unit into the court house. He is delighted with the audio quality and says his remotes sound like studio productions. He does not feel that makes them less "newsy" and his audience seems to agree.



New remote-channel assignments, 450-451 MHz (duplicated 455-456 MHz). *N1, (12 channels, 50 kHz each, 10 kHz deviation); and N2 (24 channels, 50 kHz each, 5 kHz deviation), for (in order of priority) emergency communication, program to be broadcast, cues, operational communications, and tests and drills. P (8 channels, 10 kHz each, 1.5 kHz deviation), a new service exclusively telemetry, remote control. R (10 channels, 50 kHz each, 10 kHz deviation), for program material. S (two channels, 100 kHz each, 35 kHz deviation), for composite stereo.*



Simplified schematic of pre-emphasis unit used by KFBW (see story) to extend audio response of remote transceivers.

At KOVA-FM, in Ojai, California, the station's 130 watts reach a large area from an antenna on a mountain overlooking the valley, 1200 feet up. The audience of 375,000 people is spread over an extremely large area and the local news is spread out too. Fred Hall, who is president, general manager, news director and chief engineer, uses two news cars, each equipped with a Moseley microwave unit operating on 160 MHz. News pickups go from one of the cars to a receiving antenna on the mountaintop which can be reached from almost anywhere in the huge area (as the studio itself could not). The news then goes to the studio on a 67 kHz subcarrier on the FM and at the studio, can be taped or put directly on the air.

There is a talkback circuit from studio to mobiles on a 950 MHz subcarrier of the STL microwave. The whole remote system, from microphone to transmitter, is flat to 5000 Hz, says Hall, which gives excellent voice quality in contrast to many of the older portable two-way radio systems.

Here we see the new system concept at a moderately complex level. The *management* of the news operation is an integral part of the concept, here carried out with the talkback circuit from studio to mobiles.

A much more elaborate system, approaching the ultimate in big-city ENG, is that of **KFBW-AM in Los Angeles,** an all-news station of the Westinghouse group. There are three repeaters, plus a full receiving station, on mountaintops surrounding the city. The eight news cars are on 455 MHz. The repeaters are connected to the studio by equalized telephone lines.

The operator in the studio can choose from among the incoming remote lines for best signal quality; KFBW is working toward an automatic diversity system which will take this burden off the operator. In addition to the *fixed* repeaters on the mountains, there is a *mobile* repeater in a station wagon which can be rushed to an advantageous spot if none of the mountain-top units can get a good signal back.

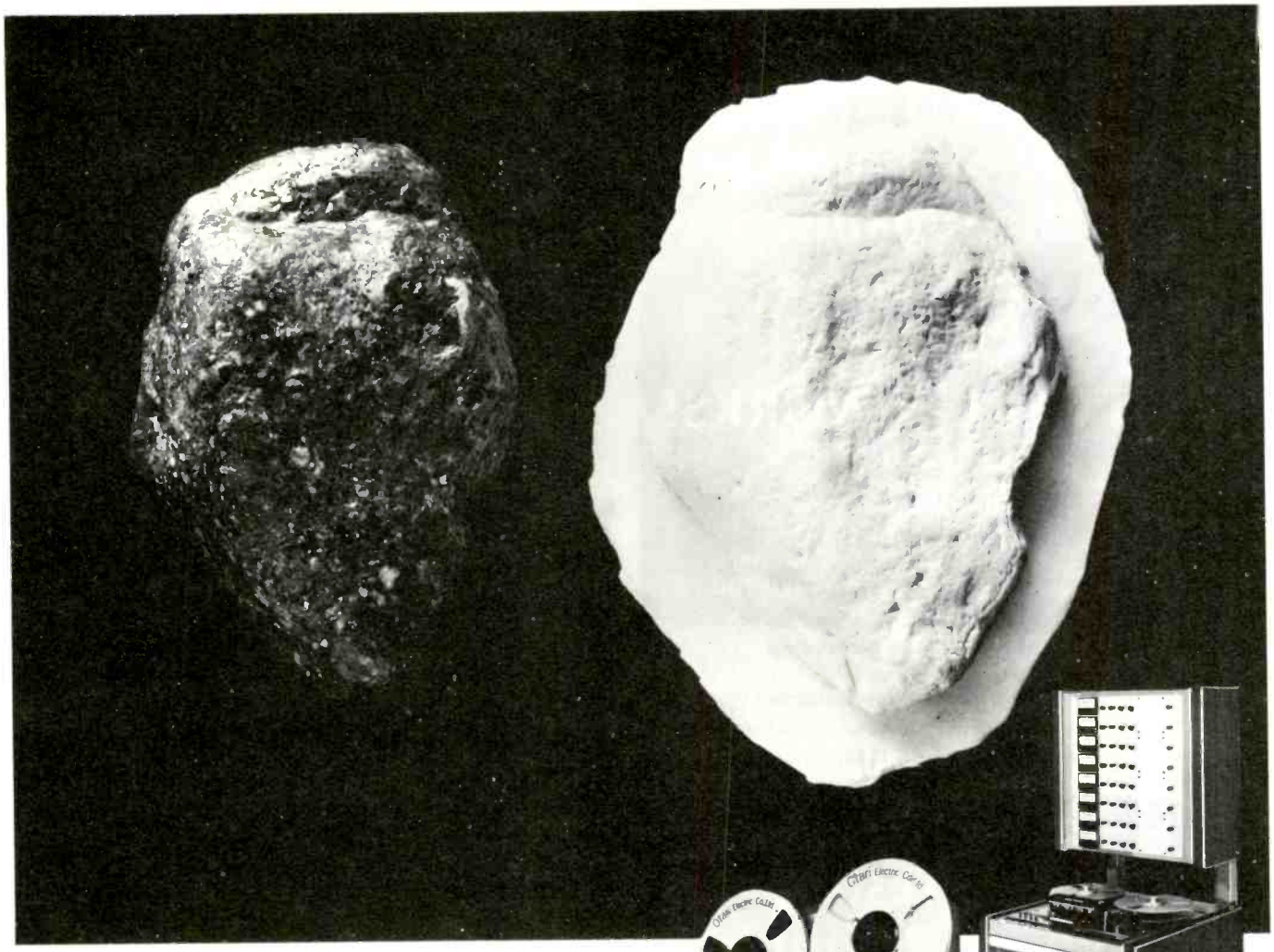
The remote crews have hand-held walkie-talkies plus two-way mobiles in the news cars all operating on 450 MHz and 455 MHz. The walkie-talkies can reach one or another of the repeater stations from up to 50 miles away; by relaying thru the news van units, KFBW can get instant news feeds from practically anywhere in a hundred-mile radius.

The remote transceivers and the repeater station equipment are all from Motorola but the system as a whole was modified under the direction of Don Parker, former chief engineer at KFBW, for better audio quality, from microphone back to studio. This was effected in the case of the Motorola mobiles, in the cars, for example, with an add-on unit, to avoid alteration of the circuitry inside the Motorola equipment.

The modifications cleverly make use of pre-emphasis and other techniques to provide good audio response, 50 Hz to 7 KHz, without increasing the deviation in the FM circuits. Chief Engineer Dick Rudman points out that the improved audio quality gives a much sharper sense of "immediacy," of being really there, when the reporter is in a crowd or in any active out-of-studio scene. KFBW scored a radio scoop on the infamous Symbionese Liberation Army shoot-out and fire; the ENG system brought in a highly realistic crackling of the fire, rifle shots, police shouts, etc.

continued on page 78

once is enough!



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Circle 148 on Reader Service Card

Cueing to the news cars is by AM to the car radios. Rudman says that over the next couple of years they will make further refinements in the system. He points to the increasing crunch on microwave spectrum space from the fast growth of both video and radio ENG, in the largest cities, as ENG's greatest problem (see story on another page on the new FCC assignments in the 450 MHz band).

Small station approach

A simpler system, appropriate to a much smaller community, that of **WDLC—AM & FM in Port Jervis, New York,** includes a number of good ideas for facilitating "instant news" that look handy for similar operations in hundreds of communities. Here again the new Marti 1-watt hand-held portable on 450 MHz is a central instrument supplemented when needed by a 25-watt Marti in a car. Chief Engineer Henry Spahr has substituted a small Yagi antenna for the original rod antenna on the small portable. This gives him a considerably longer reach directly from the small unit. The receiving equipment for remotes is on top of the station's FM tower, six miles from the studio and at an elevation of 300 feet. The remotes get to the studio on the station's SCA subcarrier frequency; as Henry Spahr puts it, the incoming remote circuit is "always there. We don't have to turn it on and check it out before we can use it."

One or the other of the microwave units, or the two working in relay, will get the news to the FM tower from most locations in a radius of 5 to 6 miles, which includes the major part of the community. For especially difficult locations in this hilly country, Spahr has a portable, collapsible 25-foot mast he can use with the larger transmitter. Or one of the transmitters with its antenna can be up to 600 or 800 feet from the news pickup point, on top of a building or in a "slot" that allows the signal to reach the remote receiver. An auxiliary Shure portable mixer builds up the audio for the haul to the transmitter. The remote crew sometimes has to aim at the pickup antenna by compass; they have developed high skill for this.

Spahr also emphasizes the effectiveness of "bounce" paths on the 450 MHz frequency; in many cases reflection from a mountain or a building will get the signal out of a "well." He tells the remote operator what to do and how the remote is coming in with cue words inserted into the ongoing program by the news anchorman at the studio. For example, the words "time check" mean "we are getting you OK." This system of remote management can obviously be used by just about any station and should be adequate for many of the smaller operations.

Altogether, WDLC's remote system has allowed the station, which has a general format of MOR and country music, to serve the community with practically instant news on all significant occasions. It is one way of helping tie the station tightly to the community.

