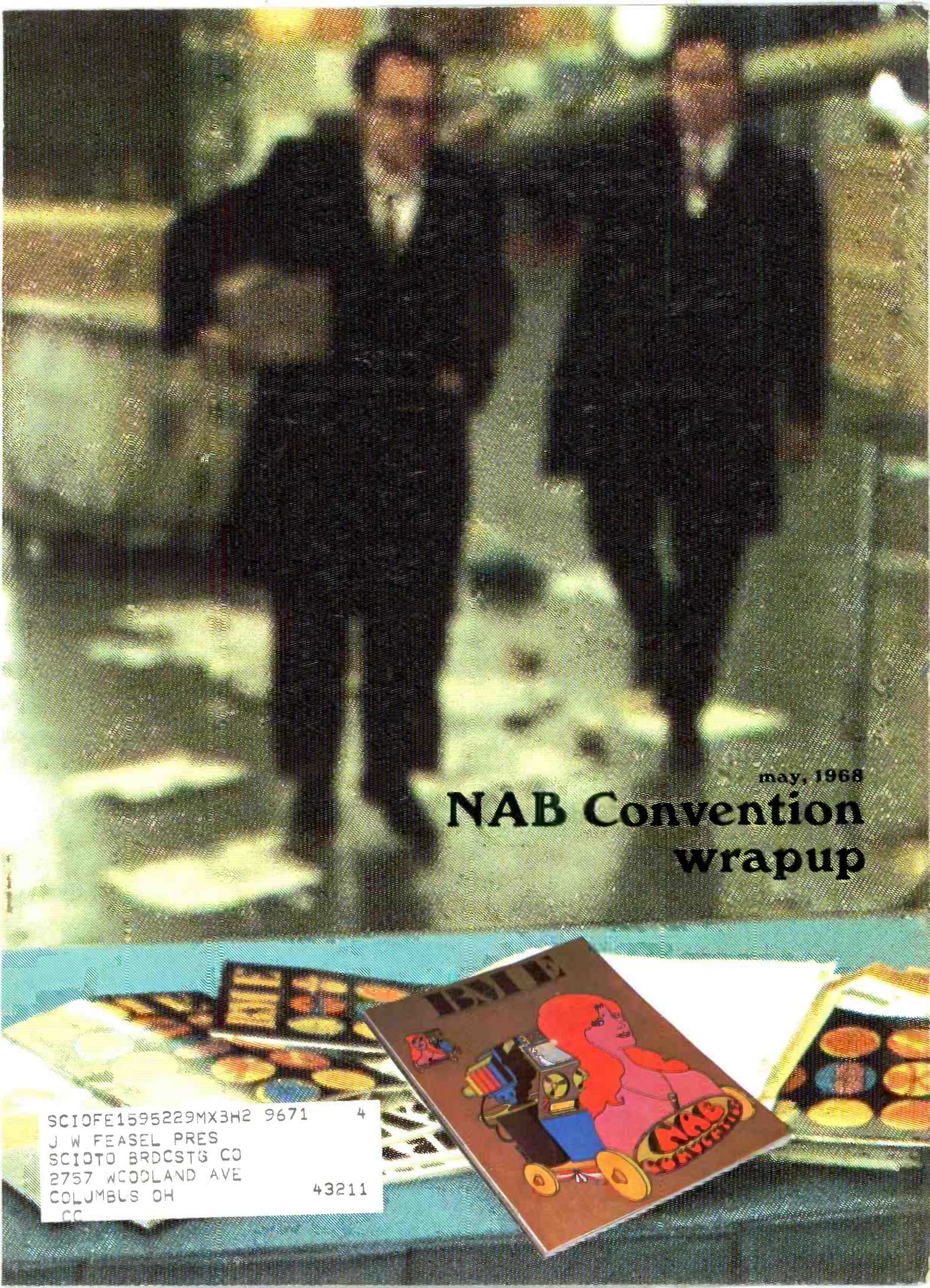

may, 1968

NAB Convention wrapup

how to simplify continuous quality control of television signals

Here's how every TV broadcast station can be assured of constant high quality picture transmission. Through use of a Riker Automatic Vertical Interval Test Set, you can keep a continuous check on transmission characteristics such as phase, gain and video level during actual program time. By transmitting the standard video test signals (multiburst, linearity, window, $\sin^2$) simultaneous with the program material even the slightest deterioration of transmission quality can be immediately detected and corrected. All the standard test signals are individually selectable and can be automatically sequenced into the compcsite video program.

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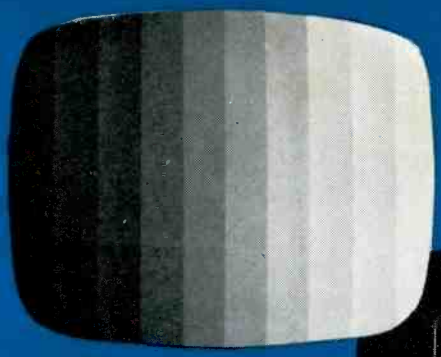

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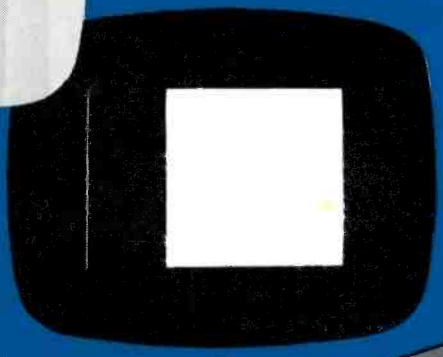

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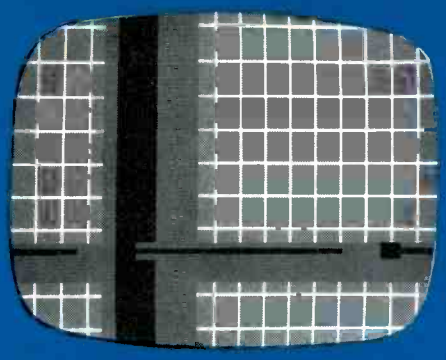

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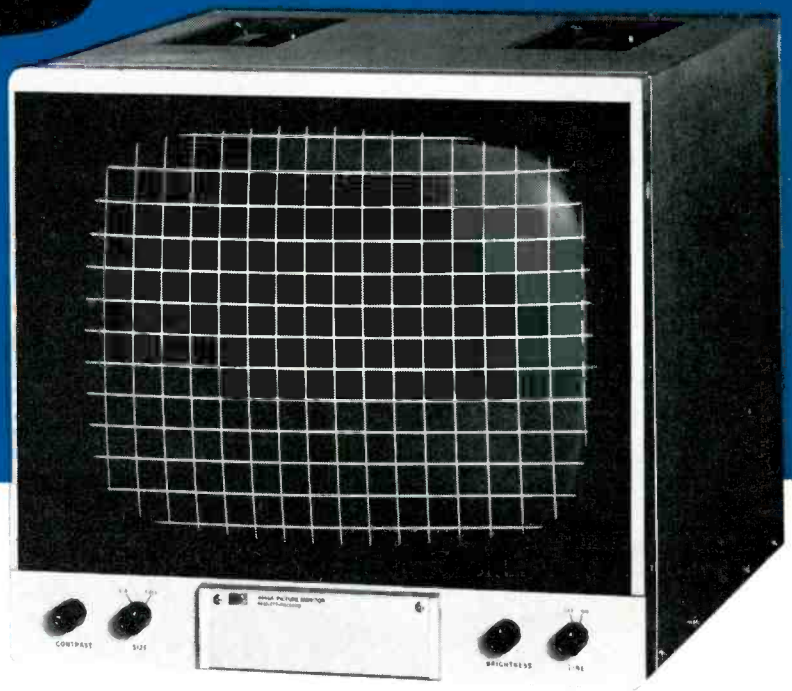

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COMMUNICATION INSTRUMENTS

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MAY 1968/VOLUME 4/NUMBER 5

BM/E

BROADCAST MANAGEMENT/ ENGINEERING

This month's cover. The 46th NAB Convention and Exhibit is wrapped up and packed up. By now even the debris is gone. For a wrapup of five themes at the Convention, turn to page 29.

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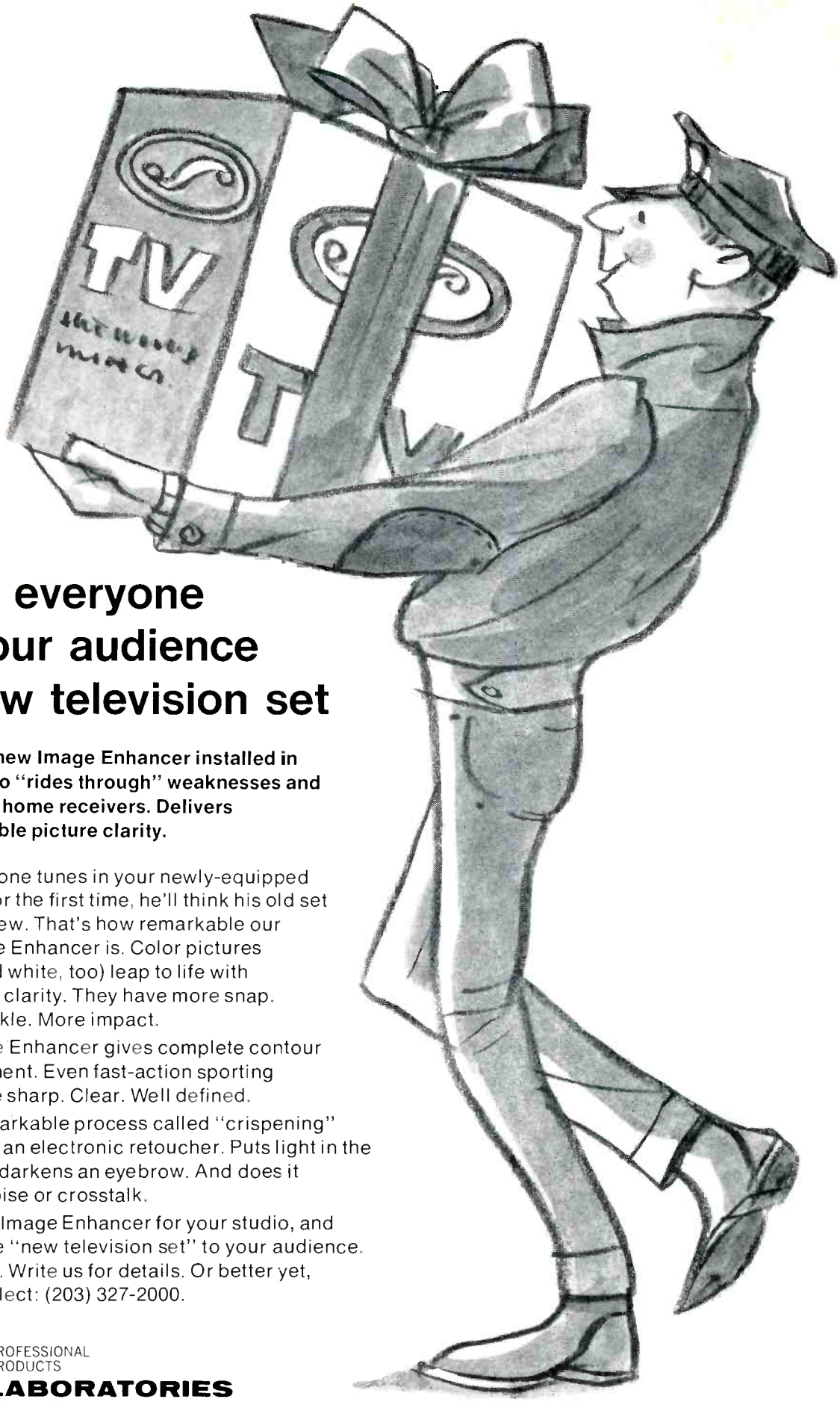

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BROADCAST INDUSTRY NEWS

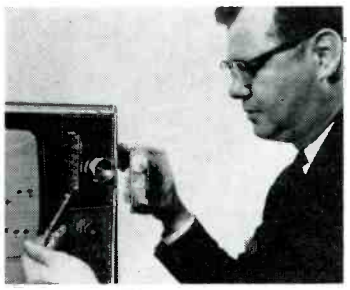
May Salute to Radio's Importance: "Radio . . . The All-American Sound."

Better Uhf Tuning?

Production of greatly improved all-channel television tuners that will substantially simplify uhf-TV tuning will begin in about a year, electronics manufacturers announced at a meeting recently held at the Federal Communications Commission. The All-Channel Television Society, the Electronic Industries Association and tuner manufacturers participated in the session with Commissioners and FCC staff observing.

The tuners embody completely new concepts, representatives of two electronics manufacturing companies stated, emphasizing that the newly-developed units will give uhf-TV the tuning ease and facility now available for vhf-TV. The tuners will be compatible with automatic frequency control devices to eliminate difficulty in precise tuning and will incorporate easy tuning, pushbuttons.

Later in Chicago, ACTS met with set manufacturers and accused them of failing to provide adequate tuners. Set makers said cost of better uhf tuners was the limiting factor, and that users didn't install antennas. Hopefully, the FCC will appoint a committee of broadcasters, set, tuner and antenna manufacturers to recommend steps for improving uhf receiving ability. ACTS wants all price ranges of sets to be improved.



Eugene Walding, engineer section manager for Oak Manufacturing Company's Advance Tuner Development laboratory, points to new three-band continuous tune TV dial on working television equipped with the company's newly-developed all-channel "Mark IV" tuner. Center portion of large control is bandswitch; outer rim (normally "fine tuning") serves as channel selector. In Walding's right hand is the Mark IV tuner, positioned approximately as it is installed in TV receiver.

Color Picture Brighter

Termed the most significant advance in TV color tube brightness since the rare earth europium screen announced in 1964, Sylvania's new Color Bright 85 series is 23 to 69 percent brighter than other tubes. The result is a truer red even under high ambient lighting conditions. The new brightness levels are the result of a combination of developments involving major components of the tube including improved phosphors; a new electron gun; a new temperature compensated mask, and an advanced method of dusting the phosphors onto the faceplate of the tube.

The tubes are being used in 1968 Sylvania color TV models currently available and will be made available to other set manufacturers. Sylvania, one of the three largest manufacturers of picture tubes, provides color tubes to three out of every four set manufacturers.

On the basis of foot lamberts of brightness under standard industry test conditions, the Sylvania tube averages 23 percent brighter than the next brightest tube available. Brightness improvements over other tested brands were 25, 44, 51, 54, and 69 percent, respectively, Sylvania spokesmen said.

The patented dry dusting process permits Sylvania to use larger phosphor crystals on the tube face than can be achieved in any other method of application. The larger crystals produce higher brightness and the dry method of application permits a more constant phosphor thickness assuring more uniform light output, Sylvania reports.

Proposed End of Multiple Ownership

To promote program diversity, the Commission recently proposed to limit multiple ownership of stations in individual communities.

Proposed rules would forbid the owner of an a-m station to acquire a local fm or TV license. Fm and TV licenses would similarly be precluded from acquiring another kind of station.

The rules would apply to new stations and transfers but would not require divestiture by existing multiple licensees. Applications now on file with the Commission will be processed according to existing rules.

Interested parties have until June 26, 1968, to file comments on the proposed rules and until July 8 for reply comments.

Members at the 46th NAB Convention passed a resolution opposing the plan and said action should be based on individual applications.

Meter and Measurement Actions and Proposals

The Commission has issued a Notice of Proposed Rule Making to explore the possibility of using actual field strength measurements to determine the coverage of fm and TV broadcast stations, instead of conventional field strength prediction charts.

The Commission stated that it is aware of the shortcomings of the present method of estimating TV and fm station coverage with field strength charts and has, on a number of occasions, considered the possibility of permitting the use

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"We were quite pleasantly surprised that the CAS all-transistorized CATV Channel Control head-end and line equipment cost a little *less* than leading vacuum tube gear.

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of actual measurements. However, measurements by different engineers often yield widely different results and measurements made at the same location by the same engineer and under similar conditions but at different times, may differ substantially. Unless a method can be found that will yield substantially the same results when independent measurements are made on the same station by different engineers, the usefulness and accuracy of the measurements is open to challenge. It is claimed by the engineering firm of Kear and Kennedy that the Television Allocations Study Organization method will meet those requirements.

The TASO method requires that mobile measurements be made with the receiving antenna at 30 feet above ground. This poses a hazard of contact with overhead wires and restricts places where such measurements can be made and for that reason are not attractive. However, correlation with data obtained at 30 feet has not been satisfactory.

In another announcement, the Commission revealed a Notice of Proposed Rule Making to consider amending Section 73.50 of the Rules to eliminate the requirements for meters as indicators on a-m modulation monitors (RM-1208).

Collins Radio Company filed a petition for rule making on October 13, 1967, stating that a monitor developed by them which uses no meters has substantial advantages over conventional monitors.

The Collins monitor substitutes for the semipeak meter a battery of four indicating lights, calibrated to glow at various preset peak modulation levels. The company says the accuracy of its monitors is unaffected by substantial changes in carrier level.

The Commission also has announced a Notice of Proposed rule making modifying the calibration of output power meters for TV transmitters at 80, 100 and 110 percent of authorized operating power. The proposal affects Section 73.689(b)(1) and (2) of the Rules.

FCC To Study Automatic Fm Transmitters

A Notice of Inquiry into the use of automatic and self-monitored fm broadcast transmitters has been adopted by the FCC. It was issued in response to a petition by Collins Radio Co., Dallas, Tex., asking for amendment of Part 73 of the Rules to permit use of such equipment.

Noting the benefits of the automatic transmitters, the Commission pointed out that Communications Act requires transmitters to be attended by licensed operators. "Because of the significant implications of any departure from this concept," the Commission said it was asking for comments on an amendment to eliminate the licensed operator requirement or to allow use of minimum grade operators to perform limited functions.

Comments in the Inquiry may be filed on or before June 27, 1968 with reply comments due on or before July 26, 1968. See editorial on subject, p. 84.

FCC Amends Personal Attack Rules

Bona fide news interviews, and commentary and analysis in bona fide newscasts, news interviews, and on-the-spot coverage of news events have been exempted from the personal attack provisions of the fairness doctrine in action by the FCC amending Part 73 of the Rules.

The Commission acted to amend the Rules after receiving authorization from the United States Court of Appeals for the Seventh Circuit where the personal attack provision are under review in *Radio Television News Directors Assn., et al.* v. *United States*. The Commission noted that the revision was "of relatively narrow nature," and that its purpose was to avoid the possibility of inhibiting broadcast licensees in carrying out "journalistic functions."

