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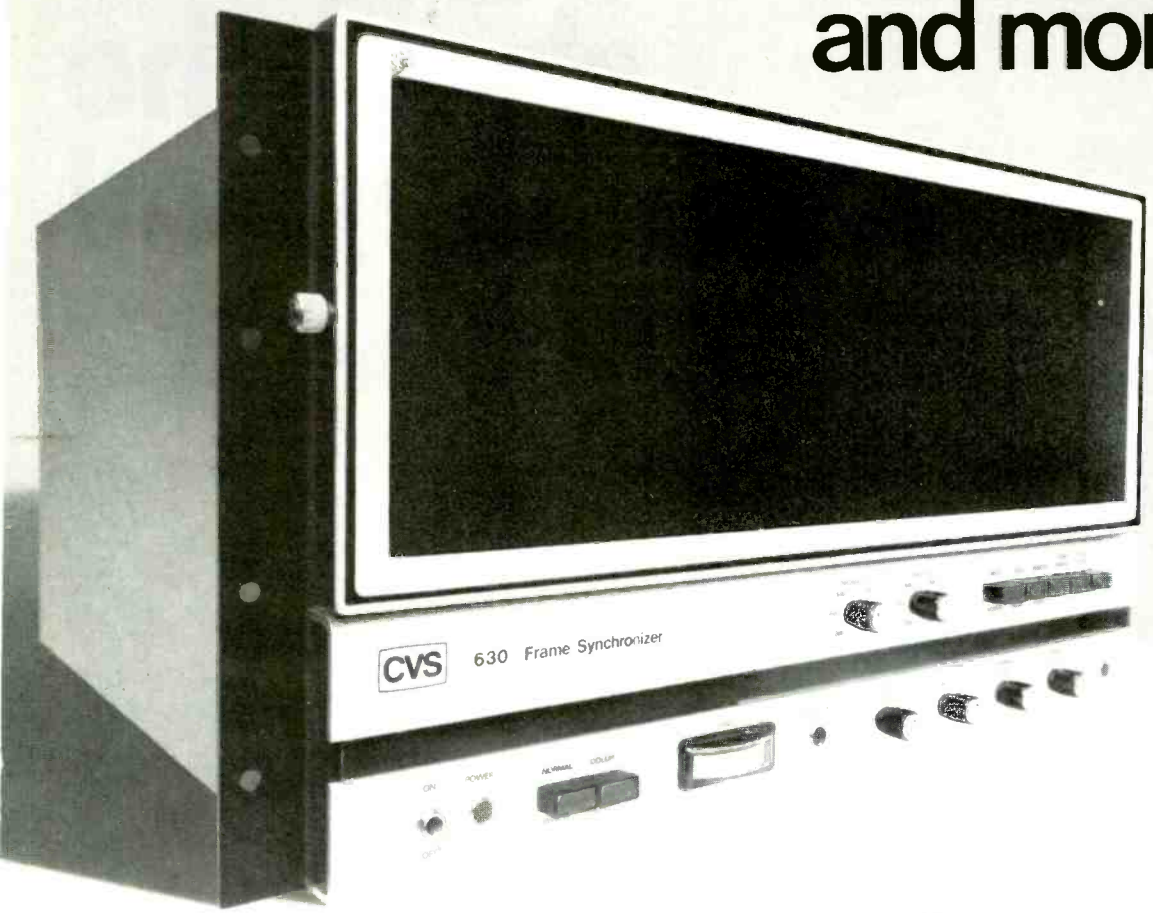

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WGBH engineers talk about the Ikegami HK-312

WGBH covers Boston Pops Orchestra concerts with Ikegami HK-312 cameras from Symphony Hall, Boston.

Eight Ikegami HK-312 studio color cameras are in service at WGBH, Boston, some dating back to October 1977 – long enough for intelligence on their performance. From recent interviews with key WGBH people, read these excerpts.

Pops without noise
Tom Keller, Director of Engineering:

"The HK-312s have such high sensitivity that we were able to reduce significantly our light levels at the Boston Pops and Symphony telecasts. Yet, despite the major light reduction, we experienced no visible noise with the HK-312s . . . With their remarkable reliability record, we can depend on 6 cameras for 6-camera coverage, and not 7 for 6 as in the past. After all, you can't stop a live orchestra performance for a retake if you've lost a camera."

2 IRE, but a complaint
Ken Hori, Senior Engineer for Advanced Development:

"We tested several camera makes for RFI within a quarter-mile of a 50 KW radio transmitter. The HK-312 measured 2 IRE, whereas most others were in the 5 to 7 IRE area, and some as high as 20 IRE . . . For symphony remotes we'd need 2 to 5 hours for warm-up, but nowadays we're set up in less than an hour . . . We like its straightforward design – example, its truly high signal-to-noise ratio as compared to other cameras that resort to reduced bandwidth to attain a comparable ratio but wind up delivering noise too . . ."

We did get one complaint from the maintenance crew. They said that because they rarely found the problem of a down HK-312, they would never get to know the HK-312 well enough to fix it.

Washouts and dropouts
Bill Fairweather,
Video Control Engineer:

"During a lighting seminar staged here by Imero Fiorentino Associates, an actor in a normally lighted scene held up a sheet of white paper with printing on it to show loss of detail in the case of more than 60 percent tv white reflectance. The HK-312, however, was able to retain enough detail for the printing to be readable on the monitor.

Next came a demonstration of the dangers of too much or too little light on a chroma-key background. The HK-312 held the key to such a low light level on the blank background that the lecturer grinned and said, "I guess WGBH has pretty good cameras!" and went on to the next subject."

The HK-312 is the camera that met WGBH criteria for performance, stability, and reliability. They also have HL-53s, high-performance portable cameras that interface with HK-312 CCUs and can operate portably with their own CCUs.

Adapters for triax cable, using digital techniques, make their cameras remote-usable at nearly a mile from base stations, yet easily revertible to multicore cable whenever needed.

In daily use, their HK-312s and HL-53s are interfaced with microprocessor-computer control units that automatically cycle them through all set-up adjustments, including black-and-white balance, flare and gamma correction, video gain, and eight registration functions, then recheck all those adjustments – all within 45 seconds. The cameras can also operate independently of the set-up computers, a feature that is an Ikegami exclusive.

If all of this suggests that the HK-312 is probably the best studio/field color camera in the industry, consider this: camera, set-up computer, and triax adaptor are not only operational, they are deliverable. For details or a demonstration, contact **Ikegami Electronics (USA) Inc.**, 37 Brook Ave., Maywood, NJ 07607, (201) 368-9171 / West Coast: 19164 Van Ness Ave., Torrance, CA 90501, (213) 328-2814 / Southwest: 330 North Belt East, Houston TX 77060, (713) 445-0100.

Ikegami HK-312

BM/E
BROADCAST MANAGEMENT/ENGINEERING

A new generation of broadcast equipment and several years of record earnings mark the beginning of a boom in building by broadcasters. This month, BM/E looks at design for broadcast facilities to help others plan. Thanks to Richard Dempsey for the architectural model used for this month's cover.

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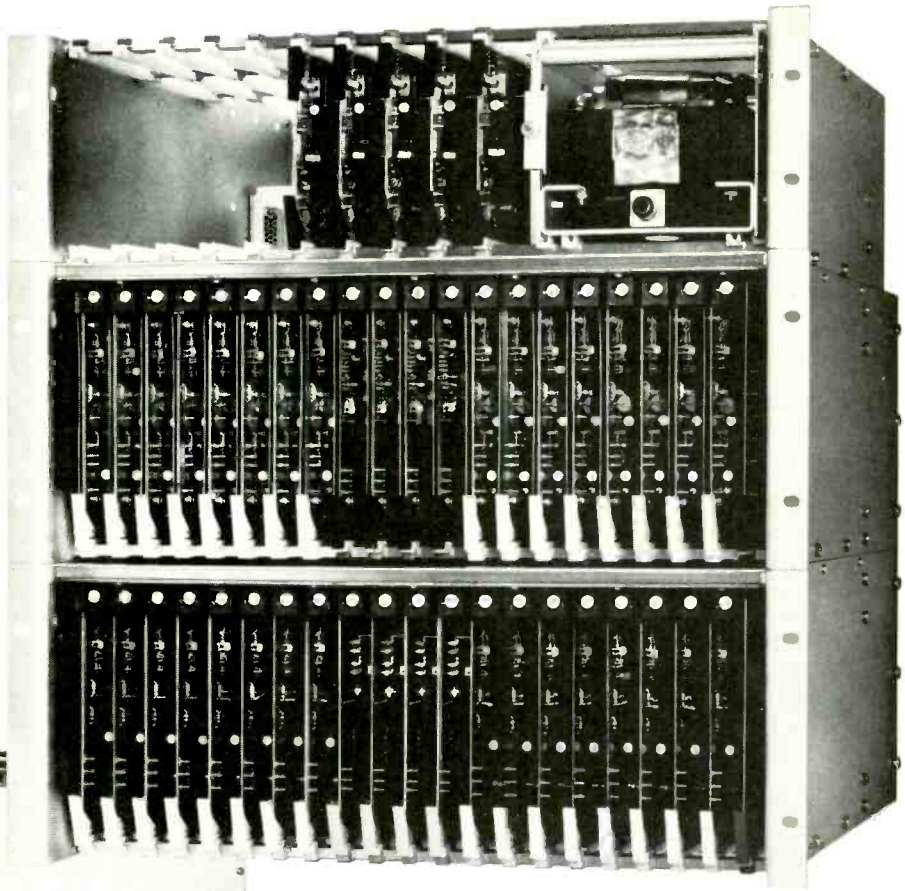

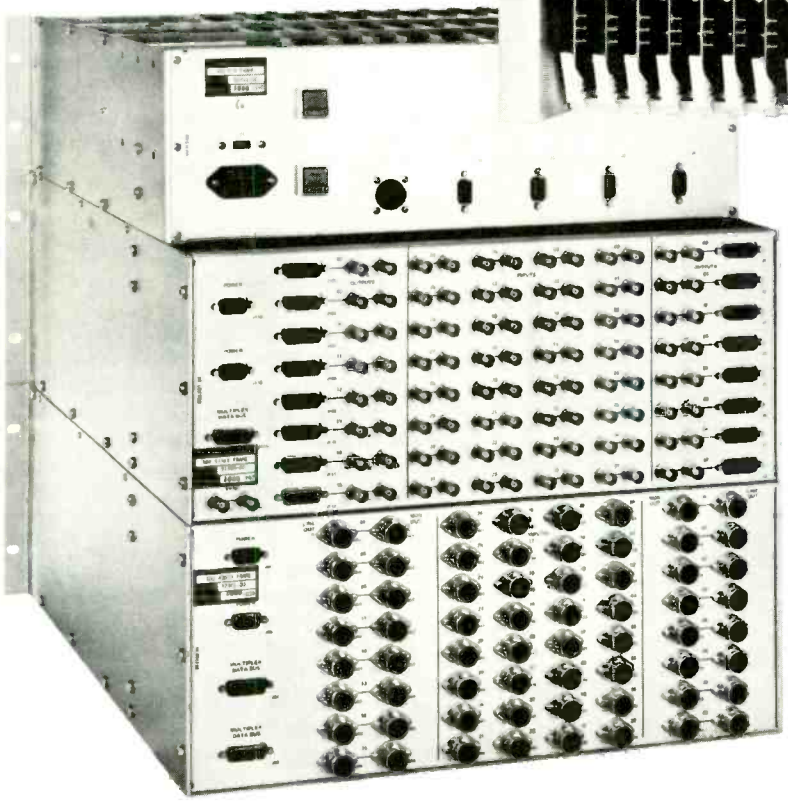

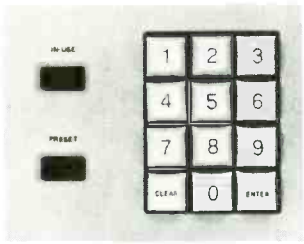

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BROADCAST INDUSTRY NEWS

TV Audience Diversion From Cable No Threat, Says Study

Increased competition from cable systems will not substantially hurt television broadcasters, according to a just-released Rand Corporation study prepared at the request of the FCC. Even if cable operators carry distant signals, the report claims, TV will continue to prosper.

The study, *Audience Diversion Due to Cable Television: A Statistical Analysis of New Data,* studied the effect of cable in three hypothetical markets — a top-50, a second-50, and a below-100 market — with three levels of cable regulation. The three levels were: existing regulations; regulations relaxed to allow carriage of additional distant independent stations; and regulations further relaxed to allow carriage of additional distant network stations, with nonduplication protection still provided for local network stations.

Projected audience diversion in the top-100 markets did not exceed seven percent, even with the most relaxed regulations. In the smaller markets, diversion was estimated at eight percent under current regulations; if the regulations were relaxed, the figure is expected to double, approximately.

In all markets under all circumstances, UHF stations were hurt less than VHF stations, and were actually helped in some instances.

The Rand report also considered the effect of cable upon audience shares. The data on the first question indicated that cable leads to increased total viewing, although the results were not conclusive. Estimated "attractiveness indices" (indicating the proportion of viewers watching certain stations) were lower for UHF local stations and VHF independents than for VHF network stations; were increased 40 to 50 percent for UHF stations when those stations were carried by cable; were much lower for distant network stations carried by cable than for corresponding local stations; and were twice as high for local VHF independents than for distant VHF independents.

AP Seeks To Establish Satellite Delivery System

AP President Keith Fuller (seated) shakes hands with Robert P. Friedman, president of Satellite Communications Div., CMI. Looking on, l. to r., are AP vice presidents Roy Steinfort and Dave Bowen

The Associated Press has announced plans to distribute its APRadio Network audio news program service via satellite. AP is filing an application with the FCC for licensing of 15-foot earth stations in 37 cities as the initial stage of the program. Sixty-one APRadio affiliates are located within the 37 cities.

The earth stations, which will provide a 5 kHz broadcast-quality audio signal, have been leased from California Microwave, Inc., (CMI) which will install them on frequency-coordinated sites. They will be licensed to and maintained by AP. AP is negotiating for transponder space to serve the distribution system.

Distribution of AP's news service is currently by terrestrial lines leased from AT&T. Landline extensions will continue to provide 3 kHz channels to the remaining stations. Local broadcast-quality loops will be available to feed AP member stations inside of or close to the cities.

A one-year test of satellite distribution using smaller dishes, approved recently by the FCC (see *BM/E,* May, 1979), will be continued by AP. The company's vice president and director of communications, Dave Bowen, commented, "We hope the results we get from these tests will support yet another application. Our final goal is an earth station system serving every AP city in the United States, with dishes down to the smallest size the FCC will approve."

FCC Proposes Easing Cable Rules

Claiming that "the public is harmed more than helped by the Commission's signal carriage and syndicated exclusivity rules," the FCC has proposed the elimination of those rules.

The FCC pointed to economic studies conducted at its request which aver that "there would be no substantial economic impact on broadcast stations" if the rules governing importation of distant signals and deletion of syndicated programs by cable operators were nullified. (See news story above on Rand Corporation report, one of those relied on by the Commission, for more details.)

According to the Commission, "regulation of both broadcasting and cable ultimately is concerned with the quantity and quality of video and telecommunications service that the public receives and not — apart from the effect upon consumers — with shifting or safeguarding revenues or profits, or with the success or failure of any particular firm, industry or technology."

The Commission recognized that it was impossible to predict that no viewer or broadcaster would be harmed by elimination of the distant signal carriage rules, but claimed that it was "unlikely" that significant harm would accrue to either.

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The Commission also found that deletion of the syndicated exclusivity rules would have "no substantial economic impact" on broadcast stations. Predictably, comments received by the FCC on the issue from broadcasters urged that the rules be maintained, while comments from cable interests argued for their abandonment.

At the same time, the Commission denied petitions from NTIA and NAB. The NTIA petition had asked that the signal carriage rules continue to be applied to cable systems in the top 50 markets, and that those rules be extended as well to cable systems in markets 51 to 100, which currently operate under somewhat looser restrictions.

The NAB petition had requested the FCC to adopt regulations to protect local stations from the development of superstations. In denying it, the Commission said that the NAB petition "failed to produce any evidence that a regulatory problem exists now or is being formed."

The cable industry, long an opponent of cable regulation, was jubilant about its assumed victory. The NCTA called the proposal "a major victory for the viewing public."

The NAB issued a strong statement in opposition to the FCC's proposed rulemaking. The results of the proposals, said the association, "would not only adversely affect all broadcast television, particularly small-market VHF and UHF stations, but would be counter-productive to the FCC's own efforts to promote the level of UHF television and improve broadcast service to the entire public." James Popham, NAB assistant general counsel, commented, "Today's Commission action proves that the Commission has lost sight of the fact that most people now and in the future will continue to rely on broadcast television, not cable. Whatever benefits cable provides will benefit only those who find cable available and affordable — the minority, not the majority, of the viewing public."

The FCC has invited comments from the public on the proposed rulemaking. Final dates for filing comments and replies had not been announced as of this writing.

Radio Association Urges Faster Deregulation

The Executive Committee of the NRBA last month issued a statement urging the FCC to "move boldly and swiftly" to deregulate the radio industry.

Commenting on the proposed experimental deregulation experiments, the statement continued, "A timid, 'experimental,' piecemeal deregulation of radio will unnecessarily prolong the present system of over-regulation . . ." The current plan "will be especially unfair to the hundreds of small market broadcasters who will be asked to wait years for the crushing load of unnecessary regulation to be lifted."

NRBA vice president Abe Voron stated, "Though it appears the Commission may expand the scope of its original deregulation experiment proposals, anything short of total radio deregulation is, in our minds, inadequate."

NAB Urges Guidelines For Petitions To Deny Licenses

The NAB has asked the FCC to adopt guidelines and procedures dealing with petitions to deny broadcast licenses. Noting that spurious or defective petitions to deny result in delays and burdens to licensees and Commission staff, NAB said there is a "compelling need" for enforcement of Congress-imposed standards and establishment of expedited procedures to determine if a

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petition complies with minimum requirements.

To heighten the difference between petitions and informal objections, NAB suggested considering defective petitions to deny as informal objections only to the extent that the petitions raise substantial and material questions of fact; otherwise, a licensee should treat the filing as a legitimate petition.

In addition, a page limitation on petitions should be adopted to reduce the workload on the Commission and licensees, said NAB.

FCC Application Procedures Must Be Streamlined, Report Claims

An evaluation of FCC procedures for predesignation processing of contested broadcast applications has concluded that current methods have resulted in great delays and may result in a serious breakdown of the system, if allowed to continue.

The report, prepared under FCC contract by Max D. Paglin, urges the adoption of a new, streamlined system to process contested applications. The recommended system is designed to replace elements of the current system that have resulted in delays of two years or more before designation for hearing. Suggested changes include simplifying and shortening cut-off lists; eliminating "deficiency letters," except when the staff needs further information; restricting predesignation voluntary amendments of applications; requiring pleadings affecting issues to be filed with the administrative law judge after designation; and encouraging the issuance of brief Memoranda Opinions and Orders of designation for hearing.

The Commission's reaction to the proposed changes in its procedures was favorable, pending the receipt of comments from interested organizations, government agencies, and persons.

TI Requests Easing of Home Computer Rules

Electronics industry giant Texas Instruments has filed a petition with the FCC requesting liberalization of the standards limiting the amounts of RF energy a home computer can emit, and requesting a waiver of FCC rules to allow it to market its home computer while the rulemaking procedure is going on. The petition asks the Commission to approve the TI-900 video modulator and its associated computer separately. Current rules, which are intended to control interference with radio and television reception by regulating devices that generate RF energy, mandate that a home computer and its modulator be approved as a unit.

Interact Electronics of Ann Arbor, Mich., a manufacturer of home computers, filed comments with the FCC challenging the TI request. TI's move is an attempt "to change the rules simply to facilitate their entry into the home computer business," charged Interact president Ken Lochner. Lochner asserted that the reception interference levels proposed by TI in its petition "would result in substantial increases in the frequency and severity of interference to radio and TV reception, especially in apartment and condominium complexes."

FCC Approves First All-Minority Network VHF Station

One hundred percent black-owned Seaway Communications, Inc., has received approval from the FCC for its proposed purchase of all the stock of Northland Television, Inc., licensee of WAEO-TV. This marks the first time that the FCC has granted an operating license for a network-affiliated

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VHF-TV station to an all-minority business group. WAEO, located in Rhinelander, Wisc., is an NBC affiliate.

Seaway plans to purchase all issued and outstanding stock of Northland Television. Company founder and board chairman Dr. Jasper F. Williams noted that Seaway was able to raise the necessary equity capital without external financing. Nearly a million dollars was raised through the satisfaction of stock subscriptions by Seaway's shareholders, all of whom are black.

Advice and assistance in Seaway's venture and search for an appropriate station property came largely from Capital Cities Communications, Inc., a publicly owned group broadcasting and publishing company. Capital Cities has no stock ownership or management position in Seaway.

Commented Dr. Williams, "We are proud of our participation in this historic venture, which sets a precedent for increased minority investment in major U.S. television properties."

Mutual Broadcasting To Buy WHN

Mutual Broadcasting System, the nation's largest single radio network, has entered into an agreement in principle with Storer Broadcastng Co., Inc., for the purchase of WHN-AM, New York City. The purchase, subject to FCC approval, is the network's second venture into station ownership. The first was Mutual's purchase of WCFL, Chicago, also awaiting approval from the FCC.

WHN, one of New York's oldest stations, went on the air in 1922. It is considered the number one country music station in the nation, claims Mutual. The station ranks fourth among adults 25 to 49 in the New York metropolitan area according to the most recent Arbitron ratings. The purchase price is $14 million.

Stereo, Bilingual TV Transmissions Offered By AT&T

A second television audio channel that would allow stereophonic or bilingual broadcasts to home viewers has been announced by American Telephone & Telegraph Co. The additional channel will also allow TV stations to offer simulcasts, in which viewers receive the audio portion of a program in stereo from a local radio station.

Once manufacturers make available the necessary electronics and speakers, the new channel could be used to provide direct stereo reception by home TV sets.

The second audio channel, described by Bell as "high-fidelity," resulted from the diplexing technique introduced in early 1978. The technique permits simultaneous transmission of TV pictures and sound along the same facility; it was developed by a joint Bell System and television industry committee.

Kidvid Awards Go To TV Broadcasters

Action for Children's Television (ACT) announced the recipients of its seventh annual "Achievement in Children's Television" Awards last month. The awards for 1978 were presented to TV broadcasters who were judged to have made "a significant contribution towards improving children's television." In addition, four programs previously recognized by ACT received commendations for "continuing excellence" and one company, McDonald's Corp., received ACT's Corporate Honor Roll Award for its commitment to program underwriting on public television.

Winners of the ACT awards were:

News

CBS News *(30 Minutes)*; KCET-TV, Los Angeles *(Freestyle)*; KING-TV, Seattle, *(I Like Myself)*; KRON-TV, San Francisco *(Just Kidding)*; KYW-TV, Philadelphia *(Expressway)*; UA-Columbia Cablevision *(Calliope)*; WBNG-TV, Binghamton *(Action News for Kids)*; WBZ-TV, Boston *(The City Show)*; WGBH Radio, Boston *(The Spider's Web)*; WSOC-TV, Charlotte *(Kidsworld)*; and the Workshop on Children's Awareness, Cambridge *(Feeling Free)*. Receiving citations for continuing excellence were ABC, ABC News, WGBH-TV, and WQED-TV, Pittsburgh.

STRAP Clarification

STRAP (Simultaneous Transmission and Reception of Alternating Pictures) is a system developed by CBS Technologies for transmitting two video feeds over the same common carrier channel. Essentially, the system works by digitally encoding field A from the first video source and field B from the second, then transmitting them as a single picture. A decoder reverses the process. Though STRAP is not in use on the Intelsat satellite, as reported in "NBC Shapes Up for Olympics," *BM/E*, April, 1979, it is used in the RCA Comsat satellite system. STRAP is currently manufactured by Thomson-CSF under the trade name Vidiplex.

News Briefs

The Florida Supreme Court has unanimously ordered **unrestricted access by the media to all state courts.** The ruling, which marks a major victory for broadcasters, was the final answer to a petition originally filed by Post-Newsweek stations WJXT, Jacksonville, and WPLG, Miami . . . . NAB has asked the General Accounting Office to **delay approval of the FCC's revised Form 395** Annual Employment Report until it is simplified. The association called the form ambiguous and said it would unjustly increase broadcasters' work burdens. The FCC has extended the deadline for filing Form 395 until July 2, 1979.

Site coordination of receive-only earth stations should be optional for private users such as TV networks, broadcast stations, news wire services, and cable television systems, NAB has told the FCC. Present regulations should be maintained for common carriers, however . . . . The U.S. Justice Department has determined that **radio licensees are not subject to the**

Foreign Agents Registration Act when they broadcast Radio Moscow, as long as they retain absolute discretion as to whether or not the programs are broadcast; are under no obligation other than advising Radio Moscow of the scheduled use of tapes and returning tapes to Radio Moscow; neither make nor receive any payment from Radio Moscow; and retain absolute control over the sale of commercial time.

Anne P. Jones has been sworn in as FCC Commissioner. Jones is former general counsel of the Federal Home Loan Bank Board . . . . The **FCC's 1978 report on "Major Matters Before the Commission"** has been sent to Congress. Copies of the report, written in "plain English," are available from the Office of Public Affairs, 1919 M Street, Room 202, Washington, D.C. . . . . The NAB has asked the FCC **not to create a new category for youth and teenage programming** in its television license renewal form. The request for the new category came from Altman Productions, producers of *It's Academic*.

"The Lost Million: Is American Labor Becoming Obsolete?", a cable TV special presented by the Center for Non-Broadcast Television in New York, **pioneered live participation by a nationwide audience** in April. Home viewers were able to ask questions via toll-free telephone banks. The show was distributed by RCA Americom's Satcom I satellite . . . . WPSX-TV, licensed to Penn State University, has become the first **local public TV station to distribute its programs nationally** direct to other PTV stations through the public broadcasting satellite distribution system.

"Scared Straight," a filmed TV documentary, became the **first TV show ever to win an Oscar** in the annual Academy Awards. The program, shot on film, was never shown in movie theaters . . . . *Extra*, news magazine program of KUTV, Salt Lake City, **won its second Iris Award in a row** for a filmed mini-documentary, "A Special Dance" . . . . WFSB-TV, Hartford, Conn., **will continue its broadcast training program** for the third consecutive year. The program is designed to benefit especially members of minority groups and women.