There are certainly hundreds of radio stations where the handling of news remotes includes some up-to-date techniques that help in making the news more "instant" and more convincing. The four stations described in the foregoing exhibit a very wide range of such techniques and highlight the main trends that have been noted. **BM/E**

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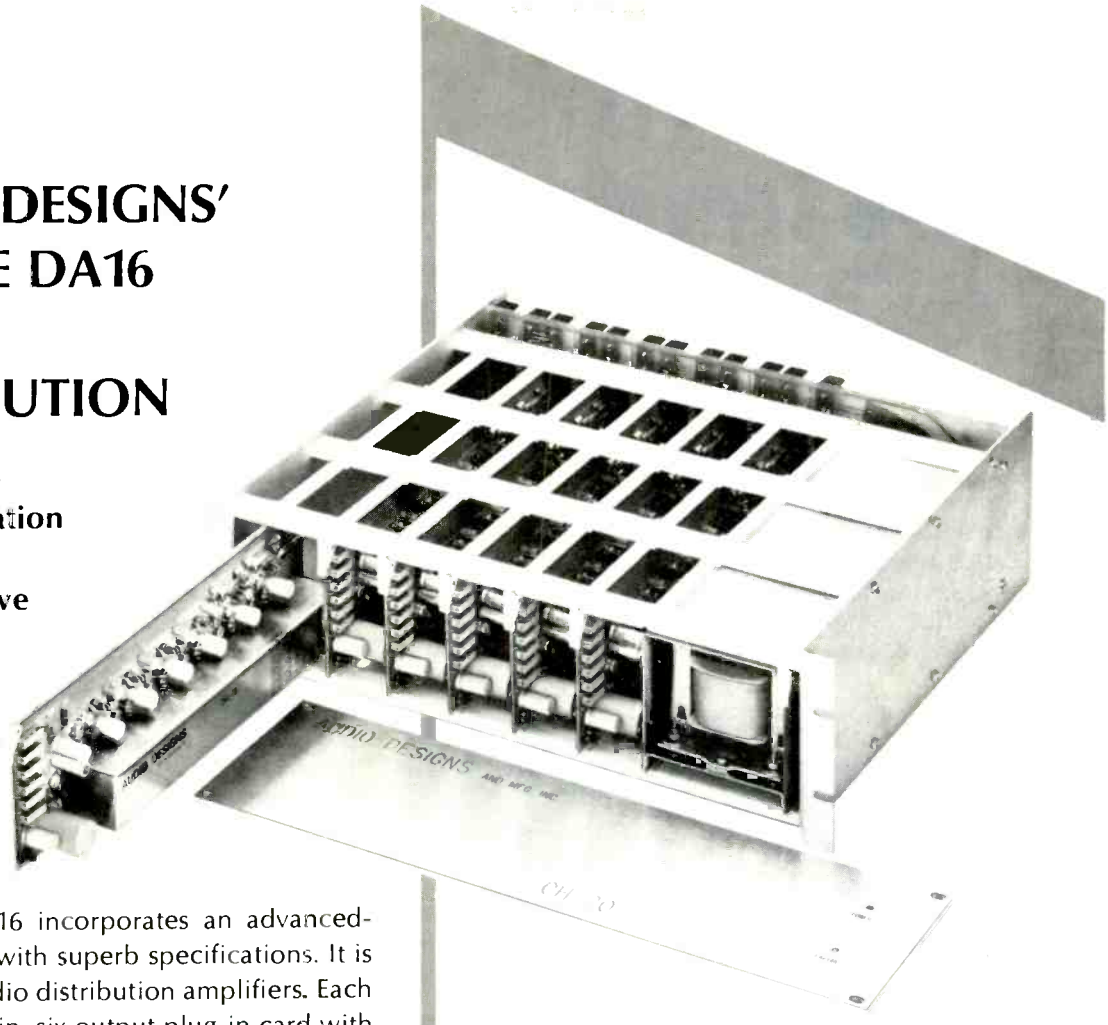

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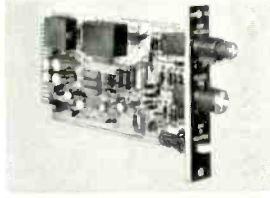

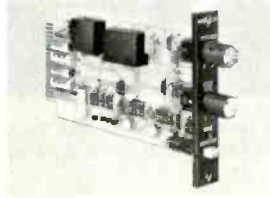

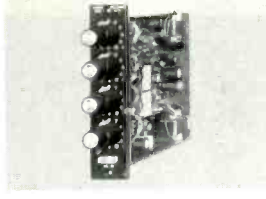

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Circle 151 on Reader Service Card

President Ford's 1976 Traveling TV Circus

In the closing days of the campaign, the Ford people put together an Electronic Field Production operation that proved the reliability of the new technology.

THE PUNDITS OF AUGUST were predicting a landslide victory for Jimmy Carter but Gerald Ford, buoyed by his nomination, put together a team of campaign people who vowed to fight for every voter. In the few remaining weeks before the election, this team embarked on a massive effort using electronic field production equipment and created six regional network half-hour political programs that nearly pulled off a victory for the President.

Aboard Air Force 1, Imero Fiorintino checks out the lighting for President Ford. Cramped quarters were a problem . . .

. . . but the results achieved were invariably good.

In the week following the second debate, in mid-October, the President was still behind in the polls but he had narrowed the gap considerably. His advisers felt that the campaign was gathering momentum and met to discuss how best to exploit this momentum in the final days. Ford had a number of advantages. Since he had not been nominated until August, the lion's share of his federal campaign money was still available, whereas Carter had been forced to spend much of his $28 million to keep his name and campaign alive since July. Ford also had the prestige of the Presidency with its privileges of office: aircraft, newsworthiness, and sheer majesty.

But Ford had his handicaps as well. He did not perform well in large groups. The public perception of him as a bumbler had not been dispelled by the debates, especially after his East European remarks. The television press seemed to lurk around waiting for him to make a mistake. All in all, the President did not feel he was getting his message across or effectively using the single most powerful medium in the nation.

Dissatisfied by his use of the media in the primaries, Ford enlisted the aid of a Washington political consulting and advertising firm, Bailey, Deerdourff, and Eyre. The firm had been working on the campaigns of moderate to progressive Republican candidates for nearly 10 years and normally tried to begin work with a candidate even prior to the announcement of his candidacy. Now, they would enter the "big" campaign, not at the beginning, but after the nomination.

It was mid-October when Doug Bailey, John Deerdourff, Bob Teeter, the President's pollster, and Bill Carruthers, special television consultant to the President, met to set strategy for the final week of the campaign.

Teeter's polling indicated that of the top eight or nine states, Ford had a chance to win five or six of them. The President would have to accomplish two things: keep his strength in some states, like California, where he led Carter, and win over the undecided in swing states like Texas, Pennsylvania and Ohio.

Advisors develop the TV blitz

The decision was made, then, that in the final week of the campaign, the President would campaign fulltime in California, Illinois, Ohio, Pennsylvania, and New York. Deerdourff and Bailey felt that the President needed to capitalize on his strengths and reach a maximum number of voters in each of those states. They soon came up with the idea of a regional television network that they could put together for Ford in each state and, even with the

continued on page 82

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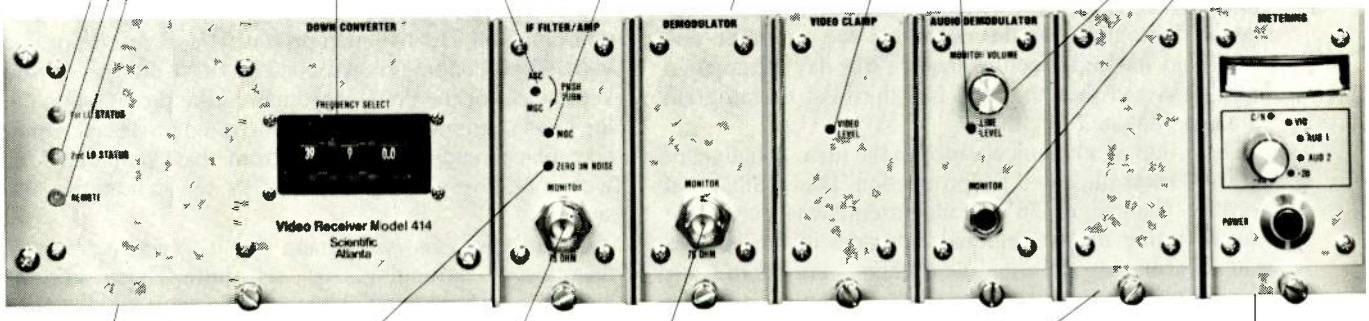

Zero-on-noise control zeros the C/N meter on noise (in AGC position) allowing accurate C/N indications on the meter.

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Circle 152 on Reader Service Card

lowest possible ratings, reach more voters than could possibly be reached through gruelling whistlestop campaigning. They began to talk of the final days as a "blitz" that would use the advantages of the office yet conserve the President's physical strength.

A half-hour political program would give the President an opportunity to speak to voters on the issues in a relaxed and controlled atmosphere. In addition, family members that had been very effective in the past could be used to tout the President's human side. To provide local orientation to each program, a noted local supporter of Ford from each state would be enlisted to appear on the program. To answer the question of Ford's leadership qualities and reinforce his bi-partisan appeal, Edith Green, the former Democratic Congresswoman from Oregon, would appear on each program. To tie all these elements together, Joe Garragiola, the sportscaster, had volunteered to serve as moderator.

The only problem with the format as it evolved, according to Bill Carruthers, was that it was still a "basically dull political talk show." Carruthers, who had considerable experience with remote television production, suggested that excitement could be brought to the program if it incorporated videotaped highlights of the day's campaign activity. Essentially, Carruthers was suggesting a four to seven minute mini-documentary to be included in each of the shows to be broadcast in the various states. Garragiola would introduce the program and voice over the mini-documentary of that day's campaign highlights, and then the final two-thirds of the program would be devoted to "talk."

The group of advisors warmed to the idea. A budget of $200,000 was allocated for production. Dawn Sibley, at Ford's "Campaign '76" headquarters, was put to the task of lining up the regional networks in the various states and buying the time. Carruthers went off to California and New York to "hire the best people," to make up the camera crews and production staff.