The Commission emphasized, however, that the fairness doctrine remains specifically applicable to news programs. In applying the fairness doctrine to the exempt categories, the licensee may meet his obligations by "fairly presenting the contrasting viewpoint on the attack issues or by notifying and allowing the person or group attacked a reasonable opportunity to respond," the Commission said.

Presunrise Actions

A Notice of Proposed Rule Making, recently issued by the FCC solicited comments on presunrise operations before 6 A.M. by Class II a-m stations on U.S. I-A clear channels, located west of the co-channel dominant station. Petitions asking that presunrise operations limited only by the time of sunrise at the dominant station and 4 A.M. were denied late last year as inconsistent with the Canadian agreement.

In other action, major changes in Part 73 concern the national adoption of "advanced" or "daylight saving time"; a new definition of "nighttime" to cover the period from local sunset to local sunrise; and the listing of the 770-kHz channel with the other 24 1-A channels in the test of Section 73.25(a).

Tube X-Radiation Measurement Described

A recommended method for measuring X-radiation from receiving tubes has been formulated by the Electron Tube Council of the Joint Electron Devices Engineering Councils.

The method, described in JEDEC Publication 67 "Recommended Practice for the Measurement of X-Radiation From Receiving Tubes," applies to all high voltage tubes in both color and monochrome TV receivers, as well as industrial products.

JEDEC Publication 67 is available at 25 cents from EIA Engineering Department, and is a companion to JEDEC Publication 64, "Recommended Practice for Measurement of Radiation From Display Cathode Ray Tubes," priced at 30 cents. Minimum order is one dollar.

Hyde, Wasilewski Defend BC Spectrum Use

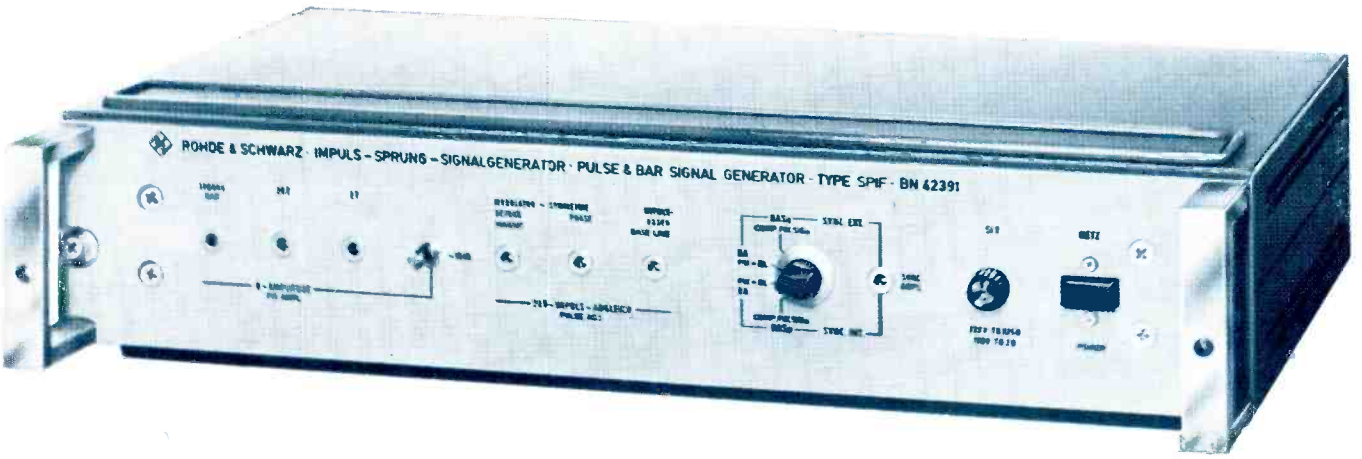
Chairman Rosel H. Hyde of the FCC questioned the wisdom of suggestions that the present system of radio and television be converted to wire in order to satisfy the air waves demands of point-to-point communications users.

Broadcasting is "directly serving the public interest," he said, and therefore has a right to spectrum space, he told a meeting of presidents of state broadcaster associations sponsored by the NAB.

Speaking of recent spectrum studies, Hyde said "there has been talk of wiring broadcasting "to provide spectrum space for other users of it. However, he added, "many spectrum users don't have the immediate purpose of directly serving the public interest as broadcasting does," noting that many

Continued on page 12

Monitor-Measure TV Characteristics With Precision Pulse & Bar Signals



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- Distortion, K_{2T}: 0.25%
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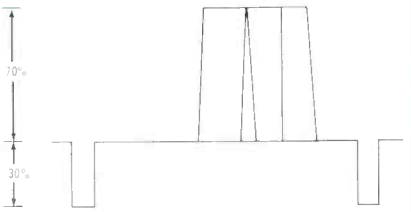

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1ST LINE: BAR SIGNAL AND T OR 2T PULSE
2ND LINE: 20T PULSE WITH COLOR SUBCARRIER

It is possible to monitor and measure television transmission characteristics in terms of K factor ratings. A special T/20T or 2T/20T $\sin^2$ pulse & bar signal is applied to the system under test. The deterioration of these special signals permits measurement of amplitude and delay distortions produced by the transmission system. In particular, the 20T pulse clearly reveals linear distortions in the range of the color subcarrier. The line frequency pulse & bar signal contains all essential components of a standard black/white and color picture.

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FOCUS ON
CATV

Supreme Court to Rule on FCC Control and Copyright Issues

Two issues vitally important to the future of CATV are now being considered by the Supreme Court. Some time before June, the Supreme Court is expected to decide the following questions: 1) Does the FCC have jurisdiction over CATV? 2) To what extent, if any, is CATV subject to copyright fees?

Presenting the case for the FCC, Henry Geller said that CATV impact on local service and the allocation plan makes regulation imperative.

Geller explained the rules to the Court, equated CATV with pay TV, and said that FCC authority over CATV is based on the Communications Act dealing with regulation of interstate communications by wire, as well as those sections on broadcasting.

Taking the CATV side were Robert L. Heald and Arthur Scheiner, attorneys for Trans-Video Corp. and Southern Cable Co., respectively.

They insisted that the FCC has no jurisdiction over CATV, pointing out that they have never claimed authority over interstate wired communications systems such as the press services and broadcast networks.

Famed attorney Louis Nizer argued United Artists' copyright case against Fortnightly Corp. He said that CATV is a big business that takes copyrighted material and doesn't pay for it. "CATV" said Nizer, "is waxing fat selling goods it hasn't paid for."

Answering a question from the Court, Nizer said that a homeowner with a special antenna could invite friends in to watch television, but if he charged a fee, he would be liable for copyright infringement.

The CATV side of the copyright problem, presented by Robert C. Barnard, contends that CATV is nothing more than an antenna service. He said all television systems include an antenna, a connecting link and a TV set, and that CATV is just a connecting link.

While this case has been pending, Congress has been considering new copyright legislation. A new copyright bill passed by the House in 1967 originally exempted CATV from paying fees for local TV programs, but this section was stricken before the bill was passed.

It is impossible to predict the outcome of these two cases, but indications are that the Supreme Court may uphold FCC authority over CATV, but limit copyright liability to distant signals only.

Will the Phone Companies Control CATV?

Many industry leaders feel that the phone companies represent a threat to independent CATV ownership. Recently, FCC Commissioner Kenneth Cox pointed out that phone companies are moving rapidly into CATV, currently building systems in 200 cities.

The FCC is trying to decide whether phone companies need their approval to provide trunk line for CATV systems. Cable operators argue that since phone companies apparently don't need authorization from local authorities, a regulatory void exists. They also complain about phone companies using control of the poles to force them into leaseback agreements.

Frederick W. Ford, president of NCTA, urged broadcasters and

cable operators to work together to prevent "the phone companies' attempt to take over all home communication channels."

Cable TV Helps Uhf

FCC initial decision in three cases out of three that CATV helps—does not hurt uhf. In San Diego, California, the FCC hearing examiner ruled that investigations have failed to show that cable systems have adversely affected uhf stations. In Buffalo, they found that CATV would not even injure a potential uhf channel. And in Lexington, Kentucky Examiner Forest McClenning found that uhf stations WLEX-TV and WKTY-TV have not been hurt and are not likely to be hurt by CATV carriage of Cincinnati and Louisville stations.

Further, an ARB study showed that in Binghamton, N.Y., 80 out of 100 cable subscribers watch uhf, compared with only 47 out of 100 nonsubscribers who tune in uhf.

FCC Tackles Waiver Backlog

Scrapping its policy of considering waiver petitions in chronological order, the FCC has decided to give priority to waiver requests from large (over 500 subscriber) systems.

This is a break for the smaller systems, since they can go on developing local channel programs until the FCC acts on their waiver requests.

In what many consider to be a long overdue step, the FCC has also decided to investigate the possibility of using actual field strength measurements, rather than to rely on predicted contours to determine station coverage.

CATV Statistics Revised

The latest NCTA figures indicate that as of January 1, 1968 about 5 percent of the nation's TV homes were being served by cable television. Earlier figures showed that the highest saturation was in the West (6 percent) and the lowest in the North Central States (2.1 percent).

Pennsylvania still had the greatest number of systems (223) and the greatest number of CATV homes (326,000) but Vermont had the highest saturation rate (26.3 percent).

The NCTA also revealed the results of their survey on program origination by cable systems. Out of 1500 questionnaires mailed, the NCTA got 324 replies. They found that 161 were originating programs and 65 more plan to. Most use time-weather channels, but many have sophisticated studio equipment, including VTRs and film chains. About 10 percent of cable casters now sell advertising time.

Things Look Rosy For Colorado CATV

In an effort to block importation of distant signals into the Colorado Springs-Pueblo area, the NAB petitioned the FCC to consolidate four CATV proposals and "Determine their present and future impact upon free television broadcasting in a single evidentiary hearing."

They submitted an analysis which showed that a similar three-station market, Bakersfield, California, has suffered economic injury because of CATV.

The CATV forces were buoyed, however, by help from an unexpected quarter. The FCC CATV Task Force said that the Colorado stations had ignored six other three-station markets, choosing the only one that seemed to support their case.

demands for spectrum space come from land mobile users such as delivery trucks, taxicabs and other commercial enterprises primarily concerned with their private interests.

FCC Amends Rule To Permit Auxiliaries

Amendment of Parts 2 and 74 of the FCC Rules Regulations has been ordered by the Commission to permit operation of low power broadcast auxiliary stations in the 942- to 952-MHz aural broadcast studio transmitter link band.

The rule change will facilitate short range voice communication and signal transmission required for operation of portable TV cameras. It permits use of such devices as wireless microphones and cue and control signal transmitters. It will enable a program director to control certain camera functions while leaving the cameraman free to concentrate on following the action. The low power stations will share frequencies allocated to broadcast auxiliaries and require no additional spectrum space.

A-m Nighttime Coverage Rule Relaxed

The Commission has amended its rule to conform nighttime coverage requirements for Class II and Class III station assignments with those for Class II-A stations operating on certain Class I-A channels.

The 1961 Clear Channel Decision required, for assignment of Class II-A stations on certain Class I-A channels, that they bring a first primary service to at least 25 percent of the area or population to be served. The Commission believes there is no reason why nighttime assignment standards for Class II and Class III stations generally should be more restrictive than those governing Class II-A station assignments. It is therefore aligning Section 73.24-(b)(3) with Section 73.22(b) of the Rules.

Reinsch Sees CATV, Satellite Advances

J. Leonard Reinsch, president of Cox Broadcasting Corp., recently told a group of leading Ohio businessmen how Cox is keeping pace with dramatic communications industry.

Speaking to members of the Newcomen Society in North America at Dayton, Reinsch said that in communications today, you cannot sit back and count your listeners, or viewers, or money, or you will be left behind.

Reinsch predicted that in the next 10 to 15 years, television stations will be receiving network programs via satellite, retransmitting them plus local program fare over the air and that the use of cable television systems to bring program fare directly into the homes will be greatly expanded.

The advent of satellite broadcasting, Reinsch said, does not mean the demise of the local station. Local stations will continue to be the "foundation for service to their respective communities."

Cable television as it is known today, he continued, may seem primitive in the light of technological advances that may allow viewers to purchase advertised goods through a computer at the cable system's office.

Waivers Granted To ITF Stations

The Commission recently waived Section 74.902(c) of its Rules to permit assignment of two Instructional Television Fixed channels to the Board of Education of Birmingham, Alabama, and also to allow the Archdiocese of New York to construct five additional instructional television fixed relay stations.

The New York relay stations are needed to serve schools located within the service area of the system but are now unable to receive transmissions because of signal path obstructions by terrain or tall buildings.

One of the stations in Birmingham (BPIF-136) will operate as an STL on Instructional TV Fixed channels G-2 and G-3. The other station (BPIF-132) will operate as a relay station on channels E-2 and E-3, and will transmit programming received from the schools in the Birmingham school district.

WQAM Wins News Award Again

For the second year in a row, the News Department of WQAM, Miami has been awarded the highest Associated Press award, an honor shared only by WFBR, Baltimore.

The News Department is headed by 10-year veteran, Bob Kaye.

BUSINESS OF ETV

Maryland Mobilizes for ETV. At the conclusion of a two-day conference called by Governor Agnew, educators from across the State of Maryland decided that the installation of television antennas and distribution systems in all new schools should be a requirement for State approval of new school construction in Maryland.

Conferees urged the immediate budgeting of funds for classroom TV sets and the development of a State purchasing plan which would assure the acquisition of campatible equipment and the economy possible in large quantity procurement.

Jerrold To Install ITV System at Monroe Community College. What is claimed to be one of the most extensive instructional television systems ever installed in a junior college will be in operation when the Monroe Community College, Rochester, N.Y., opens this September. The system will enable the college to originate programs on 12 rf, 5 video and 2 subcarrier TV channels and distribute them over a coaxial system to every teaching station on campus—156 in number. The system has the capability of providing up to 17 simultaneous TV programs.

NAEB President Testifies on Fairness Doctrine. William G. Harley, president of the National Association of Educational Broadcasters, recently testified before the Special Subcommittee on Investigations of the House Interstate and Foreign Commerce Committee. He emphasized that if the FCC were "to follow a practice of close over-the-shoulder surveillance of controversial programming and insist upon second guessing the reasonable judgments of licensees, then educational broadcasters and others might ultimately have to avoid the discussion of important issues in their programming."

He went on to say, "Although there has been some misunderstanding of the nature of the doctrine and considerable dissatisfaction with the hypertechnical nature of certain procedures . . . educational stations are, nonetheless, readily attuned to the necessity, and indeed, the desirability of presenting opposing conflicting viewpoints on controversial issues."

ACCESSIBILITY

Top and bottom covers removed individually to expose all components. Circuit board hinged for easy access to reverse side and cables.

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- P. A. output (public address).
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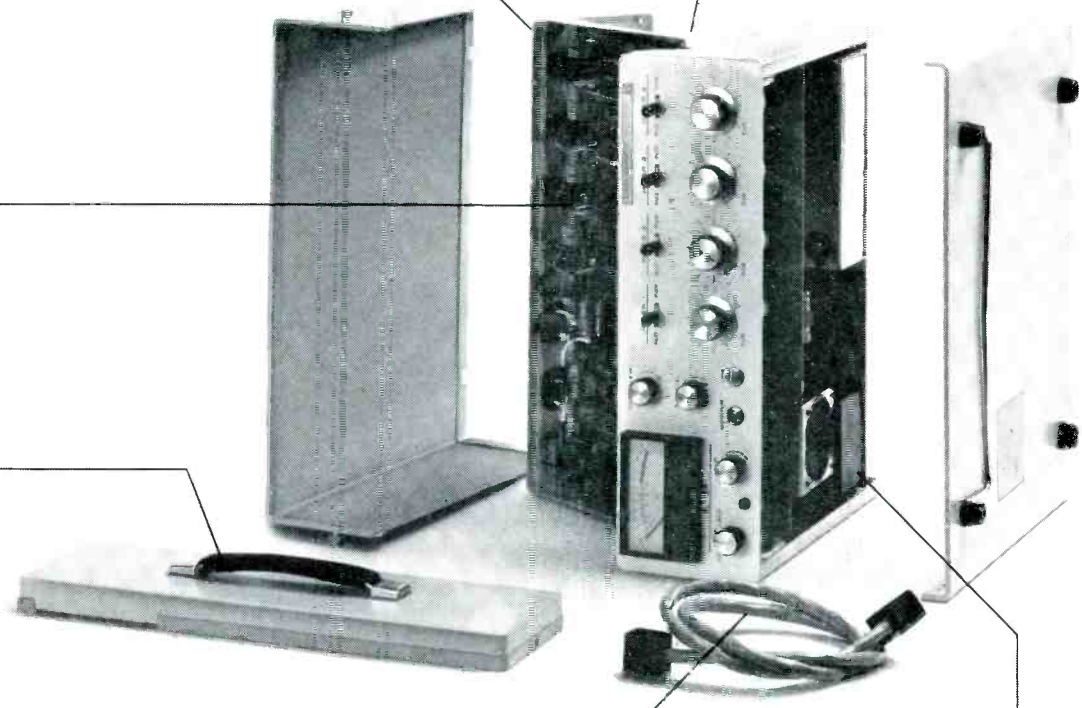
- Etched-epoxy circuit board.
- Plug-in silicon transistors.
- 4 preamplifiers (each normal on equal RIAA phono).
- 1 program amplifier.
- 1 monitor amplifier.
- Speaker muting relays for local and studio speakers.
- May be strapped to operate from any mixer.
- Two-speaker muting.



PORTABILITY

Weight: 28 pounds.
Height: 5".
Width: 14".
Length: 17".

PARALLEL OPERATION

Optional plug-in cable allows parallel operation of two 212J-1's. Arrangement provides 8 input channels (hi-level/mike/phono), two metered program output channels, and two switchable input monitor channels.

OPTIONAL POWER SOURCE

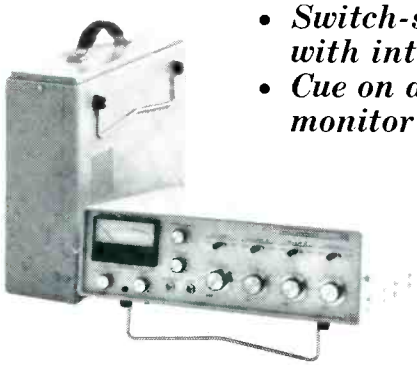
Self-contained power supply that operates the unit on AC also serves as charger for optional internal nickel-cadmium 12-volt battery. Unit switches automatically to battery in the event of an AC power loss. Unit also operates on external 12-volt battery.

a studio production console and remote pickup amplifier in one unit

That's the combination you get in Collins' new 212J-1 Console. Produce spots, conduct remote pickups, or operate the control room in emergency situations.