The first annual **Mutual Radio affiliates convention** will be held June 3 to 5 in the Atlanta Hilton Hotel. Keynote speaker will be Richard M. DeVos, founder and president of Amway Corp. . . . .The first annual **Satellite Communications Users Conference** will be held at Denver's Stouffers Inn August 22 to 24, 1979. For information, contact Stephen Shaw, *Satellite Communications* magazine, 3900 S. Wadsworth Blvd., Denver, Colo. 80235, (303) 988-4670 . . . . The

twenty-second annual **Motion Picture Laboratories Seminar** will be held July 20 and 21 at Memphis State University, Memphis, Tenn. For registration or information, write to MPL Seminar, Box 1758, Memphis, Tenn. 38101, (901) 774-7944 . . . . The second annual **Hawaii Association of Broadcasters' Convention** will take place June 7 to 9 at the Kona Surf Hotel.

AP NewsCable will soon **begin providing reports from Peking** as two AP reporters take up posts there. AP has **added seven cable systems** to the list of those receiving its NewsCable service . . . . Teleprompter Manhattan Cable TV, New York City, now **claims 20,000 subscriber homes** in upper Manhattan for its "Showtime" service. Over 10,000 subscribers receive "Uptown," the system's budget-priced, urban-oriented entertainment channel.

Premier Cablevision Ltd., Canada's second largest cable TV system, **has become a partner in MultiVisions,** the Anchorage, Alaska pay-TV system . . . . Century Communications Corp. has announced its **purchase of the cable system serving Laurinburg, N.C.** The system presently serves about 6000 subscribers with 155 miles of plant . . . . Louisville, Ken.'s new cable system, **CPI of Louisville, Inc., has been officially opened.** The company started serving subscribers in January . . . . The **nation's first full course curriculum in cable TV** will begin this fall at the University of Cincinnati's Business/Commerce Department.

Business Briefs

Outlet Company has announced an agreement to purchase **WIOQ-FM,** Philadelphia, from Que Broadcasting Co. for $6 million, pending FCC approval . . . . **Chronicle Broadcasting Co.** has purchased **KAKE/TV/Radio,** Wichita, Kansas. The transaction is valued in excess of $26 million.

BTX Corporation has opened its new West Coast operations at 6255 Sunset Blvd., Hollywood, Calif. Telephone number is (213) 462-1506; new manager is Jerry Hudspeth . . . . **Gene Bidun & Associates** has been formed to sell and service Cetec Broadcast products in Maryland, Delaware, W. Virginia, N. Jersey, Pennsylvania, and the District of Columbia. The firm can be reached at P.O. Box 861, Columbia, Md., (301) 992-4444 . . . . Consulting engineer Elmer E. Smalling III has announced the formation of **Jenel Corp.,** consultants and engineers, located at 1675 York Ave., Suite 23A, New York, N.Y. 10028, (212) 722-2478.

Protech Audio Corp., a newly incorporated electronics manufacturing company, has concluded an agreement for the purchase of Robins Industries' broadcast and sound equipment line . . . . **TDK Electronics Co.** will introduce a metal particle audio cassette to the Japanese consumer market this month . . . . **Wometco Enterprises** announced plans to expand its Wometco Home Theatre STV operation to southeastern Michigan, pending FCC approval. The company also reported record sales and earnings for the first quarter of 1979.

A 24-hour toll-free telephone system for ordering spare and replacement parts has been initiated by **Ampex's** audio-video systems division. For California, the number is (800) 982-5875; for the remaining contiguous states, (800) 227-8402.

James Coleman Guthrie, Jr., has been named technical field sales manager of **Sony's** professional audio division . . . . **RCA Cablevision Systems** has named Donald O. Reinert as manager, marketing. Reinert has been with RCA for 30 years . . . . Danny E. Cornett is the new general manager of **Scientific-Atlanta** (Canada), Ltd.

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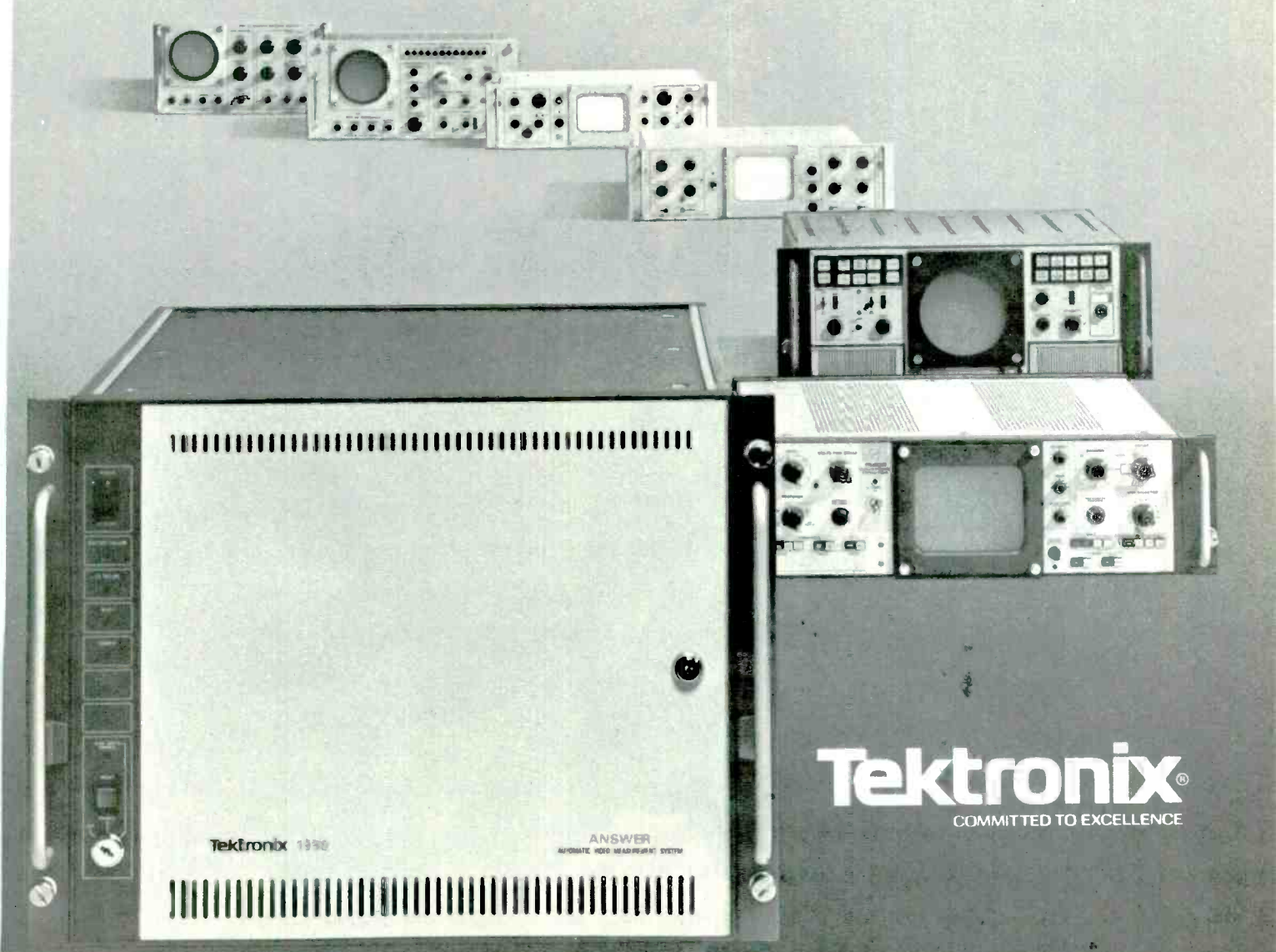

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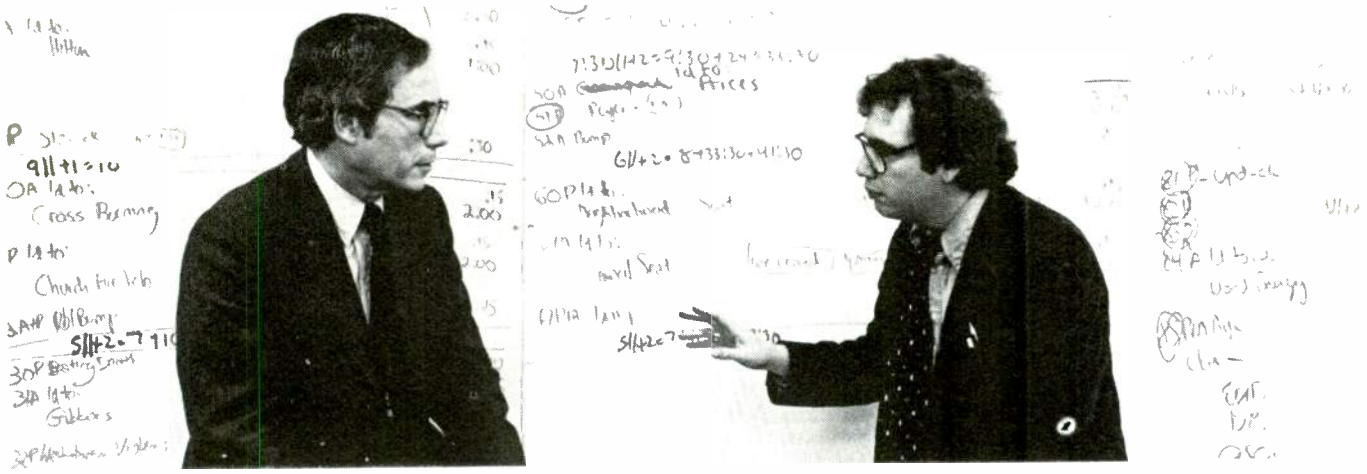

"We're part of the action."

Joel Chaseman, President of the Post-Newsweek Stations, Inc., describes "Nobody Ever Asked Me," a successful experiment in community programming.

"We all see around us people who live in their own circles and don't move very far out of them. They don't go downtown at night, they don't walk in the park, they don't rub shoulders the way people used to in a different society...in another America. So we have to reach for a way to get committed members of the communities we serve to trade opinions. We have to raise the question of community priorities.

"About two years ago, we started the 'Nobody Ever Asked Me' sessions. We put highly committed people together in the studio and let them argue it out for a night, during prime time, with the phones open. The general public could be in on the discussion to whatever extent they chose. In some cases we had 25% of the community watching. Television is more interesting the more realistic it becomes.

"The first programs were very tough, very explosive, very abrasive; because for many of these people, it was the first time their sense of priority was challenged. But it produced very exciting television with genuine validity. Television wasn't just standing on the side allowing these people to exist in a vacuum or to defend their positions in a vacuum. We were part of the discussion. We were part of the action.

"A lot of programming has resulted from those sessions.

"Responsibility to the community naturally extends to children's programming. We believe that more should be done that's original, creative, innovative. Right now, we're engaged in selecting the best films produced for children that we can find anywhere|...we've literally gone to the ends of the earth to find these films.

"I'm excited about this. Film has always given the filmmaker a kind of access, uniquely personal and individual. Film provides enormous creative flexibility, a means for the creative person to express subtleties with very interesting shades of meaning. In going through these short films, we are finding some very personal statements that we think will stimulate children's thinking. We will be putting them on during 1979 and 1980 in prime time.

"One of the reasons we're putting them into prime time is that the family unit is available to watch them. Kids get more out of television if there's an adult there to watch with them. And we're trying to encourage that.

"We've earmarked a lot of money every year to support young people in their first efforts to learn about broadcasting and to get into it. We offer a wide range of apprenticeships, internships, training programs and scholarships to aid young people and colleges in our broadcast cities.

"In return, we look for intelligent people who want to make good careers for themselves, honestly, and with integrity. People who are willing to work hard with us and for us. People who will reach for the unusual and not settle for the ordinary; who will be willing to take a risk to make it better than it was when they got here."

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RADIO

PROGRAMMING & PRODUCTION FOR PROFIT

How To Make Syndication Even More Attractive: Guidance From A Pioneering Study By BM/E

PROGRAM SYNDICATION for radio spread very rapidly in the last few years as radio became more competitive, as audiences became more sophisticated, and as the number of organizations turning out attractive syndicated programming doubled and trebled. Readers of this department have learned about a number of radio programmers who pushed on successfully from winning at one station to selling the same programs to other stations. Other talented people turned long careers at a succession of stations into choosing programs for many stations at once.

The main handles on success have been obvious: programs that have proven they win listeners, or that radio managements are persuaded will win listeners; plus sensitivity to the marketing and promotion problems of each station and expert advice on solving those problems. All successful syndicators have strongly emphasized high-grade sound quality.

There is now some evidence that a good proportion of the stations that were already ripe for syndication have been gathered in, so that maintaining a high growth rate in the future may entail even closer attention to the needs and desires of radio managements. *BM/E* judged that a survey of a large sample of radio managements, inquiring what they like and don't like about syndication, could be helpful to the syndicators and to their potential clients as well.

In February *BM/E* sent a detailed questionnaire covering many aspects of syndication to more than 2000 radio stations. By the cutoff date, March 6, responses had come from about 755 stations, an impressive sample constituting about a tenth of all commercial stations in the U.S.

BM/E has prepared a report on the results of the study, and will send a copy to program syndicators who request it. Copies were given to syndicators who had booths or suites at the NAB convention in Dallas last March. One of them told *BM/E* a few weeks later, after studying the report and incorporating some of the findings into promotion efforts, "We spent $45,000 on a market survey, and it did not give us as much useful information as this study."

Here are some highlights, along with brief comment. First: the 31 percent of the respondents who now subscribe to syndication are generally well pleased with it. On an 11-point satisfaction scale running from -5 to +5, a total of 76 percent of subscribers voted +3, +4, and +5, with the overall average figure at 3.1.

A large part of their satisfaction surely springs from the fact that the ratings of subscribers average comfortably higher than those of non-

This special report replaces the radio programming department, this month only

In order to give both syndicators and radio management a substantial account of *BM/E*'s study of what the radio industry likes and dislikes about syndicated programming, *BM/E* has preempted for this month the space assigned since January, 1977 to the two-part radio programming department — the news of new programming available, followed by a profile of a syndicator. In the July issue these two regular columns will reappear and will be continue thereafter.

What Radio Managements Like And Dislike About Syndicated Programs: Findings Of The BM/E Study

The responses summarized in the accompanying tables, which are a portion of those in the BM/E study, came from more than 700 AM, FM, and AM/FM stations. This is the first published compilation of the specific factors that influence radio management to select or reject syndicated programming.

Table 1

Reasons Why Broadcasters' Present Syndicator Was Chosen

The syndicator had the format I wanted	33%
The syndicator had a good quality sound	30
The price was right	20
The syndicator provides good service	20
The syndicator had a good reputation, track record	14
Syndicator is the best all-round	7
Recommended by other broadcasters	3
The syndicator offered flexibility	3
Selection done on a basis of market evaluation	2
Had confidence in the syndicator	1

Table 2

Amount Broadcasters Expect To Pay For Full-Time Syndicated Programming

	Size of Market		
	Under 50,000	50,000 to 500,000	Over 500,000
Less than $200 per month	3%	5%	-
$200 to $299 per month	6	3	5
$300 to $399 per month	14	7	4
$400 to $499 per month	23	16	6
$500 to $599 per month	27	30	9
$699 to $699 per month	16	15	5
$700 to $799 per month	5	9	9
$800 to $899 per month	3	7	4
$900 to $999 per month	1	2	8
$1,000 to $1,999 per month	2	6	18
$2,000 per month or more	-	-	32
Average (Mean)	$528	$612	$1,170

subscribers. Among subscribers who reported their ratings, 70 percent were rated one or two, compared with 58 percent of non-subscribers.

When asked why they chose their present syndicators, the largest number (33 percent) checked, "The syndicator had the format I wanted" (See Table 1, adapted from *BM/E's* report). The choice process, however, is not nearly as simple as that makes it look. Every experienced programmer knows that choosing the format with the right "name" is just the beginning of choice. The musical quality of the programs is crucial and is not indicated by the name, especially because the lines between the traditional categories of popular music are harder and harder to keep clear every day.

The station programmer has to listen carefully to a sizable sample of the programs to be convinced they are what he needs for his market against his compe-

Table 3
Factors Which Would Make Broadcasters Change Syndicators

A better product at the same/better price	21%
A fall-off in service	19
A better mix or program	16
A fall-off in quality	12
Loss of ratings, a bad book	8
A change in our format	4
A service customized to our market	3
Better sound	2
If our present syndicator went out of business	2
General dissatisfaction	1

Table 4
Attributes That Subscribers Look For In A Syndicated Programming Service

A good quality sound	19%
Prompt and complete service	19
Reliability and stability	13
An understanding of the station's needs	13
A fair price	12
Fresh, updated music and a good mix	10
Flexibility	10
A reputation for success, a good track record	9
Good program content	2

Table 5
Reasons Respondents Gave For Dropping Their Previous Syndicator

To get a different format	33%
To get better music selection	31
To get better service	22
To get a better price	8
Not satisfied in general	7
The syndicator went out of business	5
Track record of present syndicator	3

Table 6
Reasons Why Non-Subscribers Dropped Syndicated Programming Services

Cost, couldn't afford it	28%
Didn't work	22
Repetitive, monotonous programming	11
Station changed format	11
Felt we could do better ourselves	9
Other reasons	19

Table 7
What Non-Subscribers Dislike About Syndicated Programming Services

	Size of Market		
	Under 50,000	50,000 to 500,000	Over 500,000
Cost, services are expensive	25%	19%	9%
Not localized, no local identity	22	21	21
Canned, repetitious, monotonous	13	17	12
Lacks flexibility	14	14	14
Prefer to program myself	10	11	14
Not customized to market	2	8	14
My format is not offered	3	3	12
Poor audio quality	3	-	-
Nothing disliked	5	2	-
Other reasons	1	3	2

tition. He must get a sense that the programs are put together by one or more persons with the musical sensitivity and the experience to assemble sequences that work together, becoming more than the sum of the parts. Real feeling for popular music is essential.

The radio industry is lucky in having a sizeable number of individuals who have demonstrated this talent. Many of them have appeared in the profiles of syndicators running here since January, 1977.

Table 1 also shows that the syndicators' emphasis on high sound quality is right on target. We can judge that successful syndicators will keep ahead on this as the upgrading of audio quality continues. Radio managements should expect syndicators to move ahead with the new technology as it becomes economically feasible.

Right now, for example, digital recording is not yet in readily usable form

and is far too expensive. But it seems likely to become a staple of audio recording and distribution in a few years, with excellent effects on quality. Somewhere down the road, too, we will get satellite distribution, for another jump in quality, convenience, and economy.

The next two items on Table 1 are expectable: they show the importance of price and service. Table 2 gives a good summary of what radio managements consider the "going" price for syndication in markets of various sizes. The radio people would naturally welcome a price advantage. When asked (Table 3) what would persuade them to change syndicators, the answer most often checked was, "A better product at the same/better price." The rest of Table 3 shows the tune-outs in decreasing order of urgency.

In a kind of converse, the attributes that radio managements find positive in a syndicator (Table 4), we see again the importance of sound quality and of service. Here we assume that the potential subscriber has already made a format choice; the other qualities in Table 4 round out the assessment of the syndicator.

Of the subscribers among the respondents, 33 percent had had a previous syndicator. Table 5 shows why they changed from one syndicator to another. Changes in formats reflect mostly the highly competitive situations in many markets, with jockeying for better position by massive programming changes. The second item here, "To get better music selection," supports the above-noted importance of the flow and sequencing of the music, the specific choices made by the syndicator. It is clear that a number of station managements, after some on-the-air experience, decided (rightly or wrongly) that the programming was below original hopes on that score.

Among the respondents who were not subscribers, 13 percent had been on syndication earlier. Table 6 shows why they dropped out. Cost was the most often cited reason. "Didn't work" means in general that the programs did not bring an upward leap in the station's ratings.

On this latter point, it is most important to state again what so many of the successful syndicators have testifed to in the profiles here. Success with syndicated programs depends as much on efficient, dedicated work by the station personnel as on the quality of the programs. No programs, syndicated or of any other kind, can survive sloppy station work. Some station managements (fortunately only a few) try to offset

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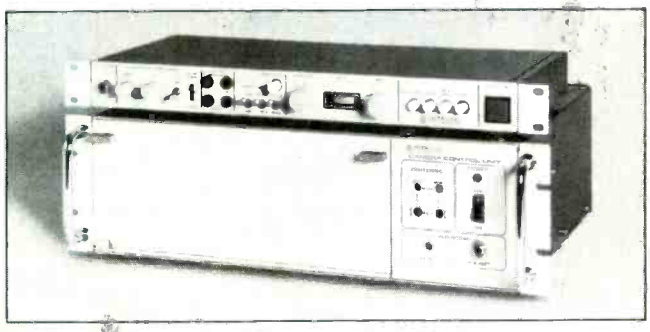

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inefficient operation with syndicated programs, but it doesn't work. And if the management drops the "failure" in syndication for another syndicator without cleaning up the operation, there will be another "programming failure."

When the non-subscribers were asked if they thought syndication would help them, 17 percent said yes and 83 percent said no. That supports the notion that the "easy" sales of syndication may be thinning out. But it is obvious that an excellent "product" and excellent selling can push things ahead, even in a sluggish market.

We get good clues to the dissatisfactions that sellers of syndication must overcome in Table 7. After cost (which becomes less important in large markets) the next objection of non-subscribers, made across the board, is "not localized, no local identity." Readers of this department will remember a number of syndicators who have addressed this problem head-on, usually with special voice segments or voice tapes, made especially for each subscriber, that seem totally "local" to the listener. But another answer on the questionnaire suggests that such localization is not preponderantly used: 28 percent of the subscribers said their programming "is customized," 72 percent said no.

Also bearing on this point was the finding that 78 percent of subscribers are automated, 23 percent are live, and 23 percent use "live assist." Of those, 57 percent get voice with the programming and 43 percent do not, and the latter are necessarily "local" all the way, with staff announcers supplying all voice material. The conclusion on this is that sellers of syndication have an information job, pointing out to radio managements the several ways that local identity can be a central part of syndicated programming.

The profile of the most-common syndication user shows it to be an AM/FM station in a medium-sized market. AM-only stations are very low on syndication, and FM-only stations are moderate. The prevalence of syndication among the AM/FM combinations has one obvious origin: the FCC rulings cutting down simulcasting in stages over the last several years.

Altogether, the *BM/E* study was strongly positive for the syndicators. For radio managements, it turned out to be a good release for "beefs" about syndication. Although these were minor compared with the praises, they do give syndicators some guidance on how to expand acceptance by the industry. **BM/E**

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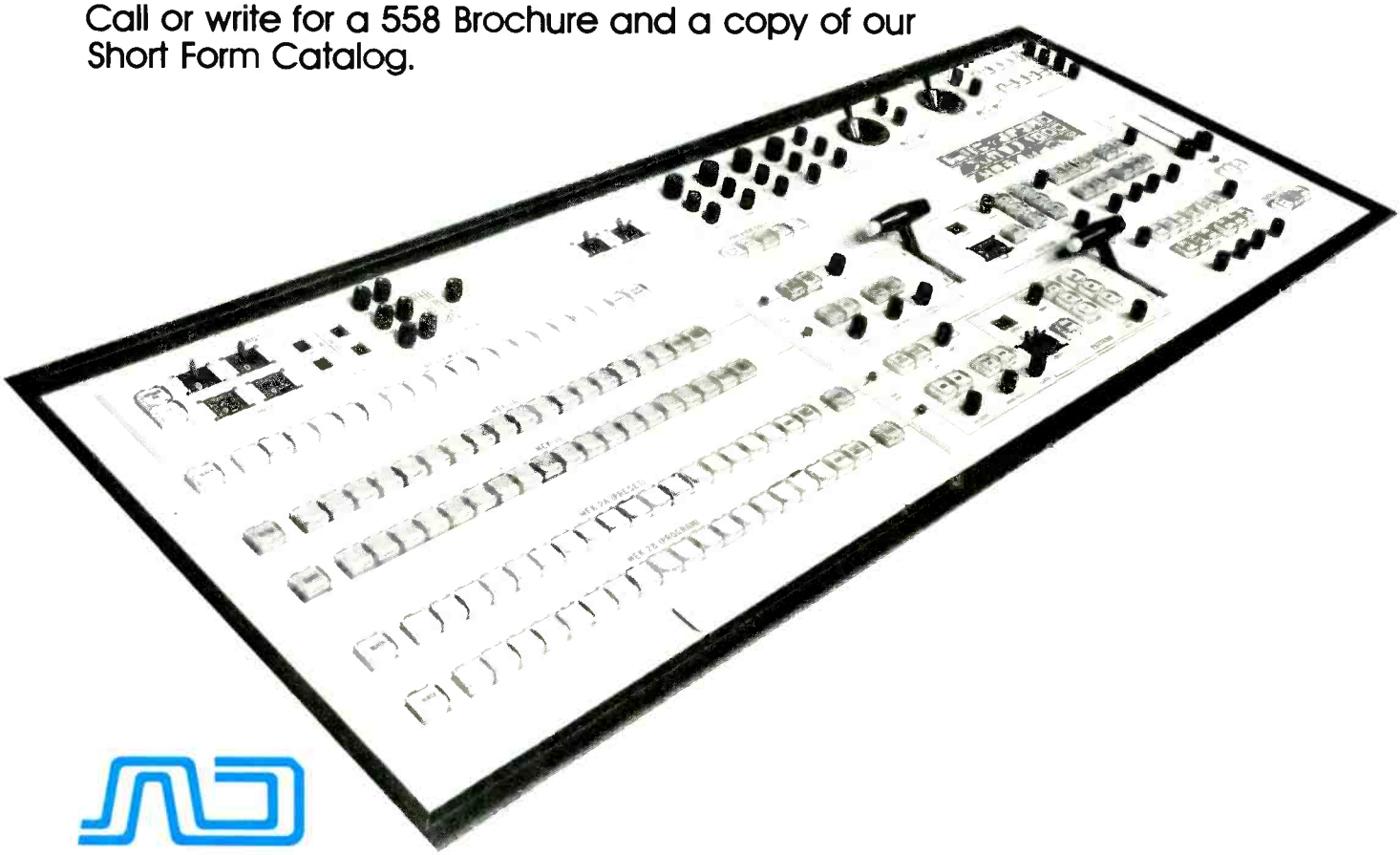

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The Baxters: National Programming With A Local Twist

THE BAXTERS begins like most every sitcom. A not too untypical family consisting of grandparents, parents, and children is engaged in an episode of family life. The situations are sometimes dramatic, sometimes comedic, sometimes melodramatic — but they always read like the experiences found in almost any typical family. It sounds like every one of the half-dozen other sitcoms on the air.

Halfway through the half-hour show, however, something rather different happens: the episode ends, and the studio audience or a panel of experts, under the direction of a moderator, discusses what it has just seen in the episode and offers reactions based on its own personal experiences. The audience or panel is made up of local people from the station's own viewing area.

The Baxters, due for syndicated fall airing, was originally the brainchild of Boston Broadcasters, Inc., where it ran on BBI's Boston outlet, WCVB-TV, starting in 1976. Then, last year, Norman Lear's T.A.T. Communications Company decided it would let the rest of the country in on *The Baxters* formula for success. T.A.T. hopes to produce the show in Hollywood and offer it for nationwide syndication through a joint sales effort by T.A.T. and BBI. Local stations will produce their own second halves.