Equipment package put together

In New York, Carruthers went to Imero Fiorintino Associates and asked Imero to put together the equipment package. He wanted Ikegami cameras but left everything else up to Imero. Soon, Fiorintino had put together a package consisting of 3 Ikegami HL-35s, 1 HL-33, 2 Sony VO 3800 recorders and 2 Sony BVU-100 recorders.

For the editing equipment, Fiorintino went to KVC Electronics in New York and, working with Jerry Steinberg and Jerry Kravat, put together a "portable" ENG editing system consisting of 2 Sony 2850 editors, a Spectra Vision Edit Controller and Backspacer, 2 CVS 504 Time Base Correctors, a Tektronix 146 Signal Generator, waveform monitor and full back-up for each element including monitors.

By the time Fiorintino and KVC were finished they had assembled nearly 5,000 lbs. of equipment in 111 cases. The camera gear was shipped to Los Angeles for the first show which would be edited on a locally available Convergence ECS-1 system. The editing gear went to Chicago to meet up with the rest of the crew in time for the second show. Accompanying the equipment was Richard Namm, hired by KVC as, in his words, " . . . a schlepper, a gaffer, an engineer, a technician, an operator, an editor, and, at times, an AD." Fiorintino provided technical support to the camera equipment via John Leay, formerly with CBS, and Al Jones, an Ikegami specialist. For the next week, these three men would care for equipment that would travel to 29 cities in 9 states; be repeatedly packed and unpacked in 111 cases as it flew 248,000 air miles and flawlessly produce 2880 minutes of original material to be included in 6 regional half-hour programs.

Organization is the key

As Carruthers put it, "the logistics were incredible." Each day's activity needed to be coordinated with the President's scheduling office. The four camera crews, now sporting T-shirts that read, "President Ford's Feeling Good Traveling TV Circus," were each assigned to cover different aspects of the campaign activities. One crew accompanied the President at all times, while another kept one step ahead of him, recording his arrivals and departures, then rushing on to the next stop. The two other crews were assigned to the family, one with Betty Ford and one with Jack Ford.

Each crew consisted of a cameraman, a tape and audio man, a gaffer and a field producer. The crews followed the President and his entourage everywhere, recording constantly. When they completed the task, they would rush to wherever the local editing system had been set up; logging the tapes while watching them through the viewfinder on their way back in the car.

The key to the operation was good advance work and coordination. The two men primarily responsible for this were Mike Pengra, an associate of Bill Carruthers, who kept ahead of the crew coordinating the presentations at the local stations where the taping of the programs would take place, and Tom Angel, from the Campaign '76, who took overall responsibility to see that things ran smoothly.

Angel's job, as one person put it, "was essentially thankless," arranging for scheduling and accommodations for 21 tired, haggard television people; providing rental station wagons and vans whenever and wherever needed, and seeing to it that the people themselves, were where they were supposed to be at all times.

Back in New York at Imero Fiorintino's, Harriet Silverberg had been assigned to staying in touch with the "Circus" as it moved from city to city. Things got so hectic that at one point she and her understanding husband moved into the office in order to be available 24 hours a day. The arrangements she made by phone sometimes got tricky. In one Ohio city, the crush of the campaign entourage took up every available rental car and truck. One camera crew had to use the only vehicle Harriet could get—an ambulance.

Richard Namm, the editor/technician, etc., etc., first caught up with the "Circus" in Chicago. He left New York the night before with all the editing equipment and was met at Chicago's O'Hare Airport by Bill Geller, a west coast editor on leave from Vidtronics for the duration. The equipment was loaded into a van and driven to an office building across the street from WLS-TV, where the Chicago regional program would be taped the next day.

Setting up the editing system

Namm and Geller worked into the early morning

continued on page 84

The complete issue of equipment for one ENG crew. Overall, the "Circus" hauled around 5000 lbs. of assorted equipment.

Ken Lamkin (camera) and Carl Erickson (mic) record the President's arrival in Chicago. This scene was repeated in every city as in . . .

. . . New York City, where the President arrives via helicopter at the Downtown Heliport near Wall Street.

The arrival recorded, Lamkin and Erikson head for their station wagon to rush the cassette to . . .

. . . the editing team. Here, Mark Goode (standing) driects his editors, Richard Namm (seated center) and Bob Geller (right).

The President's New York arrival as it appeared on the regional network within a few hours of its occurrence.

hours setting up and testing the editing system. It was decided that the best way to set up the system was to come out of the feed deck, loop through a monitor, then loop into the waveform monitor "A" side, then back out of the "A" side into the CVS-504B TBC, and then, into the "B" side of the waveform monitor and out again, into the edit controller and, finally, into the editor. The purpose for this configuration, according to Namm, was to "see the signal clean before it hit any electronics."

Namm used 2 Panasonic High Rise Crosspulse monitors to help ride tension. He found that the TBC "was kinder to us when we were cognizant of tension than if we just left tension on automatic."

After the equipment was checked out, Namm and Geller laid down black on several cassettes slated to become EE masters the next day. They then used some of the Los Angeles footage to make a test EE master and took it over for a compatability test with the WLS-TV quad machines. The idea was to roll the ¾ in. tape up to quad just prior to taping the show and there was some doubt that in each case the CVS time base corrected master would match up with the equipment on hand at the stations. Fortunately, incompatability between TBCs rarely became a problem. At WLS-TV, they were using an Ampex TBC and the dubb went off perfectly.

The next day, as the President's campaign rolled into town, things began to pop. The show was scheduled to be taped at 5:30 pm and footage from the field crews did not start arriving at the editing center until 2:00 pm.

Frequently the crews would rush in, equipment still on their backs, and pop the cassettes into the feed deck. The field producer would start calling out the location of shots he thought were helpful and Bill Carruthers and his assistant, Mark Goode, would review the tape, barking editing directions to Namm and Geller. This approach used strictly assemble edit procedure, never going back to make an insert no matter how good the shot.

Since Carruthers directed the studio portions of the programs as well, he would frequently have to leave in mid-stream to reach the studio and get things going there. Namm, Geller, and Goode would stay behind, furiously editing.

When the time came, the EE master would be rushed over to the station and dubbed up to quad. The taping for the regional broadcast began and, at the proper time, the "highlights" would be rolled in. On one occasion, in Cleveland, the "highlights" were so late in arriving that Carruthers taped the second half of the show first and later did the introduction and videotaped "highlights." On another occasion, in Philadelphia, the tape had to be rolled in "live" during the broadcast.

The final program was aired over a regional network set up by Dawn Sibly. In most instances, the network consisted of 7 or 8 stations, usually ABC affiliates, fed by telco lines. In one case, in Texas, they reached a high of 11 stations on the network and used a combination of telco lines and microwave.

The "Circus" began in Los Angeles, moved to Chicago, then to Philadelphia, and then to Cleveland. At that point, late information from pollster Bob Teeter indicated that a side trip to Texas might pay off and a decision was made to rush on to Houston for a day's campaigning. The last stop on the itinerary was New York. All in just six days.

Campaign rolls on

In each city the same production pattern was repeated with minor variations. The editing center was sometimes located in an office building, as in the case of Chicago, or in a hotel or motel, or at the local TV station. In Cleveland, Namm and Geller set up in a Howard Johnson's Motel near WJW-TV. In a short time, phones were being answered with the salutation, "Ho-Jo Edit Center." In New York, the editing center was set up at KVC headquarters where the equipment began its trip. The hectic pace had not slowed even though there was only one day left before the election. While reviewing the cassettes recently arrived from upstate Buffalo, a crowd scene that they wanted to use showed a sign that read, "Polonia Wita Ford." After Ford's Eastern Europe gaffe, no one was taking any chances and an urgent call went out for someone who could read Polish. Finally, one of the building's elevator operators was discovered to be Polish and rushed in for immediate consultation with the editors. A rough translation of the sign proved to be supportive of the candidate, so it was left in.

The portable electronic equipment, though tossed around and buffeted constantly, left everyone impressed. There were no horror stories. A sound problem in Los Angeles resulted from the unfamiliarity of one of the operators with the machine. In Philadelphia, they had trouble dubbing the cassette up to quad and incorrectly blamed it on the TBC. A call was immediately placed to the hotline maintained at KVC throughout the operation. Jerry Steinberg located a Quantel TBC in Cherry Hill, NJ, and had it rushed to the WPVI studios in Philadelphia within the half hour. In anticipation of trouble, the Spectra Vision manufacturers had held a replacement unit ready for the team when it arrived in Philadelphia but it was never called into service.

ENG equip. wins, Ford doesn't

As for the Sony VO 2850s, Namm said, " . . . we literally beat the ---- out of them and they never gave us any trouble." Carruthers put it this way, "I think it is a great credit to the guys in the industry who conceptualized this equipment years ago and said that they could make it portable and rugged." As for the visual quality, Carruthers said he'd be proud to include this footage in any program. "When you look at the time saved and the cost, it's better than film," in Carruthers' opinion. Even with the addition of Texas, late in the game, the "Circus" came in well under its $200,000 budget.

Late on Sunday night, October 31st, the last show had been aired. The 21 members of President Ford's Feeling Good Traveling TV Circus gathered at Imero Fiorintino's for a farewell party. Many had met each other less than a dozen days ago. They hadn't eaten decently, slept, or taken a day off. The feeling of camaraderie ran high. Earlier at the studios of WABC-TV, New York, the President posed with them for a group photograph and thanked each of them for their "Herculean effort and selflessness." Two days later, the President narrowly lost. Not one member of the crew, however, had any regrets about the "Circus" whether they had been Ford supporters or not. They agreed it had been an "incredible experience" and was for them, "mostly a matter of professional dedication." **BM/E**

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Circle 153 on Reader Service Card

The RCA TK-76 Camera: It Works—Right Out Of The Shipping Case

RCA began delivery of its TK-76 portable color camera, mid spring, 1976. A primary design and manufacturing goal was to bring to the marketplace a video camera with handling characteristics similar to 16mm film units—and one which would perform to top specs the first time, and each time, power is applied.

Many new manufacturing and assembly techniques were created to assure that the camera would be free of the "growing pains" associated with most newly designed equipment. Most users will attest to the fact that RCA accomplished its goal. Some of the techniques which promote the camera reliability are illustrated in the accompanying photos.