Completely solid-state, the 212J-1 offers:

- ***Four input channels, each with selectable switches for hi-level, microphone, or phone (RIAA equalization).***
- ***One program output channel.***
- ***Switch-selectable monitor amplifier with internal speaker.***
- ***Cue on all mixers overriding into monitor channel.***
- ***Local and studio speaker muting.***
- ***Public address system feed with level control.***

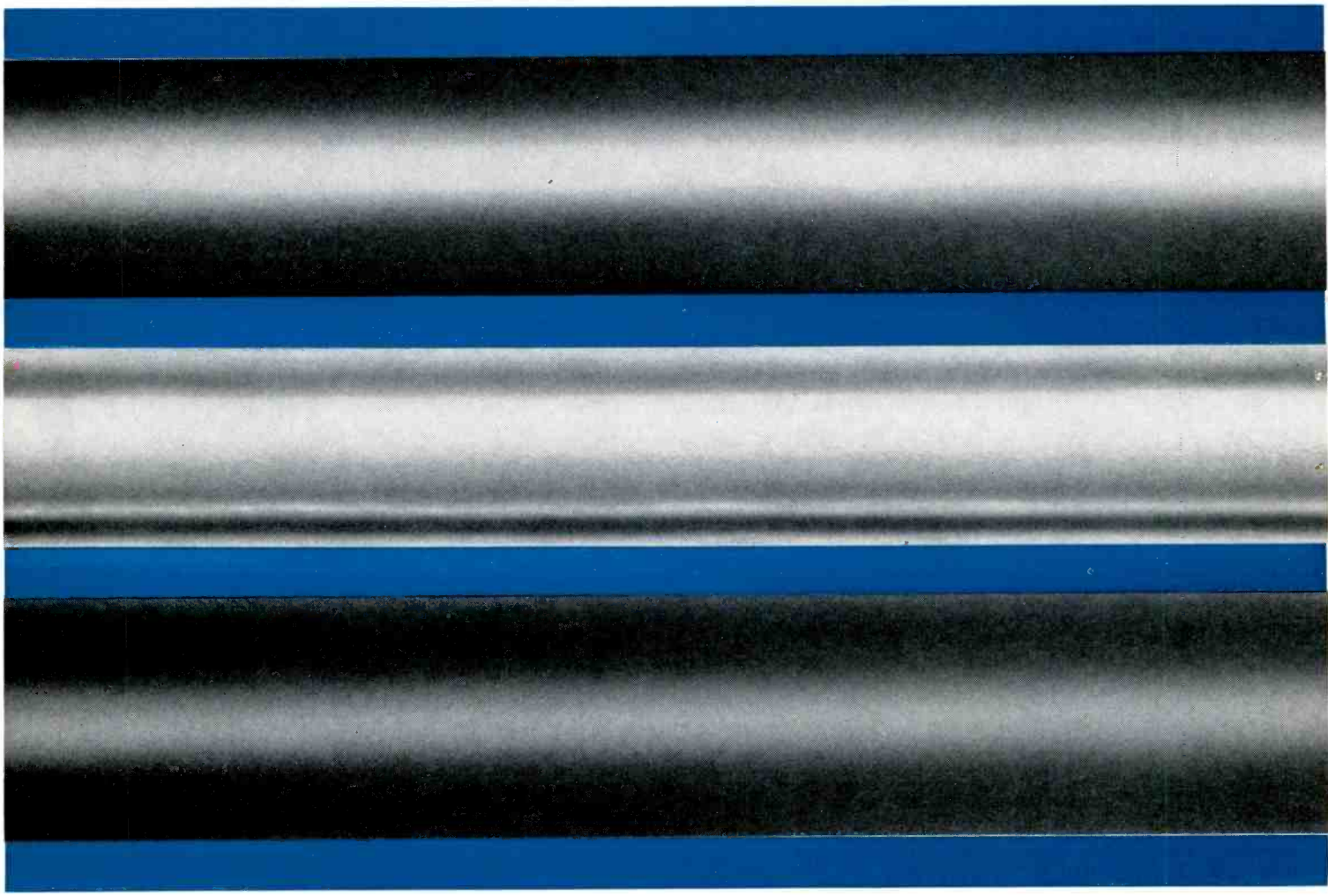


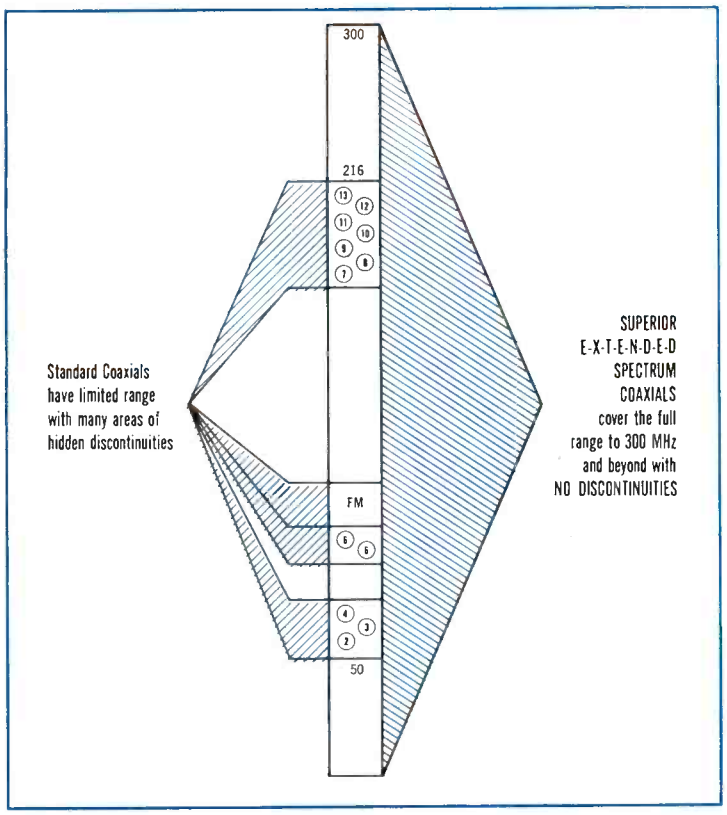
COMMUNICATION / COMPUTATION / CONTROL

COLLINS

Careful, your income tomorrow may be limited by the cable you install today.

Buy Superior Continental's E-X-T-E-N-D-E-D *Spectrum Coaxials and take the lid off!*





Because these coaxials cover the continuous range to 300 MHz and beyond with no discontinuities, you get more transmission space than with standard cables.

The additional 84 MHz segment from 216 to 300 MHz, together with full frequency utilization from 216 MHz down, opens up many opportunities for new services when you want to add them.

- **CATV, new channels**
- **ETV and ITV programming**
- **CCTV for business and industry**
- **Data transmission**
- **Remote control telemetering**
- **Alert and alarm systems**
- **Traffic and highway control systems**

Install Superior Continental's Extended Spectrum Coaxials, Coppergard® or Alumagard® aerial or direct burial types. This way, your system won't outgrow the capability of your cable. Means more revenue because you can provide more services, now and later.

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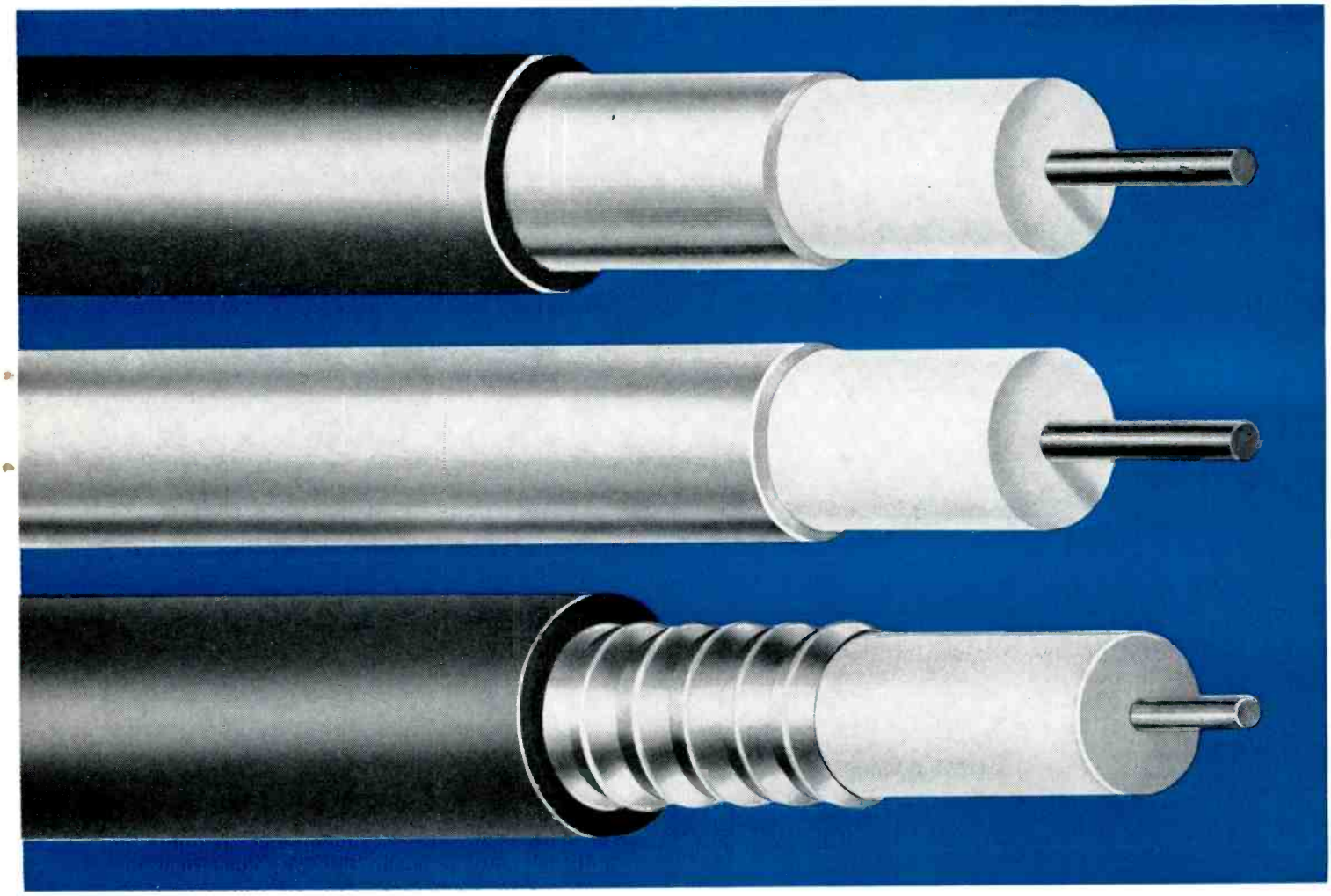

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INTERPRETING THE FCC RULES & REGULATIONS

Non-Communications Act Violations By Applicants And/Or Licensees

During the past 35 years, broadcasters, as well as all other segments of the business community, have been subjected to increasingly stringent governmental regulation. Today, an alert broadcaster must have a good working knowledge of numerous legal fields including labor laws, Internal Revenue laws, antitrust laws, false advertising, etc.

We have witnessed a great many hearings at the Commission whereby applications for (1) construction permits, (2) transfers and/or assignments, and (3) renewals have been designated for hearing on the grounds that the applicants and/or licensees had been found by a federal court to have violated laws relating to monopoly, restraint of trade, unfair competition, etc.

The Commission has not promulgated exact rules in this area; consequently, what can a licensee expect from the Commission when he (1) intentionally or (2) unintentionally violates local, state, and/or federal laws? What criteria does the Commission employ? Should there be a difference in procedure or result in any of these situations:

(a) Whether the finding of the violation is in a civil or criminal case;

(b) Whether the finding of violation is by the United States Supreme Court or some lower court;

(c) Where, after the finding of violation, a decree is entered by an appropriate court which results in the elimination of the practice which was a violation of state or federal law;

(c) Where there has been no finding of violation or no filing of suit, but the Commission is in possession of information which shows that there has been a violation of state or federal law.

In approaching these issues, the Commission is concerned with two basic considerations: (1) Under the Communications Act of 1934, as amended, licensees are required by law to operate radio stations in the public interest; (2) the Commission, in its licensing functions, is obligated to see that this legislative mandate is carried out in order to encourage the larger and more effective use of radio in the public interest. It is in the light of these requirements that the problems presented must be considered.

Section 307(a) and 310(b) of the Communications Act provide that the Commission *may* grant applications only if the public interest, convenience or necessity will be served. No intelligent appraisal of applicants in terms of this standard can be made without an examination of the basic character qualifications of these applicants, and Congress, in §308(b) of the Act, specifically gave the Commission authority and imposed upon it the duty to make such examination in evaluating applicants for broadcast facilities.

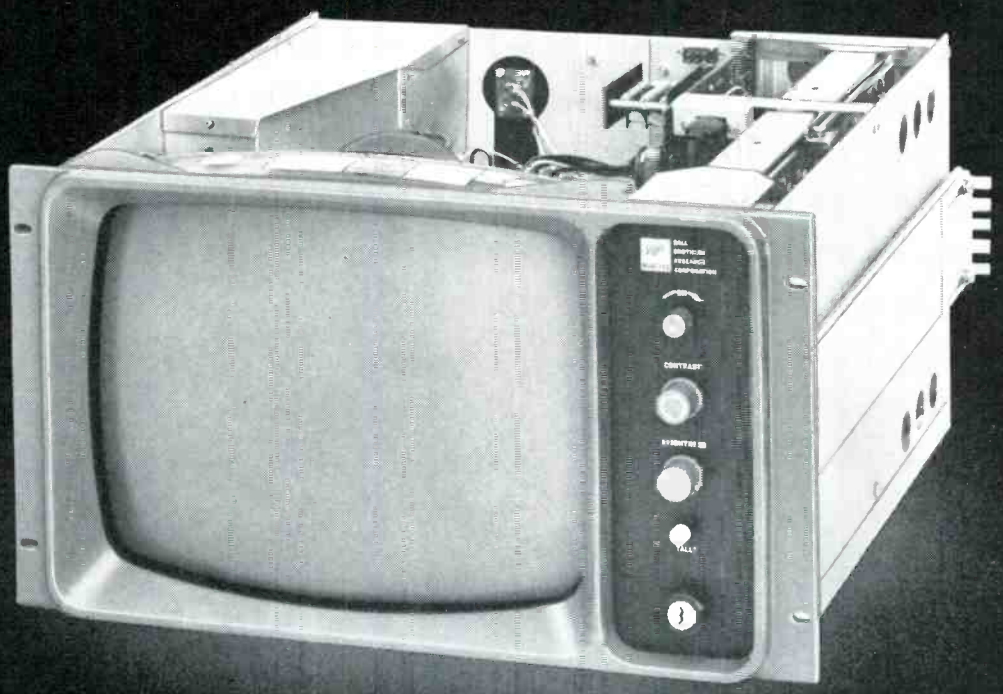
An important aspect of this examination is the conduct of the applicant. *(KFKB Broadcasting Association, Inc.* v. *Federal Radio Commission,* 44 F. 2d 670.) Obviously this does not include every phase of an applicant's behavior, but only that part which has some reasonable relationship to ability to operate a broadcast station in the public interest. As pointed out in *Mansfield Journal Co.* v. *Federal Communications Commission,* 180 F. 2d 28, 33, ". . . in determining whether a particular applicant should be permitted to operate so important and restricted a facility as a radio station . . . it is appropriate that the Commission examine pertinent aspects of the past history of the applicant."

The Commission believes a pertinent part of this history would clearly include any violation of State or Federal law. In the past, it has considered various types of unlawful conduct including violations of Internal Revenue laws, conspiracy to violate antitrust laws, false advertising and other deceptive practices, in passing upon qualifications of applicants. In this respect, the Commission has been sustained by the Courts. In *Mester, et al* v. *United States, et al,* 70 F. Supp. 118, affirmed per curian 332 U.S. 820, the U.S. District Court for the Eastern District of New York stated that the Commission might consider as one element of evaluation the applicant's flagrant disregard and violation of various U.S. government regulations designed for public protection. In *National Broadcasting Company* v. *United States,* 319 U.S. 190, 222, the Supreme Court stated that the Commission is permitted to exercise its judgment as to whether violation of the antitrust laws disqualify an applicant from operating a station in the public interest; and "might infer from the fact that the applicant had in the past tried to monopolize radio, or had engaged in unfair methods of competition, that the disposition so manifested would continue and that if it did it would make him an unfit licensee." It must be concluded, therefore, that the Commission's authority to consider violation of Federal laws, other than the Communications Act of 1934, in evaluating applicants for radio facilities is well established and that a postive duty is imposed upon it to exercise authority.

As the Courts have held, by exercising such authority the Commission is not encroaching upon the administrative and enforcement jurisdictions of other governmental agencies or the courts. Thus, in the above-mentioned National Broadcasting Company case the Commission pointed out to the Court that in adopting the network regulations it was not attempting to apply the antitrust laws as such, but was concerned only with practices violative of the antitrust laws to the

This section, providng broad interpretation of FCC rules and policies, does not substitute for competent legal counsel. Legal advice on any given problem is predicated on the particular facts of each case. Therefore, when specific problems arise, you would be well advised to consult your own legal counsel.

BBRC's New TCB-14R Gives You *More Monitor In Less Space*



Ball Brothers Research Corporation has designed a color broadcast monitor to fit EIA rack space of 10½ inches high by 19 inches wide and 18 inches deep. It has a 14-inch display. Its minimum vertical rack space greatly increases critical viewing and placement possibilities. Another thing you'll appreciate: all operating controls are front-accessible on an extendible PC card. More? Solid-state; high performance; I and Q demodulation. And more. Write for our data sheet on the TCB-14R. There's nothing else like it. Yet.

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extent that they "had a bearing upon the matters which were entrusted to the Commission." The Supreme Court expressed its approval of this interpretation. In the Mester case, *supra,* the Commission was not attempting to impose penalties for violations of laws administered by the Federal Trade Commission. However, it considered such violations along with other conduct pertinent to a determination whether the applicant had the qualifications to operate a broadcast station as required by the Communications Act.

A very recent Commission decision (March 27, 1968) concerned the application for assignment of license of station WFMT, Chicago, Illinois, from Gale Broadcasting Co., Inc., to WGN Continental FM Company (BALH-1039), a wholly owned subsidiary of a series of subsidiaries of a larger newspaper, The Tribune Company and owner of an a-m and TV station in the same market. Although this case is known in the industry because it instigated the proposed new rules limiting future a-m, fm and TV ownership in the same market to a single licensee (this subject to be discussed in a future article), the grant of the applicant is contingent upon the following language:

> The Commission noted there is pending civil action against the Chicago Tribune-New York News Syndicate, Incorporated (wholly-owned by the Tribune Company) which furnishes comic strips, columns, and specialty and variety features to 1700 daily newspapers in the United States. Grant of the WEMT (fm) assignment application was made without prejudice to such further action as the Commission may deem appropriate as a result of the pending civil antitrust suit, *United States of America v. Chicago Tribune-New York News Syndicate, Incorporated,* Civil No. 4596, U.S. District Court for the Southern District of New York, filed Nov. 21, 1967.