For the show's creators, Hubert Jessup and Bruce Marsan of WCVB, the whole idea of the show is to explore how television can be both entertaining and educational at the same time. Says Jessup, "The show evolved as a way of dramatizing problems which occurred in people's personal and family lives. But rather than being heavy-handed about it, we wanted to do it through comedy and entertainment — we wanted to show that it's possible to laugh at some of life's problems and not just walk around with a depressed attitude.

"Another major element in the show is that while much television provides entertainment and tells stories, very little television offers viewers an opportunity to talk about it. We wanted to give the viewers a right to respond."

In the pilot version of The Baxters, *Norman Lear played host to the Los Angeles audience*

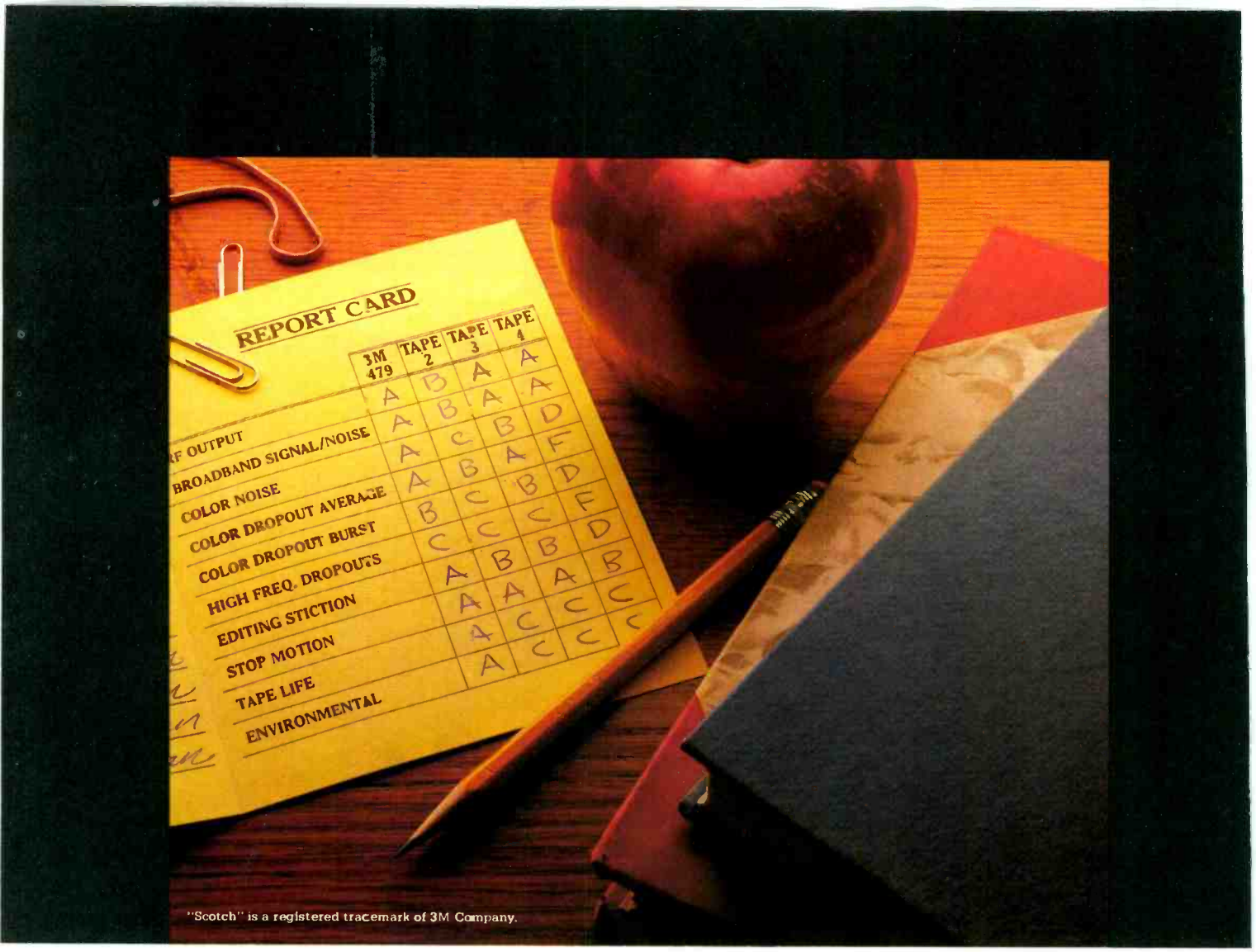
Because of this unique format, with locally produced discussions, *The Baxters* qualifies as a station's public affairs programming.

Cooperation the key to local production

For a show which is raising so many eyebrows, *The Baxters* had a rather inauspicious beginning as a segment of WCVB's Sunday morning religious program. Six months after it went on the air, it was moved to its own half-hour prime access spot (Saturday night at 7:00 p.m.) where it has remained ever since. According to Paul Rich, assistant general manager of WCVB and director of syndication operations for BBI Productions, the show consistently draws a 20 to 22 share and is second in the time period only behind *NBC Nightly News.*

Marsan and Jessup both credit the success of *The Baxters* to the team-effort approach from many aspects of the station's operations. "When we started out," says Jessup, "we really didn't know what we were doing. We knew we wanted to create a program in which matters of personal decision-making could be presented in a public-affairs format, but none of us had ever done a sitcom before. So we all sat down at a big meeting, with the people who would be doing the audio and the lighting, the technical director, and the cameramen, and we all discussed our mutual fears. It turned out that, by getting together like that, we were able to maximize the creative contributions from each member of the production team."

Marsan adds that there is nothing like "a common problem" to really pull a station's engineering and production personnel into a big, happy, cohesive force. Enlightened management attitudes helped, too. Marsan and Jessup were given the go-ahead for what was then an extremely controversial show, provided that it could be brought in for the same above-the-line costs as the station would have paid for a prime access show from a syndicator. Studio use fees



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The original WCVB Baxters cast pioneered the concept in Boston

and production personnel salaries were simply charged against general overhead.

Since WCVB does upwards of 53 hours a week of local programming, one of the greatest problems encountered in the production was the general scarcity of studio time. "We never had adequate rehearsal time in the studio," says Jessup. "We could always work with the actors outside the studio. But rehearsal for the technical side — camera moves, mic positioning, lighting changes, on-set blocking, and so forth — was always somewhat rushed."

Typically, the schedule called for a rehearsal with the actors on the set Saturday morning. Then there would be a break for lunch. At 1:00 actors would return for costume and makeup, followed by another short rehearsal. Production people would come in at 2:00 for a full facilities rehearsal until 3:00. Following a short break to get the audience in, taping of both segments of the show would be accomplished from 3:30 to 5:00 p.m.

Production of the sitcom portion of the show was originally done with two cameras, but this was raised to three cameras when the show was moved to its prime access spot and the studio audience integrated. The sitcom is almost entirely live-switched, with very minimal quad post-production for cleaning up. Generally, the sitcom will be shot in two stages, with camera and mic placements changed during the commercial break. The sitcom takes place in a two-room set with interconnecting kitchen and living room, both completely visible to the studio audience during the production. The cameras and mic are simply swung around to record the audience reaction for the second half of the show.

Considerable trial and error went into determining the best placement of mics to cover the studio audience. During the taping of the sitcom, four omnidirectional mics on stands are used to get audience laughter and applause, while a Sennheiser 815 shotgun mic, mounted on a boom, is used to capture dialogue.

Several different approaches were tried to find the best setup for the audience discussion segment, however. When the show was first produced it was with a large audience (50 or so people), and the boomed Sennheiser would be swung from one audience member to another as they talked. Jessup found problems with the time it took for the mic to find the speaker. The problem was overcome temporarily when it was decided to go with a much smaller discussion group (only eight to 10 panelists who were experts in the field being discussed), each of whom was miced with a lavalier.

Jessup and Marsan found, however, that the show would be far more vibrant and livelier if they went back to the larger audience format. At the same time, they tried a system in which Jessup (the moderator) would use a handheld shotgun mic. The problem here was that there was much too much time wasted while Jessup moved about the audience from speaker to speaker. An additional problem was that the speakers tended to talk only to Jessup although he was trying to encourage the audience to talk among themselves.

Finally Jessup went back to the original setup in which he remains stationery with a lavalier mic while the boomed shotgun seeks out the speaker. Most of the audience knows not to start speaking until the boom reaches them. The pauses while the boom is swung around are edited out during post-production.

Though, as we mentioned, there is

little editing done on the sitcom portion of the show, there is considerable cutting during the audience discussion, the taping of which usually runs about 30 minutes. Besides the obvious cuts to remove occasional bad language and get rid of the pauses for mic positioning, post-production enables the audience segment to really sparkle. "When we first began," says Jessup, "we would tape the audience segment to length. But we found that it takes the audience a while to get warmed up. When taping to length, the speakers would become nervous and rush to get things said. We would often overhear the best comments in the hallway outside after the production was over."

Audience warm-up the key to audience participation

When *The Baxters* goes on nationwide television this fall, stations that air it will have made a major commitment to producing the second 15 minutes. In a series of four regional seminars to be held later this month, Jessup will share with participating stations' management and production people some of the experiences he encountered in Boston. He will be paying particular attention to tips on getting the audience to participate in the discussion.

One of the most important things Jessup will be suggesting is that the stations invite members of the community who have a particular interest in the subject being presented. If the show is about the handicapped, invite handicapped people to the audience; if the show is about theater, invite actors and actresses. These members of the community have usually thought about the problem being presented and have probably already developed their "raps."

Jessup also believes strongly that the workings of the television operation must be demystified for the audience. Each incoming audience group is first given a "nickel tour" of WCVB's studios and is shown how the signals get from the cameras in the taping area, through the production control room, and then onto the air.

The audiences are warmed up emotionally, too. The incoming groups are briefed on what to expect when the taping session begins and what will be expected of them. Once inside the audience area, the audience is warmed up still further with get-acquainted games, jokes, and another introduction to the studio equipment. In this way, when the actors come onto the set and the sitcom begins, the only surprise to the audience is the actual plot itself (it knows in advance what the general subject of the show will be).

Jessup has found that the ideal audience size is 50 to 80 persons. Local stations taking the show will, however, be presented with several alternatives for handling the second half. If the subject is broad enough, and one which people will have already had time to deal with in their personal lives — a teenage daughter going out on her first date, for instance — the large audience discussion will probably work best. If, on the other hand, the subject is controversial or of somewhat more limited scope, a panel of experts or community leaders in a round-table discussion may prove more appropriate. The exact approach used will be a local decision.

The Lear touch

Norman Lear originally became involved in the project when he came to Boston in May, 1978, to receive an award from the local chapter of the Academy of Television Arts and Sciences. Robert Bennett, executive VP of BBI, and Rich showed him a sample show and Lear was impressed. Additional material was then sent to Lear's staff at T.A.T./Tandem, which was equally impressed. On November

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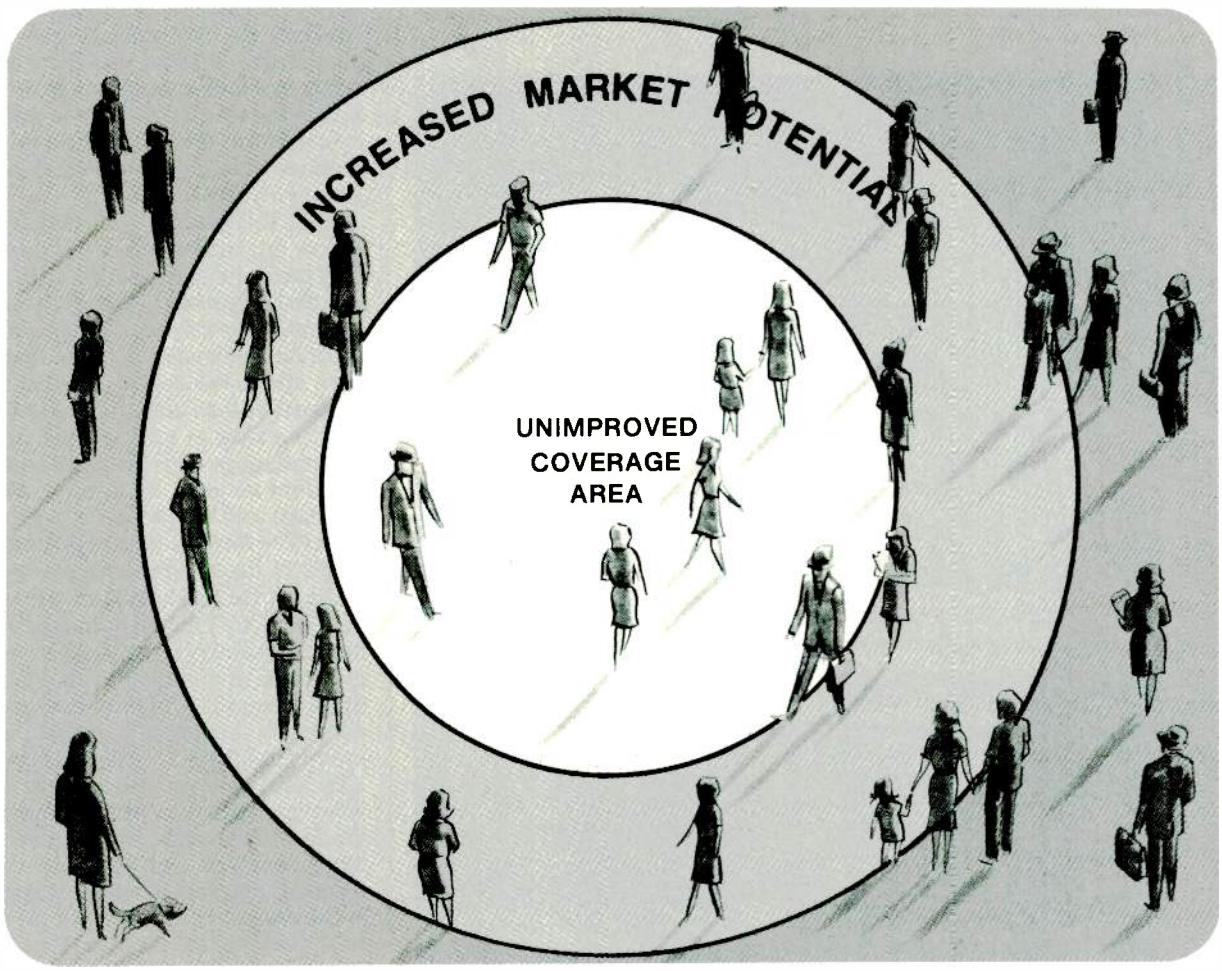

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29, 1978, T.A.T. and BBI announced their joint venture.

Lear himself wrote the pilot for the new *Baxters* show, which was played to extremely enthusiastic audiences at this year's NATPE show. Somehow it seems that the format fitted Lear's ideas about television like a glove, permitting him to present highly controversial and often delicate subjects. Any viewer who is offended then has a chance to have his or her viewpoint echoed during the audience discussion.

Lear's hard-hitting pilot spends a good deal of time in the bedroom (some of it in bed) where Mr. Baxter is trying to make love with Mrs. Baxter, who thinks they ought to talk over his problems first. There is no actual sex, but it is very clear what is going on. Audience discussions held in both Los Angeles, where the show was produced (with Lear as moderator), and in Boston (with Jessup as moderator) then present both men and women arguing both sides of the "do it first, talk later" and "talk it over first" controversy. Within the two 15-minute discussion periods, some 20 people — representing a wide range of viewpoints and experiences — had a chance to express their feelings.

Having sold 45 markets as of this writing (representing some 50 percent of the country), T.A.T./Tandem is relatively confident that it will go into production on the show this month. If this proves to be the case, the production of the sitcom portion of the show will, of course, be moved to Los Angeles and placed under Lear's production umbrella with Fern Field as producer. Jessup and Marsan will remain as consultants, though Lear will completely restructure the cast, adding new characters. Jessup, Marsan, and Rich are confident that their audience in Boston will accept the new *Baxters* show with little trouble even though they have grown familiar with BBI's production over the past two years.

T.A.T./Tandem will undoubtedly follow the same production formula as they have with their other sitcom hits of the past. Typically, this calls for two separate four-camera tapings with two separate audiences at 5:30 and 8:30 p.m. after a full day of rehearsal. Post-production then combines the two tapings, seeking to get not only the best performances but the best audience reactions as well. A major problem in the past, and one which will probably affect *The Baxters*, too, is getting audio levels of the two audiences to match.

As for the production of the second half, T.A.T./Tandem is convinced that any station willing to make the financial and time commitments to having a studio audience will be able to produce extremely worthwhile public service programming. It is likely that progressive local stations will become somewhat innovative in their approaches to the local segments. In addition to the large audience and panel of experts formulas that Jessup will be suggesting at the regional seminars, we are likely to see experiments like that being suggested by a station in Seattle. It will use the co-host of its *PM Magazine* show and air *The Baxters* on Monday night at 7:30.

Participatory television has always been a dream of many who work in the medium. *The Baxters*, assuming that it does reach national syndication, is a bold experiment which, despite the increased commitment demanded of the local stations, appears to be an economically feasible step in the right direction. Along the way, BBI has also proved that local programming — even of a format as complex as a sitcom — can be accomplished within a station's present production guidelines. To be successful, though, engineering, production, and management people must all be willing to contribute their creative bests. **BM/E**

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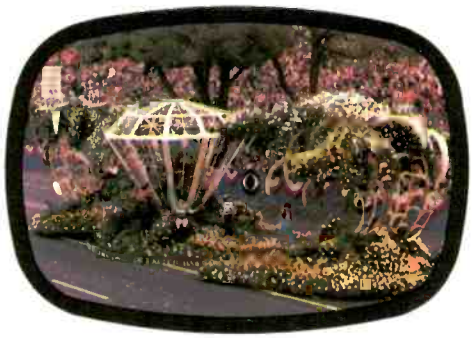

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DESIGNING WNEW: THE ARCHITECT'S VIEW

By Richard B. Dempsey

In almost any building project, the architect is frequently one of the most important members of the design team. Though the architect may not be a specialist in broadcast technology, he is a specialist in harmonizing both management's interests and engineering's requirements.

GOOD DESIGN BEGINS when everyone realizes that form and content must work together; neither should be sacrificed for the other. A good building is possible only if the purpose of the enterprise that will inhabit it is reflected in the design and only if the design is achieved through a thorough understanding of the people and activities that will breathe life into the structure.

Today, with the cost of construction and land at unprecedented levels, many broadcasters turn to the rehabilitation of an existing structure rather than to the creation of a new structure. Moreover, many broadcast licenses are assigned to urban centers where the scarcity of land is more severe and the cost of construction even greater. Yet, the expertise exists among architects, acoustical engineers, structural engineers, and a host of other specialists to convert even the most difficult of structures into an excellent broadcast facility.

One of the most challenging jobs we've undertaken in recent years was designing a new space for WNEW-AM/FM Metromedia Radio broadcasting studios, newsroom, and business offices. Briefly, the problem was to put round-the-clock studios and offices for 107 people into an existing 16,000-square-foot space in a mid-Manhattan office building that wasn't really built for that kind of tenant.

It was not easy. In September, 1978, WNEW management gave us a deadline air date of April 1, 1979 — half the normal time required for such an operation to be completed — and a strict set of criteria for their own well-defined professional requirements. Architecture and construction have their own demanding parameters, and, in this case, job-site and building idiosyncracies furnished an unanticipated third set.

After considerable searching, a group from WNEW and myself located an appropriate site on the second floor of the building at the southeast corner of 42 Street and Third Avenue. The price, location, size and shape were acceptable; only the access date of January 1, 1979, was a handicap. At this point the consulting nucleus was formed that would work together in fashioning a new home for this complicated business organism. The group included WNEW chief engineer Fred Moore; Herman Liquori, director of plant operations for Metromedia, Inc.; communications consultant Sammie Aed of Hamilton Communications, Inc.; graphics consultant Sam Lebowitz; engineering consultant Ray Garramone; acoustical engineer Ed Bishop of Cerami Associates; lighting consultant Don Bliss; and my staff as architects.

In a job of this nature, already facing a severe time problem, communication among members of the design team becomes of the utmost importance. The team, which sometimes included as many as 15 members, held weekly meetings. A strict set of procedures and communication channels had to be established in order to cope with the inevitable job complexities and location "irregularities." Design is a unifying process, so there is never anything

Richard B. Dempsey has been a practicing architect for 17 years. He played a major role in WNEW's newly designed radio and television facilities.

Designing WNEW

such as "somebody else's problem." All problems tend to impact on everyone's area of responsibility. As it was, we had our share of problems.

WNEW operates two separate radio stations, an AM facility and an FM facility. Each has its own area composed of air, backup, and production studios and its own programming, sales, and promotion staff. Only accounting and business procedures are common to both. Even the technical requirements for broadcasting are different. Operating between them is a newsroom with its own needs. In addition to these five major areas, the station has a library for housing thousands of record albums, masses of communication apparatus, conference rooms, offices of varying sizes, and several rooms for toilets, kitchen facilities, storage, office machines and an emergency power supply.

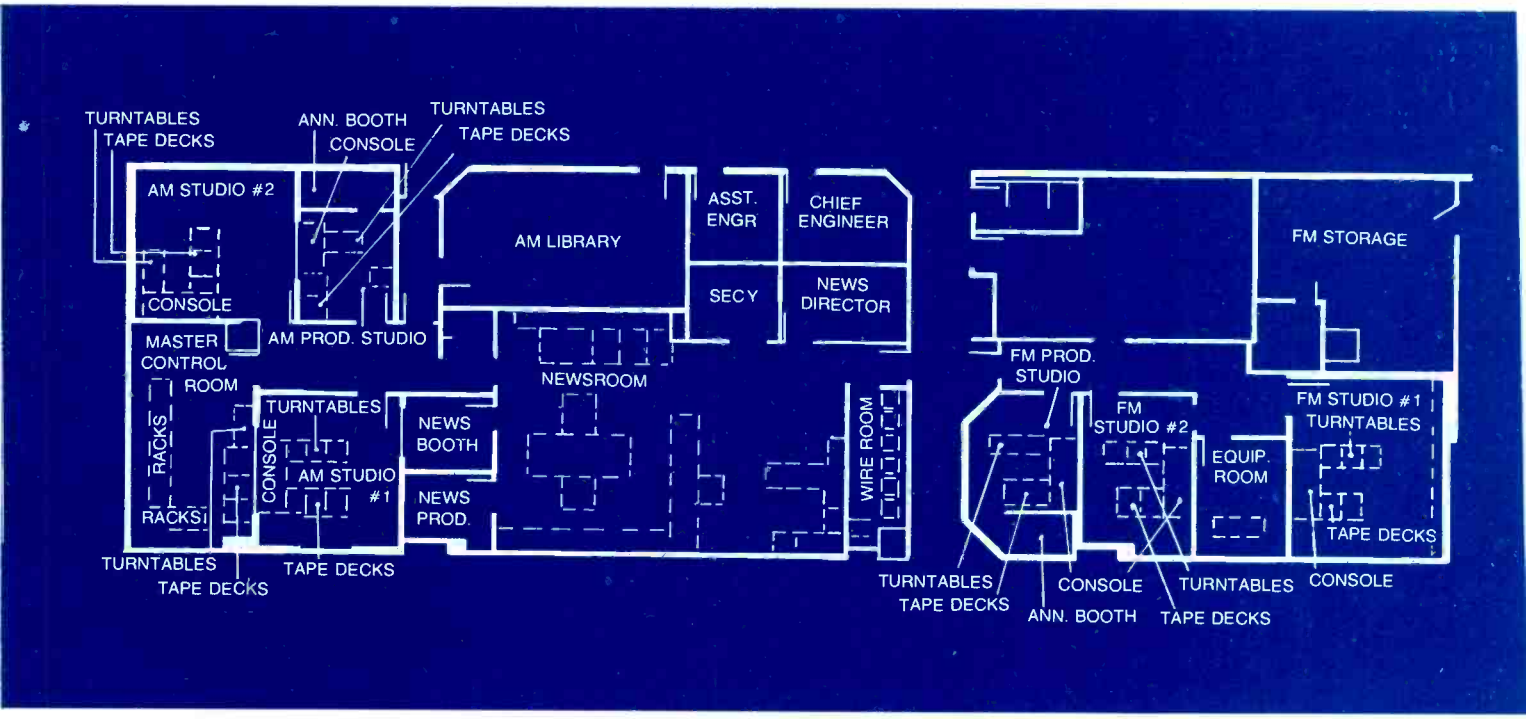
At least a dozen schematic plans were studied as possible solutions to using the designated space. Eventually the client, represented by WNEW general manager Mel Karmazin, selected a design that used a central core approach and preserved the intimate and yet distinct characters of the two radio facilities to be housed. This subtle design element was clearly defined by Karmazin.

The overall floor plan for WNEW. Offices surround the central core

The central core is oblong and divided into two halves for the AM and FM studios. The newsroom, which both stations share, is between the studios. Also in the central core is the majority of electronic equipment and incoming and outgoing lines. Around the core is a corridor and on the outside of the corridor are 35 offices and rooms.

Since isolating the studios from unwanted sound was a major concern, it was thought that the central core approach would help toward this end. Studio engineers like to keep the noise level at NC 20 dB or better so many studios also use a "floating floor" type of construction to minimize disturbance by noise and vibration. In this case, the offices around the core, corridors, and carpeted floors were thought to be effective sound-reducing agents. Subways and trains were not thought to present a problem either, since this building (and many like it) is constructed on lead pads to absorb these types of vibrations. Initially then, we thought that a "floating floor" design would be unnecessary. Several unexpected problems, however, eventually drove us to return to the "floating floor" concept.

Problems, as mentioned earlier, seldom exist by themselves but instead interact and have a cumulative effect greater than if they are considered individually. Minor problems such as the elevators, which were nearer the studios and transmitted higher structural-source noise than we liked, could besolved. "Wet columns" located directly adjacent to the studios produced audible noise when toilets elsewhere in the building were flushed, but this was solved by packing the piping areas with insula-



The central core provides for aspects of on-air operation

tion. Major problems, however, began to mount up.

Heating and air conditioning system pumps are located in the basement of this building. When activated, the pumps send vibrations through the steel structure of the entire building, too perceptible for sensistive studio equipment. To remedy this we plan to put isolators on the pumps to separate them from the pipes. This will cost approximately $20,000. Then we found that construction on a new hotel was about to begin immediately next door. Blasting and riveting and general construction noises would continue for several months and most certainly affect studio operation. The earlier decision to build the studios without the floating floor design was reversed.