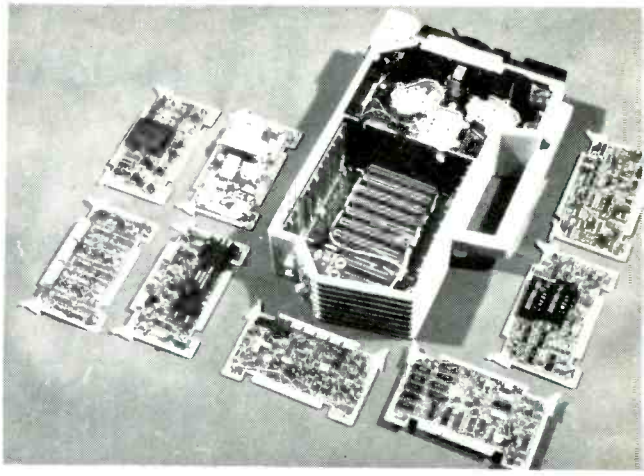
The TK-76 begins life in a carefully planned clean environment populated with workers trained to a high order. They carry out the procedures and tests which have been selected to exercise TK-76 components, assemblies, and systems during manufacture. If methods or equipment did not exist to assemble and check TK-76 with computer accuracy, they were created by RCA production staffers.

Computers carry programs to match camera yokes, to test board assemblies and check mainframe wiring. A computerized data bank holds all test information about each TK-76 camera so it will be available to users on request.

Yokes are assembled with tubes and prisms on dust-free flow benches and, in turn, are transported to a pressurized area for computer test. The assembly eventually becomes a shock-mounted, quality optical system capable of maintaining registration for extended periods.

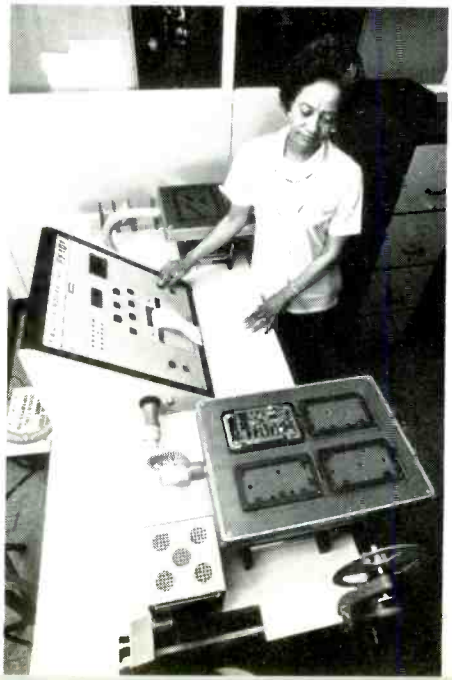
The meticulous attention given to maintaining design fidelity of the TK-76 through manufacture and assembly is intended to pay out when each new camera enters ENG service and meets the primary RCA design objectives—quality pictures for the user each time it is cabled for power.

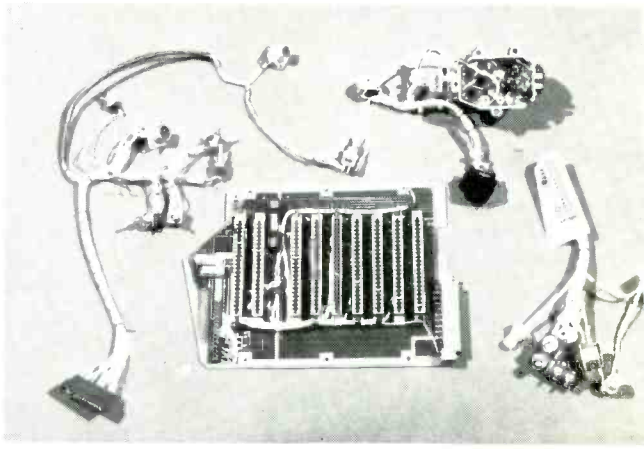
Ready for ENG service right from the case—a TK-76 is packaged for shipment after final systems checks and camera registration. It will work because of care in manufacturing as shown by the accompanying photo.



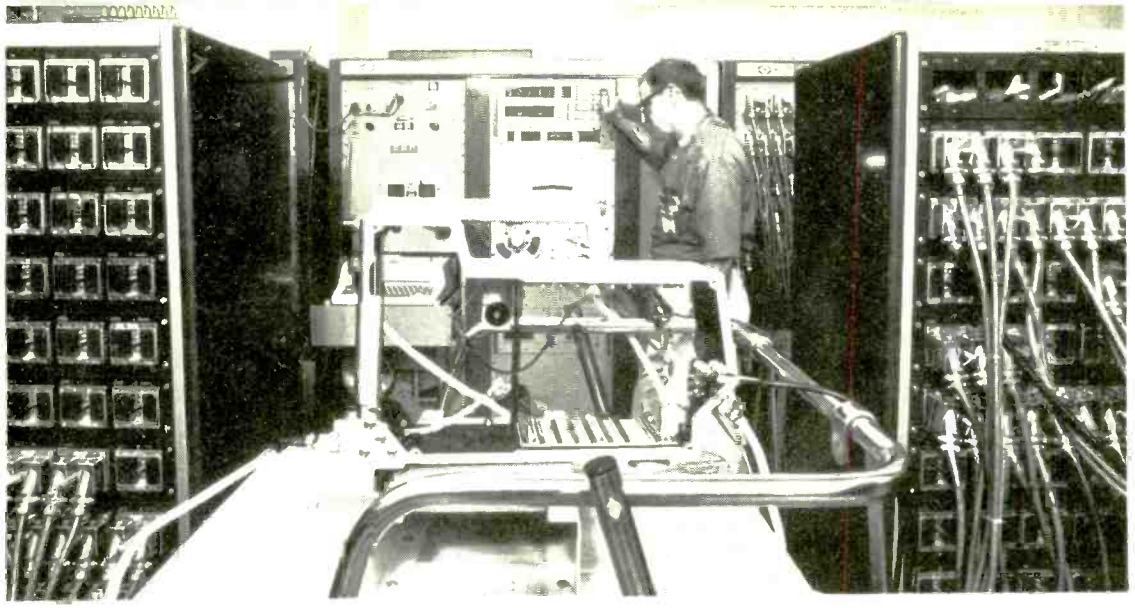
A T-Frame mounts yokes, tubes, and prism as a single assembly to maintain optical alignment for long periods. A printed backplane and plug-in module boards complete the rugged components of the TK-76 camera.

Simulated operation of every module board—boards are dynamically checked (under power) for missing, wrong value, reversed or failed components and for open paths or bridging. A hardcopy printout pinpoints the need for further action.

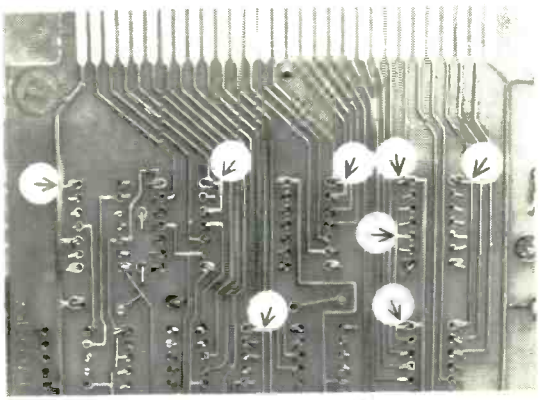




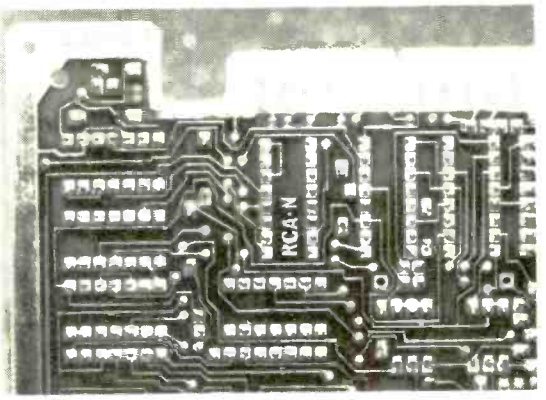
Fewer cables mean fewer operating faults. Three short direct plug-in cables are shown in relationship to the backplane assembly. The cables include supply for yokes and tubes and are assembled as a unit into camera mainframe.



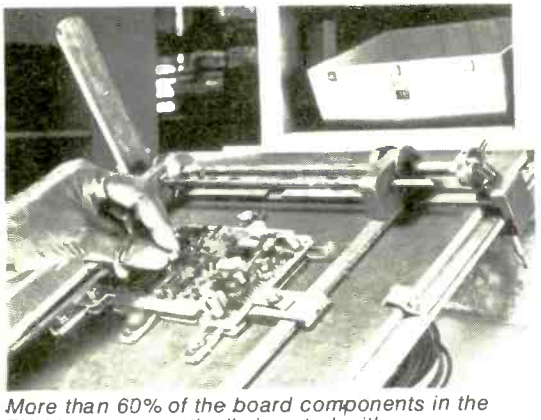
A wired mainframe gets a computer A-OK! Wiring is checked as a completed assembly against a computer program, a process which reduces chance for wiring error to practically zero.