The contention has been made by many parties that no blanket policy should be adopted by the FCC which would absolutely disqualify applicants for radio facilities where they are found to have violated a federal law or which would attempt to specify the exact weight or significance to be given by the Commission to such violations. Such evaluations should be made only on a case-to-case basis in the light of the specific facts involved in and related to the violation, and the Commission has agreed with this argument. As mentioned above, the Commission must be satisfied that an applicant has the requisite qualifications to assure that public interest will be served by a grant of his applicant. This determination cannot be made on the basis of isolated facts but should include a careful, critical analysis of all pertinent conduct of the applicant. It believes that if an applicant is or has been involved in unlawful practices, an analysis of the substance of these practices must be made to determine their relevance and weight as regards the ability of the applicant to use the requested authorization in the public interest. It does not believe that the outcome of this determination should be prejudged by the adoption of any general rule forbidding any grant in all cases where unlawful conduct of any kind or degree can be shown. Nor does it believe that any rule could adequately prescribe what type of conduct may be considered of such

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IVC

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NTSC-type color
for $12,600.

Designed for complete flexibility, the IVC-100 can be used as a self-contained color camera or with external components.

Check these options:

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An optional **CCTV Junction Box** permits complete intercom system and allows remote operation of the recorder through a control panel on the camera. For more sophisticated systems a **Camera Remote Control Panel** and **Studio Junction Box** are offered that provide for control room operation of multiple cameras and for use of external encoder and sync generator.

RGB System
RGB outputs are provided which bypass the encoder and feed separate red, green, blue and sync signals from the camera directly to the RGB-type monitors, providing superior color pictures.

The IVC-100 is available in a film chain version.

Basic camera is supplied complete with image tubes; 6:1 zoom lens; focus, zoom, and iris controls extended to rear of camera; and 25 foot power and video cable.

All solid state circuits (except image tubes and nuvistor preamplifiers).

Sync sweep panel opens 90 degrees allowing all registration controls to face operator, has fewer internal adjustment controls than any other professional quality color television camera.

Viewfinder with switcher permits viewing of red, green, blue or luminance signal.

Second tally light at viewfinder for operator convenience.

Electronically regulated supply voltages assure excellent stability.

Extremely stable sweep circuits eliminate registration problems.

All video outputs source-terminated.

Minimum hueshift across frame and minimum sensitivity to color shift with polarization.

Camera measures 10" W x 12" H x 28" L, weighs 67 pounds.

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a nature that in all cases it would be contrary to the public interest to grant a license.

While the Commission has determined that no blanket policy should be enunciated, in view of the apparent confusion which has existed with respect to the subject, and the concern expressed by those interests have been or may be affected in the future, the Commission has set forth what it believes is the correct approach for properly determining on a case-to-case basis the weight to be given violations of State or Federal law other than the Communications Act. By so doing, the Commission has not instituted a "trick substitute" for the exercise of administrative discretion. There is no easy formula or slide rule which can be used to give the answer to every such case that comes before it. However, as discussed in the following paragraphs, the FCC has stated a general policy or philosophy that it employs.

Commission Criteria Analyzed

Many have argued that the violation of a U.S. or State law raises no presumption adverse to an applicant. With this point of view, the Commission disagrees. Violations of Federal laws, whether deliberate or inadvertent, raise sufficient question regarding character to merit further examination. While this question as to character may be overcome by countervailing circumstances, nevertheless, in every case, the Commission must view with concern the unlawful conduct of any applicant who is seeking authority to operate broadcast facilities as a trustee for the public. This is not to say that a single violation of a State or Federal law or even a number of them necessarily makes the offender ineligible for a grant. There may be facts which are in extenuation of the violation of law; or, there may be other favorable facts and considerations that outweigh the record of unlawful conduct and qualify the applicant to operate a station in the public interest. *In all such cases, a matter of prime concern is whether the violation was committed inadvertently or willfully. Innocent violations are not as serious as deliberate ones.*

Another matter of importance is whether the infraction of law is an isolated instance or whether there have been recurring offenses which establish a definite pattern of misbehavior. A single transgression of law, particularly if inadvertently committed, might raise little question with respect to qualifications; however, a continuing and callous disregard for laws may justify the conclusion that the applicant cannot be expected in the future to demonstrate a responsible attitude toward his obligations as a broadcast licensee. In this connection, the matter of time is important. There necessarily must be more concern with recent violations than with those which occurred in the remote past and have been followed by a long period of consistent adherence to law and exemplary conduct on the part of the applicant. Cases which must be viewed with most critical scrutiny are those where the applicant has been involved in violations over a long period of time or is presently engaged in illegal practices. In all such cases a strong presumption of ineligibility is raised and a heavy burden of proof is imposed on the applicant to show he is qualified to operate a broadcast station in the public interest.

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It is irrelevant to a determination of qualifications whether the finding of violation is in a civil or criminal case. In either case it is the conduct of the applicant and not the type of suit brought that is important. As pointed out by the Department of Justice in a Memorandum, "while the bringing of a criminal case may sometime indicate a more flagrant and willful disregard of the antitrust laws than does the filing of a civil complaint, so many factors enter into determination of the type of action to be brought that whether the suit was civil or criminal has little relationship to the question whether the defendant's acts were in deliberate disregard of the antitrust laws or whether his violation was flagrant or persistent."

Futhermore, *it is not the particular tribunal which makes the finding, but the finality of the decree which is significant.* There is no logical basis for giving greater evidentiary weight in character determination to a final decree of the higher court than to that of a lower court from which no appeal was taken.

The question is presented as to *what significance should be given to the fact that a suit alleging a violation of law has been filed against an applicant or where the Commission is in possession of facts showing that the applicant has violated the law but where there has been no final adjudication by an appropriate authority.* The fact that suit has been instituted is not the important consideration. The question raised and facts involved, however, may be of concern to the Commission. As hereinafter pointed out, the Commission has the authority to examine pertinent aspects of the past history of an applicant and this history, of course, includes any violation of State or Federal law. Even though no suit alleging illegal conduct has been filed, or if one has been filed but has not been heard or finally adjudicated, the Commission may consider and evaluate the conduct of an applicant in so far as it may relate to matters entrusted to the FCC.

Violations of antitrust laws have been the principal basis for the FCC's concern in this area. Therefore, such violations are discussed below.

Congressional concern with free competition in the broadcasting field is evident in the very explicit and specific provisions of §§313 and 314 making the antitrust laws applicable to broadcasting. This concern is amplified in the legislative history of these provisions. As the Supreme Court pointed out in *Federal Communications Commission v. Pottsville Broadcasting Co.*, 309 U.S. 134, 137, Congress in setting up the Communications Act of 1934 "moved under the spur of a widespread fear that in the absence of governmental control the public interest might be subordinated to monopolistic domination in the broadcasting field." As the Supreme Court further pointed out in *Federal Communications Commission* v. *Sanders Brothers Radio Station*, 309 U.S. 470, 478 (1940) "the Act recognizes that the field of broadcasting is one of free competition." In that case the Court held that the Act "expressly negatives" the idea of monopoly in the broadcasting field. It is clear from the legislative history of the Act and from various provisions therein that Congress conceived as one of the Commission's major functions the preservation of competition in the broadcasting field and the protection

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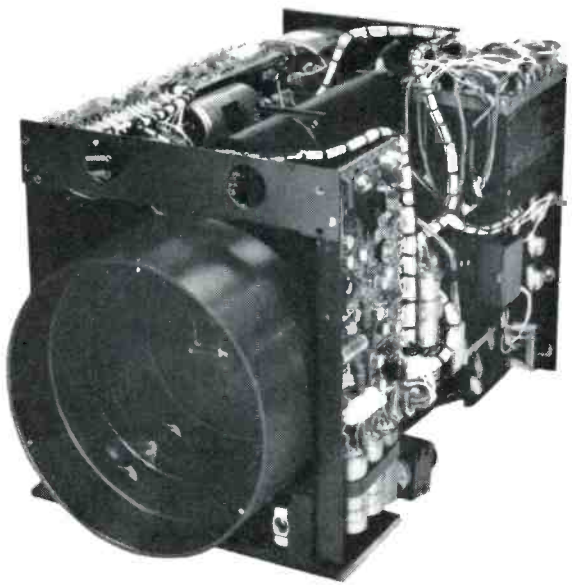

If you own a Varotal V TV lens, we want you to keep it

It now can be adapted to fit most any camera you might plan to buy

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Good news. It will. For, in addition to all monochrome cameras and RCA color cameras, our Varotal V can be modified to fit General Electric, Norelco, Sarkes-Tarzian and Marconi color cameras. Virtually all 2-tube, 3-tube and 4-tube color cameras. Image Orthicon, Plumbicon and Vidicon formats.

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of the public as against the private interest.

It has been argued that there is no need or basis for the Commission to disqualify applicants because they have been involved in violations of the antitrust laws since the Commission has the means of preventing the growth of monopolistic practices. Thus, it is contended that if the Commission effectively enforces the duopoly and multiple ownership rules there can be no real danger of a monopoly developing in the broadcasting field. This argument misses the point. While it is true that enforcement of the Commission's multiple ownership rules can prevent any applicant from acquiring an excessive number of stations, there are many other monopolistic practices against which there are no rules. And, while in the course of time and where such practices are discovered, the Commission can adopt rules which might prevent recurrence of these monopolistic practices, the fact remains that such practices might exist for a long period of time before they are discovered or corrected. During this period, the existence of these restrictive practices can prevent the maximum development of broadcasting not only for that period but also for the future. It is well known that once certain practices develop, it is exceedingly difficult in applying corrective measures to restore the situation to the same healthy conditions that would have prevailed had not the restrictive conditions been permitted to arise. Thus, it is important that only those persons should be licensed who can be relied upon to operate in the public interest. When passing upon applications of persons who have engaged in monopolistic practices in other industries, the Commission must be concerned as to whether such person would also engage in monopolistic practices in broadcasting. Their conduct in other fields is obviously a matter which the Commission must consider in determining whether they possess the requisite qualifications of a licensee.

While the preceding discussion has emphasized the antitrust aspects of the Commission's concern in this area, broadcasters should not minimize the reflections that would be cast upon their qualifications if other areas of State or Federal laws were violated. For example, the tremendous growth of federal and state regulation in the field of labor law should be carefully watched. Reported convictions by State employment agencies or the NLRB as to unfair and/or discriminatory hiring and employment practices would be a serious matter in the eyes of the Commission. The same pitfalls are found in many other areas.

How does a licensee avoid Commission sanction in this area. Obviously, he should not violate the law. However, there are many instances where the law is inadvertently violated. How does a broadcaster protect himself in this instance? Prepare a complete memorandum about the violation. Retain all written correspondence, and set down all oral conservations pertaining thereto in writing to be inserted in the file. Also, all legal papers concerning a hearing or case in court should be retained. Consequently, if questions from the Commission should arise immediately or years later, you will have a complete file to extract the necessary information so that the Commission can be satisfied as to *the licensee's intentions as well as the nature of the violation.*

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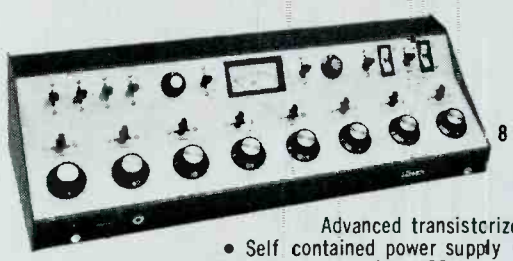

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Advanced transistcrized design • Self contained power supply • Monitor & cue amplifiers • Accommodates 22 separate inputs.

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Each deck module is independent from the others with separate direct drive/capstan drive transport • Monaural and stereo models. • 19" rack or custom cabinet mounting.

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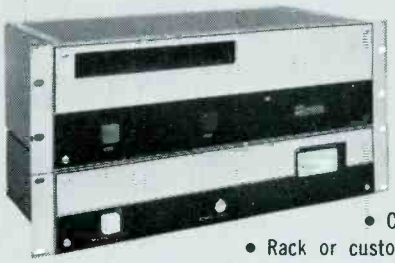
Modestly priced, but offers a wide range of features usually found only in larger consoles • Speaker muting • Self contained monitor/ cue speaker system • 14 audio inputs



300C SERIES CARTRIDGE SYSTEM

Solid state plug-in electronics • Super silent operation • Continuous duty rated • Rack or custom cabinet mounting.

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Ultra flexible • Completely transistorized 5 channel • 9 stereo inputs incl. mic. turntable & aux. sources. All channel cue system.

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Ultra modern design with advanced transistorized circuitry • Direct motor/ capstan drive transport • Plays any size endless loop NAB tape cartridge.

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Heavy duty professional quality • Positive 3 speed lever control.
12" & 16" models.
• Choice of motors.
Instant acceleration.

CD-15 CARTRIDGE TIME DELAY UNIT

Unique device for censorship of live programming • Delays 3 sec. to 31 minutes • Also produces "echo" and reverberation effects.

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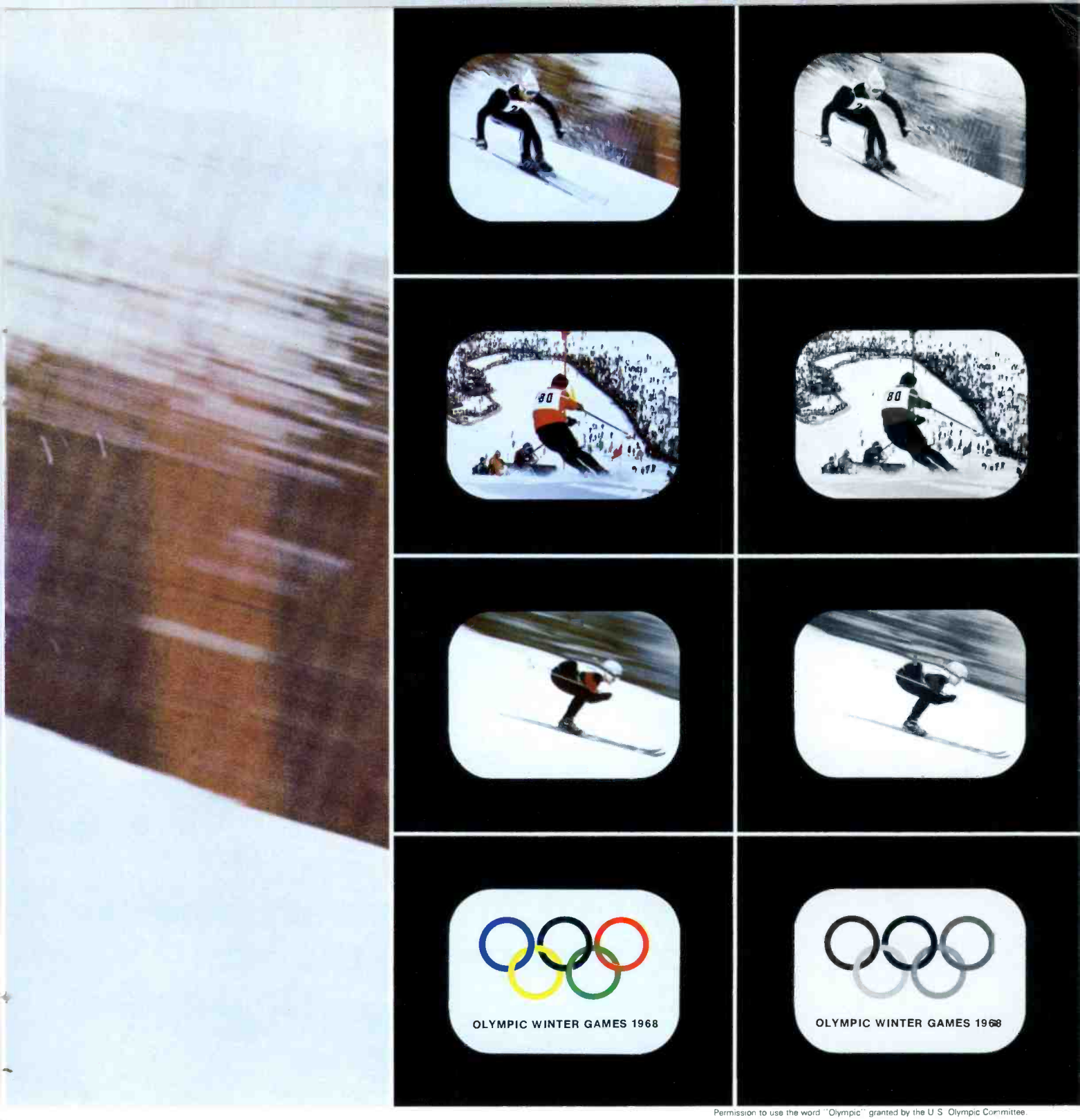

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the tape must not fail.

Some things don't happen twice.

And if you don't record it the first time, you don't record it at all.

Take, for example, the Olympic games at Grenoble.

When a champion comes charging to the finish, he creates a dazzling moment that can never be recreated.

Except on something like tape.

Wouldn't it be a shame to miss it with tape that couldn't handle the video or the sound?

That's why we designed 78V as carefully as we did. It captures once-in-a-lifetime events the second they happen. Faithfully.

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If station operators got together and designed their own special effects unit, it would probably look and perform like the VG 2100—with operator-oriented design features like these: color matting with single joystick control of color hue and saturation throughout the full NTSC spectrum; positioner unit designed to allow smooth motion in any direction, with audio oscillator to modulate any wipe pattern; exceptional frequency response and differential phase and gain specifications.

The VG 2100 easily integrates into any existing switching system. And the price is so low for a unit of this quality that it simply cannot be met by any other manufacturer. For complete technical information, write:

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NAB

CONVENTION RECAP

Broadcasters in Ferment

It was a mixed bag at the 46th NAB Convention but five themes got most of the play:

- the immense social responsibility of broadcasters in these troubled times;
- the assaults on broadcasters from those who want more spectrum, more control, and part of the profit;
- ideas for growth in fm;
- ideas for growth in smaller markets of all media;
- new equipment ideas for smoother, more profitable operation with ever more competition.

BM/E's NAFMB and NAB Convention report is divided into five sections covering these themes.