Solutions outnumber problems

A four-inch concrete slab was placed on each existing slab separated by isolators on neoprene mounts. On these slabs each studio was built, essentially out of contact with the building and its hums, vibrations, flushings, and other sounds. Each studio has double walls which are free of each other, double doors on springs, and double-paned vision panels. The spaces between the walls are filled with fiberglass, which further reduces sound. The air conditioning ducts are also lined with fiberglass and fitted with sound traps where they enter the studios. The result: womb-like rooms, quieter than they have to be.

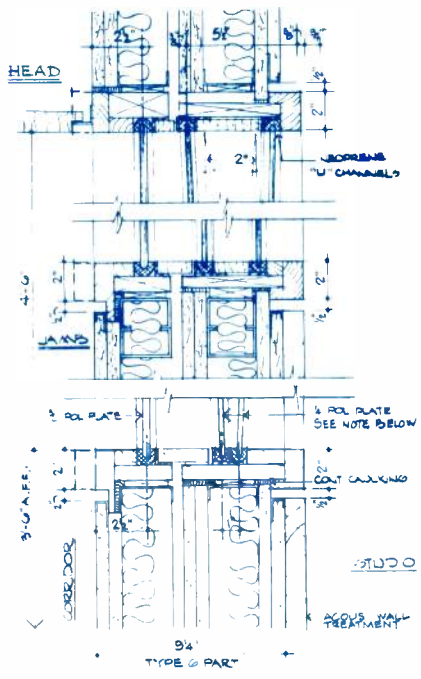
The air conditioning systems also caused some problems. The existing system is a chilled-water peripheral system. The six-foot-wide and one-foot-high ducts for the AC come from a central vertical shaft. The building's system, however, was designed for normal office hours. WNEW needed a continuous system for its 24-hour studio operations. Ducts for this auxiliary system had to work around the major one. Thus, an air-cooled condensing unit has been put on the floor and uses outside air for cooling when possible. This equipment, along with plumbing and wiring needs, made a ceiling packed full of ducts and conduits. Mechanical engineer Ray Garramone found it quite a challenge to coordinate the two air conditioning systems along with the heating and ventilation needs and make sure that they were as quiet as possible. "We found that we needed a full-time sketcher to make on-the-spot field changes of problems that had to be resolved instantly. Time was the major factor; space was second. Also, you have to realize that New York is an alteration market, in the horizontal plane rather than the vertical. It requires coordination of many different trade skills. This job was a prime example."

Plumbing had some minor built-in inconveniences. A unisex toilet over the lobby had to be moved for fear of potential damage from leaking. And the restaurant below (one of the few remaining Horn and Hardart's) meant that drain water for two drinking fountains and the kitchen unit had to be pumped through the ceiling.

Special considerations grow out of special functions

Some special structural elements proved necessary. The record library will house over 10,000 albums. This requires space and structural strength since a single wall full of records can weigh up to two tons. The WNEW collection was beyond the structural capacity of the floors as built. For both the library and the room that houses the 4000 pounds of batteries for the emergency power system, Joe Biren, the structural engineer, designed steel beam supports so that the weight would not rest on the slab floor and buckle it.

The lighting was also designed specially for the complex and took in energy and efficiency considerations along with esthetics. Metromedia provided incandescent track lighting for the studios. For the offices, low-bright-



Architect's detail of vision panel shows planned approach

Plans provide for guidance during construction (above). The completed studio (right)

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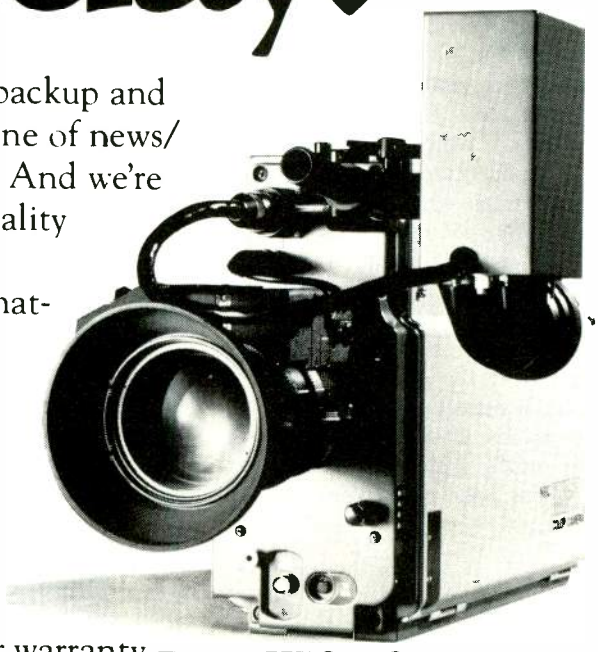

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ness Alzak fixtures were used. Fewer light fixtures using the task lighting concept provide more light over work areas. The managers' offices use incandescent lights in an aluminum and white ceiling. This modulated lighting system uses a good deal less energy than usual — the wattage is below two watts per square foot (the average being 3.5). The long corridors feature an added attraction. Alzak fixtures are used to "wash the walls" with light where artwork is hung. Says lighting consultant Don Bliss, "We wanted to make the corridor a pleasant experience, not just transportation and access tubes."

Two basic and important graphic elements closely associated with architecture — the overall image and plain information — were handled by consultant Sam Lebowitz, and again the job brought a special challenge. Both management and I felt the reception area should be a tasteful and striking representation of the basic nature of the organization within. The design and logos should reflect the parent company and its close association with the two allied but independent and separate AM and FM radio stations. The result is indeed striking, memorable, and very clever.

The name "MetromediaRadio" was run together in brushed bronze, with the two elements "Metromedia" and 'Radio" brushed at 90 degree angles; the resulting difference in light reflectivity is eye-catching and subtle. Also, two slightly different typefaces were used: a modified Avant Garde Book sans serif for the first element and Stymie Medium serif for the second.

This philosophy of "intimate independence" is given even better treatment in the reception area. There, two back-lighted two-way mirrors on opposing walls have been used to give the familiar infinity-image feeling a new twist. In one mirror are the call letters "WNEW 1130 AM" in red; in the other mirror, "WNEW 102.7 FM" in blue. The images reflect into each other while maintaining their individuality, and furthermore symbolically portray the essence of radiating broadcast waves. The two typefaces and colors are then carried over into the office floor in various signs that identify function and place, again separating AM from FM.

One of the keys to the success of this carefully orchestrated crash operation was the work of WNEW chief engineer Fred Moore and communications consultant Sammie Aed. The equipment that is needed for seven studios, two master controls, and a newsroom requires a maze of electrical and telephone lines. Moore and Aed immediately saw the impending difficulties imposed by the shortened time limit and early in the game began to adapt and borrow various equipment designs that would make the April 30 air date feasible. The essence of their approach: modularize the console wiring systems so that the intricate and time- and space-consuming job of interconnecting the studio systems could be done before and at the factory, and not in the mess of the job-site. Their vision and method proved exactly on target: the AM studio was air-ready four days early.

WNEW's new home is one of the larger and more complicated of its type. It is also the most modern and sophisticated in terms of equipment and design. All told, the cost of design, construction and furniture came to $50 a square foot. This is compared to$20 for a standard office space design and building. But, then, WNEW's new home was far from standard. **BM/E**

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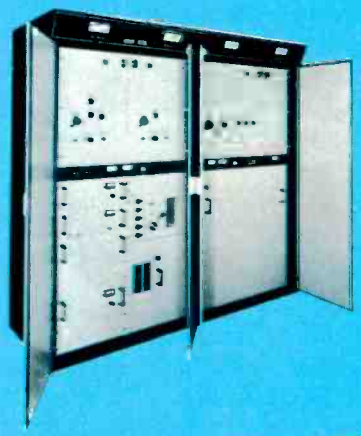

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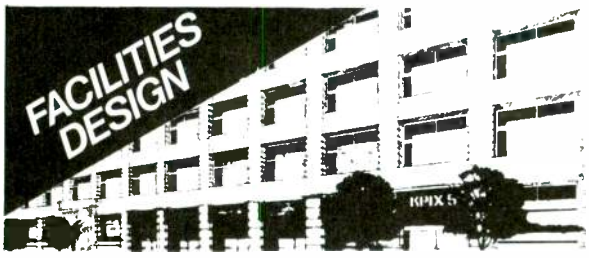
KPIX-TV RAISES HIGH THE ROOFBEAMS IN 70-YEAR-OLD BUILDING

By Steve Wintner

KPIX in San Francisco has set out to prove that "old can be good, too" by completely remodernizing a historic building into a modern broadcast facility. In addition to providing street-level access to ENG areas, the roof was raised 17 feet to accommodate two studios.



IN SAN FRANCISCO, KPIX, Ch. 5, is preparing to move into new facilities located in one of the city's oldest buildings, a 70-year-old post-earthquake structure at 855 Battery Street near the financial district.

Currently undergoing complete renovation by Gensler and Associates/Architects, the top two floors of the five-story 220,000-square-foot-building are being converted into studios and offices for the Group W (Westinghouse Broadcasting Company) television station. The three remaining floors will be leased to other tenants, providing the station with the important option of future expansion space.

Move-in is targeted for the fall of 1979, when the station's 220 employees will be relocated from present facilities at 2655 Van Ness Ave.

One of the earliest structures built after the 1906 San Francisco earthquake, the remodeled building will look virtually unchanged on the exterior, other than a contemporary window glazing treatment to complement its basic architectural style and a new exterior finish.

The interior spaces are another matter entirely, as innovative engineering and space planning concepts are being used to create a sophisticated news gathering and production center.

From station management's point of view, the facility solves a number of problems. "Broadcast stations are extremely dynamic, both in terms of systems, personnel, and programming," remarks Pat Polillo, vice president and general manager. "As with any major television station planned and built 20 years ago, we are now looking for more space flexibility to accomodate advanced broadcast systems, electronic news gathering equipment, and office systems that can be inexpensively reconfigured as our needs change," he adds.

An industrial building first used as a bakery and warehouse and later as a printing plant, the new location has 38,000-square-foot floor areas that are much larger than those found in contemporary high-rise buildings. These spacious floors are suited to open office planning and allow for ample flexibility in redesigning space. The structure is also designed to take very heavy floor loads, making it ideal for high-density electronic equipment.

In addition to a favorable location close to the city's financial district, with immediately adjacent freeway access, the site is uniquely appropriate for electronic news gathering operations. "The building is a monument to loading docks," says Polillo, "and this has proven to be the answer to the station's ENG requirements."

The loading bays have been retained and reworked to provide KPIX "Instant Eye" minicam vans with enclosed parking and quick in and out access. Such vans now have to be parked in various garages and on-street locations near the station's present facility.

The ground level also houses a maintenance shop to service both the ENG vans and other field equipment used in programming and commercial production. Parking is provided by conversion of the basement into a garage, overcoming the lack of street parking.

To maintain a separate KPIX identity, both for convenience and security considerations, Gensler and Associates has added a new central building entry and elevator lobby exclusively serving Channel 5 floors. Two existing entrances are equipped with elevators to service the first three tenant floors. "Maintaining access at either end of the building means that we can divide the large tenant floors into more desirable modules from a space leasing standpoint," comments Gensler project designer Charles Kridler.

Steve Wintner, an architect with Gensler and Associates, San Francisco, is the project director of the KPIX Group W (Westinghouse Broadcasting Company) renovation project in downtown San Francisco.

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KPIX-TV Raises Roofbeams

Planning for adjacencies

Space planning for the KPIX facilities represented a series of important decisions for studio management. Location of the studios was the basic starting point for allocation of space for other functions.

With a studio height requirement of 27 feet to accommodate lighting grid and scenery, the project team had the option of creating a two-story space on a lower floor, requiring extensive structural redesign to carry the floors overhead, or placing the studio on the top floor and raising portions of the roof to gain necessary height.

"It is unusual to place studios on an upper floor, but two factors guided our decision," says Walter Nichol, chief engineer for KPIX. "First, we felt that ground floor studio space is no longer a necessity in television broadcasting, with the advent of remote videotaping capability.

"Then, from a space utilization standpoint, the upper location is more efficient, enabling us to gain maximum rentable floor area on lower levels," he adds.

Within this framework, the fifth floor is the production center, consisting of two studios, control rooms located between the studio facilities, an adjacent scene shop and storage area, engineering departments, art department, green room complex, and employee lunchroom. Fourth floor space is devoted to administrative functions, including sales, general management, and human resources, together with programming and news departments.

"These adjacencies are expected to work very effectively in providing the continuous interaction and circulation between departments that characterizes a 24-hour-day television operation," Nichol says.

A new look at engineering

Space allocations for engineering functions reflect the changing nature of the broadcast industry. "Rather than consolidating all activities related to engineering and maintenance in one block of space, we have taken the approach of segmenting and locating each function wherever it is most useful," Nichol observes.

Engineering is divided into a studio control and operations section and a master control (telecine) area. Additionally, the fourth-floor news department has its own ENG control complex, while the programming department is equipped with an editing facility.

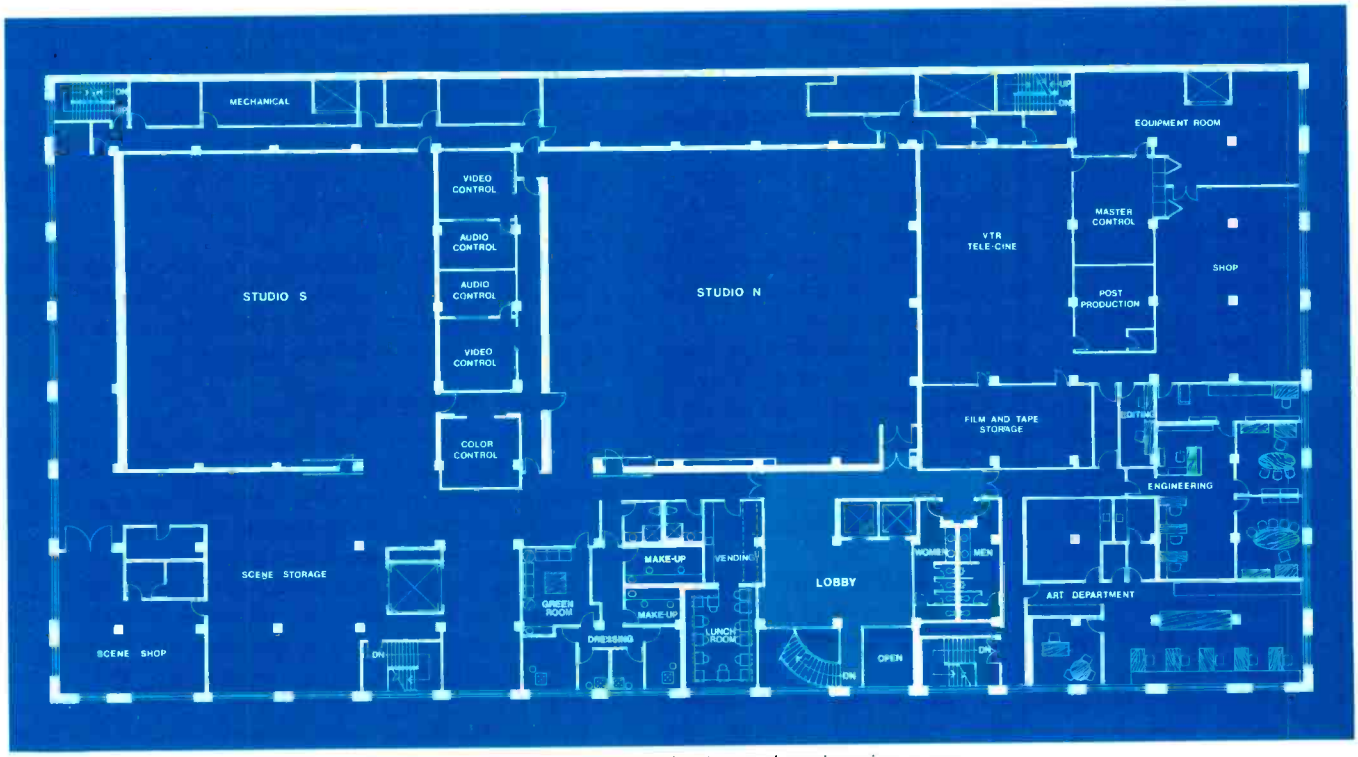
The entire studio complex is an autonomous unit. Studio control is placed between the 6000-square-foot studio, which will accommodate audiences of up to 175 people, and the 4800-square-foot studio, designed primarily for news programming. "Code and design considerations required that the two studios be separated by one structural bay, and this became the logical location for the control area," designer Kridler comments.

The station wanted the largest studio that could be accommodated in the building. By raising the studio roof 17 feet above its present level, the architects were able to take out all columns and create a span of approximately 70 feet in both studios. This work was accomplished without altering the building's facade.

Approximately one-third of studio space is to be equipped with counterbalanced lighting grids and fly battens. Remaining space will have dead-hung fixed grid lighting. A 60-dimmer system is to be used in the large studio and a 40-dimmer system in the smaller facility.

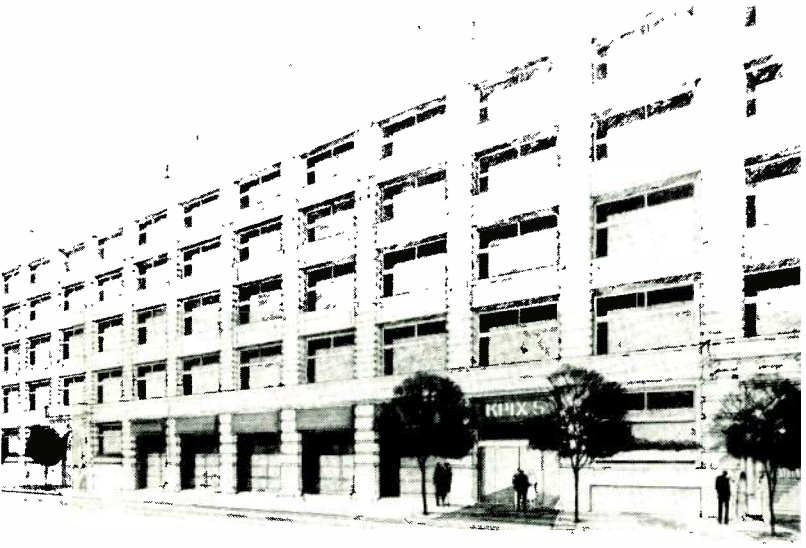
Microphone layout will include 10 studio connector boxes, combining functions of microphone inputs, video and audio monitor outputs, and video and audio tielines between the studio and audio booths and/or color control room. These boxes will be serviced in separate wireways mounted flush on the studio walls, then fed back into the main cable system.

All microphone preamps are located in the audio con-



The fifth floor layout of the new KPIX facility houses most of the production and engineering areas

KPIX-TV Raises Roofbeams



The architect's rendering. The building's historic importance has been preserved

trol booths with the audio console and microphone patching done in the control area.

Immediately adjacent to the studio complex, the master control area combines post-production, videotape, equipment storage, and maintenance functions. A raised access floor with all cabling underneath allows for flexibility similar to that in computer facilities.

From master control, an overhead cable tray system runs through the fifth floor, drops down to the fourth floor in the technical area and at the opposite end of the building, and covers the entire lower floor to form a closed loop. Taps from this system in every room provide total accessibility to cabling throughout the building without disrupting the ceiling system.

"From an engineering standpoint, perhaps our greatest opportunity in the new plant has been to replace some major video and audio distribution systems, a process that would have been extremely difficult in our existing location," Nichol remarks.

Extensive routing/switching facilities are designed so that any signal may be transmitted from one place to another in the building without the use of patch cord. Nichol explains, "This flexible signal distribution will allow the engineering department to reconfigure the plan by doing nothing more than pushing a button."

Master control has also been designed with ample room for expansion, anticipating changes brought about by the current revolution in videotaping systems. "We are moving our existing two-inch quadruplex videotape recorders to the new facilities, but are anticipating one-inch videotape, electronic still-store devices, and other technological advances that will ultimately require more space," he says.

The new building has provided KPIX with the opportunity to redesign certain portions of the plant around electronic news gathering, including the loading dock parking for ENG vans. The news department has become a separate electronic center, with full control of microwave equipment, live remotes, recording, editing, and playbacks for on-air use. The department has also been located close to a new two-story stairway that interconnects the two floors, providing quick access to the fifth-floor news studio.

Growing popularity of KPIX's *Evening Magazine* show has pinpointed the additional need for a separate programming production function, including complete facilities where all field material shot for local programs and retail production can be edited within the programming department.

Office planning for flexibility

Equal attention is given to the use of advanced systems in the administrative area. To allow for growth and change, an open plan was selected by the project team for the fourth-floor office areas. Natural light is brought into the space by placing all private offices on the interior wall, leaving the balance of the floor open to perimeter windows.

As part of extensive use of Westinghouse products in the Group W station, the Westinghouse ASC workstation system supplies high-density storage and ease of relocation. These durable metal and fabric panel stations have inherent acoustical properties that also contribute to sound control.

Both acoustics and lighting are key elements in creating a successful open plan. The architects have created "floating ceilings" suspended over each structural bay to absorb sound in the space and provide a reflective surface for indirect/ambient lighting. These fiberglass ceiling units leave the exposed structural system of the building visible between the bays. "We felt that a conventional dropped ceiling would have been inappropriate in this industrial building, detracting from the structural quality of the space," comments Gensler architect Harry Haimovitch.

The floating ceilings also provide more headroom than would been possible with a dropped ceiling, establishing a feeling of spaciousness throughout the open plan.

Considerable attention was given to acoustical control of the fifth-floor studio and master control areas, taking into consideration the building's exposure to freeway noise and heavily-traveled main streets. Working with consultant Robert Hansen of New York, the architects encased the studios and technical areas with as many as four layers of mineral wool insulation of heavy density for walls and ceilings. Combined with gypsum and sound insulation board, walls in these areas are a foot or more thick to supply a high degree of isolation from exterior noise.

Isolation is also planned from mechanical equipment located along the west wall on both floors. An intricate set of baffling and offsets reduces sound attenuation at points where the ducts penetrate the walls.

Part of the community fabric

KPIX sees the new headquarters as an appropriate blend of San Francisco's historical past and dynamic future, of which it is a part. Located within the city's revitalized north-central waterfront area, the building is one of several to be rescued from the demolition process.

"Use of the 855 Battery building for sophisticated broadcast requirements is proof that older buildings in the inner city can be successfully redesigned to extend their useful life in the fabric of the community," Polillo concludes.

By working closely with architects to translate company objectives into actual space utilization, KPIX is creating a station that meets its needs for the 1980s and beyond. **BM/E**

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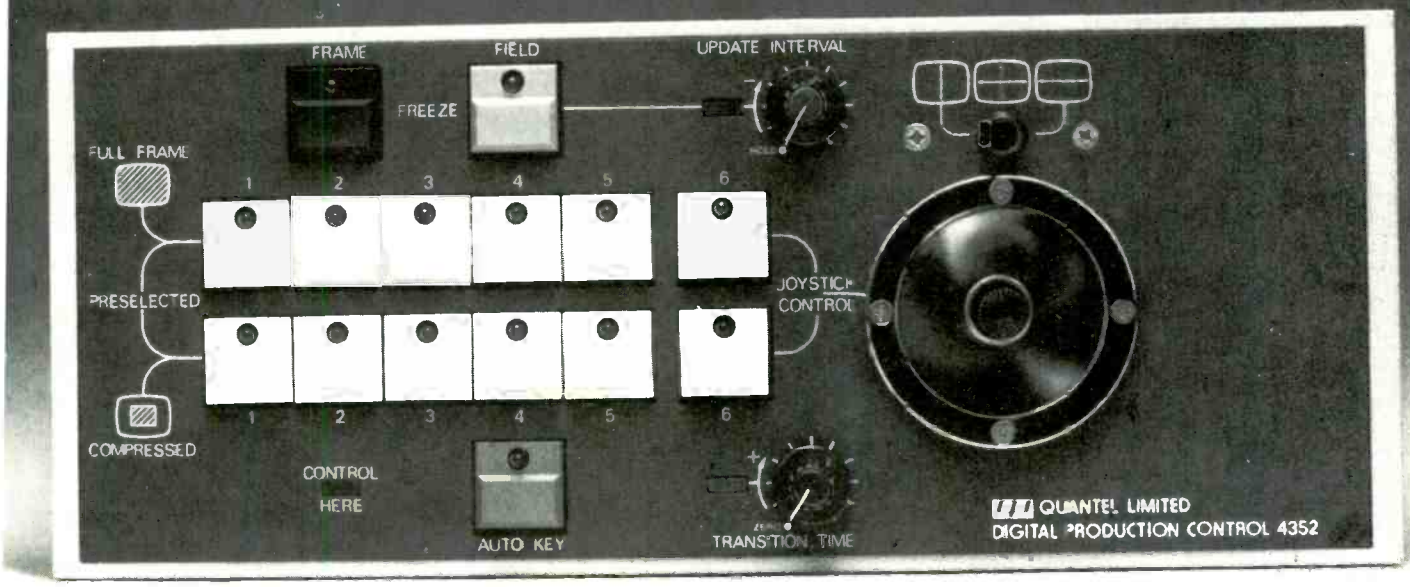

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VEHICLE DESIGN FOR THE EFP ERA

FACILITIES DESIGN

By Jon Munderloh

EFP vehicles should be designed with the same care as other broadcast facilities. With a little attention paid to selecting the right type of vehicle, air conditioning system, power supply, and interior finish, a mobile van can become a flexible production tool.

Editor's Note: Jon Munderloh is president of Centro Corporation, a San Diego-based company specializing in the design and implementation of broadcast studios and ENG and EFP vans. Assisting in the preparation of this article were Centro's Fred Powers, industrial designer; Rex Reed, systems engineer; and Darrell Wenhardt, chief engineer.

TODAY'S UPSURGE OF field plant remote production activity is clearly taking its direction from technology and techniques pioneered principally to meet the demanding needs of television news operations. ENG technology has subsequently introduced a great degree of production mobility and creative freedom. With the recent perfection of real-time ENG microwave transmission capability, scores of 'ENG vans'' have now appeared (small delivery-type vehicles equipped with microwave transmission and single camera/VTR capabilities).

The success of these highly mobile, easy to operate ENG units has caused a great deal of interest in the construction of similarly-sized units equipped for multi-camera/VTR field production. Today's compact switchers, monitors, and peripheral system equipment, when packaged with two or more ENG cameras and a VTR, permit a great deal of production capability to be housed in a small van or truck.

It sounds relatively easy. A small delivery-type van, a couple of short equipment racks, and a trip to the local recreational vehicle outfitter for some carpet and ''tuck-and-roll'' upholstery should do it. But wait, what about air conditioning, power, lighting, storage, vibration, environmental integrity, and security? The design and construction of a successful, compact EFP vehicle with multi-camera capability requires the same degree of engineering and planning ordinarily given to a larger remote production vehicle or a studio. In a truly mobile EFP unit, space is a valuable commodity and must be properly and accurately utilized to achieve acceptable results. The very nature of a multi-camera remote system (more equipment and operators) makes the construction considerations significantly more complex and difficult that comparably sized ENG single-camera/microwave mobile units.