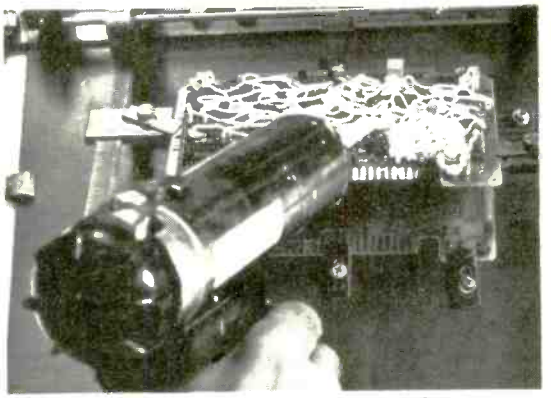
Problem: *Older hand-insertion techniques contribute to possible failure. Long board mount leads, clinched to hold components in place caused the circuit defects indicated by arrows.*



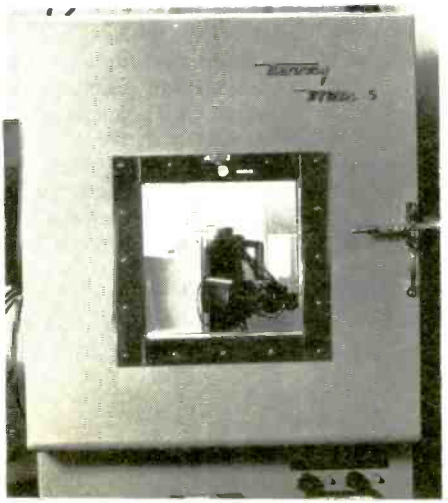
Solution: *Create new assembly and soldering techniques to produce the clean, high density circuit board illustrated, which is free of bridging, solder splash and open circuit path defects.*



More than 60% of the board components in the TK-76 are automatically inserted with computer-controlled machines. A "Caddy Pack" brings components for manual insertion to the assembler in proper sequence.



A "spaghetti-like" foam developed by RCA engineers applied to this completed board "clinches" components. The foam hardens within minutes to hold components firmly in place for processing through solder machine.



As a final test, the TK-76 undergoes a 150° F heat soak. This is a rougher test than a year of heavy duty use. After eight days of continuous test the camera still produces a color picture.

INTERPRETING THE

FCC RULES & REGULATIONS

Changes In Technical Operation Rules

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

AS CHAIRMAN WILEY COMMENTED recently, the Commission's reregulation efforts have resulted in the deletion or amendment of 450-460 obsolete or duplicative rules and regulations. Broadcasters are seeing the burdensome tangle of operating restrictions being pruned back little by little. Obfuscatory and conflicting rules are being reworked.

Not long ago, the Commission turned its attention to technical operation rules applicable to broadcasters. The outcome? Thirteen rule deletions or amendments were made[1].

Major Change Applications

FM and non-commercial FM licensees have always faced the problem of determining whether or not a change in power, antenna location or height above average terrain (HAAT) constitutes a "major change in facilities." The general rule[2] is that any change in power, antenna location, or HAAT, which results in a change of 50% or more in the geographic area within the station's predicted 1 mV/m field strength contour, is a major change. A problem arose in *how* to calculate the coverage area change. The Commission clarified the proper method by pointing out that Note 2 of its Rule[3] defines a change in area as " . . . the sum of the area gained and the area lost as a percentage of the original area."

EXAMPLE: An FM station's predicted 1 mV/m contour encompasses a geographic area of 650 square miles. The station seeks to change its antenna location. The change will result in a *loss* of a 100 square mile area and a *gain* of a 150 square mile area within the predicted 1mV/m contour. The sum of the areas gained and lost is 250 miles, which is 38% of the original service area. Since this is less than 50%, the proposed antenna site change is *not* deemed a major change.

Modulation Montiors

AM stations that are operated by remote control must have a modulation monitor in operation. Modulation must be continually indicated at the control point (except when other readings are being taken). An alternative to continuous indication is maintenance of an automatic device to limit modulation to 100 percent on negative peaks of frequency recurrence, or 125 percent on positive peaks at any time. (This latter limitation was not specified prior to these Rule amendments.) Further, modulation should not be *less* than 85 percent on peaks of frequent recurrence *except* to avoid objectionable loudness.

AM broadcasters should note that this requirement has been moved to Section 73.67(a)(8) of the Commission's Rules (Remote Control Operations).

Similar changes for FM and non-commercial FM broadcasters' remote control rules are made in Sections 73.275(a)(8) and 73.573(a)(8), respectively.

The rules (for AM's, FM's and non-commercial FM's) requiring calibration of indicating instruments in remote control operations are changed to conform to the specifications contained in the extension meter rules. The table below cross-references the calibration specification rules for each of the radio broadcast services.

Service	Remote Control Operation Rules	Extension Meter Rules
AM	§ 73.67	§ 73.70
FM	§ 73.275	§ 73.276
Non-comm'l FM	§ 73.565	§ 73.574

Field Intensity Measurements, Etc.

The method prescribed for analyzing field intensity measurement data has contained, as the Commission terms it, "serious deficiencies" when utilized in analyzing *partial* proof of performance data. This is because the number of measured points per radial is clearly insufficient to permit independent graphical analysis.

To solve the problem, the Commission codified (as Section 73.186) the widely used industry practice of " . . . employing an arithmetic or logarithmic average of the ratios of the partial proof data to the corresponding data from the last *complete* proof [of performance]."

Experimental Operation

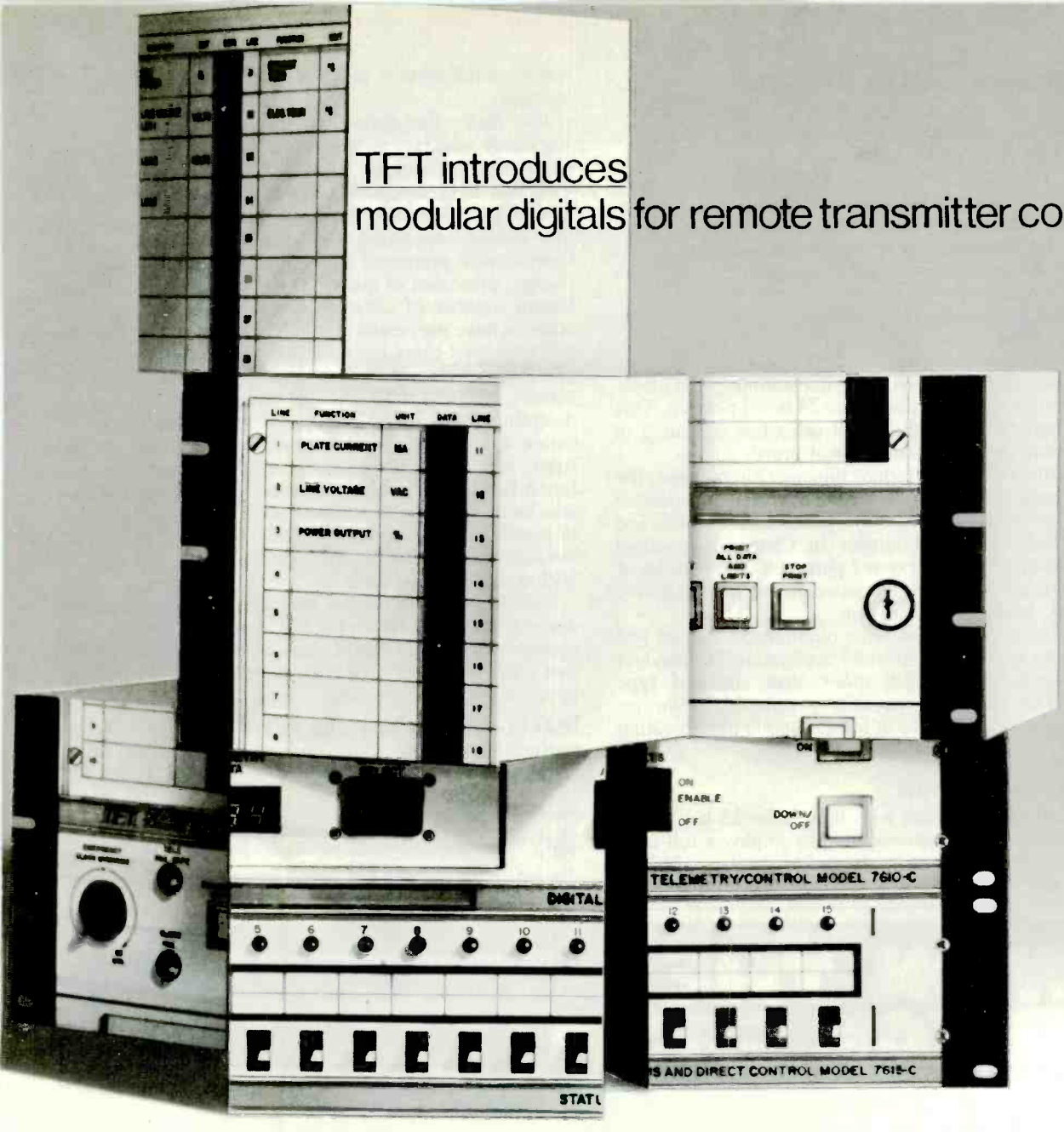
The Commission's Rules relating to experimental operation (for (1) routine testing and maintenance and

continued on page 90

[1] *In re Reregulation of Radio and Television Broadcasting*, FCC 76-914, adopted: September 28, 1976; released: October 8, 1976.

[2] Section 1.573(a)(1)(ii).

[3] Section 1.573(a)(1)(ii).

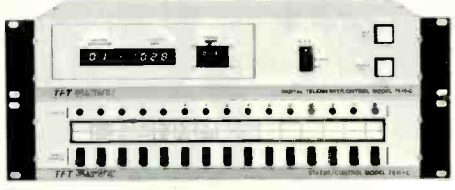


TFT introduces modular digitals for remote transmitter control.

10 channels of telemetry and raise/lower for $2295 is just the start.

Now there's an all digital remote control system—the TFT 7600—that you can tailor to your specific needs.

Start with our Model 7610 Telemetry System. It gives you raise/lower functions and ten channels of telemetry (expandable to 70 channels) for about the price of small analog systems. Then mate the 7610 with our Model 7615 Status/Control units to get direct on/off control (a TFT exclusive) and status monitoring: up to 30 channels of each.



Finally, if you want, add a Model 7640 microprocessor-controlled digital display panel. It shows you up to 40 meter readings simultaneously, has automatic limit alarms and optional automatic logging.

In addition, provision is made for external control by either an A.T.S. monitor or a computer. Interconnection can be via telephone lines, STL and SCA or sub-audible telemetry.

No matter how you set up the 7600, you'll still pay less than for any comparable system, and get unmatched convenience. Calibration can be done by one man, on site. And, for service, you can remove the remote units without disconnecting any wiring to the transmitter or sampling points.