1. Broadcasters Shape the Nation's Dialogue

The call to broadcasters to face up to the social issues of the day came from a surprise "keynote" address by President Lyndon B. Johnson. President Johnson declared ". . . the broadcast industry (has) enormous power . . . to clarify and confuse . . ." "Broadcasters shape the nation's dialogue," the President charged, and he expressed the hope the words and commentary provided by broadcasters would give real meaning to the issues of the day instead of distortion. "By your standards of what is news, you can cultivate wisdom or you can nurture misguiding passion," the President said. He called for a healing of the deep emotional division in the land, and asked that stories of quiet progress be aired along with the dramatic.

The President told broadcasters that they were the keepers of a trust and that the defense of the medium was the broadcasters' responsibility. NABers applauded when the President said the Government should not interfere in their role.

An hour later, NAB President Vincent T. Wasilewski, in his annual address to the convention, responded by asking for resumption of presidential debates in view of President Johnson's decision not to seek reelection. Wasilewski asked that Congress immediately suspend the equal time doctrine so that a broader dialogue among the major candidates might be possible. He also urged broadcasters to do more electronic journalism. "There is much more muscle than has been used," he said.

Although President Johnson made his appearance at the official Convention opening on Monday, he was not the first to stress the awesome responsibilities of broadcasters. At a pre-Convention breakfast seminar sponsored by Mark Century, Lin Broadcasting's President Fred Gray described the world as in ferment. "The four freedoms we proclaim are not simple," Gray said, "but complex." He declared that the mass media can change man and asked broadcasters to pay more attention to the needs of the community in a "judicious and responsible way." Gray also said that the plight of low income families cannot be ignored.

Fm broadcasters attending the NAFMB, held two days before NAB, were repeatedly advised to find a particular audience segment and then serve it well.

The final NAB session on Wednesday closed on a strong note of responsibility as news authorities shared their experiences with other fellow broadcasters. Commentator Edward P. Morgan, speaking last on the panel said, "Despite the fine efforts of the networks and independent stations we still dodge controversy." He cited oil-rich Oklahoma as "unable to afford carriage of NET's PBL broadcast on the one hand and unwilling to do so in any event since they were "too controversial." Morgan said he felt broadcasters were "largely to the right of center rather than in the center." He supported the idea advanced by Matt Culligan, president of Mutual Broadcasting System, that the anthropological point of view should be presented to give perspective to current events.

Broadcasters are "the most sensitive barometer of public opinion . . . since you are the public," said S. Campbell Ritchie, president of the Canadian Association of Broadcasters. He called broadcasters a new breed of thought leaders that will "frighten educators, politicians, and other present leaders just as the clergy was frightened when the printing press came into being." Ritchie told broadcasters to use this sensitivity confidently and constructively in the interests of the broadcast community.

From a slightly different tack, Rev. John M. Culkin, S.J., of Fordham University, told educators their responsibility was to train " a discriminating and intelligent" television audience. Father Culkin said the media can't be much better than its audience. His remarks were made to the Association for Professional Broadcasting Educators meeting held prior to NAB. Had Ritchie and Father Culkin appeared on the same panel, the confrontation would have been symbolic of today's ferment. Ritchie's assumption was that audiences were "wonderfully wise and patient."

At the APBE meeting, NET's John White said news programs designed for various age groups would be prepared and shown during school hours to aid classroom learning.

Violence on TV and creation of status symbols was criticized by Dr. John S. Silber, dean of the University of Texas' college of arts and sciences. "Instead," Dr. Silber said, "television should make us insatiable for learning new approaches in race relations, and for new ways to deal with Red China.

More Free Time From Broadcasters

Broadcasters were called upon by FCC Chairman Rosel H. Hyde to offer reduced rates to political candidates to permit them to obtain the fullest possible use of the broadcast medium in bringing issues before the public. He also urged broadcasters to make greater and more effective use of free time in political contests by consulting and cooperating with area-wide groups to provide the most effective coverage possible. "Broadcasters have the capacity to extend and broaden the community of interest to the individual," Hyde said. He urged broadcasters to take up the challenge of the report of the National Advisory Committee on Civil Disorders to cover more adequately the causes and consequences of civil disorders and underlying problems.

Stockton Helffich, Code Authority director of the National Association of Broadcasters, told radio and television broadcasters, "We can organize ourselves so that our self-regulatory effort offers a better service to the audience, to the advertiser and to the broadcast industry." He said the audience is best served "by program standards which are expansive rather than inhibiting; which give latitude to the changing needs of our times."

The mass media was urged by Sam Zagoria, a member of the National Labor Relations Board, to broaden its coverage of labor news from items about unions and union leadership to include the day-to day problems of working people. Noting that 95 percent of the people in ghetto areas have TV sets and average six hours a day watching them, Zagoria said, "If only a small percent of this tremendous audience views a program, isn't this a marvelous opportunity to excite interest in how people make a living, how they cope with the problems of finding a job, learning skills, progressing and prospering in a workplace where constant change is inevitable?

"Shouldn't there be," he continued, "reflection of the problem of the industrialist in training ghetto youth, the problems of the working wife or the 'moonlighting' father?"

2. Assaults Alarm Broadcasters

"We are facing a confluence of developments and pressures that could radically change our system (of broadcasting)," NAB President Vincent T. Wasilewski told those attending the Management luncheon, the first day. Threats include direct satellite-to-home broadcasting and common-carrier wire system.

"We cannot be nay-sayers accepting no change," Wasilewski said, ". . . but we must not allow the proven values of the past to be abandoned for the glittering possibilities of the future. Progress, yes—but not at any price."

Four fixed principles from which to evaluate alternatives were offered by the NAB president:

1. Broadcasting must be free of program controls by government or any organized group. We are part of the free press. We will accept no censorship. We will bow to no intimidations. . . . Broadcast programming should be responsive to public desires, never to a determination by someone of what is good for the public.
2. Broadcasting must continue to be decentralized and multivoiced. Our present system assures that there will be strong, competitive broadcast entities of various kinds and sizes to serve public needs and tastes.
3. Broadcasting must continue to be . . . a free service available to all.
4. Broadcasting must combine local and national elements to provide full and balanced service.

Other threats to broadcasting enumerated by Wasilewski included the possible requirement to pay additional copyright fees to recording companies, musicians and actors; the FCC proposal to forbid the licensee of one station in a market from acquiring another—a-m, fm or TV; public broadcasting; CATV; American Bar Association curbs on broadcasting; and the FCC's fairness doctrine.

The position taken by Wasilewski on these issues is:

- Satellite-to-home and a national wired system would reduce local programming, damaging, if not destroying, local stations.
- Fees to recording artists would be an unjustified third payment on top of recording fees and royalties.
- One station per market—unnecessary. Already ample competition. Evils can be handled on case-by-case basis.
- CATV—OK, if it delivers broadcasting services to underserviced areas. No, if it displaces local programming, or becomes pay-TV.
- Public broadcasting—OK, if kept free of government control.
- Curbs on broadcasting—the ABA is attempting to isolate the people from a public process.
- Fairness doctrine—It smothers initiative and discourages debate. When it covers advertising, it is specious and capricious.

The threat of the "wired city" was underscored by John F. Dille, Jr., as chairman of NAB's Future of Television Committee. Dille said the advocate of wired cities were powerful coalitions including those seeking more spectrum space for local mobile use, large CATV interests and intellectuals who sought multichannel capability as a means of getting more and allegedly better programming. The extra channels are also offered as a means for shopping by wire. Although the advocates of the wired city approach admit the cost of such wiring could run $60 per home, they claim saving by eliminating receiving antennas, high-power transmitters, towers, etc., and by reducing the cost of tuners of TV sets. Dille reported NAB will form a war chest to battle for the great free system developed by broadcasters.

3. Fm: Radio with a Quality Sound and a Quality Audience

Typical NAFMB discussion group led by Pollinger and Sacks.

Fm broadcasters no longer hide behind Brahms and Beethoven[1] as their contribution to program variety and diversification. The group known as SPPFMCWM, The Society for the Preservation and Promotion of Frequency Modulation Come What May, is dying.[2] To cover up the past is today's mood.

Suddenly fm is *radio,* but quality radio. Its audience is rivaling that of a-m in some markets. Six hundred fm-ers are stereocasting but licensees are no longer stereotyped as eggheads or longhairs. In fact, last year's RADAR, Radio All Dimension Audience Research, and BRI Brand Rating Index, research slays a number of myths, which if they ever were true, were true of old fm only.

Joshua J. Mayberry, director of Research, ABC Network, who presented the data, declared that for the first time fm has a foundation of acceptable research upon which

1. Congressman Lionel Van Deerling.
2. Edwin D. Gimzek.

it can attract national, regional and local advertisers.

RADAR's studies, conservative because they are a year old, showed the following:

For an average quarter hour, 2,-148,000 adults 18+ listened to fm (total population 125,100,000). A-m's coverage for a quarter hour was 14,464,000. Fm had 15 percent of a-m's audience. The average fm listener spends seven hours and 20 minutes weekly with the medium.

In terms of cume (i.e., unduplicated) listening, 32-million different adults listen to fm during a seven-day 6 A.M. to 12 midnight period. Total radio listeners (a-m and fm) number 118-million. Unduplicated fm radio audience is 27 percent as great as unduplicated audience of all radio.

A surprise over prime time was turned up by the research. The 9 P.M. to 4 P.M. quarter hours with 2.5-million listeners rates higher than the evening periods which average 1.5-million. The morning and afternoon drive periods are strong, 2.3-million and 2.4-million respectively. Nighttime fm does make more inroads on a-m listenership—21 percent of all adults, 25 percent 18 to 49 group.

The audience distribution of adults listening to fm, on a percentage basis, is higher than all of total radio. Mayberry reports that for the 18+ age group fm is 7 percent above average in its pull compared to 2 percent total radio. Specifically for the 18 to 49 adult group, fm is 17 percent above norm, while total radio is 7 percent. Conclusion: fm audience is more adult.

Product usage data disclosed by Mayberry showed more revealing characteristics about the fm audience.

Toilet soap: 13 percent more fm homemakers fall in a high usage category (7 or more bars per month) than the average. Conclusion: fm homes have large families.

Soft drinks: 26 percent more fm homemakers drink one or more glasses of diet drinks and 7 percent more of regular soft drinks than the average. Conclusion: fm homemakers indulge in the "good life."

Wine: Fm men are 44 percent higher than the average in use of domestic wine and 80 percent higher in consumption of foreign wines. Conclusion: fm listeners pay a premium for products they want.

Automobiles: More fm listeners are above average in ownership of high-priced cars—48 percent. As the price gets lower, the fm listener gets closer to the average and falls below average for compacts.

Cars in household: Fm men are 28 percent above average in ownership of two or more cars. On nonownership they fall 52 percent below the national average. They also buy new cars rather than used cars and drive considerably more miles. Fm listeners are way ahead on gasoline consumption of 30 or more (19 percent) and 40 or more (23 percent) gallons a month.

Other conclusions: Fm households use more soap for baby clothes, more soap for automatic dishwashers, more soap for fine fabrics; possess more credit cards; take more air trips; more trips to foreign countries; do more car renting. Mayberry said he expected product usage data and RADAR to become available on a continuing syndicated basis.

Armed with these data as well as local station research, how can fm-ers sell more? The NAFMB convention agenda was devoted to just that. Here are some of the answers:

Selling

Today's media selection is changing from one of mass reach to one that dictates which plan will give the least waste, thereby securing the best frequency against key prospects. Don't tell us how you potentially reach everyone. Reaching for everyone is reaching for trouble. Rather show us how we can do a job against the prospect who is about to buy the product . . . newspaper advertising effectiveness is decreasing . . . although 90 percent of our company's $5-million of advertising went into newspapers last year; radio is the fastest growing media . . . if you have a target market and research to show demographics, sell us.—*R.B. Schlesinger, Carson, Pirie Scott & Co., Chicago.*

The future of fm lies in the small market . . . for a small agency things have got to work the first time . . . there is no second chance . . . the commercials must work—ring the cash register . . . don't lean on demographics. Numbers can't replace action . . . the baker, the dry cleaner and the pizza parlor are your best source of revenue . . . show me how—with selective buying—I can generate more business for less money . . . high cost per thousand is no problem. Present an action oriented proposal which demonstrates how the personality plan will fit the personality of the proposed client and the kind of people who are likely to do business with him.—*Edwin D. Gimzek, OAC Advertising, Inc., Binghampton, N.Y.*

If an agency won't listen, or understand (and most media buyers apparently do not understand fm), sell the client directly.—*Concensus of fm broadcasters participating in group discussions.*

Become marketing conscious . . . run promotion seminars for merchants in your area . . . promote your own station . . . recognize how you can help a client . . . kill the image that you are chamber music—you're pop and contemporary, sports and news . . . selling means more than offering a schedule.—*Lee Walters, Stern, Walters and Simmons, Chicago.*

Fm has changed but our image hasn't—too many people think we're reaching minority audiences . . . Fm-ers reach a selective audience depending on selective and creative programming which has a lot of good ideas strung together . . . once you've chosen a format stick to it and promote it like crazy.—*Don LeBrecht, WBT-FM, Charlotte, N.C.*

Three ingredients that go into sales presentation . . . put the Y.O.U. in your presentations. Individuals pay attention when they personally are mentioned . . . tell everything three times—state your message, explain it, sum it up . . . put in some surprise factor that will be remembered.—*Paul Martin, Triangle Stations.*

Programming

Maintain consistency in programming—check and control it . . . image—keep it simple and straightforward . . . uniqueness—be different, but if you are copying, do it better. Interest—you must maintain an air of enthusiasm on

FCC Commissioners Boost Fm

FCC Commissioner, Lee Loevinger, predicted fm radio will emerge as a separate and independent broadcast service because of its "efficiency, audio superiority and dependability of transmission," in a talk given before members of the National Association of FM Broadcasters March 30 at the Palmer House.

Loevinger said that in Europe fm is the predominant radio medium. In Italy, he said there are now 1500 fm stations compared to 750 a-m stations. Sweden's entire population is covered by fm stations with a total of 166 fm stations and 77 a-m stations. France has 146 fm stations and 104 a-m stations.

Loevinger said that although there were still many frequency assignments available to fm stations, there are still only about 500 fm stations operating outside large metropolitan areas.

He predicted that a new FCC ruling will allow fm stations to be completely automated.

Speaking a day later at the NAB Convention, Commissioner Robert E. Lee reminded fm broadcasters that while their medium is radio it is different from a-m and "it is this difference that makes it worthwhile."

the part of your staff . . . Common sense—your program must appeal to your audience's taste; programming should not be done for your staff's pleasure.—*Martin Taylor, Kaiser fm stations WJIB, Boston; WFOG, San Francisco.*

For effective promotion through your own station try Radio 97 (rather than 97 MHz) as an id . . . cross promote programs . . . build consistent station image—plan promotions well ahead of time . . . promote group tours —*John T. Lawrence, Taft Broadcasting, Cincinnati, Ohio.*

To close your identity gap select the segment of the population that is right for your interests, character and objectives and then shape everything about the station to this segment . . . If there is room in your community, identify with a group such as the educated and affluent laboring segment; women of responsibility and intelligence; youth; libertarian-oriented adults who feel the hopes for the future is maximum permissiveness or discipline-oriented adults who feel we must regain recognition of individual repsonsibilities if we are to avoid destruction of our civilization . . . work constantly to associate the station in the minds of the public and the advertising fraternity with your specific purpose and specific identity . . . you attracted people who are not satisfied with mediocrity and air pollution . . . know and sense how your audience feels and will react to whatever you do. —*Philip Lesly, The Philip Lesly Corp.*

4. Ideas for Small Market Broadcasters

Panelist Gary Gielow, KPEN, San Francisco, appearing on the Operation Go presentation during the fm day on Sunday, reverently thanked his audience before he addressed them. Gielow said he comes to NAB to carry back new ideas and new concepts as gleaned from speakers and attendees. This year, Gielow said, he was grateful for the opportunity to share some of his ideas. On a similar note, Robert E. Thomas, WJAG, Norfolk, Nebraska, on the small market radio panel, asked for a selective exchange among noncompetitors of program, promotional and innovate operational ideas. What follows are a collection of ideas as gleaned from the many presentations.

Idea: Invest in people. That's Gielow's answer to success. As an fm only station since 1957, KPEN has done well. It's fifth in ARB ratings (in a field of 40) and is number one on Sunday. KPEN was first to go stereo, first to use dual polarization and first to show in rating standings. When you're competitive with well-staffed a-m's, you don't skimp on people, (salesman, talent and engineers) and you put out a quality signal, Gielow said. KPEN programs middle-of-the-road with three interruptions per hour. News is given every hour on the hour. Not enough time can be spent on programming in Gielow's book, and engineers who can get the best out of the system are a necessity. To do otherwise is to shortchange the listeners. Since you've created the world's greatest radio station, promote it, said Gielow.

Idea: To improve ratings, Marshall Pengra, KLTV (TV), Tyler, Texas, urged secondary market broadcasters to "involve your viewers with as many special programs as possible, including weather, news, interviews, city commission discussions" and to use "as many local names and places as possible" in news broadcasts. Pengra said that reading listeners' letters, both complimentary and uncomplimentary, over the air, is a good way to achieve community involvement. And he urged that stations editorialize.

Idea: To meet FCC requirements that licensees know community needs and provide programming to meet these needs, Thomas L. Young, KWWL-TV, Waterloo, Iowa, holds public service clinics. Clinics are held in both Watherloo and surrounding towns in which civic and community leaders are given information on how to supply material for local news items and public service announcements. In return, those registering for these clinics provide suggestions and ideas to the station.

Idea: "If you're doing what is good for the community, you can't go too far wrong" even if you have opposition. This is the view of Allan Land, WHIZ-TV, Zanesville, Ohio, who told how his station editorially supported a city income tax over considerable opposition. The tax was approved in a referendum. In secondary market TV stations, he continued, the personnel involved in editorializing should be the "top people."

Idea: To get regional and national advertisers to recognize secondary markets, competing stations should work together, advised Ray Johnson, KMED-TV, Medford, Oregon. The objective is to acquaint advertisers with the market because advertisers must become interested in the market before considering media within it. Johnson said an annual three-day food fair as a community event was a way to build advertising revenue.

Idea: Build a separate identity for your fm station if you own both an a-m and fm outlet, advised Charles F. Boman of WLJM (fm) and WJBY (a-m). In announcing a new fm station, emphasize that your community is going to have its fourth or fifth (or whatever number) radio station. Even though facilities are shared, the stations keep identities separate—different addresses (side street address is used for one), different statements, different microphones, even if you send only one tape recorder to an event. Although Boman uses a common sales force, no one salesman is able to call on the same account for both stations.

Idea: The small market radio broadcaster should get together with a local CATV system. "The results can spill profits all over the place!", said John W. Jacobs, president of WDUN, Gainesville, Georgia. It requires little imagination and less expense to have any one of your news programs televised, he said, "merely by putting an inexpensive closed-circuit camera in front of the radio personality doing the news." Any interview, sports commentary or talk show can similiarly be transposed live to TV.