At Centro Corporation the design objective of an EFP vehicle system is the achievement of maximum production capability within the available confines of an acceptably sized vehicle. The philosophy of design mandates that the desired production capability objectives be met without compromise to either the performance of the electronic aspects of the system or the mechanical performance parameters of the vehicle itself. Successful execution of an EFP vehicle design and construction encompasses consideration of a number of items.

Vehicle selection

One of the first and most common errors in the design and construction of any remote production vehicle is the procedure for selecting the vehicle that will house the system. More often than not, the vehicle is initially selected on the basis of its size, appearance, price, availability, and related factors, without prior consideration for the physical aspects of the system that it will ultimately contain. This approach really puts the cart before the horse. Prior to the actual selection of an EFP vehicle chassis, the desired system must be fully defined. What are the production, performance, and capability parameters? From that definition should come a preliminary system design specifying envisioned number and types of cameras, monitors, engineering equipment, video switcher, audio mixing, and support equipment, etc. Also, preliminary consideration must be given to the number and function of operators, cable, grip, and associated equipment, and storage requirements.

From this initial system design essential data may be gleaned, including equipment, operator, and storage weight and space requirements, power consumption, and heat dissipation. Given these facts, a class of vehicle type and size can be selected that will safely and correctly contain the system and its attendant support items. With accurate consideration of space and weight requirements, ''the cart will fit the horse.'' Should the originally defined system dictate a larger vehicle than desired, then the system concept itself must be altered and changed to enable a selection of a smaller vehicle.

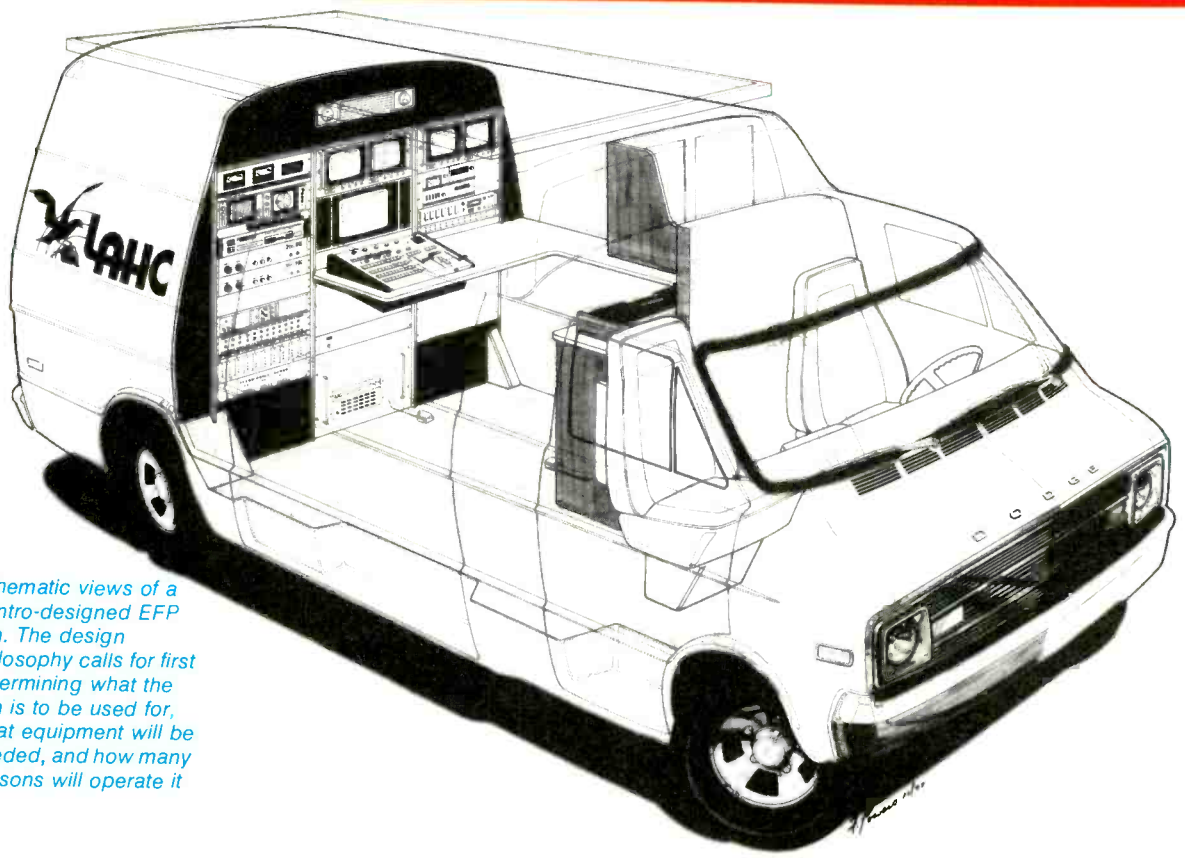
Once a vehicle class size has been determined, another set of considerations must be made. Location and types of doors are significant. Attention should be given to the

method employed by the manufacturer for sealing doors from the elements. Alignment of doors and their frames should also be checked at the time of purchase. Windows installed in doors should be analyzed for their thermal and security effects. Consideration must also be given to the weather and topography in which the EFP vehicle will be utilized. For example, a four-wheel drive capacity and related items may be essential if off-road use is anticipated.

To determine the load-carrying capacity of a potential vehicle, subtract the manufacturer's published curb weight (unladen) from the GVW or gross vehicle weight (laden). The load capacity of the vehicle under consideration must exceed the anticipated weight of the envisioned system. Do not attempt to pick a vehicle with a light axle rating and plan to compensate for excessive weight with extra springs or 'load levelers.'' In so doing, the overall vehicle performance specifications will be proportionally compromised. Opt for the axle rating that corresponds to the planned load. Safety and reliability factors will be greatly increased, and the slight cost difference will justify it.

Air conditioning

Air conditioning requirements for a small EFP vehicle are often overlooked and left for last-minute implementation. Air conditioning is essential for EFP vehicles, even if its use is in moderate or colder climates. The amount of heat generated by a typical EFP system and its operators is



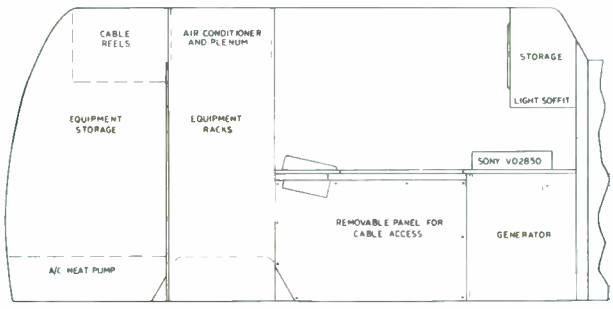
Schematic views of a Centro-designed EFP van. The design philosophy calls for first determining what the van is to be used for, what equipment will be needed, and how many persons will operate it

Execution of the EFP van depicted in the cutaway schematic above. Note the artificial lights to supplement the vehicle's skylights

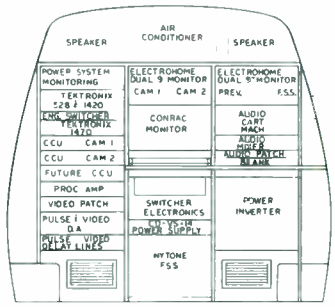
surprising.

Typically, a first approach in meeting the air conditioning need is the selection and installation of a roof-mounted air conditioning unit designed for use primarily in recreational vehicles. Caution should be exercised in the use of such units as they seem to be, in many cases, liberally if not over-rated in cooling capacity. Incorrect placement of these units can also result in inefficient and unbalanced cooling of the operators and equipment. A great many of the recreational vehicle air conditioners are designed for 12 V dc power operation or are dependent on the vehicle's engine to power the air conditioning compressor. With many production sessions lasting several hours, these air conditioning units are, in many cases, unacceptable since they require the vehicle's engine to run for the duration of the session.

In EFP vehicles designed by Centro, air conditioning systems are built and installed from separate components and are customized for each vehicle's requirements. The first step in the design of an EFP air conditioning system is the computation of the required air conditioning load. Assessment is made of the heat dissipated by the equipment and operators, insulation type, interior finish of the vehicle, number of windows, colors of the exterior, total amount of interior space and exterior surface area, and climate condition and temperature ranges in the anticipated area of use. With these and other factors at hand, a cooling load can be calculated. Cooling load requirements in EFP class vehicles generally range from 15,000 to 20,000 MBH (1,000 BTUs per hour). In exceedingly high-humidity, high-temperature areas, dehumidification may also have to be considered.

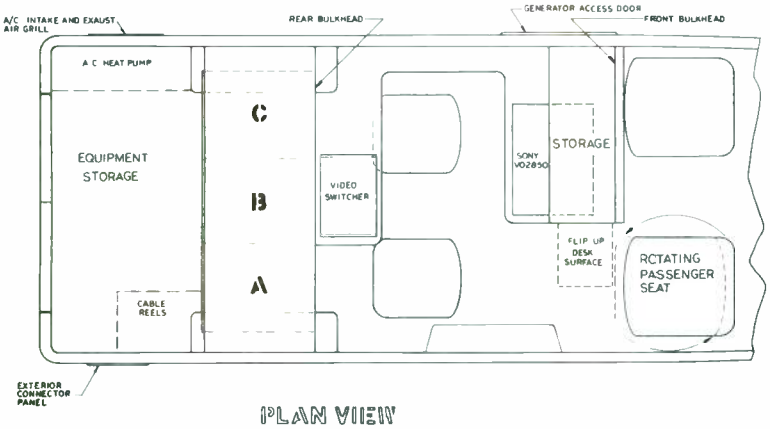


SIDE ELEVATION

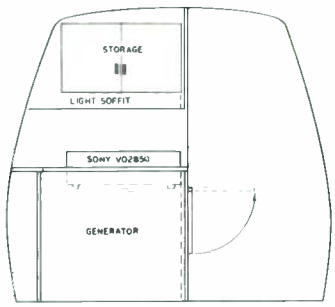


REAR BULKHEAD

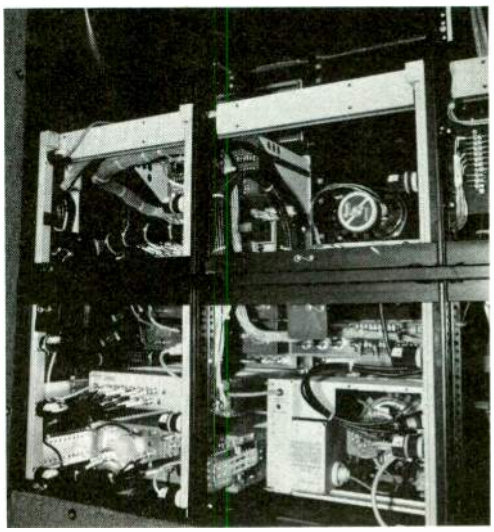
In designing a mobile EFP van, careful attention must be paid to locating equipment where it will be accessible to those who need it



PLAN VIEW

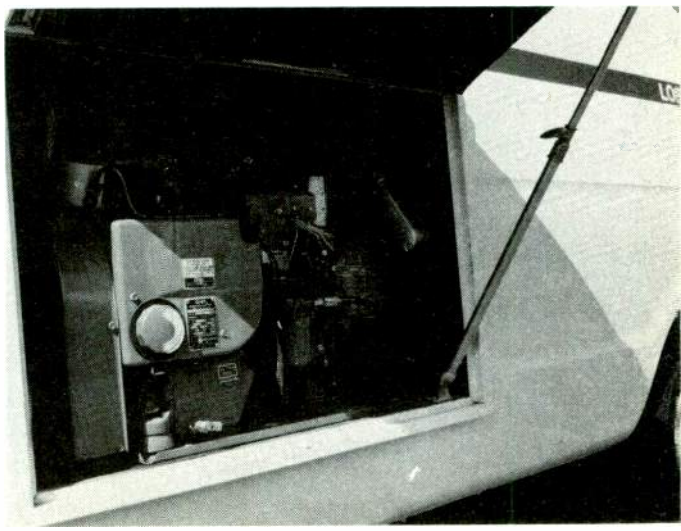


FRONT BULKHEAD



Keeping equipment racks easily accessible for maintenance is a major design consideration

An on-board generator is critical when a van is to be used for remote locations that often have no other power sources available



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SHARP

Vehicle Design For The EFP Era

A properly designed and installed air conditioning system is an essential element in a correctly designed and functional EFP unit. It is also one of the most difficult aspects to correctly implement. Professional engineering guidance and installation should be sought for good results.

Power

As is the case with large remote production vehicles, the ac power requirement for equipment operation is a significant consideration for an EFP unit. As EFP units are highly mobile, remote locations are often selected that are totally void of conventional ac power availability.

Even a modest EFP system should initially contain a power input, monitoring, and distribution system. If possible, circuits for mechanical aspects of the system (i.e. air conditioning, lighting, etc.) should be fully isolated from circuits for the technical elements. Design of the power input system should allow connection of the EFP system to either 110 or 220 circuits. Input circuit breakers and some ability to measure voltage, current, and frequency parameters of power supplied to the vehicle are mandatory. In many cases, the installation of a voltage regulator and/or isolation transformer may be desired. Adequate lengths of power input cable with a variety of adaptors, "sister lugs," etc. should be provided.

A standby power system (i.e., dc-to-ac inverter with batteries) is a valuable element if self-containment capability is required for "traveling" or "motion" shots. These systems must be carefully designed and installed for optimum performance. With the advent of recently perfected electronic governor systems, small ac generators may definitely be considered for installation in an EFP vehicle. Professional engineering and installation should be sought for correct generator capability.

Interior

The interior of all production vehicles has traditionally been treated in a very technical manner. That is, because of the sophisticated nature of equipment inside a vehicle, most remote systems display a very technical environment. Although this is preferred by many engineers, it is not necessarily conducive to production.

The creative process of television production requires that a comfortable environment exist within a vehicle for optimum results. Because the traditional approach of vehicle interior design has emphasized the technical aspect of the equipment, there has also been a tendency to engineer a system into too small a vehicle. There are many ways to install equipment into a small vehicle, but often it is done to the detriment of a creative environment. This environment is best suited to be visually comfortable as well as physically.

The interior surfaces should provide aesthetic appeal, but not to a degree that distracts from images in the monitors. "Human factors" engineering is essential in the interior concept of an EFP system to insure that the equipment may be utilized to its full potential. The human element should be considered not only to insure long hours of fatigue-free operation physically, but visually as well. An operator may be comfortable in his seat and able to operate equipment and provide necessary support functions, but he or she must also have easy visual access to the necessary equipment. Failure to provide these elements may result in severe neck, back, and eye fatigue.

The Centro-designed EFP vehicle for Sunset Productions incorporates a detachable front-mounting camera platform. The vehicle's customized suspension system permits completely steady operation during running shots

Lighting inside a small EFP vehicle should be divided into two categories: *work lights*, providing a high level of luminance in all areas of the interior for use during non-production time, and *production lighting*, which is more specialized. Work lights should be versatile enough to allow control of light direction and intensity, while providing a minimum shadowing of work surfaces and minimum reflection on monitors.

Construction techniques used in an EFP vehicle should insure against shock and vibration. Shock is usually created by vehicle contact with the terrain and should be dealt with by careful attention to the equipment mounting system. To limit vibration, the source should be isolated from the rest of the system. Sources of vibration may include air conditioning equipment, power generating equipment, blower motors, etc. They have a cumulative effect of producing equipment failure and human fatigue.

Placement of major support components within the vehicle will have a significant effect on vehicle stress and the suspension system. Care should be taken to engineer these items into a vehicle, giving special attention to the gross vehicle weight, distribution of this weight on the front and rear axles, port-to-starboard stresses, and effect on the vehicle's center of gravity.

Also to be considered throughout all aspects of the design of an EFP vehicle's interior are the storage areas. Care should be taken to utilize space wisely for major storage areas (for cameras, lenses, tripods, cables, light kits, and similar gear) and smaller spaces (for headsets, patch cords, tools, scripts, and other items). These spaces should provide for easy access and be designed for durability to withstand the rugged treatment they usually receive. This aspect is also important for the protection of the equipment kept in them.

To summarize, the interior of a small EFP vehicle not only exists for the equipment but for those who use it. The construction of an EFP vehicle is more than merely a process of selecting equipment and installing it into a vehicle. Interior design and engineering is a sophisticated and detailed process requiring the necessary skills and disciplines to insure optimum operation. **BM/E**

"This Auditronics 501 was one of TM Productions' first

boards six years ago and it still runs a tightly packed schedule of original vocal session recording and mix-downs", says Ken Justiss, Operations Manager of TM Productions in Dallas. "Since we do more commercials and station ID's than anybody else in the world, we produce literally thousands each year, and at some point they've all gone through this Scr-Of-36-Grand (serial number 01[illegible])."

"There's not a faster board to work with than the Auditronics 501 whether we use it for building demos or complex production tasks. It's compact, all its controls are so very accessible even trainees become proficient on it quickly."

"Its reliability is outstanding. We've literally worn out the faders once, and we've changed a switch or two, but the things I've seen go wrong with this board in six years are so minor, it's a waste of time to even talk about. It's an excellent creative tool and I'd find it hard to fault our Auditronics 501 in any area. In fact, our success with this board was largely responsible for our buying three more Auditronics consoles."

If you'd like to know more about what Ken Justiss at TM Productions and over 300 other satisfied users think about Auditronics consoles, circle reader service number or contact:

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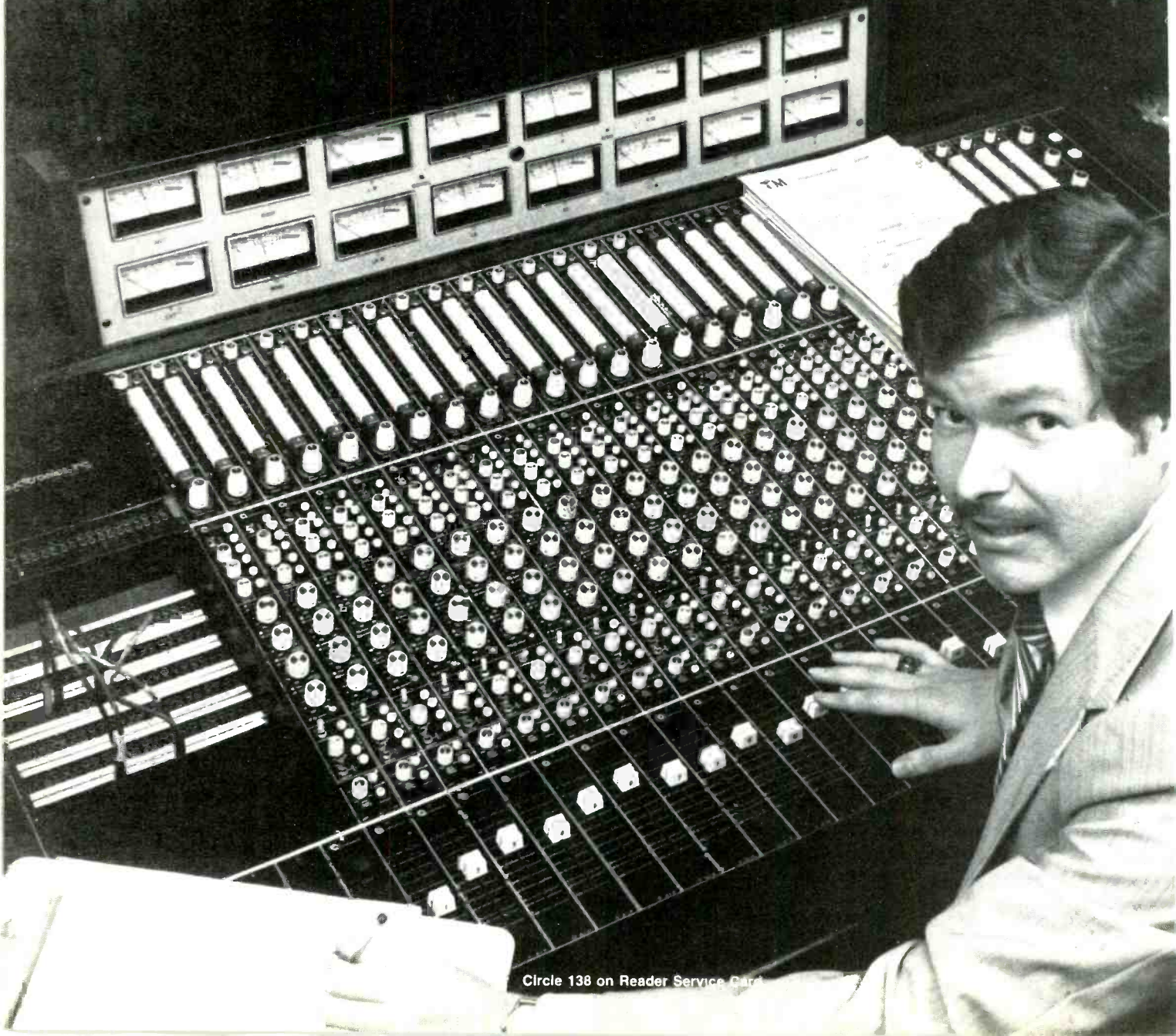

Circle 138 on Reader Service Card

OUTLET MAKES A MAJOR COMMITTMENT TO PROVIDENCE, R.I. ...AND BROADCASTING

by William Jay Millard III

WJAR-TV and WJAR-AM will shortly move into brand-new studios in downtown Providence. Broadcast House, designed at a cost of $6 million, has become one of the East Coast's most modern facilities.

AT A TIME WHEN more and more buildings in city centers are being razed for parking lots, WJAR-TV and WJAR-AM in Providence, R.I., are reversing the trend and raising a $4 million Broadcast House on the site of an old parking lot.

The decision to build a downtown studio complex, which will also house the corporate headquarters of the Outlet Company's Broadcast Division (parent of the WJAR stations), is the result of Outlet president Bruce Sundlun's "strong commitment to the heart of Providence's business district." Part of this commitment comes, undoubtedly from Outlet's extensive downtown real estate interests. What is unusual here is that, though Providence is only the thirty-sixth largest market, Outlet has committed more than $2 million for purchasing equipment to go into the new building. On July 1, 1979, after 21 months of planning and construction, it will become one of the most up-to-date, state-of-the-art television and radio facilities on the East Coast.

According to Charles F. Kennedy, senior vice president of Outlet's Television Station Group (WJAR, Providence; WDBO, Orlando, Fla.; WCMH, Columbus, Ohio; and KSAT, San Antonio, Texas), Outlet's philosophy on having a "first class installation" came about not only because the WJAR stations are the flagships of the Providence-based company, but also because of their proximity to the New York City and Boston commercial production markets; the well-equipped production studio will be available as an additional source of revenue from outside clients as well as a center for production of in-house retail spots. While $6 million may seem like a bitter pill for any Board of Directors to swallow, it should be noted that operating revenues from Outlet's broadcast operations for 1978 increased from $14,201,000 to $16,946,000 — some 17 percent.

Architect works closely with stations

The granite-faced, modern design three-story building is actually being constructed as part of a major downtown renovation program in Providence. The building currently houses the WJAR television and radio facilities and one of Outlet's retail stores. Outlet felt it would be desirable, however, to amalgamate its corporate offices with the stations.

The architectural firm The Providence Partnership, with Richard Kheel in charge of the project, was therefore contracted to design an unusually shaped 30,000-square-foot building to be constructed on a parcel of land adjacent to the department store. The first floor will house WJAR-AM together with the retail outlet. The second floor will have two studios for WJAR-TV, one 55 by 38 feet and the other 55 by 35 feet. The latter will be dedicated to local news and will have a permanent set. The remainder of the second floor will be WJAR-TV's production and operations offices. The third floor will serve as Outlet's corporate headquarters.

Kheel, a graduate of the Rhode Island School of Design and MIT, had designed several theaters and projects in Providence before, though Broadcast House was his first television/radio assignment. Kheel toured several other facilities, but explains that he went into the WJAR project "with a completely open mind." This enabled him to place the television studios on the second rather than ground floor and left him free to carry out his belief that "the building should be a stimulus for people coming in, who should be able to see equipment and those operating it." He was able to use large areas of glass both on the building's exterior and in the corridors outside control rooms and master control. Kheel even coordinated the colors of the equipment racks and the finish of the consoles used in these areas to create an integrated design overall.

Outside consultant called in for engineering plans

While Kheel was working on the design of the building, the engineering staff, under the direction of Wyatt McDaniel, chief engineer of WJAR-TV, and William Patton, director of engineering for Outlet's Broadcast Division, was working with the production department on equipment choices.

When Kennedy joined the Broadcast Division almost a year after the decision to build Broadcast House had been announced, he felt that an outside consultant for the tech-

"Jay" Millard is a television cameraman and director, currently with ABC-TV's *Edge of Night*.

The Outlet Company

nical design and layout should be employed. "We had neither the staff nor the time," Kennedy said, to produce a first-class installation. He stated that this was not the criticism that it might sound like; rather, it reflected an emphasis at WJAR on maintenance and operating personnel as opposed to design engineers. Rosner Television Systems of New York City was called in and Irving Rosner made a design proposal in August, 1978 (almost one year after the ground-breaking). His proposal was accepted and Rosner started to draft plans and to consult with the engineering and management on where to locate the equipment planned for Broadcast House.

Rosner, formerly with the Operations and Design division of CBS-TV, had designed many control rooms for CBS as well as the broadcast facilities for the National Political Conventions in 1976. Rosner compared his role to that of the architect "trying to develop a design with input from the client." He noted that small stations frequently lack the necessary staff to handle design as well as implementation. By the time Rosner became involved, most of the major equipment-buying decisions had been made by Wyatt and his staff. "They were ready to move ahead with purchasing, and this sped things up a great deal. We couldn't have met our deadlines if this hadn't been done," confirmed Rosner. He noted, though, that the decisions were submitted to him for his confirmation before orders were placed.

The choice of a Vital Automation Switching System and Ampex ACR-25 video cart machines underscore the management's growing interest in automated operation. McDaniel spoke of the unique role that WJAR-TV would play as "testing ground" for automation systems that might go to other television stations in the Broadcast Group. It took a personal trip to the Vital factory at Gainesville, Fla. to really clinch the deal. "We were impressed by the enthusiasm of the engineers in research and development, as well as by the amount of test equipment and the number of switchers they were turning out," McDaniel said. He was also impressed by the ability of the Vital interfaces to handle new applications "down the road."

The WJAR production control rooms will have Vital switchers with full options including SqueeZoom. Control of the SqueeZoom can be delegated to either of two control rooms for the main production studio and news production. The 18 by 25-foot control rooms will provide ample space for clients as well as technical personnel. Rosner noted that WJAR's management had looked at eight proposed control room configurations and had opted for a "strictly business" format, departing from the trend of the opulent "editing suite" type control rooms found at many New York production houses.