So, whether you're replacing an old system or installing a new one, check out the TFT 7600. Contact your TFT representative, or call us at (408) 246-6365.

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Circle 154 on Reader Service Card

(2) broadcast technology experimentation) have differed for the AM, FM and TV services. The Commission clarified its Rules for each service. AM stations continue to be limited to routine testing and maintenance and special experimentation between midnight and 6:00 A.M., local time.[4] This restriction is necessary because testing and experimentation can cause substantial interference with other AM stations.

FM and non-commercial educational FM stations do not face these same technical interference problems. Thus, the Commission amended its Rules to delete time restrictions on testing and experimentation[5]. The effective experimental period becomes 24 hours per day. This will be particularly helpful to broadcasters operating in smaller markets and to educational broadcasters.

In an effort to further reduce bureaucratic red tape, the Commission deleted its requirement that a broadcaster tender "prior notification" to (1) the Commission and (2) the radio district Engineer In Charge to conduct *routine* testing for *maintenance* purposes. The benefits of prior notification just did not outweigh the administrative workload, said the Commission.

The Commission retained its requirement that an FM broadcaster tender an "informal application" to conduct experimental testing with *other* than standard type signals. This testing is normally permissible if the requesting station maintains at least its *minimum* operating schedule.

Operator Requirements

Old Rule: FM stations with more than 25 kW transmitter output power were required to employ a full-time first-class radiotelephone operator. FM stations with less than 25 kW transmitter output power were required to employ a full-time *or* part-time first-class radiotelephone operator.

New Rule: Part-time first-class radiotelephone operators may now be employed at FM stations irrespective of transmitter output power. Commission field inspections have revealed that no difficulties have arisen due to part-time first-class radiotelephone operators at FM stations operating at under 25 kW power. The Commission perceived an additional reason for the rule change: provision of quality broadcast service to the optimum number of citizens. Financial or other considerations have prevented many broadcasters from hiring a full-time first-class operator, thus, precluding the upgrading of transmitters in certain circumstances. For instance, conversion to circular polarization to improve reception (and, hence, service to the public) may increase transmitter output to over 25 kW. Under the old rules, conversion would have required that the station hire a full-time first-class operator. Further, the old rule was inconsistent in that a station with dual transmitters, in parallel (whose *separate* output was less than 25 kW, but *total* output was greater than 25 kW) could operate with a part-time operator.

Finally, the Commission amended its Rules to permit non-commercial educational FM stations to operate with operators having (1) third-class permits *without* broadcast endorsement or (2) having *restricted* radiotelephone operator permits.

NOTE: As this article goes to print, the Commission announced changes in several of its broadcast rules. These changes will be addressed in a future article.

BM/E

[4]Section 73.10.

[5]Sections 73.262 (for FM's) and 73.562 (for non-commercial educational FM's).

[6]Section 73.265. The same rule changes apply to non-commercial educational FM's. See Section 73.565.

HITACHI SK-70

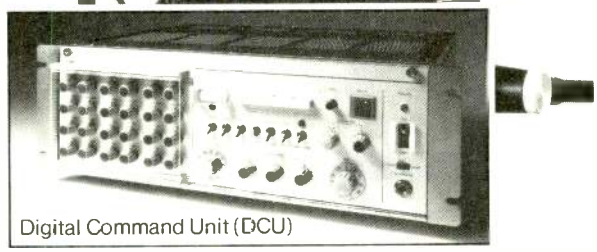
The One Camera That Can Do The Work Of Four... Inside Or Outside The Studio!

The modular SK-70 converts easily from a fully equipped, self-contained color studio camera to a modified studio camera. In the field, the studio version of the SK-70 can be connected directly to a VTR with only a co-axial cable. And for hand-held portability, the camera head features a shoulder mount, an auto-iris portable zoom lens, and a 1.5" viewfinder, along with a DC and process pack. The Digital Command Unit (DCU) with up to 3000 feet of single co-axial cable strongly enhances the capability of the SK-70. Another striking option is a 22:1 zoom lens that can be used for the studio version of the SK-70 in the field.

No matter which configuration you choose from those shown in the photo and three diagrams, the Hitachi SK-70 offers the precision and reliability of three 2/3" Saticon tubes in the camera head to insure excellent picture quality, combined with all the latest advances in broadcast camera technology.

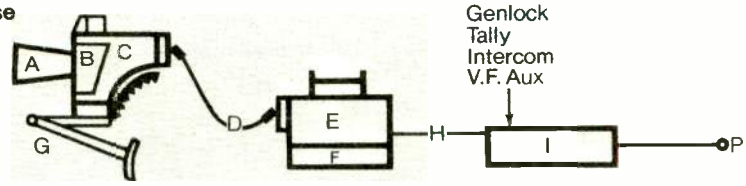
As you can see, our outstanding Hitachi SK-70 is a sound investment for broadcasters, production studios, and universities who need broadcast quality performance in a wide variety of assignments, all for the price of a single camera. We'd be pleased to arrange a demonstration of how the SK-70 can fit the following camera requirements inside or outside your TV studio, and more:

1. Fully studio-equipped

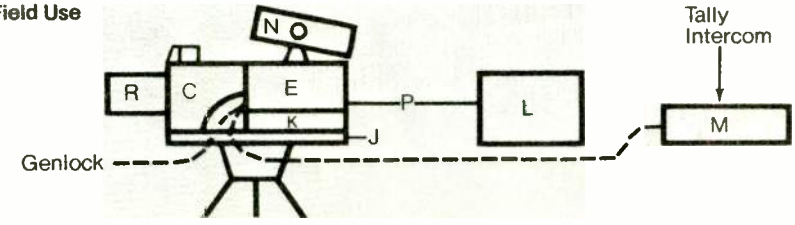


Digital Command Unit (DCU)

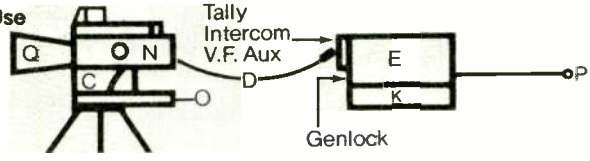
2. Portable Use



3. Field Use



4. Modified Studio Use



A)	Portable lens
B)	1.5" viewfinder
C)	Camera head pack
D)	Camera cable (300 ft.)
E)	Process pack
F)	D.C. pack
G)	Shoulder Mount
H)	Co-axial cable (3000 ft.)
I)	DCU
J)	Mount adapter
K)	A.C. pack
L)	VTR or FPU
M)	Operation panel
N)	5" viewfinder
O)	5" V.F. Mounting Plate
P)	Co-axial cable (video)
Q)	Portable lens w/conversion adapter
R)	Studio lens

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Circle 156 on Reader Service Card

A Speak Out

On Promoting Your Station

Starr Says Self Promote To Win And Hold Pop Listeners

Dick Starr has been active in contemporary broadcast promotion and programming for the past 16 years. As program director of key contemporary stations such as WLCY, Tampa; WFUN, Miami; and KYA, San Francisco, Mr. Starr has consistently programmed his stations to the top of the ratings through the use of effective audience promotion. Merging his own consulting and production company with Century 21 in 1974, Starr now provides automated programming, consulting, and production services to over 500 stations worldwide. His NONSTOP contest and promotion packages are presently in syndicated use on 155 stations in the United States, Canada and Australia.

This new Speak Out department in BM/E is an opportunity for all concerned members of our industry—broadcast managers, engineers, producers, manufacturers—to air views on controversial industry practices, equipment trends or other subjects. Let's hear what's on your mind—it's your turn to "Speak Out." Call or write today.

AS A CONTEMPORARY, top forty or MOR station manager, how long would you listen to a guy who told you, "Never promote your radio station on your radio station?"

Believe it or not, a number of pop stations either have bought that advice from consultants or hired it secondhand from follow-the-leader program directors.

There is a root to this misguided theory. Way back when, a few beautiful music stations concluded that if they presented anything more than music and spots, they lost listeners. They had an audience-on-a-thread, and if they broke that tenuous thread, they lost that audience.

Someone applied that same theory to contemporary, MOR and top forty formats: "Keep a low profile, program a background sound and you'll continue your quarter-hour maintenance." It sure looked good on paper, but it doesn't work in practice. The theory of keeping one's profile low could conceivably help some formats retain a passive audience for longer periods of time, but it doesn't explain how one gets an audience in the first place.

Dick Starr is vice president and general manager of Century 21 Productions & Programming, Inc., Dallas, TX.

Popular music stations—soft or hard—can only reach their full potential with the fun and excitement of promotion because creative promotion provides that highly effective and inexpensive advertising tool called "word-of-mouth." It is word-of-mouth that attracts new listeners in the first place. It is word-of-mouth that reinforces the listener's choice of his or her favorite radio station. It most effectively gathers a volume audience to an individual station for high cumulative ratings and the promotion then keeps the audience listening for high cumulative ratings and the promotion then keeps the audience listening for high quarter hour averages. On-air self promotion is the key to word-of-mouth advertising.

Outside advertising—billboards, newspapers, car-cards, TV and the like—are useful in introducing a potential audience to a new format or feature; or reintroducing the audience to a once-familiar station. But listeners don't tell friends, "I saw the best station billboard today." They often *do* say, "I heard the best radio station today" and "I heard the best contest today."

When the viewer of your outside advertising tunes in and hears something to favorably comment on, the multiplicate effect of word-of-mouth advertising gets underway.

My colleague, Roy Nilson, and I have conducted attitudinal surveys in many markets around the country for our client stations. When we ask listeners to the various forms of contemporary music to explain what draws them to their favorite station, the answer overwhelmingly deals with one or more of the stations' self promotional measures. These range from positive reaction to repetitive slogans or jingle phrases ("it's the one that plays 'the most music.'") to giveaways, self-promoted personal appearances, concerts and other forms of listener involvement or imagined "image."

Contemporary stations that program only the music and none of the fun are neglecting some of their most valuable tools. Check your own memory for comments listeners have made about your station or competitors' stations. See if they don't include reference to a favorite contest or other promotion, a repetitive jingle lyric or slogan and a highly-localized foreground facet of the programming.