By simulcasting, Mr. Jacobs said, a broadcaster gets more revenue for the same program. Also, he added, a radio broadcaster associated with local television takes on new prestige in his community.

Idea: Do more commercials in stereo, urged Harold I. Tanner, WLDM, Detroit. FCC Commissioner

Automation,

Yes

But When

Automatic transmitters for fm broadcasters have been possibilities for years. Why doesn't the FCC permit them? Harold L. Kassens of the FCC's Broadcast Facilities Div. says other parts of the Communications Act have to be amended first, including requirements for licensed operators, standards to guarantee proper operation and modifications that would be necessary on existing transmitters. That is why the current inquiry is out in industry. Later, in an Industry-FCC panel discussion, industry spokesmen urged the FCC to speed up the process of rule making.*

The NAB's Secondary Market Television Committee, through NAB, will petition the FCC to authorize remote control of vhf-TV transmitters. Romote control tests on uhf-TV reported by Richard Anderson, KTTV, Los Angeles, William Kelly, WNEW-TV New York and Wallace Wurz, KMBC-TV, Kansas City, Mo., were all successful.

Automation from "front door to antenna" was predicted by George H. Brown, RCA executive vice president of R&D, during an engineering luncheon address.

Automation will encompass everything "not just programming but rather the whole process—from time availabilities, to scheduling, to programming, to billing, to preparation of FCC forms, yearly statements and tax returns—will be carried on continuously from a single computer," he said.

Such a computer could be interrogated by the station rep to determine availabilities, by the network for clearances, by group station management for daily or hourly reports," Mr. Brown said.

Brown said use of integrated circuits will eventually reduce circuit costs so that all kinds of automatic self compensating circuits will be practical. The miniature ICs will reduce equipment size limited only by the size of controls needed for human operation.

As a prelude to automatic a-m operation, Ogden Prestholt of CBS described an automatic antenna monitoring system which logs phase, loop currents and current ratios of an antenna's various elements.

Automatic radio programming is here and successful according to panelists appearing in the Radio Automatic Workshop. Automation, said N. Elmo Franklin of Gates Radio, is an aid to more efficient operation. It's no panacea for poor programming and incompetent personnel. Ronald Crider, WMJR, Ft. Lauderdale, Florida, said it was less expensive to automate than to hire a full time staff to operate a 24-hour station. Danny Coulthurst of IGM and Paul C. Schafer of Schafer Electronics indicated that what will be designed is what broadcasters want. Schafer sees tremendous progress toward total automation in the near future.

Panelists of the TV Automation Workshop could report less progress. Broadcasters Dean B. Moore, CBS-TV, New York: Ted Sorrels, WMAL-TV, Washington, D.C. and Jim Wulliman, WJMJ-TV, Milwaukee, described their operations which permitted presetting of program events and automatic or semiautomatic signal switching between events. (See BM/E September 1967 for similar examples of operation.) Kenneth P. Davies of Central Dynamics reported that a successful broadcaster in Australia used automation for traffic control, automatic program log preparation, pre-event programming, actual switching and billing. (A forerunner of such a system for a U.S. station was displayed on the exhibit floor by Central Dynamics.)

A building block approach to automation is being taken by AMP, Inc., said B. van Benthem, so that a station can start and then add pieces later. A general purpose computer can fit into this concept, he said. Jim Moneyhun, Sarkes Tarzian, said automation should be an integral part of station control and not an appendage. People are an integral part of the operation. Automation should reduce psychological stress on operators and improve the on-air look.

*See Editorial on broadcasters' role in changing rules for more automatic operations.

FCC's Harold Kassens, one of NAB's "permanent" speakers, addresses gathering of broadcasters.

Robert Lee suggested as a gimmick on talk-back shows that stereo broadcasters put incoming phone calls on one channel, the host on another.

Idea: Become more interested in fresh sounds, urged commercial producer Hugh Hiller of Hiller Corp., Hollywood, California. Research ideas such as electronic sound and then make careful use of all entertainment devices. Fresh sounds are needed to attract attention. The trend is towards wilder mixtures of audio techniques.

Idea: Go high power with your fm, go 24 hours a day. Believe in fm. Sell stereo. That's the advice of Hugh Dickie, WTMB, Tomah, Wisconsin. Promote special events. You can sell all sports programs to a booster's club. Special events, openings, are money makers. Dickie has taken in $1200 for one-day promotions. "Nobody answers the phone at our station without trying to sell," he said.

Idea: Top station management should spend more time with his news director than with his sales manager, says Jack Harris, president, KPRC-TV, Houston, Texas.

Idea: Increase your rates to charge what air time is more nearly worth, advises Jerrell A. Shepard, KWIX, Moberly, Missouri. You can increase rates after you've established a foundation; create listeners, create a belief in advertising and create more strength and stature in the community and area. KWIX bills $325,000 in a city of 13,000 which was expanded to include 80,000 in six counties. Spots were decreased to 30 seconds to work more in. Shepard urges listeners to call in news. The telephone bill was $1500 a month, but is a key to KWIX's success, says Shepard.

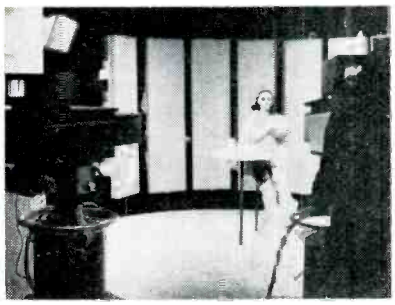
5. Wrapup: NAB Exhibits

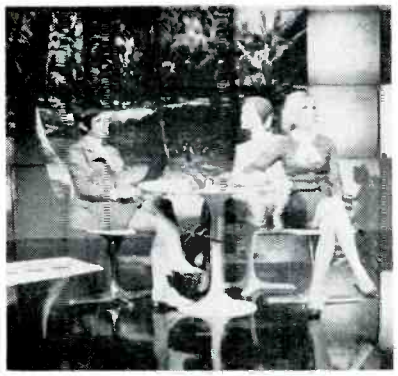
President Johnson's surprise appearance at the NAB, if anything, heightened the already heady excitement at the show. On opening day alone (Sunday), Ampex officials who had worried about their "bad" location in the Normandie Lounge ticked off an incredible 8700 visitors to their display area. And small wonder, for this was the grandest NAB ever with rampant speculation about new technological trends typified by engineering prototypes on the show floor.

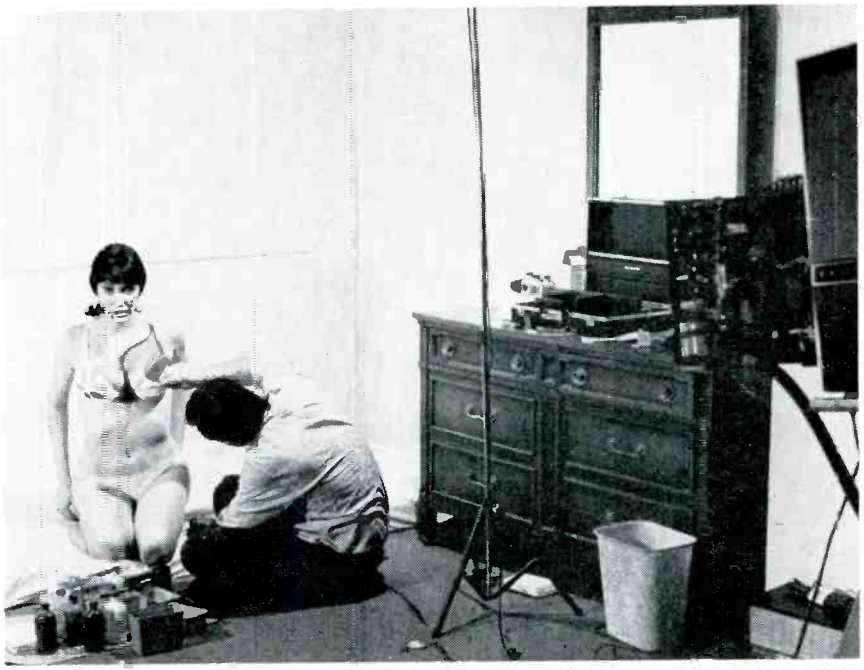
Miniaturization and mobility were keynote features of much equipment. Transistorization was almost passé being foreshadowed by integrated circuits making their debut in some gear.

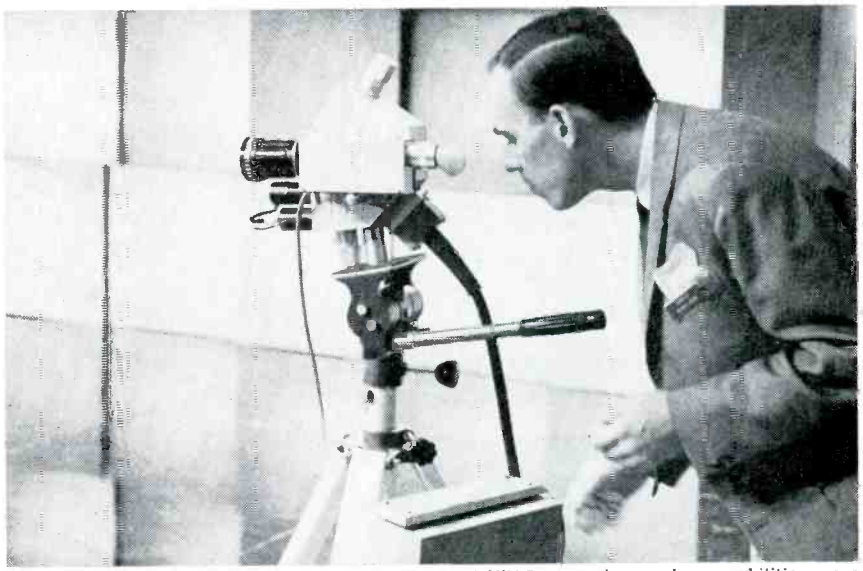
Show stoppers included:

- Two-tube color cameras from Ampex which used only two Plumbicon imaging tubes for all three pirmaries and luminence channel.
- A developmental ultraminiature (6½ lb) hand-held three-tube color camera from Philips (and the promise of one from CBS labs).
- A three-tube Plumbicon camera, the TK44A from RCA.
- A $50,000 three-tube Plumbicon camera from Shibaden.
- A large screen color TV projection system from General Electric using a



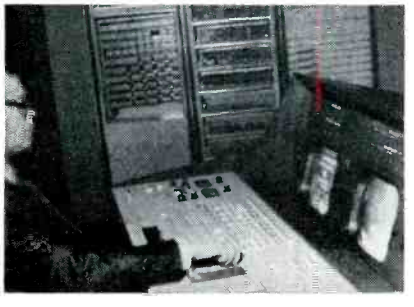






Above: Body painting sessions to show off Varotal XIV-R zoom lens color capabilities were staged by Rank Taylor Hobson's Albion Div. using GE studio camera.
Below: Weighing in a scant 6½ pounds, engineering prototype of Philips' three-Plumbicon camera gets once-over.

Left, top to bottom: New color cameras were shown to best advantage focused on bevy of beauties at the several TV theaters set up by Sarkes Tarzian, Philips Broadcast, RCA and General Electric. Featured in new cameras: streamlined size, integrated circuits, lightweight portability, extended red sensitivity, uncomplicated setup and operation.



Latest development in station automation is computer-controlled video switching. Standouts in this genre were (1 & 2) AMP, Inc.'s brand-new system, (3 & 4) Central Dynamics' switcher control and computer tape memory, and (5) the latest Sarkes Tarzian entry.

Technical Papers/Ideas

This report does not include condensation of papers given at the technical sessions since they are currently available in **"Highlights"** published by NAB and will later be available as full texts. Ideas for action **now** include:

- use of video standard level generator and other advanced instruments (Rohde and Schwarz);
- purchase of one film island multiplexer with 4 inputs and two color outputs as an alternate for two film islands (GE);
- purchase of new video processor which corrects or minimizes 10 common distortions such as hum, glitches, vertical rate tilt, noise, frequency response, and pulse timing and width (paper given by Baum of RCA; other sources available);
- use of dual or circular polarized fm transmitter antenna (paper by Onnigian of Jampro; other sources available);
- use of proper primers for painting galvanized steel towers (American Zinc Institute);
- use of two identical half-power a-m transmitters rather than a main transmitter and an emergency standby (CCA Electronics).

Special Reader Service for NAB

You can receive more information on any of the products described in this NAB roundup by circling the appropriate numbers on the Reader Service card. The numbers are the ones in parenthesis at paragraph ends in the text. Where several companies are mentioned, the numbers are in the order of the firms within the text.

new light-valve (fluid-layer) system.

- An electron beam film recorder from 3M.
- A videotape animation system for preparing commercials and other short takes from Ampex.
- A slow-motion/stop action disc recorder from Visual.
- New methods of controlling automated radio programmers—a computer (Shafer), punched card (IGM), metal control cell, MaCarTa.
- A complete automated radio station from Gates.
- Computer-controlled video switching equipment from AMP, Central Dynamics and Sarkes-Tarzian.

Color cameras again appeared to dominate the show mainly because of the race to show the smallest portable. Ampex captured top attention on Sunday by revealing that only two tubes were necessary. CBS Labs opened with a photo of a miniature three-tube camera on Sunday and put out a wooden mockup on Monday. Philips then became the center of attraction by unveiling on Tuesday its 6½ pounder using experimental ⅝ in. Plumbicons.

Gains in automated video equipment vied for top attention as working demonstrations took place at exhibits of Sarkes Tarzian, Philips, (Telecontrol switcher), AMP and Central Dynamics.

Color Cameras: Everything Else Was Secondary

The Plumbicon tube has emerged as the predominant imaging device for virtually all new color cameras, with some companies half-heartedly hiding this fact behind the mask of "lead-oxide mesh vidicons."

In unveiling its three-tube (lead-oxide vidicon) TK-44A camera, as successor to the four-tube TK-44 shown last year, RCA demonstrated what they termed "the industry's most advanced" full-size color camera. The 98-pound (less lens) star performer alternated with improved versions of the TK-42 in the RCA color theater as local lovelies posed for camera quality tests, pantomimes and fashion shows. There was no lack of spectator interest in this or any of the other color studios that were sprinkled liberally over the Convention floor. The TK-44A has been slimmed down by using integrated circuits extensively, plus a simplified optical system with a single dichroic prism instead of the usual complex mirror/filter arrangement. The new camera also features a special "comb" filter for high-frequency picture amplification without increasing video noise levels. *(205)*

The four-tube General Electric PE-350 camera offers chroma enhancement, new preamplifier lineup for better S/N ratio, and improved video processing amplifiers for better operating stability. GE also introduced a retrofit outfit for updating their PE-250 cameras to equal the new unit's performance. GE's color theater featured—in addition to the usual bevy of gorgeous gals

—a frowsy, almost middle-age housewife-type character who marveled at the "wonderful reception" on the Fernseh ($4000) color monitor and wanted to buy one for her living room. The theater's monitors were handled by a full-scale video switching control complex, which also piped in a signal from a remote-controlled color camera on the Conrad Hilton's roof. *(206)*

Sarkes Tarzian—prey to troubles getting good color pictures in previous years—surprised many visitors with their color cameras this time. Their cameramen, with an almost cavalier nonchalance, focused on very difficult reds to demonstrate the S.T. cameras' superiority. *(207)*

Pretty girls were also on abundant display in the main-floor Continental Room where the Philips studio stage featured a comely trio as co-stars to their Plumbicon cameras. Using three handmade super-small Plumbicons (⅝ in. diameter × 5 in. long), an experimental featherweight camera that registered an incredible 6½ pounds, was easily handled by one of the very pretty models. Color rendering was exceptional. The major part of the camera's electronics is stuffed into a junior-sized nine-pound backpack. With weights like this, Philips designers could easily afford to add a compartment for sandwiches and a vacuum flask of coffee. Also on display at the Philips theater were their standard three-plumbicon studio and portable cameras, equipped with new extended-red-sensitivity pick-ups. *(208)*

The two new Ampex entries—the BC-100 hand-held portable and the BC-200 studio version of the 100, which both use just two Plumbicon tubes for total color imaging, attracted plenty of attention. The studio model uses a lightweight camera cable which permits flexibility and freedom of camera movement. The camera's small size and weight are made possible by the double Plumbicon design along with widespread use of integrated circuits in the camera head. Some of the camera's electronics have been moved to the operator's backpack, while additional electronics may be located at the control or processing equipment location. Ampex engineers describe the camera's two-tube operation as "simul-sequential," with the luminance signal produced simultaneously while the three color primaries are matrixed sequentially. A special processing circuit produces a standard NTSC color output. *(209)*

Triple Plumbicons starred in Shibaden's new PMZ12C-3 camera. Its compact package size is attributed to a mirror/prism system that lines up all three Plumbicons in the same direction. Camera electronics include integrated

Typical control room console set up to show off RCA's new cartridge tape players and audio console, is sampled by visiting deejay.

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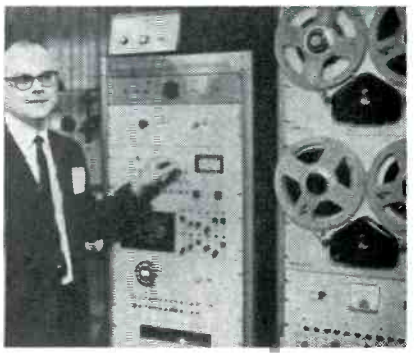
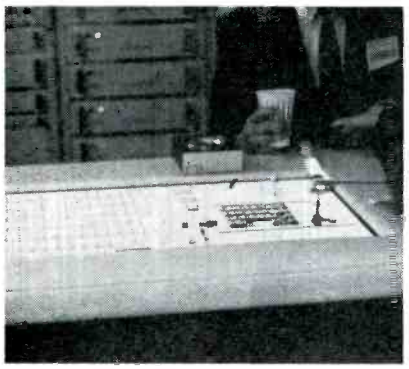
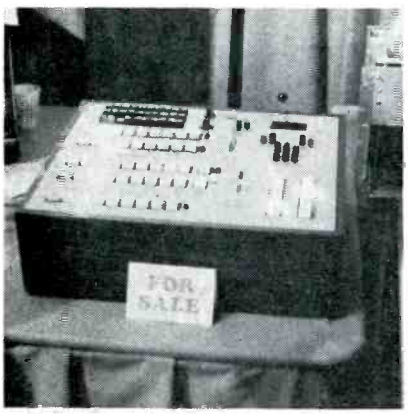
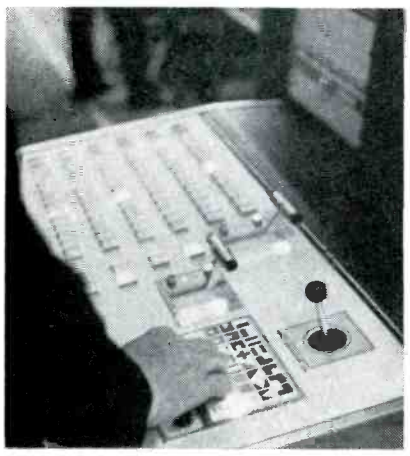


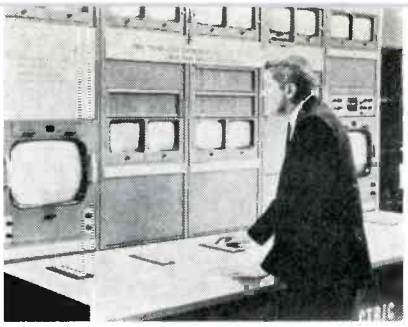
4

Radio automation gear showed up with some unusual ideas this year. These included (1) Schafer's computer-controlled system and logger; (2) MaCarTa's ventilated deck of metal cards for control functions; (3) a complete package from Gates with cartridge carousels, vertical cartridge picker and automatic logger; (4) Disan's dialable random access selector.