Each control room will have its own character generator — a new Chyron IV for the main production studio and the existing Chyron III for news. Audio mixing will be done on Audio Design 24-input Series 2400 consoles (12 high level, 12 low, with six channels of equalization and reverb). While there is provision for the audio engineer to mix from headphones, the speaker placement of the JBL 4311 monitors has been optimized for the director. The PVW/PGM monitors in the main control room will be Trinitron picture tube types, while those in master control will be Conracs. This stems from a desire to use the main control room as a client screening area.

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RCA

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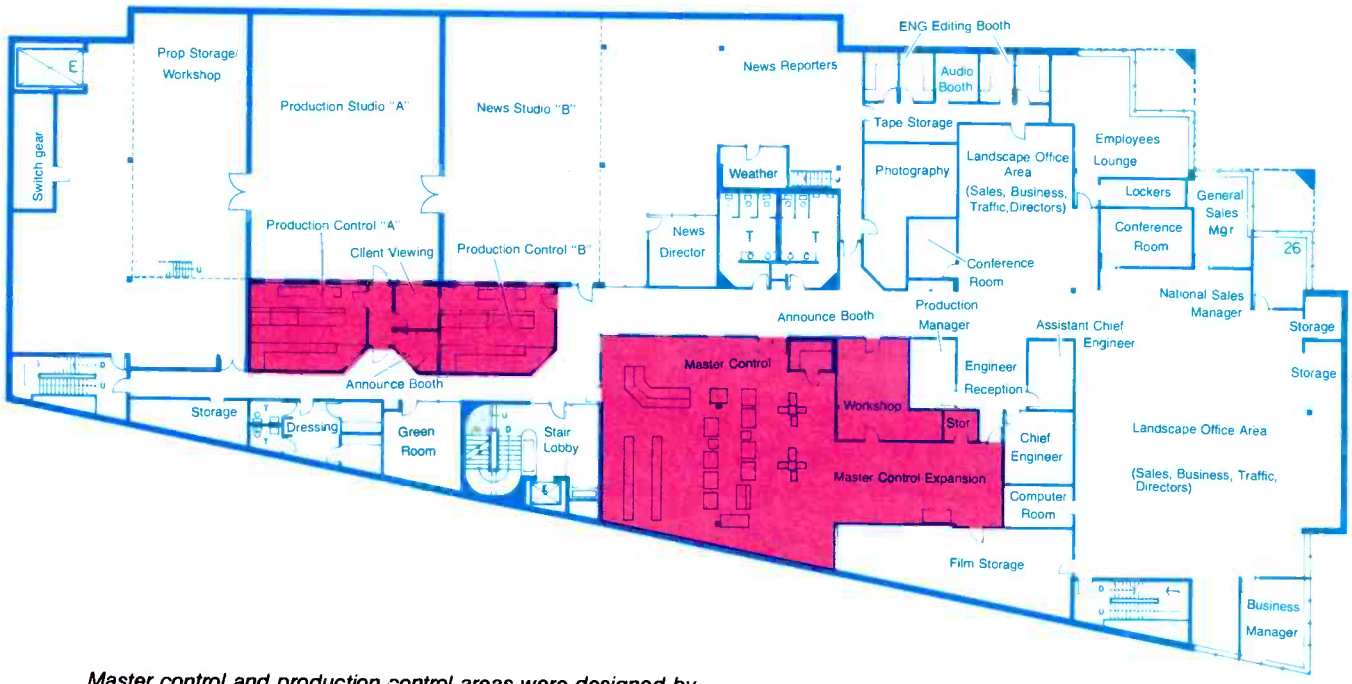
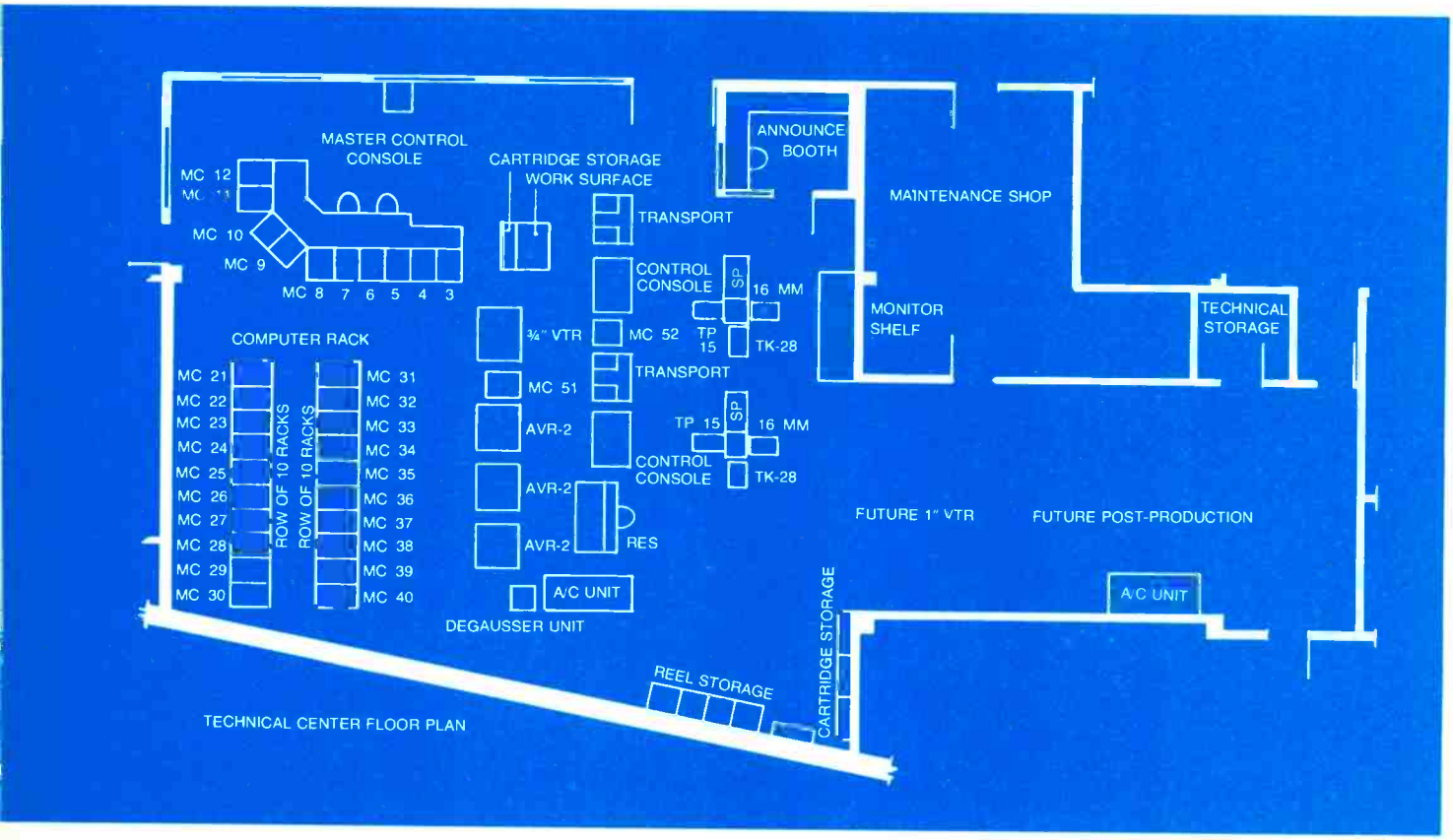
The Outlet Company

Two new RCA TK-47 color cameras will join the present complement of two TK-45 cameras in the new complex. Wyatt opted for RCA because of his present experiences with the company, including the benefits of easy, prompt parts replacement from the RCA base in Camden, N.J.

The lighting package for the two studios was drawn up by Imero Fiorentino Associates as lighting consultants. They proposed a Strand Century lighting control system



Master control and production control areas were designed by Rosner & Associates



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It offers so much more than conventional transmitters: in engineering, high performance, and long-range cost-effectiveness.

Solid state to a new high of 1600 watts. One-stage tuning. Advanced automatics and safety features.

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The G-line transmitter also offers great versatility: eight new power levels with 20 model variations, and visual power output of up to 30 kW (60 kW parallel).

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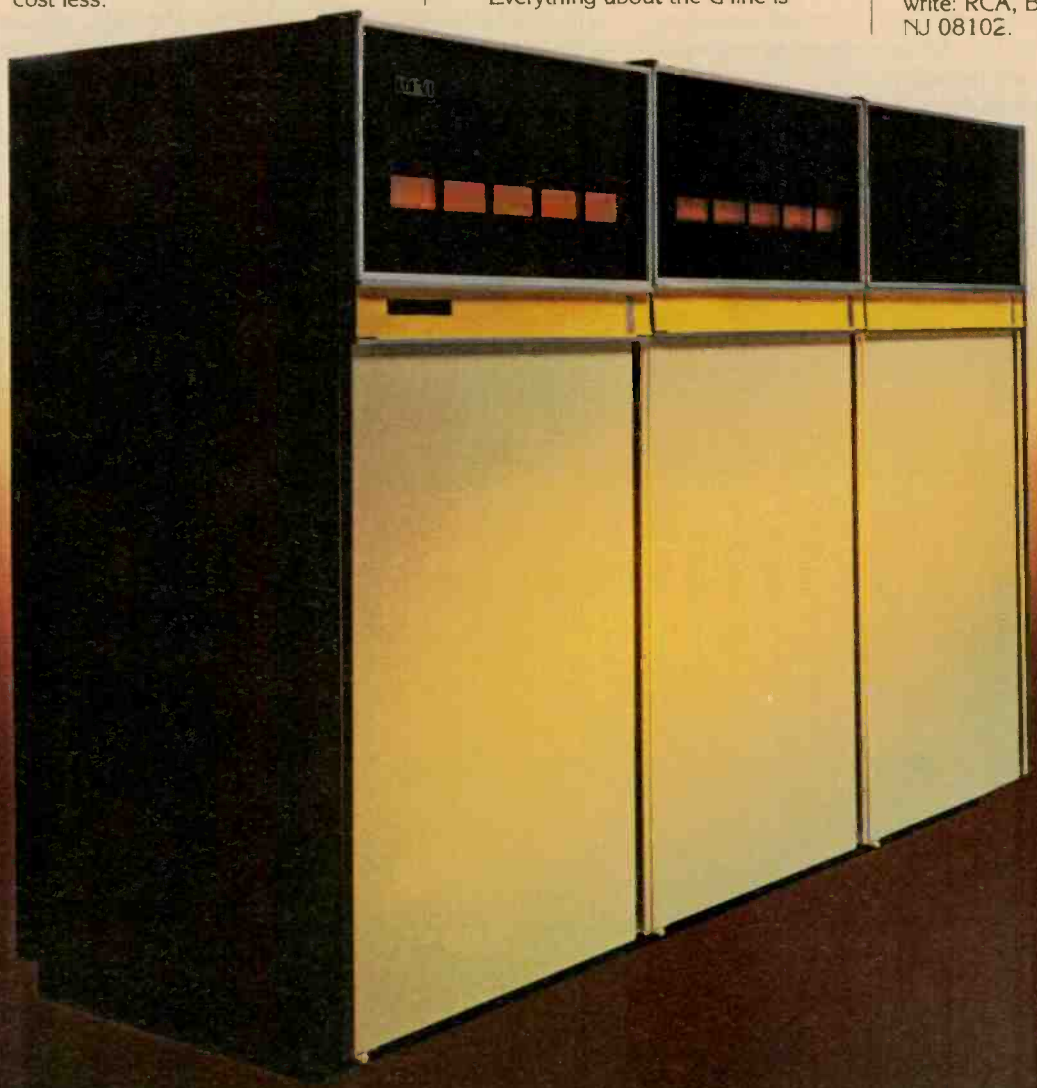


RCA

Cost-effective broadcasting: we make what it takes.

The Outlet Company

utilizing memory control and a CRT display to allow for storage of dimmer settings. The lighting grid in Studio A is actually two levels, the perimeter grid 18 feet and the interior rectangle 16 feet above the floor. The grid in Studio B is fixed at 16 feet. In addition, Studio A will have a 360-degree cyc. As of this writing, McDaniel has not determined the final composition of the studio floor, though he said some form of epoxy-based product was under consideration.

Cart decks to play major role

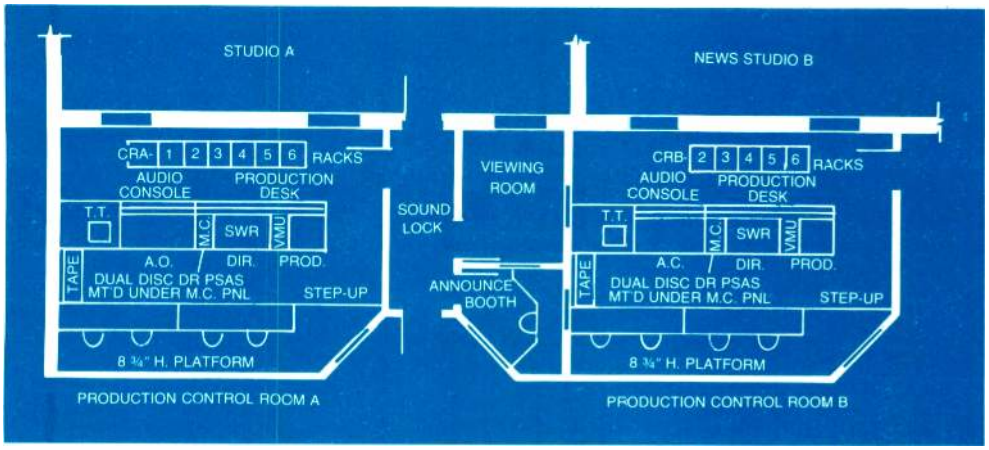
WJAR decided on Ampex VTRs for use in both operations and production. One reason for this decision was the ability of the Ampex ACR-25 cart deck to interface with the Vital automation equipment. Another important reason for WJAR's choice is the ability of the ACR-25 to handle back-to-back 10-second spots. With the ADA (Automation Data Accessory) and IDA (Identification Data Accessory), the ACR-25 becomes extremely well-suited to WJAR's automation needs. WJAR's traffic department will have a SYCOR 440 computer that will feed the Vital Vimax 200 used to switch station breaks (based on a program supplied by Jefferson Data Systems). Both computers will communicate with Outlet's central computer, an IBM 371/38, to which all the retail stores as well as the broadcast operations are linked.

WJAR will install three Ampex AVR-2 quad decks for production, with an Ampex RES-1 editing system for post-production. A principal reason for this choice of editor is its ability to also interface with the Ampex VPR-2 one-inch Type C VTRs. According to Kennedy, WJAR will be looking to buy one-inch VTRs in about a year. McDaniel added that the decision to go with the quad decks had been made at a time when the SMPTE had not yet finalized its Type C one-inch format. This, coupled with the possibility of a later major corporate purchase of one-inch VTRs by Outlet for all its television stations, was considered justification for delaying a commitment to purchasing one-inch machines. The new plans have reserved a large area in Master Control to allow expansion as one-inch machines are acquired.

Broadcast House will have four editing rooms and one audio mixing room for ENG. The Master Control room has been laid out to maximize exposure to the adjacent corridor through large glass windows. A visitor will have an "over-the-operator's-shoulder" perspective of the operation. To facilitate internal communications, a custom intercom system is being built by Farrtronics of Canada. It will link the production team as well as providing IFB to talent, and even allow remote cueing at ENG locations through VHF/UHF radio links.

WJAR-AM expanding, too

Lest one think that Broadcast House serves only the interests of television, the studios and offices of WJAR-AM will be located on the first level. The NBC affiliate will occupy 5000 square feet with offices and three 17 by 13-foot studios. One will be an on-air studio, the others production studios. Placement of windows has insured that a person can look from any studio into any other one. Audio Design consoles will be used in all three, with full



Control rooms for Studio A and News Studio B each include Vital switchers with PSAS (Production Switcher Automation System)

stereo capability. The production studios will each incorporate a four-channel Scully half-inch audio tape recorder.

Particular care has been taken throughout the building for acoustical isolation, even though two of the studios have windows to the outside. Separate air-conditioning units serve the two studios. Acoustical transfer grilles assure that the rock group taping in A won't get on the air during the 11:00 news in B. In the interests of energy conservation, the air systems can operate on different zones and cycles, even during a power blackout. In that event, a 500 kW diesel generator located on huge coil springs for acoustical isolation on the third floor would provide emergency power. Fed by a 10,000-gallon tank located under the plaza outside, it could run for a week.

As an architect, Kheel was faced with the challenge of incorporating practical elements of a working broadcast facility with design elements that would appeal to the general public living and working in Providence. This design philosophy even extends to the antenna mast on top of Broadcast House. "This is a custom-designed, practical, working tower," Kheel explained, "but it's also a unique piece of sculpture." The sixty-five foot tower supports both the master antenna system and microwave dishes for STL and ENG links. By making the dishes for the microwave links part of the design of the tower, and through the use of vertical fins of metal, Kheel hopes to take advantage of the effects of light and shadow and the changing planes of light as the sun crosses above downtown Providence's newest building. It symbolizes, in Kennedy's words, "a new era for the Outlet Company and a new era for downtown Providence." **BM/E**

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Circle 142 on Reader Service Card

PUTTING TALK PERSONALITIES ON THE AIR WITH AND WITHOUT ENGINEERS

FACILITIES DESIGN

WOR-AM, New York, wanted to update studio equipment and allow for combo and non-combo operation. Study convinced them that a completely new studio complex was the right way to go. Here is why and how they did it.

WOR-AM HAS LONG HAD a solid berth near the top of the New York ratings with a rich mixture of talk — news, advice on finances and health, hobbies, sports, helicopter traffic reports, comments on serious and pop culture in the city, help for listeners with an array of personal problems, panel interview shows, and much more, with occasional music sequences in the "culture" programs. Several of the station's on-air personalities have been at it for 10 years and more, and each has an army of faithful listeners.

So a couple of years ago, when the management decided that the old studios, spread over several floors of a New York office building, should be updated for more efficient operation, they also decided to go for truly state-of-the-art quality in every part of the new studios. Competitive pressures are making "hi-fi" quality desirable even in talk programming, as listeners get more and more used to hearing a "true" voice sound from well-designed stations, both AM and FM.

Another objective was to get studio positions from which talk-show personalities could go on the air either combo or with an engineer in an adjoining control room. Combo operation was hazardous and difficult in the old studios. The management wanted to have combo available and easy whenever the performer was accomplished enough to do it, but to have a place for two-person operation for the on-air staff who had no technical operation skills.

Negotiation with the engineers' union brought agreement on a plan for easing into a moderately reduced engineering roster.

The desire for coordination and the need for a new physical setup to allow for combo/non-combo operation brought the question: would it be most cost-effective to rebuild the old studios or to start fresh in a new space?

Fortunately for the fullest success of the project, the management sat down with experienced technical studio designers before making a move, outlined the general problem and asked for comment. The designer finally chosen, Pacific Recorders and Engineering of San Diego, had no trouble in demonstrating with facts and figures that a completely new set of studios would be more effective and cheaper in the long run.

Moreover, WOR and Pacific Recorders came up with a plan for getting the "clean" space to start on. The station had administrative offices on the twenty-third floor of an office building at Fortieth Street and Broadway, just south of Times Square. The old studios were spread over higher floors. The decision was to clear all the offices out of the space on the twenty-third floor and put them in temporary spaces around the building. The new studios would be built in the emptied space while the station stayed on the air from the old studios. When the new were operative, the old could be cleared out and converted to administrative offices. This plan avoided the extremely difficult job of building "around" studios that are in constant operation, especially with a whole new complement of operating equipment to be installed. It also allowed for new internal construction to assign space in the most advantageous way and to provide technically proper acoustic condictions (of which more below).

Management required five control positions, each of which had to be able to function as a combo on-air station. One was to be used also as a production facility, and another was to have a studio adjoining it so that it could act as a control room for on-air people needing an engineer. Two of the control positions had to be next to studios with talk-show "turrets," each of which would have five mic positions and comfortable seating for guests. The adjoining control position in each case would act as a control room for panel shows. The remaining control position would be equipped for putting news on the air.

In addition, the plan included two news editing booths with news inputs from a large range of sources, a full-fledged console, and recording on both cart and open-reel tape. The news sources would be available to the operator through a panel of about 20 call-up buttons (see further description of this call-up system below). Also specified was a large news editing room with four "news stations" at each of which a news copywriter has a typewriter, a call-up panel for news sources, and a cart recorder for material brought in by telco line or other sources.

The design team, led by Jack Williams of Pacific Recorders and Paul Stewart, operations manager and chief engineer of WOR, came up with a set of studios that beautifully realize all the management objectives. The character of the new plant was sharply evident on a *BM/E* tour, conducted by chief engineer Stewart, and in the drawings and specifications.

Personalities On The Air

Control is built around Pacific Recorders' BMX series of consoles, which are used at all control positions. These consoles are fully equipped with all the switching facility needed to act either as on-air or studio-control units. The layout of the rooms, shown on the accompanying plan, shows how the designers did get a strong coordination effect with the various elements backing each other up in their multiple functions.

Control position for putting news on the air has three triple-deck cartridge players (left of operator) for commercials, news actualities; and sports desk to right at which sports material can be organized by on-air sports man

On-air position for talk personalities who use an engineer for control (studio 2 on diagram) can also be operated combo. Control, through window at rear, can go on the air independently. Rows of buttons (left) are for cross-bar switching (see story)

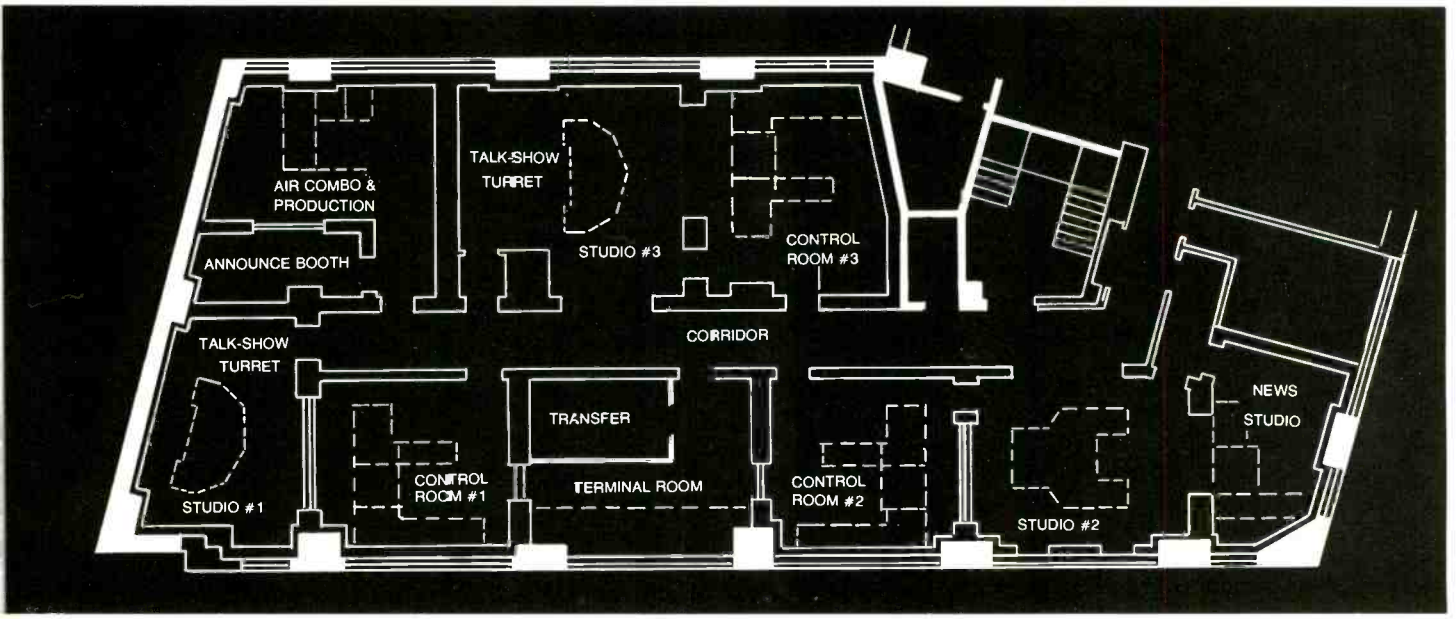
Every signal-handling item in the plant is checked out for stereo, including the consoles. One final amplifier has been removed from each console and the switching set to mono; a return to full stereo operation will be utterly simple.

Because each control position has its own complete set of signal sources and recording facilities, and since the range of these functions is very wide, the studio equipment complement is unusually rich. And the studio wiring plan is correspondingly complex. These facts can be seen on the accompanying interconnect plan, which is not a studio wiring diagram but a symbolic representation of the wiring categories and all the inputs connected to each console.

The extremely wide range of the signal-handling equipment is clear from this diagram. There are more than 40 cart machines, mostly "triple deck" units, including 33 new ones from International Tapetronics. There are 18 new reel-to-reel tape machines from MCI with a return-to-zero function to ease the operator's job. The 12 turntables are all Technics SP-10s.

The symbol "XB" on the diagram designates the control panel of pushbuttons for a cross-bar switching system, through which any of 20 sources can be fed into the console. This special system was designed and built by Pacific Recorders. Included in the 20 feeds are a number of outside sources, such as the various news-service audio feeds, dedicated telephone lines, and weather sources. Also available through this system are the other consoles in the plant, so that any signal can be picked up anywhere the cross-bar switching is fed. As already noted, this system provides much of the material used in the editing booths — the diagram shows the inputs and recording facilities at each booth.

The interconnect diagram also shows the cart sequencers in three of the positions used mainly to put commercials on the air smoothly and in the right order.