Therein lies the real magic of our medium, and the most powerful set of ingredients a manager can mix into his successful station formula. **BM/E**

Hams, CB'ers, and WBEN Radio— An On-Air Combination For Public Service

The three kinds of radio operation are joined in a rare cooperative venture in the Buffalo area, aiding motorists with information on traffic conditions, accidents, hazards on the road, and relaying the data quickly to public authorities.

If a road accident injures people or creates a traffic impairment or both in the area around Buffalo, New York, a CB operator who sees it, can start several kinds of action quickly by calling "Erie County React" on Channel 9, the emergency channel.

REACT is Radio Emergency Associated Citizen's Band Teams, a group of CB'ers banded together for voluntary public service. One or more members is always in a base station to monitor Channel 9 for such emergency calls.

REACT's base station for CB Channel 9 is set up in an emergency controls center (ECC), in a studio adjoining the buildings of WBEN, AM-FM-TV broadcaster in Buffalo. Also in the ECC is monitor equipment for scanning ham band repeaters operated by members of the Buffalo Amateur Radio Repeaters Association.

Amateurs and CB'ers on the same train? And a commercial broadcaster on the trip too? Yes—it is very probably a first time for continuing joint action by groups from the three kinds of service. Here are the parts they play:

The ECC has input to a character generator and when notice of an accident or traffic hazard comes in, the information is punched into the CG keyboard. It immediately appears on read-out screens in the news control room and master control room of WBEN-AM and FM. Personnel decide whether to make an emergency on-air announcement to warn motorists of the hazard. WBEN's traffic reports are a regular feature throughout the day so that motorists in the area are very likely to be tuned in.

The information is also, of course, channeled immediately to the police or other public authorities who may be concerned. Two-way communication is maintained with the CB'er at the accident or emergency site for as long as that may be useful.

The amateurs agreed to connect in their operation to this service for the

Amateur input to operation is typified by action of Bob Vaillancourt, president of BARRA (see story), using 2 meter ham rig in car to report a traffic impediment.

Dave Steward, of the CB volunteer network, REACT, calls in to the Emergency Control Center on Channel 9 to tell about an accident on the road causing traffic hazard.

At the Emergency Control Center, James Carey, president of Eire County REACT, operates the CB base station.

One of the BARRA repeaters is inspected by Jerry Klabunde, WBEN technical director and one of the architects of the CB-Amateur-Broadcaster "triple play" in the Buffalo area, and Gill Boelke.

public good and they greatly enlarge and improve the coverage. They ex-

Ham operator Mike Slefian, on duty in the Emergency Control Center, enters a warning report into the character generator. Message appears simultaneously on read-out screens in WBEN news and master control.

WBEN announcer Lou Douglas gets report on CG screen in master control; he can put report on the air if emergency warrants.

eral repeaters in the Buffalo area. Data picked up in the ECC from the amateur repeaters is flashed to WBEN and to public authorities in the same way the CB messages are.

WBEN recently got permission from the Federal Communications Commission to tape transmissions on the amateur net and put them on the air directly (prior written permission from the amateurs is required). This is apparently the first time any such amateur-to-broadcast- air programming, on a regular basis has been allowed.

Putting together this three-way cooperative was a several-months-effort led by Jerry Klabunde, WBEN's technical director, and Phil Buchanan, news director. Leaders of both REACT and BARRA were eager to make a go of it from the start and put in many extra hours needed to get the system set up.

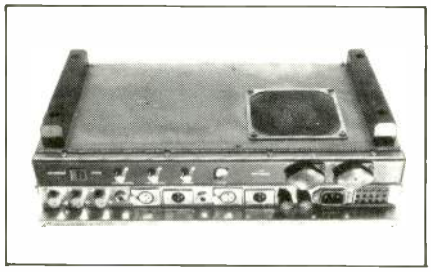
Jerry Klabunde points out that, in essence, plugging WBEN into the operation is a way for "the communicators to reach the non-communicators." Motorists on the road who have no CB equipment, or who are not using it at the particular time, can be notified on their broadcast receivers of traffic hazards and impairments. "People helping people is the 'bottom line' in this operation," Jerry Klabunde concludes. **BM/E**

BROADCAST EQUIPMENT

A new video processing system for 1-in. VTRs that improves quality with an add-on; a computer-controlled master switching system for AM and FM radio stations; and a modular digital remote control for all broadcast transmitters are among the month's headliners.

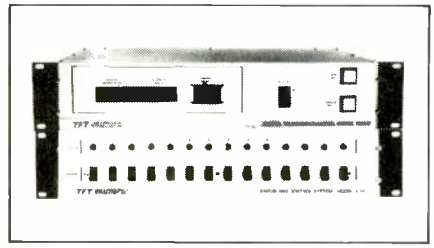
Add-On Improves Color Recording 300

The "ChromaCon" is an add-on accessory developed for all the series 700 and 800 VTRs of IVC to provide a revised handling of video signals, with down-converted chrominance recorded directly on the tape; the maker claims much higher luminance S/N ratio, better chroma linearity, extremely low level of chroma streaking. $1500 (kit). IVC.



Modular Digital Remote Control 302

The 7600 series is a new modular digital remote control system for AM, FM, TV transmitters, adaptable to ATS (automatic transmitter) operation.

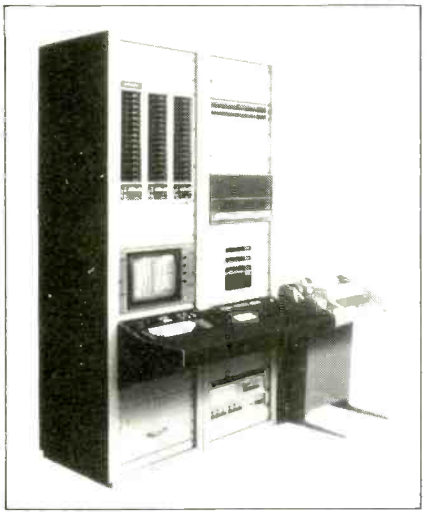


Three basic building blocks are the 7610 telemetry/control unit, with raise/lower functions and 10 to 80 channels of telemetry; the 7615 status/direct control unit, which adds 15 or 30 direct, on/off control channels and 15 or 30 monitoring channels; and the 7640, a microprocessor-controlled digital data panel, displaying up to 40 meter readings simultaneously. Approx. $2500 to $17,000. TIME AND FREQUENCY TECHNOLOGY.

Computerized Automation For Radio 301

A new series of automated switching systems for AM and FM radio stations uses a Data General "Nova" computer for signal routing, operation of tape decks, transmitter operation and supervision, either from a real-time schedule or sequentially. All program events are logged automatically. Input/output is

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



by keyboard, teletype, or tape cassette. All switching is by balanced solid-state crosspoints, transient free and noise immune. WARD-BECK.

Auto Cue For Audio Recorders 303

Selectake II is a fast position-locator, a cueing device for add-on to any of the Series 79 multitrack tape recorders. Up to nine cues can be stored digitally and push-button recall moves the tape rapidly to the selected cue position. Control panel includes all tape motion functions. $1750. 3M COMPANY.

Antennas For Educational FM 304

FM antennas have horizontally-polarized ring radiators which can be used in combinations up to four, spaced one wavelength apart vertically. The FM-11 series ring elements fasten on a pole, 2 to 2½ inches diameter, produce radiation essentially omni-directional in the horizontal plane. HARRIS CORPORATION.

Video Receiver, Earth Stations 305

Synthesizer-tuned down converter provides frequency agility, and input band is 3.7 to 5.2 MHz, in new Model 414 video receiver for satellite earth stations. Input noise is 15 dB maximum, dynamic range 40 dB, and the IF bandwidth is selectable with plug-in modules, from 17.5 MHz to 36 MHz. Also claimed: RF to BB response ±0.25 dB, 15 Hz to 4.2 MHz; differential phase ±0.5°; differential gain ±2%. SCIENTIFIC-ATLANTA.

Heavy Duty Vibratory Plow 306

A new plow module, Model VP-100, is available for the Model R-100 Modularmatic 100 HP plow vehicle. The VP-100 has a hydraulically driven vibrator for in-line and off-set plowing to depths of 30 inches. Forward crowd

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BROADCAST EQUIPMENT

speed during plowing is 0 to 7.7 mph. DITCH WITCH.

SCA Generator 307

The Model 811 SCA generator accommodates programs of 30 to 5000 Hz in stereo, 30 to 7500 Hz in mono, flat to 1.5 dB. It is fed through a 600 ohm balanced line at +10 dBm for 4 kHz peak deviation. Claimed distortion is 0.75% maximum through the low pass output filter, noise 60 dB below 6 kHz deviation. $495. QEI.

Portable Camera Pedestal 308

The new Vinten Portable pneumatic camera pedestal requires no external charging equipment to counterbalance camera loads up to 100 lbs. It has

mechanical self-leveling using no fluid, with up to 40 degrees of tilt. It folds to 27 × 10 in. and weighs 30 lbs. $2400. LISTEC.

New Long-Life Heads 309

A new long-life head alloy, claimed to last up to ten times as long as earlier materials, has been incorporated into cartridge-machine heads with the trade-name Duracore. The new heads are supplied in all cart machines shipped since November 1, 1976, and can be supplied for field substitution in machines shipped earlier. INTERNATIONAL TAPETRONICS CORPORATION.

Low-Light Level Camera Tube 310

A new silicondiode tube with internal intensification is the vidicon type TH-9659 Nocticon. It has a 16mm input field and is pin compatible with RCA 4804 series. It can be used with illumination as low as 10^{-5} lux. Image is focused on a front fiber-optics plate,

excites a photo cathode, is accelerated by 10 kV before striking the silicon diode target. THOMSON-CSF.