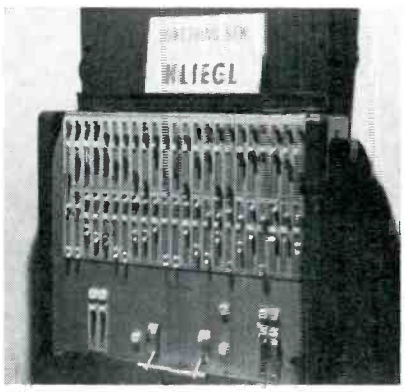








Left and above in order: Video switching and special effects equipment—set up in "try it yourself" displays—were showpieces for new sophistication and human engineering. Ball Brothers Research offered an ultra-compact special effects system that occupies practically no room at all; new from Vital was the VIX-108 high-performance switcher with integrated circuits; plug-in cards custom-tailor Alma control system and allow room for expansion; Grass Valley Group also featured modular construction in their 1400 series switcher/generator; visitor participation was invited in GE's switcher display/control setup; Richmond Hill (Riker) showed its switching and special-effects gear and invited visitors to try it out; combination panel by Ward provides effect preview and a wide range of switch-selected inputs.



Top to Bottom: Lighting equipment on exhibit: Berkey-Colortran, with a wide selection of light sources; Kliegl's all-new lighting control panel; Mole-Richardson's line including quartz focusable spots; Century's Fresnel quartz lights; Sylvania's tungsten-halogen lamps and pocket lighting guides distributed by blonde harem belle.

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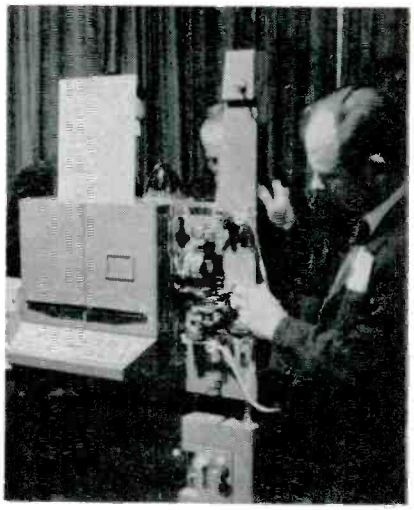
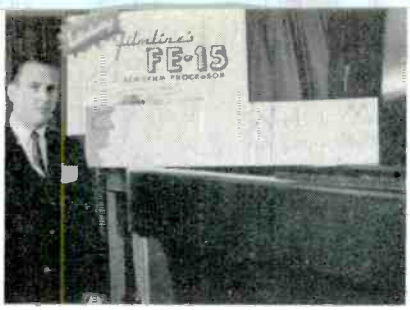
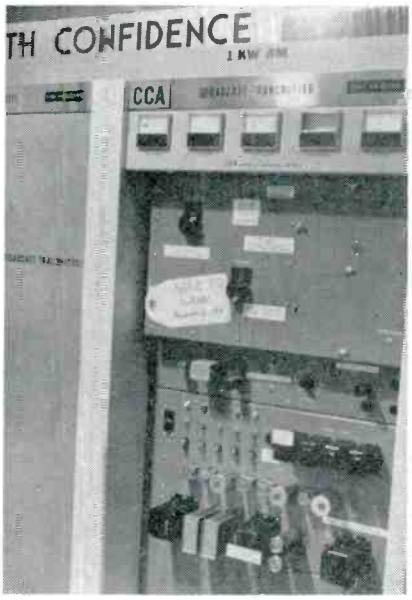
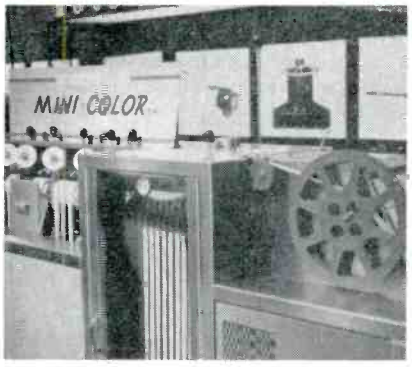
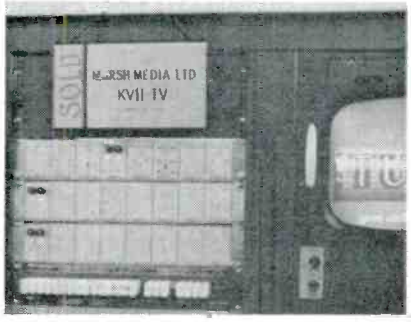


Top to bottom: Film and slide equipment's growing sophistication was evident in: Bauer (Allied Impex) automatic 16mm telecine projector; Listec's TC-501D Hokushin telecine projector; New 2X2 Selectroslide multiplexing projector by Spindler & Sauppe.

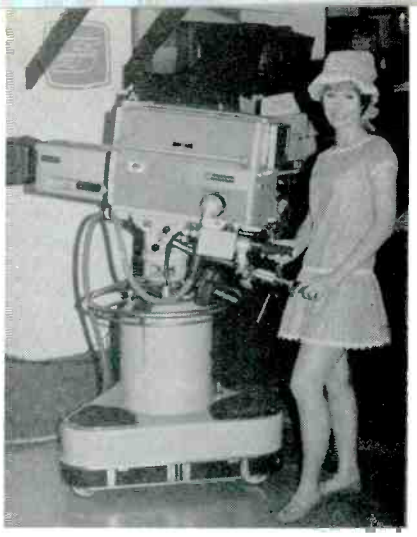


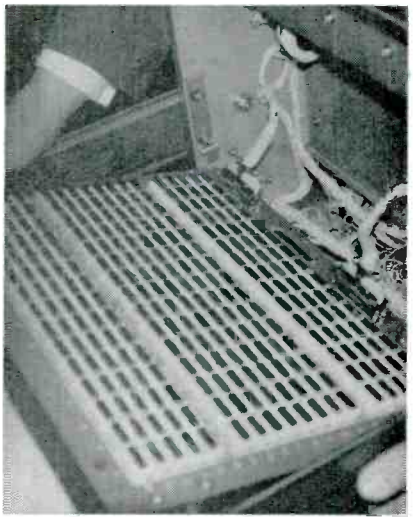






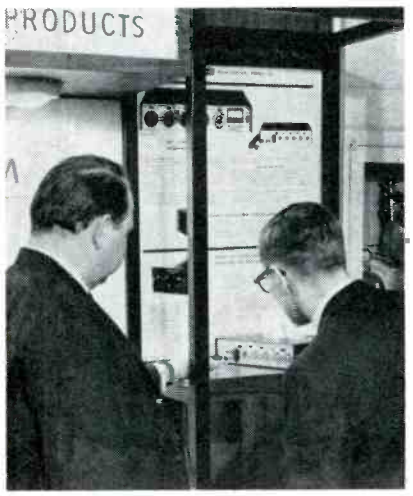
Top to bottom: "Sold" signs blossomed on such equipment as: Filmline's FE-15 newsfilm processor; CCA's 1-kW a-m transmitter; Houston Fearless color film processor; Grass Valley Group's video switcher.





Top: Shibaden's 3-tube color camera and some local scenery. **Middle and below:** Tape Editing Programmer by RCA has guts housed in compact slide-out drawer, uses 250 flat-pack integrated circuits.

NAB — '68



circuits and a red-correction circuit that compensates for any poor sensitivity to low-frequency reds. *(210)*

Another Japanese company, Nippon Columbia, released details on a frankly incredible system for color TV, using a single-vidicon camera. While this camera wasn't on display, technical information available indicated that engineering prototypes may create quite a stir in the TV industry when they're ready to be demonstrated. *(211)*

Also on hand was a new rf package from Microwave Associates, designed for wireless operation of hand-held portable color cameras. Initially designed around the Ampex BC-100, the microwave link weighs 15 pounds, and can be added to the backpack of most portable color cameras. Called the MA-85PVL, the rf packs will debut on Ampex cameras at this year's presidential nominating conventions. *(212)*

A hand-held wireless color camera by CBS Laboratories was present at the Convention in spirit only. CBS showed a photo and a wooden model of an engineering prototype of their "Minicam" three-Plumbicon camera. According to CBS, the camera provides studio quality performance, and all camera functions can be digitally controlled. Using digital control and the wireless rf package, a single base station can operate up to six such cameras. The wireless version has a battery life of two hours and can also work up to a mile from the base equipment in its wired mode with ¼-inch-diameter RG-59/U coaxial cable. *(213)*

Videotape Equipment: Portables and Discs Glitter

Quad-head studio recorders had to take a back seat to more sophisticated and special-purpose video recording equipment at this year's NAB. Oh they were there, all right—the high-band studio quads from RCA (the updated TR-70A and the all-new TR-50) and Ampex (the VR-2000 workhorse)—and they were better than ever with crisp, "near-perfect" color picture rendering. But sprinkled through the exhibits were more innocuous and more startling VTRs: high-band color in battery portables, helical units with broadcast quality, and several new editing systems.

RCA's new Tape Editing Programmer uses selective cueing so the operator can preselect splice points, preview the splices and readjust the splice points until the edited version is satisfactory. The programmer includes 250 flat-pack integrated circuits and a maze of wrap wiring. *(214)*

A highly versatile editing system was demonstrated by EECO (Electronic Engineering Co. of California) which uses any two compatible VTRs. A pair of Sony helical machines were used in the booth setup, but the editor works equally well with full-size studio quad machines. The EECO editor assigns digital indices to splice points, cueing the videotape appropriately. The editing is electronic—from tape to tape—completely eliminating cut and splice operations. *(215)*

In the Normandie Lounge, Ampex added its Videodisc with its stop/slow motion capability to the editing function. Called the HS-200, it's especially good for doing animated commercials and creating other special effects, stop motion, single-framing and short takes up to 30-seconds' duration. Like many products exhibited, the disc editor was an engineering prototype brought to the show to test broadcaster's reactions and glean suggestions. *(216)*

Ampex's VR-3000 high-band battery-powered portable backpack VTR was reintroduced this year. One of the new features added even before the first delivery has been made, is playback monitoring (in mono) to let the field cameraman know he has something on the tape. Used with the hand-held monochrome BC-300 camera, the backpack VTR makes many cameraman a walking "mobile van." The recorder/camera combination weighs in at 70 pounds. Tapes can be replayed in color on any compatible quad machine. *(217)*

Another versatile video disc was shown by Visual Electronics, along with an enormous display of TV broadcast equipment. The new disc uses a rhodium flash-coated aluminum disc with upper and lower record/playback heads. The VM-90 system is self-contained and includes monitoring and operating controls in a single cabinet. *(218)*

There were two standout helical entries at the NAB. One was the Shibaden SV-727, primarily designed for CCTV, ETV and medical applications. It can record and play back NTSC or PAL color signals with either 50- or 60-field systems. A 10-inch reel holds enough one-inch wide tape for 90 minutes' running time. *(219)*

One nonexhibitor, International Video Corp., copped some floor space with their IVC-800 helical VTR, which is being marketed by RCA. Unlike most helicals, this unit has full-circle tape wrap around the head drum, eliminating once and for all the problem of lost scanning lines. Color reproduction on the IVC-800 was demonstrably excellent, working with a 4.2 MHz (±1 dB) video bandwidth and 1-inch-wide tape. *(220)*

Video Control Systems: A Button to Push the Buttons

Program automation is fast becoming a way of life in TV broadcast stations, and understandably so; there are just too many operations to perform and too many buttons to push in bewildering sequence for any one or two human operators to handle faultlessly.

Photos top to bottom: Business end of 3M's electron beam recorder is opened to first public view.
Visual Electronics' "Videograph"
Visual's "Spotmaster" cartridge equipment
New audio mixer by Shure Bros.
Rohn's installations dot the map

Time pressures also can wreak havoc with the human and all-too-fallible control room engineer, and it's usually during a break with many short commercials that these errors are likely to crop up. Most automated programming equipment manufacturers can point to the savings in unneeded make-goods as a principal economic factor in going full automatic.

Of the new entries in the TV automation field, AMP, Inc.'s Automatic Broadcast Programmer is one of the most ambitious. At the heart of the system is an electronic digital computer that gulps paper tape or punched card with programming instructions. These inputs are further simplified by using an "English-like" language very similar to ordinary broadcasting terminology. The computer, with its 8192-word memory, can control up to 150 sequential scenes, and logs each event on a teleprinter output as it occurs. *(221)*

Central Dynamics showed the key elements of new equipment that's destined to make WRGB (Schenectady, N.Y.) the most automated TV station in the country. By using Tally Register-produced computer equipment, identical data inputs can prepare the program log and preset the video switcher for automatic operation. *(222)*

Designed as an add-on control unit for already existing systems, Telecontrol's "Unicon" can handle up to 100 video sources while coordinating them with the proper mixture of audio material. The Unicon can be loaded by the control room operator and can also be programmed automatically by punched tape, punched cards or computer. Complete system capacity is 30 events plus "next event" and it can be continuously loaded even while on the air. Special operations include preselect, pre-roll, preview, on-air and end event. Actual control can be full automatic, full manual, or combinations of both, changeable at any time. The Philips stage performance was stored in the Unicon on Tuesday and the control operator watched the show with their feet on the console. *(223)*

APT 100 automation system, a system concept with all equipment integrated for a master control by Sarkes Tarzian demonstrated the ability to handle various video switching effects and many types of audio feed. This system includes delegation control, warnings to operator in event of devices not delegated to him, and gives the operator complete manual or complete automatic control as well as varying degrees of mixture of both. *(224)*

Video switchers and special effects controls were exhibited by a number of major suppliers. Such units are showing a tendency to become less complex and easier to operate. This is certainly the case with Ward's TS-200 series, which uses solid-state electronics, has interchangeable plug-in modules, an expandable switching matrix, and (in the TS-206 version) includes 29 different special effects. All functions can be previewed on a monitor, and transitions are a snap with two split-lever fader controls. *(225)*

Modular construction is a main feature in Grass Valley's 1400 series video switchers. Offered with several different circuit combination options, GVG's units can be custom-ordered with any of the firm's standard options. Special effects options include a dual mix/effects system, chroma key, positioner, insert coloring and contouring. *(225)*

Billed as a "custom" switcher, the Alma AS6500 series sports a modular plug-in card design that's excellent for customizing to user requirements or for *in situ* changes by station engineers. The vertical interval timer has a sync lock, pulse-width adjustment, pulse position control and instant switchover to fast-lap switching. Using the plug-in, system expansion can add more functions, inputs and operational features. Switching can be controlled by a telephone dial or touch-tone system. *(227)*

Called "an advanced development" in color special effects generators, Ball Brothers' Mark VII is a compact, miniature control panel that has up to 14 different wipes, video inserts, sync add, and an 18-station remote control panel option. Wipes can be reverse-keyed by flipping a switch, and the modular unit can be purchased with as few as three wipes for openers. Other options include a color synthesizer for mono and color matting effects, a nonadditive mixing module, and a sync card that can be deleted from any of these systems where composite video isn't needed. *(228)*

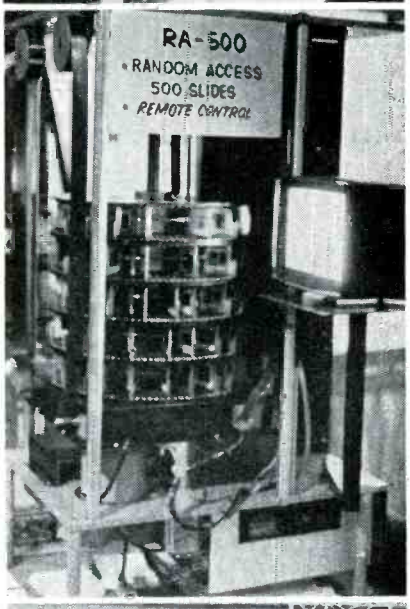
General Electric unveiled a video distribution switcher (model TS-301-A) with capacity expandable from 10 studio inputs and 6 outputs to 100 inputs and 96 outputs. Minor modifications will provide even more expansion if needed. The system relies on computer-type logic and makes extensive use of integrated circuits. *(229)*

Other new switchers: Vital's high performance unit (introduced at NAEB), Dynair's remote fader switcher, Telemet's system switcher, and Richmond Hill's (Riker) expandable switcher.