Floor plan shows how studios were laid out for mutual effectiveness. Studio 2, also in photo above, has adjoining room for control engineer when on-air talent requires one. Announce booth next to production room allows voice track to be added to commercials or other material

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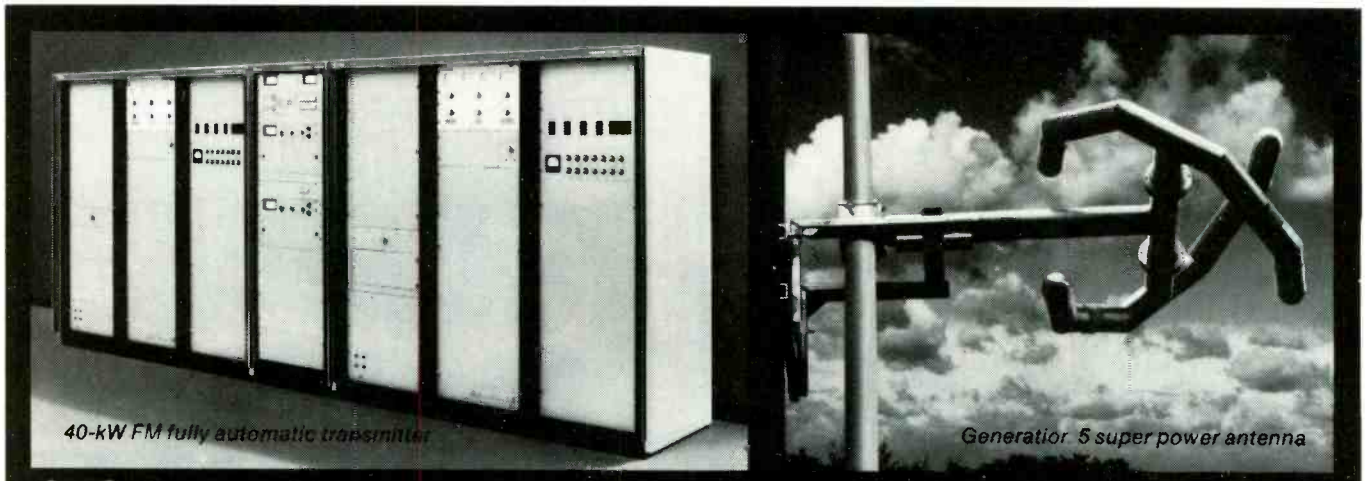

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Circle 144 on Reader Service Card

Personalities On The Air

The station is determinedly live; this amount of automation aids the operators in doing a "spontaneous" job on the air.

The terminal room is where all feeds in and out of the studios are concentrated. It also has a complement of signal sources and a regular console, and can go on the air in an emergency.

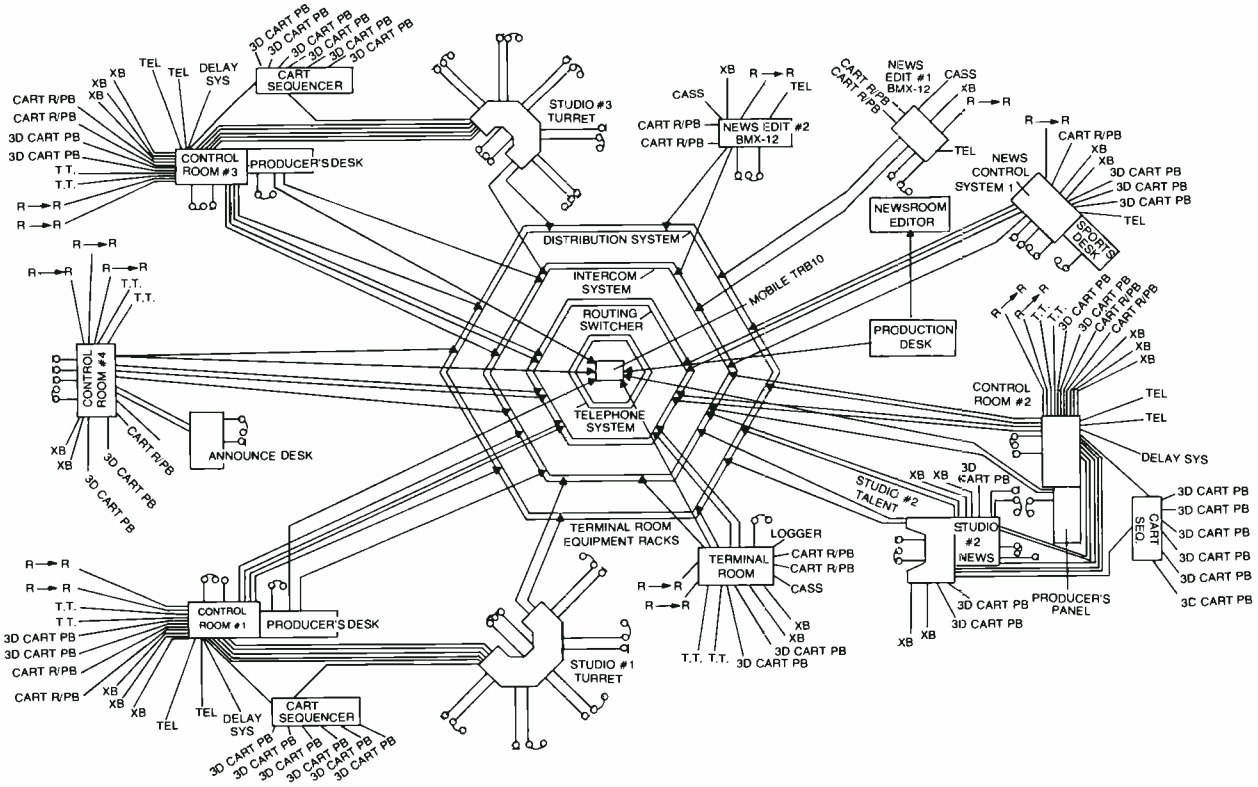
Chief engineer Stewart increased the reliability of his plant by the handling of ac power distribution. The operating power is on a completely separate ac line from the building power: as Stewart puts it, if somebody shorts a lamp on the next floor, it doesn't knock out his radio station. He has two main lines to the power company's transformer outside the building; if one goes, the other takes over. If commercial power goes out completely, a 45 kW auxiliary generator on the roof of the building automatically starts and takes over vital parts of the load to keep the station on the air. The power system has further resilience because each control position and the associated signal equipment is on a separate main circuit breaker. All but one position could be out and the station could keep going with that one.

The entire technical studio system was built and checked out in Pacific Recorders' San Diego plant, including every item of signal-handling equipment, all the switching, and cutting cabling to the right lengths. The whole system came to New York at one time in three large trailer-trucks and was installed by Pacific Recorders and the WOR engineering staff, working together.

The space had been prepared by New York's Herbert Construction Company, with R.A. Hanson Associates as acoustical consultants. The layout of the rooms was made by Herbert and WOR working together. On acoustics Stewart's requirement had been for at least 50 dB of isolation at 125 Hz between studios and control rooms,

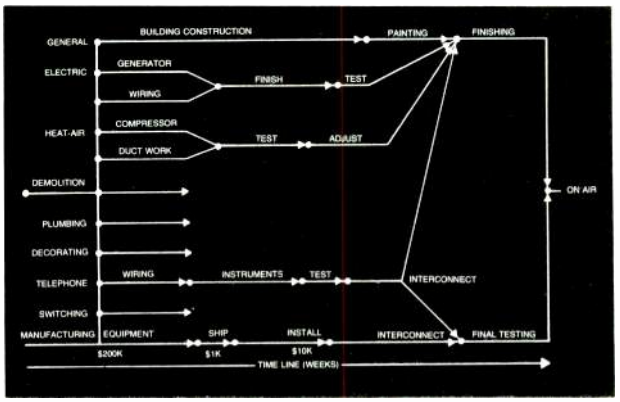
Turntables in on-air studio 2 have cover which closes to form desk, usable by on-air talent who won't need records during their programs. Other talk personalities use substantial amounts of recorded music. Plan illustrates great flexibility of plant

Chief Engineer Paul Stewart shows arrangement of microphones in talk-show "turret". Mics not needed can simply be lifted out of sockets in table, stands and all, plugged back in when wanted



Interconnect plan (not a studio wiring diagram) shows every item of signal source and recording equipment connected to reach control position. Symbol XB is for the cross-bar switching system. Turntables are for music used on several "culture" programs, for interviews with music personalities, weekend music programs

Personalities On The Air



"PERT chart" is example of planning technique that allows different parts of complex job to be timed so that parts can be finished to allow others to start. Technique also allows detailed cost control and accurate scheduling of the job finish

and this had been achieved with nearly foot-thick control room studio walls including concrete panels on both sides, four separate panels of sheetrock, and a layer of lead. Each studio and control room room is floated separately from the building to get the street and building noise to a very low level. Air conditioning ducts are lined with sound-absorbing material; the machinery cannot be heard in the studios, nor is there any audible air-motion noise.

Both chief engineer Stewart and designer Jack Williams emphasized to *BM/E* that the most complete advance planning is essential in a job of this size. In determining the specific objectives, Paul Stewart advises the engineering department to determine first what is required in studios to make the station an able competitor for business in the station's market. The management must decide how many and what kind of studios will be needed to put the station's format on the air for the next 10 years. The likely technological advances of that period should be considered too — the studio plan should not lock out anything of great value that will probably come within that period.

In order to sequence the various parts of the job properly, Stewart advises planners to use a technique popular in manufacturing companies, the Planning Evaluation Review Technique (PERT). It uses a graph of the various main tasks, each put in a time frame. An example is shown in the accompanying diagram. By laying out the whole project with each part of it carefully timed, the planner can see how they interact, determine the effects of subproject and subcontractor delays, plan and control costs, and predict the finish date. Stewart presented these ideas and others on planning in a panel discussion at the NAB Convention in Dallas.

Jack Williams noted the great value of having the whole system assembled and checked out before it is brought on site. This covers not only the elements furnished by the system designer, but also those from other suppliers — such as the turntables, cart machines, and reel-to-reel machines of the WOR project. Getting replacements for faulty units will be done before the system is delivered, and won't hold things up when the station is trying to get on the air.

The WOR story is another of many that show how planning can build stations with assured futures. **BM/E**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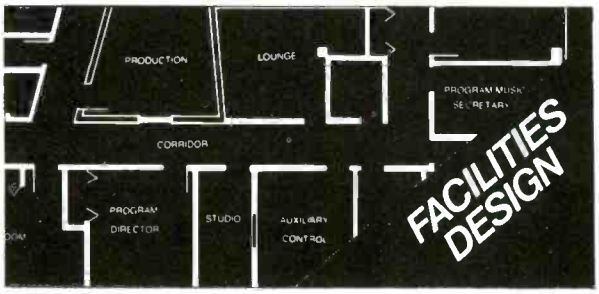
DESIGNING FOR DISCO

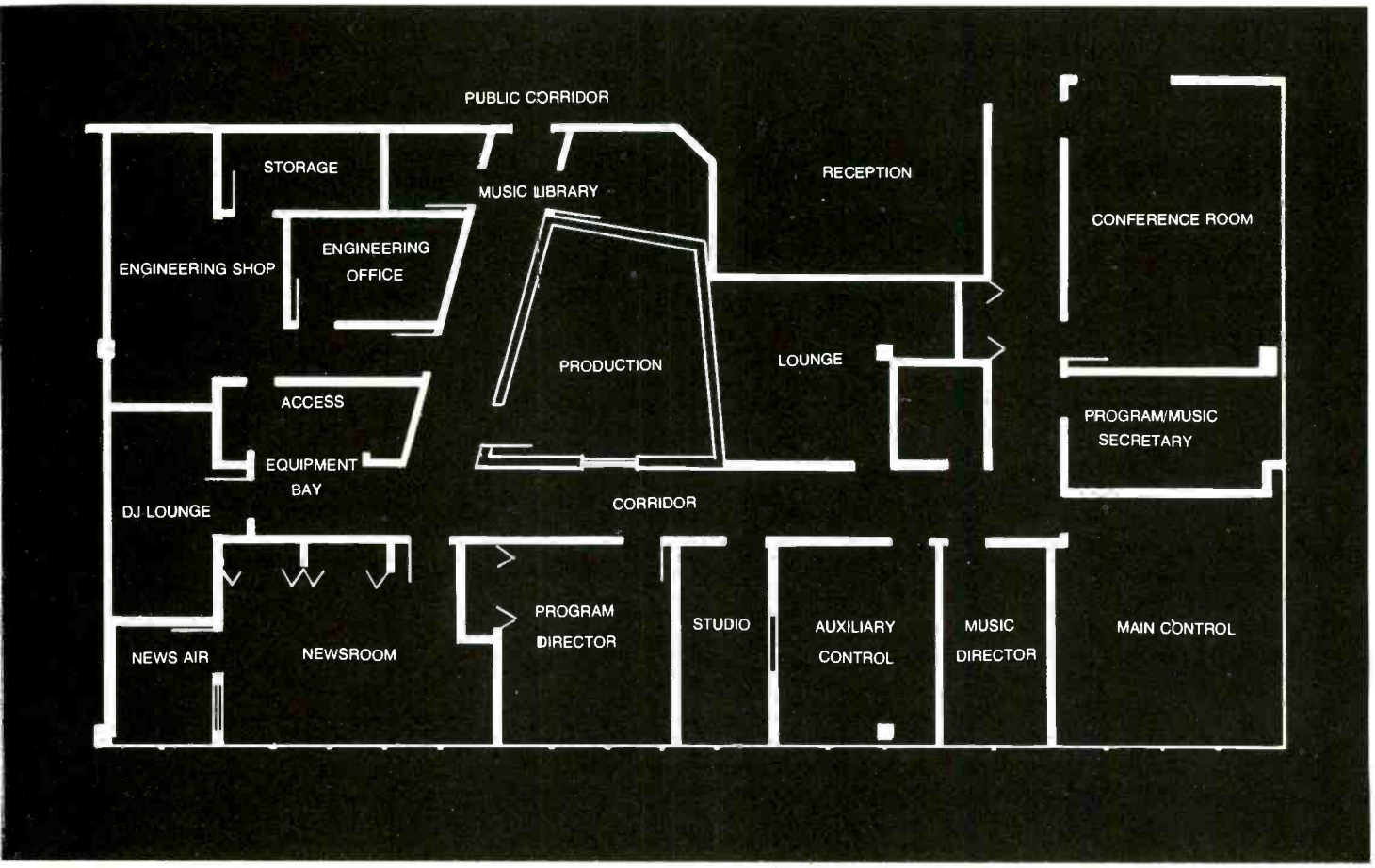


WDRQ in Detroit could make an easy, successful switch to disco because the studio plant had been designed for absolutely top-grade audio performance, for easy change in on-air procedures, and for DJ-proof operation. Here is what the WDRQ experience means for all studio designers today.

WHEN CHARTER BROADCASTING bought WDRQ-FM in Detroit in 1977, the station was one of the also-rans in a fiercely competitive market. There are some 16 FMers fighting for business in metropolitan Detroit. WDRQ's equipment, like its commercial standing, was nothing to shout about. The station could have been brought reasonably up to date with a moderate investment.

Charter's top officials, however, led by president Russ Wittberger, committed themselves to real technical excellence in the plant before there was any clarification of the commercial line they would take. In a sense, they gambled on high quality.

But that also meant that the plant had to be able to change, to grow easily, to be versatile. And that combination of top quality and versatility is one of today's major trends in facilities design. The versatility is needed for format changes that are economical as well as non-



Floor plan of WDRQ. Four control positions are used

WDRQ's main control room. Controls have been designed for simplicity of operation

disruptive technically. The top-grade audio is essential to keep the station competitive in the face of today's listener sophistication.

Initially planning to keep on with the station's Top 40 programming, the new management called in as technical consultant James Loupas of James Loupas Associates. They moved the studios to an entirely new location, much closer to the transmitter, where a clean start was easy to make.

Loupas laid out a studio complex with four control positions. There is a "main" on-air studio, a production room and auxiliary production room, and a newsroom. Any of the four can go on the air unaided.

The general wiring was laid out in a "spoke and hub" pattern, with each control position feeding independently into a central terminal rack where all interconnections are made. There is, in other words, no cabling running across the "spokes" directly from one studio to another. This system makes it much easier to avoid ground loops. Terry Grieger, chief engineer, points out that there was a massive ground loop involving major circuits in the station's old building, resulting in noise too high for today's refined operation.

Loupas worked closely with Auditronics in developing console characteristics that became vital in the new plant. First, the consoles had to have vanishing level distortion (now fairly common in consoles of the top makers). Then they had to be operable by non-technical types — a lot of thought went into "ergonomics," adapting controls to easy use by human beings (DJs). And the consoles had to

be able to take without flinching the ordinary depredations of users, such as coffee spilled on the faders.

Equally important were such factors as easy change, addition, or alteration of operation functions, addition or removal of channels, and reassignment of switching controls. Modular construction, now very general, aids on this, but it also takes careful thought in laying out the internal functions of the console and how they are sequenced and connected.

The consoles for WDRQ won on all these counts, and especially helped establish a very high audio quality for the station. The whole studio, says Loupas, will now just about pass a square wave from input to output. He points out that console makers accustomed to serving the recording industry, with its extremely high quality standards for studio equipment, are moving more and more into designing boards for broadcasting with similar quality. This shift has come about in large part because both broadcasters and console makers can see the tremendous upswing in listener expectations that is underway, spurring the audio upgrade noted so often in this magazine in the last few years.

New input equipment was also needed at the new quality level. The station bought six Technics SP-10 turntables with Stanton 681 pickups in Audio-Technica arms — all in a very different class from anything the station had before. Planned for somewhat later purchase was a new battery of cart machines of advanced design.

WDRQ's main production room, where the station's disco format is put together

Important among the new gear, according to Loupas, were new turntable preamps from Phase Audio of Memphis. These are very much the new breed springing up here and there, with practically unmeasureable distortion and frequency response running about ±0.1 dB of the RIAA curve. A number of workers in the field have been testifying to the necessity of having such utopian characteristics in turntable preamps. Loupas notes that manufacturers still making amplifiers for turntable or line in broadcast gear with frequency response of "±2 dB" and distortion of 1 percent or more have simply dropped off the train, as far as a future in broadcasting is concerned.

The virtues of the new plant got a crucial test when, about a year ago, the management decided to move out of Top 40, where the station was trapped in a dog-eat-dog fight with several others, and into disco, the wonder

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The auxiliary production room looks into a "talk" studio

format of the year. Almost nothing of consequence had to be changed in the technical plant. The plan was to run "live" combo, with the DJ putting all the music on the air from carts at the operating position. This would be easier than handling discs on turntables. The carts would be produced right in the station via dubbing from disc recordings, with one person in charge of production.

The station was practically ready for this as it stood. A little of the switching in the consoles was altered to make things somewhat easier for the operators. The production room already had the equipment to do an outstanding cart recording job. One change needed here is interesting; the turntables for disco need a fine speed control, so the rhythm of a recording that is ending can be blended into that of the one following. Chief engineer Greiger had a special circuit designed to allow speed variation on his Technics SP-10 tables. (It should be noted that the latest Technics table, the SP-15 introduced at the NAB in Dallas, has pushbutton-controlled speed variation).

The very low distortion and ample headroom of the whole audio line become more important than ever when disco puts an extra heavy load on audio equipment. There has to be plenty of headroom. Nor, says Terry Grieger, can the signal be clipped very much: that makes the heavy bass sound terrible.

With such minor technical difficulties, the station went disco in January, 1979. Burkhart/Abrams, national exponent of disco, as consultant laid out overall format guidelines. Program director Ed Rogers and music director Jim Ryan choose the actual tunes week by week based on research in local disco clubs and other local sources to keep closely attuned to happenings in their own market.

The medicine worked — WDRQ early in 1979 at last climbed out of the struggling horde in Detroit and is now on solid ground commercially. The lesson is clear on what today's conditions in broadcasting demand in a plant for a music format. Quality has to be completely upside. Operation at control positions must be easy because combo is the inescapable wave of the future. And the studio equipment, especially the consoles, must be capable of adjusting readily to new operation procedures when the management wants to change the format. **BM/E**

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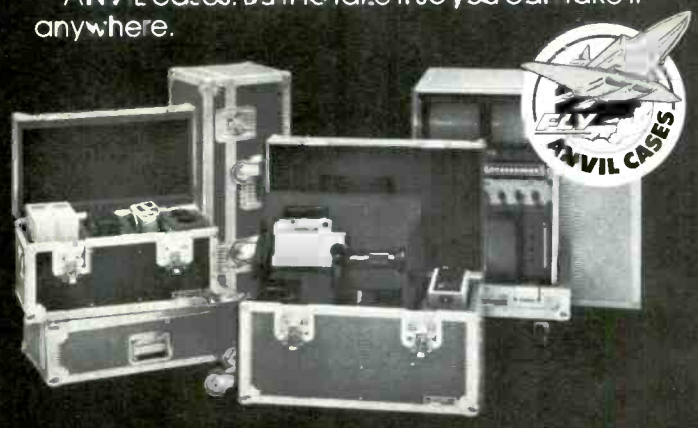

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INTERPRETING THE FCC RULES & REGULATIONS

Court Upholds FCC's Strong Stance Against Fraudulent Billing: Another License Revoked

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

RECENTLY, THE COURT OF APPEALS upheld the Commission's decision to deny the renewal applications for two radio stations in Berlin, N.H.[1] The Court's decision was based upon the Commission's finding that the licensee had engaged in fraudulent double billing with the knowing participation of its owner. In addition, this decision reaffirms the broadly applied principle first enunicated in the *Melody Music* case:[2] namely, where the FCC imposes different treatment (to multiple licensees guilty of similar offenses) without explanation, the differences in the misconduct at issue must be "so obvious as to remove the need for explanation." Accordingly, this article will examine the Commission's policy on fraudulent billing, the Court's application of the principle of the *Melody Music* case, and the implications of same on station billing practices.

The fraudulent billing rule

The fraudulent billing rule was instituted to cover all instances of fraudulent billing.[3] The amended rule (currently Section 73.1205) reads, in pertinent part, as follows:

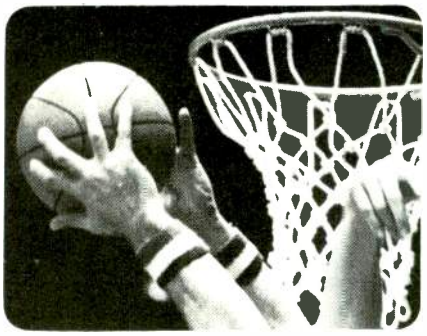
> (a) No licensee . . . shall knowingly issue or knowingly cause to be issued . . . any bill, invoice, affidavit or other document which contains false information concerning the amount actually charged by the licensee for the broadcast advertising . . . or which misrepresents the quantity of advertising actually broadcast . . . or which substantially and/or materially misrepresents the time and day it was broadcast . . .
>
> (b) Where licensee and any program supplier have entered into a contract or other agreement obligating the licensee to supply any document providing specified information concerning the broadcast of the program or program matters supplied, including non-commercial matter, the licensee shall not knowingly issue such a document containing information required by the contract or agreement that is false.
>
> (c) A licensee shall be deemed to have violated this section if he fails to exercise reasonable diligence to see that its agents and employees do not issue documents containing the false information specified in paragraphs (a) and (b) above.

Thus, the Commission prohibits the "knowing" issuance of any bill or document which misrepresents (1) the *number* of announcements that the station runs, and/or (2) the *substance, length, day,* and *time* of the actual broadcast of the announcement.

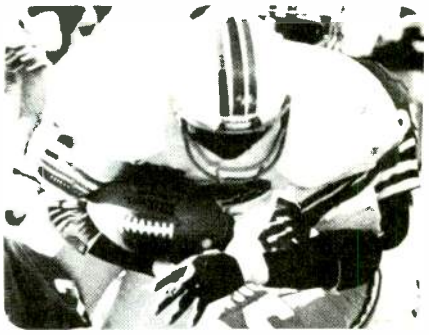
The Commission's rationale for this rule is well settled. Misrepresentation of the number of announcements actually run may give rise to the fraudulent "double-billing" of the unwary manufacturer; moreover, the character, length, date, and time of commercial announcements broadcast are matters of vital interest to all manufacturer-sponsors. Such sponsors are paying the advertisers to reach the viewing audience most receptive to the product advertised and misrepresentation of broadcast time, date and character are likely to foil the manufacturer-sponsor's efforts to reach its desired audience. Such misrepre-

[1] *White Mountain Broadcasting Co., Inc.* v. *Federal Communications Commission,* Case No. 76-2009 (D.C. Cir., 1979).
[2] *Melody Music, Inc.* v. *Federal Communications Commission,* 120 U.S. App. D.C. 241, 345 F. 2d 730 (1965).
[3] C.F.R. 73.1205

"Tomorrow"
Courtesy of NBC Inc.



NCAA Basketball
Courtesy of UPI



NFL Football
Courtesy of UPI

World Series
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"Tonight Show"
Courtesy of NBC Inc.

"MacNeil/Lehrer Report"
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Jupiter Fly-By
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President's Vacation
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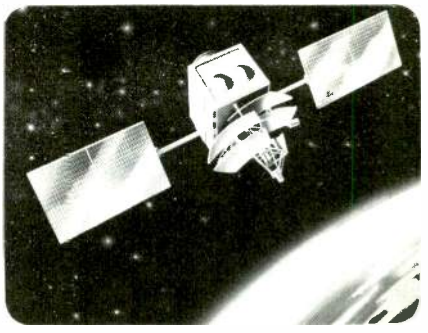

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Circle 153 on Reader Service Card

sentations may also act to defraud the manufacturer-sponsor of the benefits for which it is paying, i.e., broadcast exposure to the maximum size audience receptive to its product. As will be seen below, the FCC found White Mountain guilty of such conduct in its dealings with its national advertisers.

The White Mountain case: from fine to revocation

The Commission found that White Mountain had engaged in double billing for an approximately five and a half year period. Essentially, White Mountain's custom was to send two separate bills to its local customers. One bill would recite the true cost and quantity of the advertising and the other would be for an inflated amount, which the local advertiser would forward to its national supplier or manufacturer as the basis for obtaining reimbursement pursuant to a cooperative advertising agreement. Although White Mountain's owner became aware of this practice just after he obtained the radio station in 1969, he never took action to terminate the practice. On the contrary, he allowed new accounts to be initiated into the double billing scheme, and the practice continued until its discovery by a Commission investigation.

In his defense, the owner conceded that he knew of the FCC's prohibition against double billing, and he was aware that the risk could result in the loss of his stations' licenses. However, he claimed that, in view of the competitive market, the elimination of double billing would have meant a loss of business.

Based upon these facts, the administrative law judge made findings of fraudulent conduct, knowing violation of Commission rules, and the absence of mitigating or compassionate circumstances. However, the Judge did not recommend the denial of White Mountain's renewal application, but limited his sanctions to the grant of a *one year renewal* conditioned upon restitution of double billing overcharges, and a forfeiture in the amount of $10,000.

On appeal, the Commission took a much dimmer view of White Mountain's policies. The Commission decided that White Mountain's conduct was beyond reasonable explanation and denied White Mountain's renewal application.

As noted previously, White Mountain had admitted knowing violation of the fraudulent billing rule. On appeal, it cited the *Melody Music* case and argued the Commission was guilty of unexplained and disparate treatment.

Determining degrees of "sin"

Under the doctrine of *Melody Music*, the Commission is prohibited from engaging in a disparate treatment of licensees without sufficient explanation. As a basis for its claim, White Mountain stated that, at the same time as the denial of its application for renewal, the Commission renewed the licenses of stations owned by CBS. In White Mountain's estimation, CBS was guilty of an equally serious offense and, therefore, White Mountain's license should not have been revoked. Conversely, CBS's licenses should not have been renewed.