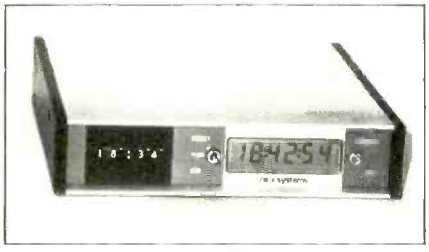
Microwave Radio System 311

New options allow choice of power levels of 5 watts or 70 milliwatts for LRI-2 Microwave radio system. The LRI-2 is supplied with multiple input-output ports, shelf to accommodate up to six channels of LD type multiplex. FARINON.

Portable Time Code Generator 312

A portable SMPTE Time Code Generator has been introduced to meet the needs of remote productions on videotape when SMPTE Time Code is essential for post-production editing.

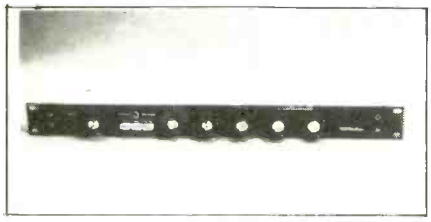
The unit is compact, measuring only 8 ins. × 1¾ ins. × 8½ ins. and weighs 2 lbs. with batteries. It will run continuously for 40 hours on a rechargeable battery and can operate while being charged. A bright LCD with large 0.8 in. figures is easy to see even



in sunlight. Specifications include input requirements of 1 to 5 volts P to P of composite video or sync and an output level adjustable to 4 volts P to P into a 2 K load. Lock-up time is 3 frames. CMX.

Audio Delay and Effects Gen. 313

A moderately priced time delay and effects generator, called Time Warp, incorporates a special design analog delay to provide up to 100 milliseconds of continuously variable delay in 3



selectable ranges of 1.5 to 6, 6 to 25, and 25 to 100 msec. over a usable frequency range of 20 Hz to 10 kHz.

The TW-1 can produce many special effects including true vibrato with control of both rate and depth of deviation using internal function generator, while external ramp input can provide pitch

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change. Polytone is another effect which produces frequency deviation corresponding to a musical scale, and there is recycling capability with continuously variable control from zero to oscillation on all time ranges for snap-back echo and reverberation effects, as well as all forms of flanging, phasing, Doppler shifting, tunneling, double tracking, and even true chorus effects. $1195. MICMIX.

Digital TBC for Any VTR 314

The DTC 300 is a new digital TBC for use with virtually any type of videotape recorder. It is modularly designed and its capabilities can be broadened as the needs of the user broaden with optional plug-in modules. Installation of the options can be done in the field.

The standard unit time base corrects signals from direct record VTRs. Options permit processing of signals from heterodyne and small non-phased VTRs. Options include drop-out compensator and sync generator drive. Suitable for CATV and non-broadcast production as well as broadcast applications. MICRO CONSULTANTS, INC.

Klystron Amplifiers for UHF 315

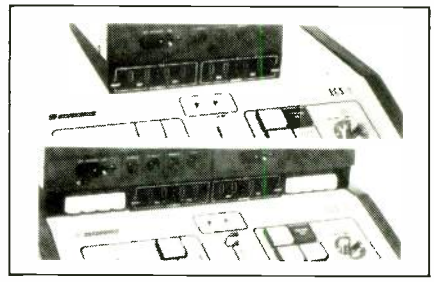
Two five cavity, vapor-cooled klystrons for use as final amplifier tubes in both visual and aural sections of UHF-TV transmitters have been introduced. The VA-953H and VA-954H cover the frequency range of 470 to 698 mHz and offer improved linearity and higher operating efficiency by providing either lower DC input or higher transmitter output power for the same transmitter power rating.

Other features include: high gain, of at least 47 dB, produces a 55 kW peak-of-sync output with less than 0.7 W of RF drive; high efficiency, up to 42% efficiency at peak-of-sync output for reliable, long-life performance compared to 29-32% for standard tubes and ample bandwidth, one dB is at least 7 MHz over tuning range. VARIAN.

Digital Tape Timers 316

The TT-4 and TT-5 Digital LED Tape Timers, when used in combination with the Convergence ECS-1 Joystick Editor, provide a continuous readout of tape time in minutes and seconds for both playback and record videocassette recorders. The units can be used in combination with the ECS-1 to facilitate rapid scene location or for measuring scene or program lengths on helical videocassettes.

The LED displays may be reset to zero or preset to any number up to 59 minutes and 59 seconds. Accuracy in both systems is maintained by counting



control track pulses. The record channel automatically switches to the 60 Hz AC line in the assemble record mode to constantly provide a readout of accumulated program time on the edited master tape. A connector is provided on the back of both models for parallel BCD output of timing data. This output can be used for interconnection to the

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

BROADCAST EQUIPMENT

Convergence PC-3 program computer for automatic bi-directional tape search. TT-4, $1,100. TT-5, $1,200. CONVERGENCE CORP.

Multiband Audio Processor 317

The Model 230 multiband Audio Processor is specifically designed for AM and FM radio broadcast use. It offers eight independent bands of compression to increase carrier modulation to a figure approaching theoretical maximum, while a sophisticated final peak limiter contains program peaks within absolute prescribed limits. Each model 230's eight bands has individual threshold and compression adjustments, permitting response shaping to complement the programming format. INOVONICS.

Bias Light Plumbicon® 318

The XQ1410 is a new series of Plumbicon camera pick-up tubes that reduce lag by 37% over the previous XQ1020 tubes. The new tubes feature internal bias lighting that significantly reduces both rise time and signal decay lag, essentially eliminating color fringing and picture smear in low-key lighting conditions.

The bias light impinges on the rear surface of the target and causes a few nanoamperes of dark current to flow in the tube, modifying its beam acceptance characteristics. The tubes are designed to accept external electronic control of the amount of bias light introduced on the target. This permits adjustment of dark current over an operating range that minimizes rise time and decay lag in the particular application. Each of the tubes for the color channels and luminance can be adjusted to produce the same lag. With nearly identical lag in all three channels, overall camera performance is improved, especially in low-key lighting situations. AMPEREX.

Videotape For New 1 In. VTRs 319

A new 500-oersted videotape designed to provide superior performance on the new generation of one-inch VTRs has been introduced. The new tape, designated MXR 716 Quantum, is available in 1 in. and ½ in. configurations for all VTRs capable of utilizing 500-oersted tape. The tape uses a new chromium dioxide formulation which provides improved overall performance and longer useful life. Features improved color performance, RF and signal-to-noise. MEMOREX.

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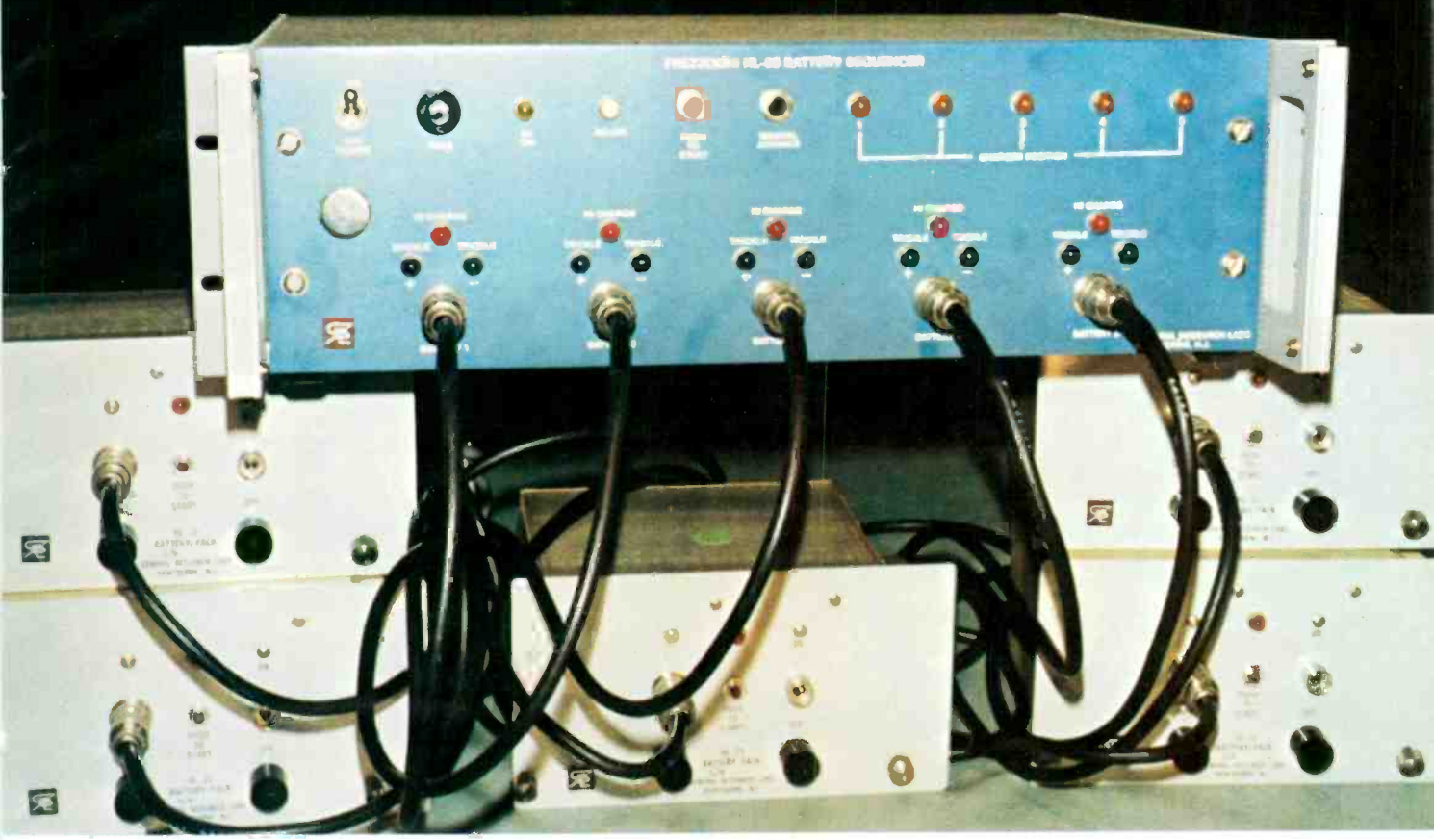

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