The "serious offense" of CBS was the highly-touted

and publicized "winner take all" tennis matches advertised and broadcast by CBS. These matches were extensively advertised as being played for $250,000, "winner take all." In reality, the participants received prize money in various amounts depending upon their general standing and reputation as tennis professionals rather than upon the winning or losing of a particular televised tennis tournament. After investigation, the Commission concluded that the network: (1) had been candid with the staff and made full disclosure to the public in two special reports broadcast over 177 network television stations; (2) completely cooperated with the FCC investigation and the House Committee investigation; and (3) had instituted corrective measures by adopting new internal procedures designed to prevent recurrence of the deceptive practices. Under these circumstances, the Commission found that only short-term license renewal, rather than designation for a license revocation, was warranted. In addition, in its decision the Commission placed heavy emphasis upon the fact that the case was the first involving misrepresentation to the Commission by a network and that the network management appeared to have been unaware of the consequences of such a misrepresentation. White Mountain viewed those defenses as less than compelling and the CBS reprieve as another instance of network establishment-protectionism and represented disparate treatment in violation of the *Melody Music* case.

Commenting upon White Mountain's argument, the Court concluded that the difference between the conduct in the CBS case and White Mountain was so patent that the Commission was not required to specifically enumerate them in the *White Mountain* case. The Court's primary basis for finding patent misconduct by White Mountain was the five and one-half year period of fraudulent billing. On the other hand, CBS was only involved in one instance of questionable conduct and, in the Court's opinion, had a legally debatable position. Therefore, it was the Court's view that White Mountain's license was properly revoked and the Commission's decision should be allowed to stand.

Station billing practices

As the White Mountain case discloses, licensees run an extreme risk when engaging in fraudulent billing. The results can be devastating. Licensees should exercise great care in their billing practices and in supervising employees responsible for station billing and sales.

Further, the case seems to suggest that (1) if the owner had *not* known of the violations, despite exercising due diligence, *or* (2) if he had terminated them reasonably promptly after learning of the practices, the fine and short-term renewal would likely have been the sanctions imposed. In any event, if an irregularity is discovered, the licensee should terminate the practice and immediately contact its communications counsel for advice.

Finally, licensees should remember the principle in the *Melody Music* case. This principle applies to *all* Commission actions, not just in the area of fraudulent billing. Fair and evenhanded treatment is a right of all broadcasters. However, the *White Mountain* and *CBS* cases do suggest, as have others, that very large and important licensees may, for whatever reasons, be less likely to be singled out as "examples" for the industry. **BM/E**

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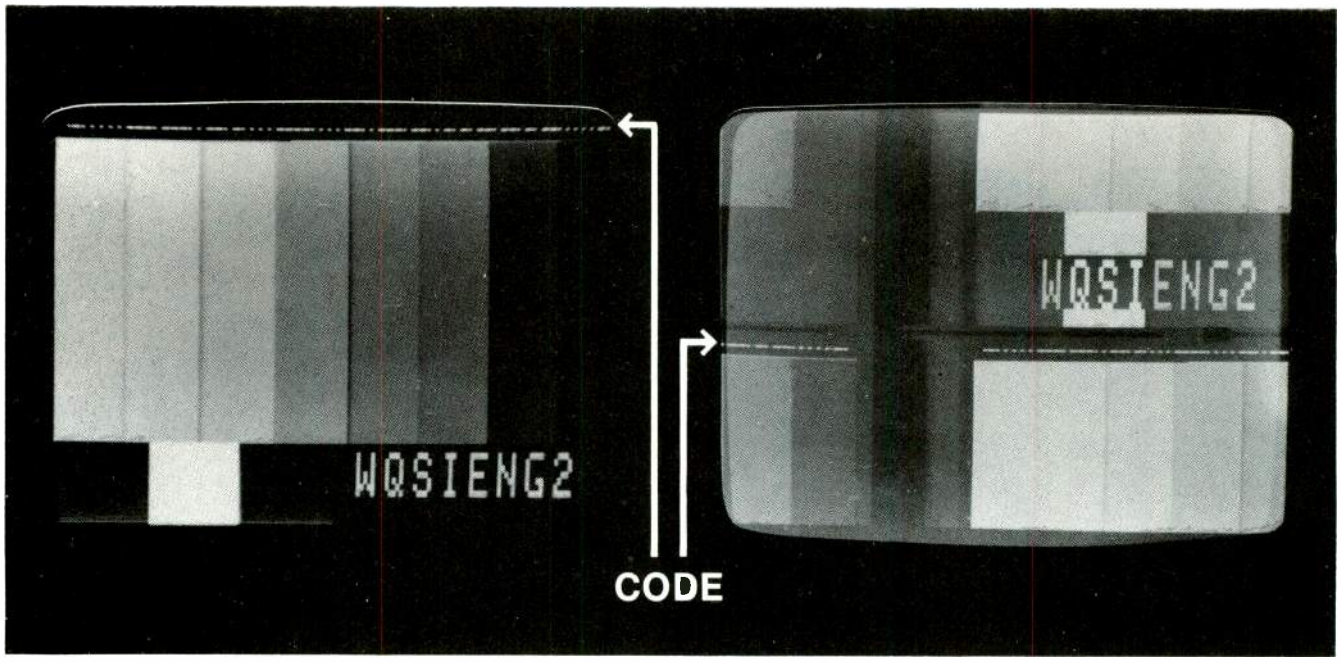
Circle 156 on Reader Service Card

VALIDATE YOUR VIDEO LINE FAST

The QSI VALID (Video Affiliated Line Identifier) encodes up to eight alphanumeric characters in the vertical blanking interval and displays them anywhere down line on a standard monitor.



You can "horse around" on the phone all day getting your remote channels identified, OR you can use VALID and set up your system in minutes. The proliferation of satellite and microwave links makes your setup job tough. With VALID, you can lock on to the link you need in less than 10% of the time you might spend without it.

The VALID system provides automatic video identification. An encoder translates up to eight alphanumeric characters to serial computer code for transmission in a single horizontal line. At any point along the video path, a decoder reads the code and converts it for display on a standard monitor.

QSI VALID, Video Affiliated Line Identifier

- Up to eight standard ASCII computer code characters
- Video display data encoder field programmable
- Modulation techniques available for any application
- Real-time or recorded video easily identified
- Pulse width modulation, for self-contained and self-clocking transmission
- Video input and output 1.0 VPP, 75 ohms, terminated
- All CMOS/TTL 5V positive logic

QSI systems, inc.

For more information on VALID, or on QSI Systems' full line of broadcast equipment, call or write:
QSI Systems, Inc., 993 Watertown St., West Newton, MA 02165 (617) 969-7118.

Circle 157 on Reader Service Card

GREAT IDEA CONTEST

11. Simple, Photographic Button Legends

Christopher Hart, KRDO-AM/FM/TV, Colorado Springs, Colo.

Problem: To provide an easy way to create legends for buttons used everywhere in our station.

Solution: Our station recently installed a new switcher and had a remote control panel built that closely matched the switcher. The buttons were a clear cap type, so some type of lettering could be easily inserted. Engineering asked the art department if they could label the buttons, but they did not know how long it would take. We thought of having it done by engineering with rub-on lettering, but that probably still would have taken a week or so.

I had worked with making some circuit boards and the experience gave me the idea for making some quick and professional-looking legends. Ortho film, used for the negatives, is a very high contrast film and its base is very clear where not exposed. Those who have worked with circuit board negatives know the unique properties of this film, which is available in 35 mm stock from Kodak (#6556) and in many good camera stores.

My letter source for exposing the film was the station's Chyron character generator. Using a 35 mm camera with an extension tube for the lens, I took pictures of a high-resolution black and white monitor with the desired title information. I achieved the best results with the title output from the generator so that no edging or color information was included, producing a sharper character. The whole panel of 40 or so buttons was done in a couple of hours. Using this process it is very easy to make multiple copies if needed.

The developing of the film is very simple and chances are that your photo lab or art department has this film and developer or ready access to it. An experimental roll or two will probably need to be shot to determine exposure for the monitor being used and the desired finished size. One nice thing about this film is that it is red blind, so you can watch it developing under red safe light. Once the film is processed, just cut the legend to the size needed with a razor and place it between the clear cap and the button.

12. Camera Viewfinder Warning Light

Raymond Chamberlain, Remote Engineering Supervisor, WFSU-TV, Tallahassee, Fla.

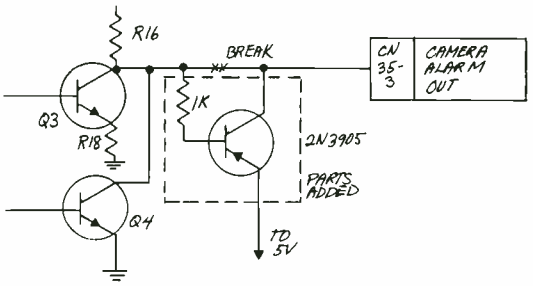
Problem: To create an indication light in the camera viewfinder to warn of VTR problems.

Solution: The way the TK-76B and TH-50 (Sony BVH 500) are supplied, the alarm/warning indication from the TH-50 does not light an indicator in the TK-76B

viewfinder. We wanted an indication in the camera viewfinder of problems at the tape machine. The solution is in three parts:

- As supplied, the interconnect cable is wired wrong. Move the wire from pin 14 to pin 12 on the connector on the TH-50 end of the cable (you want to end up with CN101-12 on the TH-50 wired to J3-R on the K-76B).
- In the TK-76B viewfinder, replace R4 on the LED board with a 330 ohm, ¼ watt resistor. Also reverse the leads on CR3 and CR4 (this causes the tape alarm to be red).
- In the TH-50 remove the S-50 board (this is the second board in behind the battery case). On the extra pads on this board install a general purpose PNP transistor (I used a 2N3905) and a 1K ohm ¼ watt resistor from the base of this transistor to another empty pad. Run a wire from the emitter of the new transistor to 5 volts (available on the two blank IC sockets next to the extra pads — pin 14). Break the foil run between the junction of Q3-c and Q4-c and CN35-3. Run a wire from the junction of Q3-c and Q4-c to the free end of the 1k resistor just installed. Run a wire from CN35-3 to the collector of the new transistor. Re-install the board.

In operation, the red LED in the TK-76B viewfinder is on except when the TH-50 is in record. If the tape servo unlocks, the LED will blink at a 1 Hz rate.



Schematic for Chamberlain's warning light

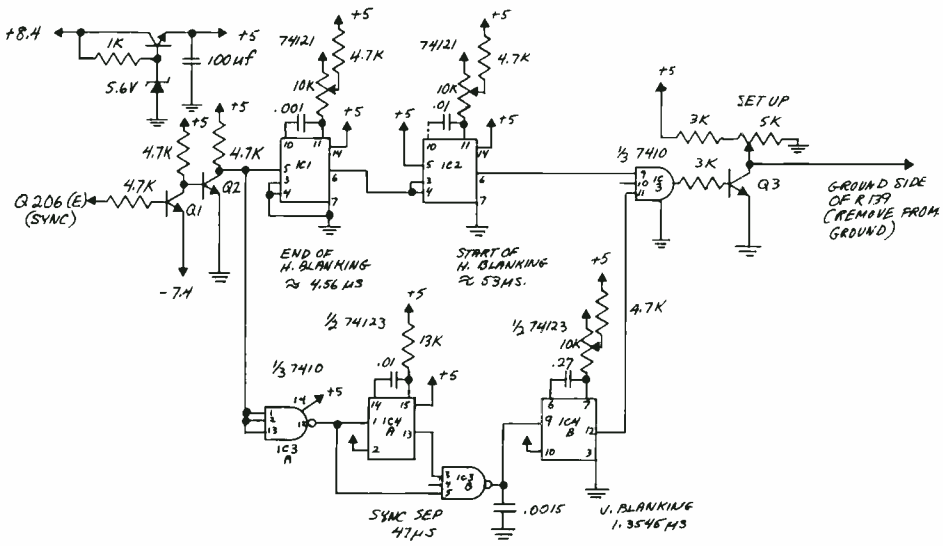
13. Synchronous Black Source

John Hartwell, Studio Engineer, KQED-TV, San Francisco, Calif.

Problem: To add setup to a Grass Valley 967 auto-black processor for use as a synchronous black source, in a Grass Valley 1400 mix/eff. system.

Solution: We built the circuit in the figure and a small two-inch by 3½-inch vector board that was mounted inside the Grass Valley module. All power for the circuit was taken from the 8.4 and −7.4 volts of the module it was mounted in, regulated down to 5 volts for the logic circuits.

Transistors Q1 and Q2 provide the interface for the sync signal as it appears on the emitter of Q206 in the 967 module. After the level translation to a pulse between 0



Hartwell's setup adder for GVG 967

and 5 volts, the sync pulse is fed to IC-1 pin 5 and IC-3A pins 1, 2, and 13. IC1 is a one-shot triggered on the trailing edge of the sync pulse. At the end of this one-shot that is approximately 4.56 µs, IC2, another one-shot, is triggered and lasts for approximately 53 µs. This 53 µs is equal to the time that setup will be added during one horizontal line. In setting up these one-shots, IC-1 is adjusted first setting the back porch duration, and IC-2 is then adjusted for the front porch duration.

The sync pulse on the input to IC-3A pins 1, 2, and 3 is inverted and fed to IC-4A pin 1 and IC-3B pin 5. IC-4A is a retriggerable one-shot. If not retriggered, it will last 47 µs and is triggered on the falling edge of this inverted sync signal. If the sync signal goes high during the duration of

this one-shot vertical blanking is sensed, causing a low going pulse at pin 6 of IC-3B. This pulse continues with the equalizing pulses and retriggers IC-4B, another retriggerable one-shot. IC-4B's pulse is adjusted for the vertical blanking period.

IC-3C logically "ANDS" the horizontal and vertical blanking periods on its input pins 9 and 10 respectively. When either of these inputs are low Q3 is turned on, providing a ground to R139 of the Grass Valley 967 module and allowing normal operation of the 967. When neither of the blanking signals are low Q3 is turned off. The voltage to R193 is adjustable, allowing setup adjustments added to the output of the Grass Valley 967.

14. Emergency Sampling Loop

Frank S. Colligan, A.D. Ring Associates, Washington, D.C.

Problem: To modify a base current coupling transformer for use as an emergency sampling loop on tower arrays.

Solution: FCC rules require tower-mounted sampling loops to be located 90 electrical degrees down from the top of each tower in cases where the tower heights exceed 110 degrees. Base sampling by means of weather-protected toroidal transformers in the turning houses is only allowed on uniform cross-section towers of less than 110 degrees of height. Numerous things can happen to the tower-mounted sampling loops and cables ranging from lightning strikes to poor installation and weather sealing techniques. There are no rules against one's making additional measurements for his own information. The ever-increasing use of the new type of RF base current ammeter, using toroidal coupling transformer, *does* place an RF sampling transformer on the tower feed bus out of the turning house regardless of tower height. If suspicious readings appear on the antenna monitor in a tall tower array, especially during inclement weather, transfer the over-ground runs of sampling cable over to the ammeter toroid transformers and see if these alternative values are the same as were measured previously or if the readings are stable. Sampling cable transfer can be made using a short jumper cable of RG-58 fitted with the appropriate type "N" connectors. Before making this temporary transfer, be certain that the "cold" end of the sampling line isolation coil is and will remain grounded as the over-ground run of sampling cable is disconnected from it. *Do not* transfer the samples at the "hot" end of the isolation coil! If your normal sampling system is presently known to be in good condition, obtain these alternative readings for future reference so as to establish a basis for comparison. Make thorough and careful notations on both your operating and maintenance logs so that the temporary and emergency nature of what you are doing is clear on the record.

The toroidal RF ammeter transformer is an excellent device for antenna monitor base sampling. This technique proved invaluable in a recent case where it was used to positively identify multiple damages to runs of sampling cable up a tower, in addition to poor connector performance on the sample loops.

Rules for BM/E's Great Idea Contest

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

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

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

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

5. Winners: Top rated entries in the year-long tally will become winners in each of the three major categories (AM, FM, TV). Final winners will be picked in February 1980 and announced in the March 1980 issue of *BM/E*.

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

Mail to:
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New York, New York 10017

1979 Entry Form

Name _____ **Title** _____
Station Call Letters _____ **City** _____
State _____ **Zip** _____
Telephone No. _____
Licensee _____
Class of Station at which idea is used (check one)
TV _____ **FM** _____ **AM** _____
Category: Audio ___ **RF** ___ **Video** ___ **Control** ___
Objective or Problem: *(In few words; use separate sheet for details)*

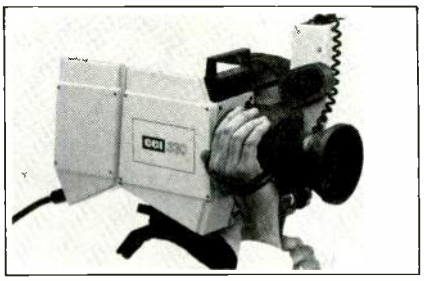
Solution: *(Use separate sheet—500 words max)*

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

BROADCAST EQUIPMENT

Studio/Field Camera 250

The 330 is a digitally controlled color TV camera system that offers cable range between the head and electronics unit of up to 2400 feet. It is based on the manufacturer's 310 field production camera, which may be converted to the 330 with a camera head addition and auxiliary power supply, plus one circuit



board. Micro-cable carries three video signals (R, G, B), viewfinder video, and camera head control, including timing pulses, vertical and horizontal centering and sizing, iris control, switches for beam, tally and rest, IC and program sound for headset, and two spare analog channels. Modular configuration makes conversion simple and provides for optional features or user-designed enhancements via plug-in EU option boards. Complete system, $42,000; remote system, $54,000; conversion of 310, $12,000. COMMERCIAL ELECTRONICS, INC. (CEI).

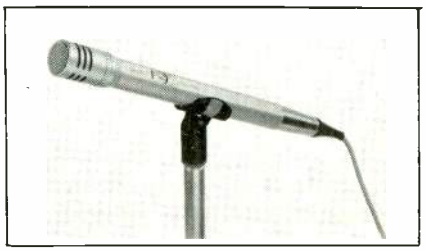
Routing Switchers 251

The 20AV4 is a 20 input by four output routing switcher, with each system matrix designed for interface compatibility (stacked) of up to 12 units without DAs. Dual auto changeover power supplies are provided. Switching is in the vertical interval and reverts to random nature upon loss of vertical interval drive signal. Video crosspoint boards are 1x4 with on-card switchpoint status and on-card switching. Bi-polar video switching provides theoretical 100 dB off-mode attenuation, and bi-polar transistors are used throughout the video stage. Each audio crosspoint provides a 20x1 audio switching capability. The system can be operated directly from a −24 V power supply. The 30AV4 is similar to the 20AV4, except that the matrix is expanded to include 30 inputs by four outputs. VAMCO ENGINEERING.

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

Cardioid Microphone 252

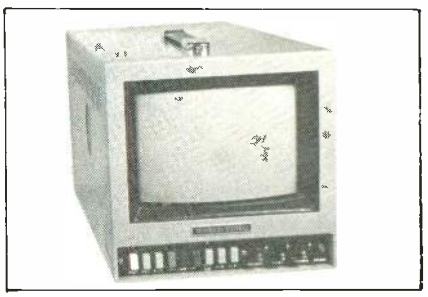
The SM81 is a new cardioid condenser microphone for which the manufacturer claims high levels of reliability and durability. Excellent signal-to-noise ratio and low TH and IM distortion are also claimed. The unit features a three-position low frequency response switch located on its case; the switch is adjustable without tools or disassembly and provides the options of a flat response, a low-frequency roll-off of 6



dB per octave below 100 Hz, or a low-frequency cutoff of 18 dB per octave below 80 Hz. It can also compensate for proximity effect. A switchable 10 dB attenuator built into the mic head prevents high sound pressure levels from overloading the internal electronics. $225. SHURE BROTHERS, INC.

Portable Color Monitor 253

The CP 8000 eight-inch color monitor is designed for EFP applications. It features high voltage regulations, pulse-cross, underscan, dual inputs,



internal-external sync, and solid state modular circuitry. All controls are accessible from the front control panel. The unit operates from 100 V ac or 12–24 V dc, and is also available in a rack-mount configuration. $1295. WORLD VIDEO, INC.

Still Storage Retrieval System 254

The ESP-100B Electronic Still Processor, designed for stations in small to medium markets, has the same initial 200-frame storage capacity as the higher-priced ESP-100 but is not expandable. The microprocessor-based system uses a fixed disc for storage. Stills can be accessed in one-half second and still sequences can be programmed in advance so stills appear automatically and in order. Recall and display of any still frame is nondestructive, so stored data remains unaltered during access and display operations. "Freeze-frame" capability allows graphic artists to create stills from moving feeds including VTRs and film chains, or from live camera, network, or satellite feeds. Two separate outputs permit directors to fade, dissolve, or super outputs. S/N is 56 dB; bandwidth is 5 MHz. $42,000. ADDA CORP.

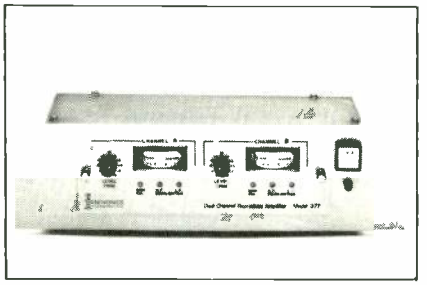
One-Inch VTR 255

The TH-200 one-inch helical scan VTR, designed to be operated in conjunction with the TBC-200 digital time base corrector, conforms to the SMPTE Type C format. Manual and automatic editing capabilities are built in, with automatic preview, editing, and review of each edited segment operated from the control panel. Manual assembly and insert editing are provided; a single con-

trol dial permits bi-directional search in two different search modes. Simultaneous playback of both video and sync channels is featured, allowing monitoring of materials while recording. Optional "dynamic tracking" makes possible claimed noise-free playback of video over tape speeds ranging from 1/5 reverse to twice normal forward, while maintaining the stability of playback video even during speed changes. RCA BROADCAST SYSTEMS.

Automation Preamp 256

The Model 377 is a dual-channel tape playback preamp that interfaces with a



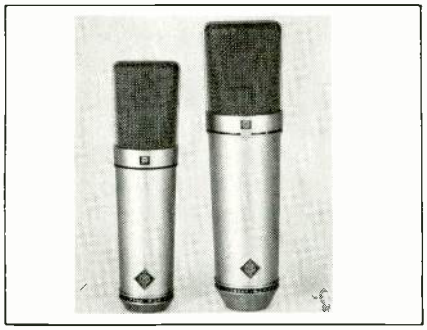
wide variety of tape heads and transports, according to the maker. It is pin-compatible with Ampex and Schafer equipment. Fully RFI-proofed, it offers balanced outputs capable of +24 dBm. Panel appointments include multi-turn gain and equalization adjustments, ±5 dB level trim controls, and VU meters for each channel. High stability, low noise, and wide range response are claimed. $395. INOVONICS.

Condenser Microphone 257

The U 89 fet-80 48 V condenser mic maintains the basic shape of the current model in its series, the U 87, but is about 15 percent smaller in height and bulk. The condenser capsule provides exposed capsule elements, including two gold sputtered polyester membranes, all of which are at 0 V potential. This offers security against capsule failure from humidity, human breath,

Broadcast Equipment

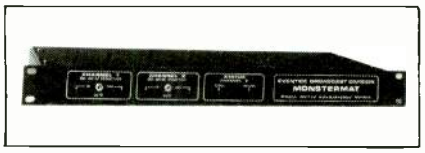
and dirt, according to the distributor. Five directional characteristics are featured. The three basic ones are cardioid, figure-8, and omni-directional;



the others are hyper-cardioid (extra-narrow pickup angle at the expense of a small back lobe) and wide cardioid, described as "uni-directional." The U 89 has 10 transistors; sound pressure tolerance is up 12 dB from the U 87. There are two selectable low frequency roll-off curves, one at 80 Hz and one at 160 Hz. A 6 dB overload protection switch is also provided. GOTHAM AUDIO.

Mono/Stereo Matrix Unit 258

The Monstermat, Model RD770, is designed for radio stations that broadcast



in stereo to a predominantly mono audience. The mono/stereo matrix converts the signal into L + R and L − R, putting the L + R mono signal onto one cart track, out of the way of phase shifts due to machine misalignment or tape warp. The second track carries the L − R signal. Full stereo is restored on playback and rematrixing. Old mono carts may also be played on stereo machines with full mono signal on both channels. The unit uses dbx noise reduction and is available in two formats, record/play or play/play. It uses 1¾ inches of 19-inch rack space. $995. EVENTIDE CLOCKWORKS, INC.

Studio-Transmitter Link 259

The 7700 Series 950 MHz STL consists of a 12-watt solid state transmitter and companion receiver, both equipped with optional fully redundant units and automatic transfer capability. The high efficiency transistor power amplifier stage has 12 W output, 70 dB S/N, and 50 dB minimum stereo separation at 1 kHz. The transmitter is fully frequency synthesized. The unit is capable of transmitting the broadcast quality audio channels and a data channel simultaneously. Modular construction is said to simplify routine maintenance; important test points are all brought out to rear panel connectors so the system can be interrogated using the remote control equipment. TIME & FREQUENCY TECHNOLOGY, INC.

Digital Reverb System 260

The Model 224 digital reverberation system provides reverberation with claimed smooth, natural decay without

coloration, "twang," or "boing." Its remote control console measures five by eight inches, while the digital processor, which accepts up to eight different programs, requires seven inches of rack space. A built-in control memory provides instant pushbutton recall of

previously set effects. The unit is fully portable. The manufacturer has developed a library of programs for use with the unit, including concert hall programs and acoustic chamber programs. A basic program is selected by pushbutton and then tuned by adjusting six slide pots whose parameters are digitally displayed in engineering units. LEXICON, INC.

Tape Search Unit 261

The Model 275 provides automatic control of the tape transport based upon recorded time code information. It compares user-selected start and stop times with the time code data read from the magnetic tape by the translator and then controls the tape transport by directing it to the desired start time location at fast forward or reverse speed. When start time is reached, the unit directs the tape transport to playback speed until the stop word is reached and either orders the operation to be repeated a designated number of times or has the transport remain at the stop time location. A microprocessor conducts arithmetic and logic operations and enables the user to program the unit to recycle a specified number of times and arrive at the start time without overshooting. Offered in a 1¾-inch high rack-mountable chassis, it is compatible with the manufacturer's Model 175 Time Code Translator units. $1700. MOXON, INC.

Title Camera Stand 262

This adjustable stand has been developed for the purpose of gently moving title cameras and preventing the vibration that causes particulate matter to fall onto the inner face of the pick-

up tube. Anti-friction bearings allow easy, gentle raising and lowering of the camera. A brake locks the camera in position and prevents accidental movement after focusing. The stand can be readily mounted on a light box table or a wall; brackets for either mounting are available. TRIPLE S MANUFACTURING CORP.

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