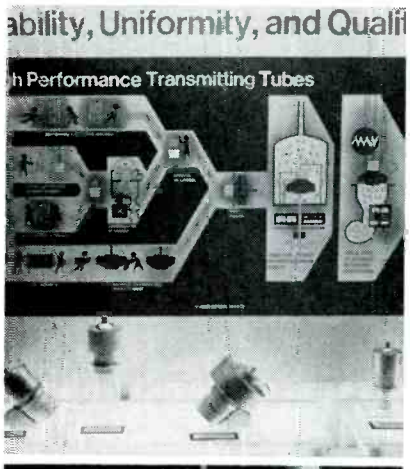
Video Processing: Color Adds Complexity

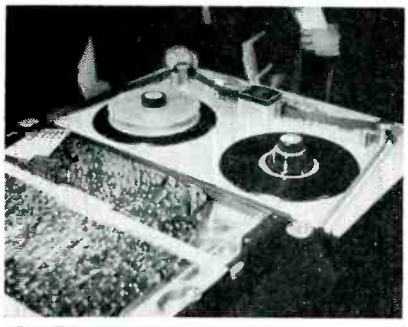
A variety of switchers and multiplexers were shown by Cohu Electronics, including what they call the world's first video multiplexer. The series 2600-400 multiplexer permits viewing of four separate video signals simultaneously on a single waveform monitor, while any of the four signals can be viewed on a TV monitor. Using integrated circuits in its four-count generator, clamp pulse generator and stairstep generator, the unit provides pushbutton video select switches along with a rotary sequencer. *(230)*

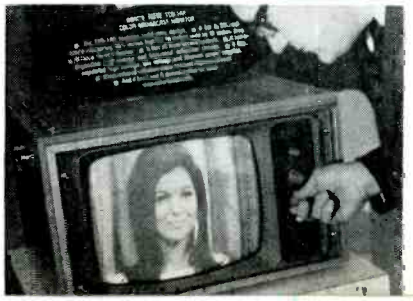
Cohu's solid-state video switcher se-



Photos top to bottom: Easy-loading teleprompter by Q-TV Sales
Video multiplexer by Cohu
Lenkurt microwave links in N.Y.-Pa. area
Telepro's RA-500 random access slide system
Ft. Worth Towers' models on display







ries 9300, will accept composite or noncomposite mono or color signals, synchronous or noncynchronous in any combination. Automatic circuitry prevents accidental mixing, and a double reentry vertical interval switching system is included. *(231)*

A dazzling array of video processing circuits were on view in the Central Dynamics booth. These included their sync-line signal line pulse distribution drive encoder, the VG 2065 color black generator, VG 2086 cue dot generator, VA 2034 series video distribution amplifiers and the VA 2051 series pulse distribution amplifiers. *(232)*

The Central Dynamics Sync-Line system uses one cable from the pulse distribution system to the camera by sending one signal and then decoding it. Sarkes Tarzian showed a similar system called the Compulse distribution (system). *(310, 311)*

Sync generators were exhibited by Visual and Dynair, while CBS Laboratories announced a new electronic technique for increasing sharpness and color detail on home TV receivers.

New from CBS Laboratories is the model 538 color masking processor. The unit can be used in all types of conventional color TV cameras and electronically corrects color distortion caused by optical color filtering overlap and response characteristics of the camera pickup tubes. Masking correction is applied in all three color channels, and the processor signal is narrow-band so corrections don't add any objectionable noise to the picture. *(233)*

No-Hands Automation Radio

If there ever was a doubt over whether automated radio is for real, Gates dispelled it. Inside a people-less glass-walled room they showed a complete operating automated station. Equipment included automated program reproducers, an automated program log printer, a 1-kW transmitter intended for remote control and logging, and automatic modulation and frequency monitoring printout equipment. The program system included rotary and single-cartridge reproducers for spots and multiple cartridge reproducers for music and running it all, a 1000-event programmer. *(234)*

Schafer demonstrated a typewriter-input computer-controlled automatic system; IGM showed punched card actuated equipment. Introduction of extensive radio automation equipment by RCA was another indication of the growing significance of the equipment. Visual Electronics' display included several racks of cartridge and reel equipment that could be pre-programmed and one of the lowest-speed loggers on exhibit—15/32 in./s. Tape-Athon also showed a 15/32 in./s. logger. *(235, 236, 237, 238)*

Photos top to bottom: Coax patch switch by Cooke
New ITT transmitting tubes eye Eimac's market
Gauss Electrophysics' videotape loop bin
Mini TV "space" camera by Teledyne is attention getter.
New color monitor by Ball Brothers

Although Continental has dropped its Prolog line, a new company at NAB, Disan Engineering Corp. was there with complete automation systems. Disan sells a complete system but also specializes in memory units and a talking clock. The programmed memory selector (various models to handle as many tape decks and cartridges as you may have) returns to its memory at the end of each selection to deliver the next function selected. The series 405 offers 1728 possible combinations. A continuously-operating computer calculates possible time error arising from readout position and automatically compensates. Thus, time is always correct, Disan says. The 411 with "pinmaster" memory offers demand time and random select handling. The talking clock is a separate module that gives time on the hour and half-hour. *(239)*

MaCarTa caught the visitor's attention with some simulated leather tape decks and then captivated him by showing a new metal card control cell for random select programming of automation systems. The new cell was invented by William E. Moulis of Sono Mag Corp. The unit consists of a metal chip reader system and a photoelectric readout which in turn controls a decoder. The metal cells are loaded in the same sequence as the order of events are to occur. *(240)*

Audio Consoles: How Complex? How Compact?

Audio equipment designers seem to be reaching for extremes in large size and complexity on the one hand, and streamlined, compact formats on the other. Certainly today's stereo broadcaster needs a fair amount of sophistication in signal-handling gear, but it's hard to imagine even the most competent of deejays operating some of these new systems without a road map, or better, a well seasoned Indian guide. Any stereo station that continues to operate with a nonautomated format is moving in the direction of this ultra-complexity—especially due to the tendency to cluster many diverse functions in a single control room to save floor space. Piling still more straw on the camel's back, this same control room may contain the station's transmitter, the standby emergency transmitter, standby power equipment, racks of monitors, and so on, and on, and . . .

Among the new breed of ultrasophisticated consoles is Electrodyne's ACC-1608. Designed primarily for 8-track audio recording, this console has more functions, controls, knobs, pushbuttons and meters than the cockpit of a Boeing 707. Among other things, it has: 16 microphone or line inputs, expandable to 20; 6-position equilization with echo send and cue on each channel; independent outputs for 8-channel, 2-channel and mono; 2 panpots; illuminated pushbutton switches. *(241)*

A scaled-down version of the ACC-1608, Electrodyne's ACC-803 has a reasonable number of control functions for broadcast station use. Standard equip-

ment includes: 8 microphone or line inputs (expandable to 28); 6-position equalization with echo send on each channel; three output channels with vu meters; pan on any input; pushbutton switching; a hidden integral patch panel. Lots of optional extras can put this console in the recording studio, master control or TV control. *(242)*

A full-scale expandable TV audio console, the Gates Radio TV-15 in its basic form has 15 channels with 4 inputs per channel for a total of 60 inputs. Additional submixers can increase the console's capacity. Any number of subunits can be added as a station's audio requirements grow, and the system is called one of the most versatile of its kind. *(243)*

On the junior-sized end of the complexity race, the Collins 212J-1 is a small, multipurpose portable console with facilities for spot production, emergency control room use and remote pickups. The solid-state unit operates on ac line power or from an optional internal or external battery. The console has four input channels, one output program channel and a switch-selectable monitor amplifier. *(244)*

This reverse trend toward utilitarian compactness is most apparent in a new line of audio consoles from Visual Electronics. The entire series is "human engineered" (no more 15-foot reaches for that 4 ft. 8 in. audio engineer), with plug-in modular construction. The model "8×1" is an eight-mixer monaural console, and a comparable stereo version, the "8×2," has 12 stereo inputs. Visual's "4×1" console has a mono output with four inputs and pushbutton selector panel. This ultracompact unit is designed as a program production aid for preparing cartridges or reel tapes and as a fill-in subconsole for announce booth and other control-room uses. It's also fine for mobile and on-site remote pickups. *(245)*

A variegated line of consoles—from the basic portable (PE-2400) to a 10-mixer studio stereo console (SS-4360), was shown by McCurdy. All of these units reflect a basic design simplicity that's bound to make life easier for the harried audio engineer. *(246)*

Designed for TV audio, the Alma model 990 dual-channel console has built-in mixing, switching and monitoring, plug-in amplifiers, preamps, mixing networks, cueing amps, audio-follow-video switching circuits and a plug-in power supply. Switching is through illuminated pushbuttons, and the entire console is compact enough to permit one-man operation. *(247)*

Junior-size portable and studio audio consoles were likewise shown by Nippon Columbia and by Disan Engineering. Compactness and simplicity were the key factors here, with very few knobs and switches to confuse the nontechnical deejay. *(248, 249)*

Tape Cartridges: 'Look Ma, No Hands'

As an integral part of automatic radio programming, the continuous-loop tape cartridge is hard to beat. In addition to the stacks and carousels of automatic cartridge-handling and playback gear, some new console-size designs have appeared to make manual operation that much easier.

Introduced by Collins as the "twin-tape" cartridge system, a doubled equipment approach lets the audio engineer work the Fidelipacs much the same way he'd handle a pair of turntables. The 642E playback unit and the 216D record amplifier combine in a system that: provides playback on both cartridges simultaneously; records one cartridge from an independent signal source while playing the other; or dubs from one to the other. The system has two independent transports in a single housing for simultaneous record or playback plus cartridge duplication—all without any auxiliary gear. *(250)*

Rack-mounting RT-27/BA-27 cartridge systems from RCA feature a roll-out tape deck, separate record and playback heads, remote control capability, plug-in circuit boards, all transistor design, provision for later expansion. *(251)*

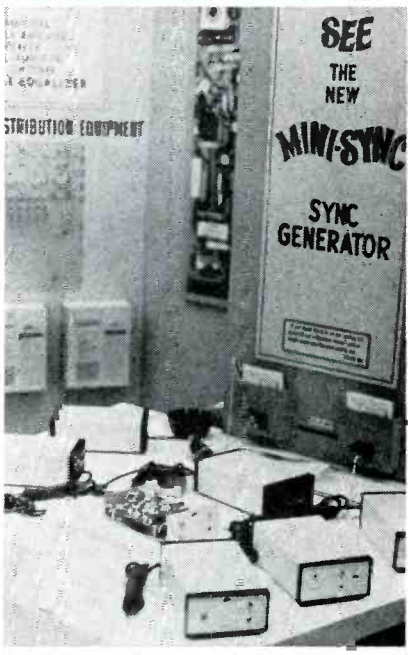
A series of cartridge players and recorders from Disan provide flexible building-block setups if the station wants to design a custom hookup. Disan also is marketing a unit for background music systems. *(252)*

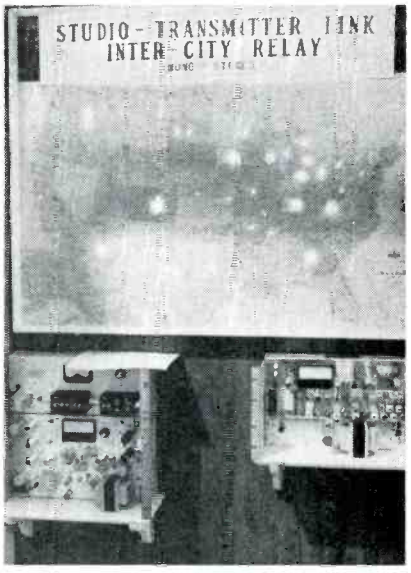
Sparta Electronics proudly showed its new Sparta-Matic tape cartridge system along with their complete system of audio control equipment. *(253)*

Audio Components: Making Life Easier For Meter Watchers

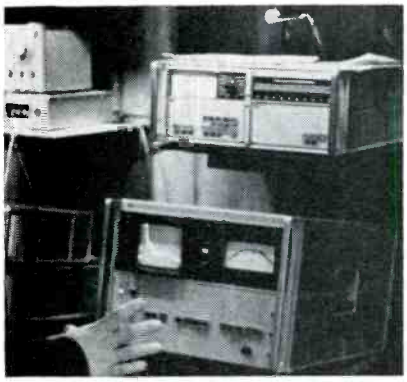
Some deejays who are tired of riding the gain, now can take their coffee breaks when they please if they use one of the new breed of audio limiters. The "Solid Statesman" M-6543 from Gates Radio features a 3- to 5-microsecond attack time, which eliminates the several milliseconds of clipping normal in most limiters—so states the manufacturer. The unit is available in asymmetrical or symmetrical limiting versions for a-m, fm and TV operation. *(254)*

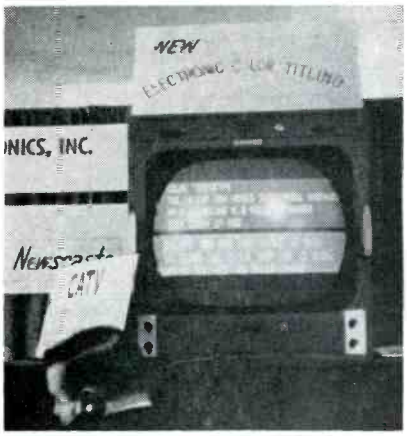
CBS Laboratories, the ones who started it all, have upgraded and updated versions of their own baby—the Audimax III. This latest model is all solid-state, with computer-type logic circuits to do the fancy figuring. Using what they call the "gain platform" principle, Audimax can work over a wide range of input levels. Audimax III can handle mono or stereo fm, while the FM Volumax controls peaks. For general-purpose audio, the model 710 Automatic Loudness Controller is a valuable contribution toward keeping





Photos top to bottom: TV picture stabilizer by Dynasciences
Dynair's Mini-Sync equipment
Moseley microwave link equipment
Retrofitted transmitter by Standard Electronics





down those extra-loud TV commercials. Maybe this one'll keep Uncle Jack away from the "commercial killer" switch on his TV set. *(255)*

A wireless microphone that works at microwave frequencies was introduced by Microwave Associates. Dubbed the "Portamike," the fm unit operates at 950 MHz, with a cigarette-pack-size transmitter that weighs in at 10 ounces. The companion receiver is crystal-controlled and includes a preselector filter and double-heterodyning. The transmitter can run for 6 hours on its battery pack, and system audio frequency bandwidth is 50 to 15,000 Hz ±1 dB, with distortion placed at less than 1 percent. *(256)*

Films and Slides: Old Standbys Get Better

A film island shown by General Electric has a four-input, two-output color optical multiplexer. One such island is an attractive alternate to two conventional islands. Called the PF-12-A, the self-contained island handles two film and two side projectors and two color cameras in any combination. The compact system permits quick changeover in film chains, and provides film backup in case of equipment breakdown. *(257)*

Nippon Columbia demonstrated a breakthrough development in color photography using *black-and-white* movie film. Called "Monocolor" by its developers, it uses a special color filter sandwich that optically multiplexes the colors onto the black-and-white film. The film is processed as ordinary monochrome film in a fraction of the time (and with vastly less expensive processing equipment) required for color movie film. Playback is through a monochrome film chain to a decoding circuit which has red, green and blue outputs; then through a color processing amplifier which produces a standard NTSC signal. *(258)*

Technical Materiel Corp. showed their "TV Program Center," a film chain island with a three-vidicon color pickup and a 35mm slide/sound strip projector, 35mm and 16mm movie projectors. They also displayed a 35mm sound strip projector with multiplexer or uniflex film chain. *(259)*

An electronic-beam recorder for motion picture film from 3M Co. provides very high quality movie film from TV sources. Although expensive, it offers better quality than kinescope recording methods. Less expensive film can be used. *(260)*

Compact Ektachrome economy movie processors were introduced by Houston Fearless and Filmline. *(261, 262)*

TelePro model RA-500 random-access slide projector with 500 (2 × 2) slide capacity uses drum-type magazines. *(263)*

"Spectrum 32" is a multiplex color slide projector for standard 35mm color slides from Spindler & Sauppé. The virtues of this projector are best emphasized by pointing out that they have been built into the latest film islands of GE, Philips and Telemation. *(264)*

Photos top to bottom:
Tektronix composite measuring 'scopes
Impulse sound meter by Hewlett Packard
Battery portable VTR and camera by Sony
Scantlin's electronic titler
Designs by F & M Systems enhanced by lovely hostess

Color Monitors

Solid-state design has invaded the professional monitor field as Conrac points the way with two new all-transistor units. Their new KNA9 monitor (first introduced at NAEB) is an economy model for closed-circuit systems on a tight budget that need better quality than possible with modified consumer products. Screen size is 9 inches. *(265)*

A second Conrac entry is the CUJ14, with switch-selected TV standards for use on almost any color system in the world. The professional color monitor works with any of these standards: 405 lines/50 fields; 525 lines/60 fields; 625 lines/50 fields; 819 lines/50 fields. Screen size is 14 inches. *(266)*

Brand new from Ball Brothers Research, the TCB-14R color broadcast monitor is a transistorized, high-performance unit with controls placed for easy accessibility. Picture tube is 14-inch size, and the monitor is designed for relay rack mounting. *(267)*

Also shown by Conrac: model AVR1 regenerated sideband receiver, which removes quadrature and phase distortion in vestigial sideband reception. Video output is both vestigial sideband and dual sideband. *(268)*

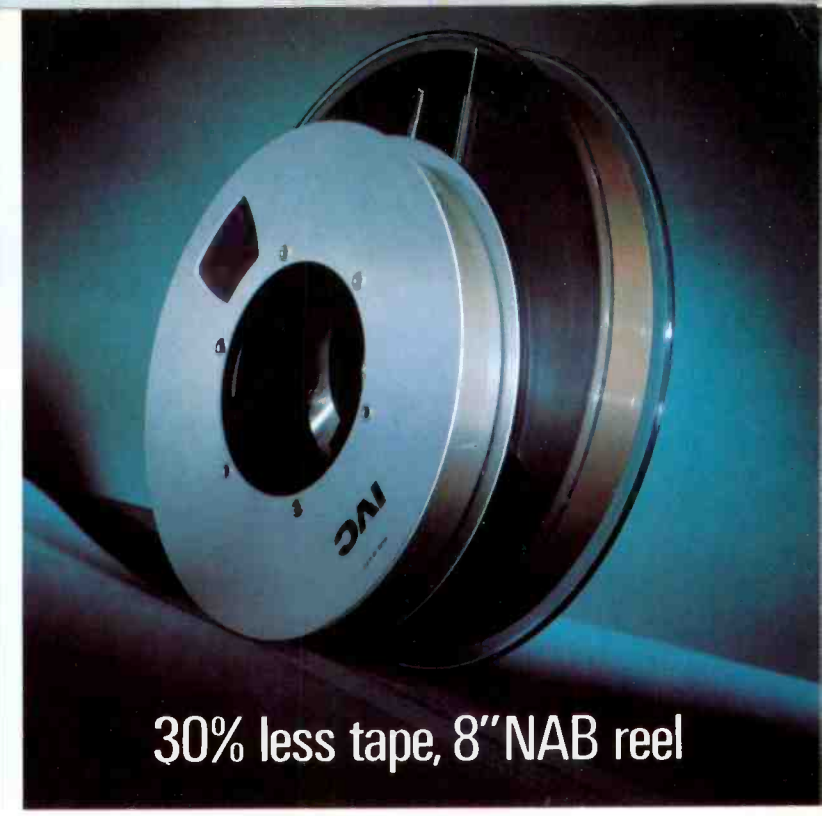
Broadcast Monitors

Gates Radio exhibited a long line of fm monitors for most broadcasting needs. They include: GTM-88S stereo modulation monitor for mono or stereo measurements, with provision for adding SCA; mono modulation monitor with most of the stereo model's features; fm frequency monitor type GTM-88F, with crystal-controlled wideband pulse signal comparator; fm frequency comparator GTA-88F for measuring frequency stability of pilot and SCA channels; GTA-6741 SCA modulation adaptor as add-on unit for the modulation monitor. *(269)*

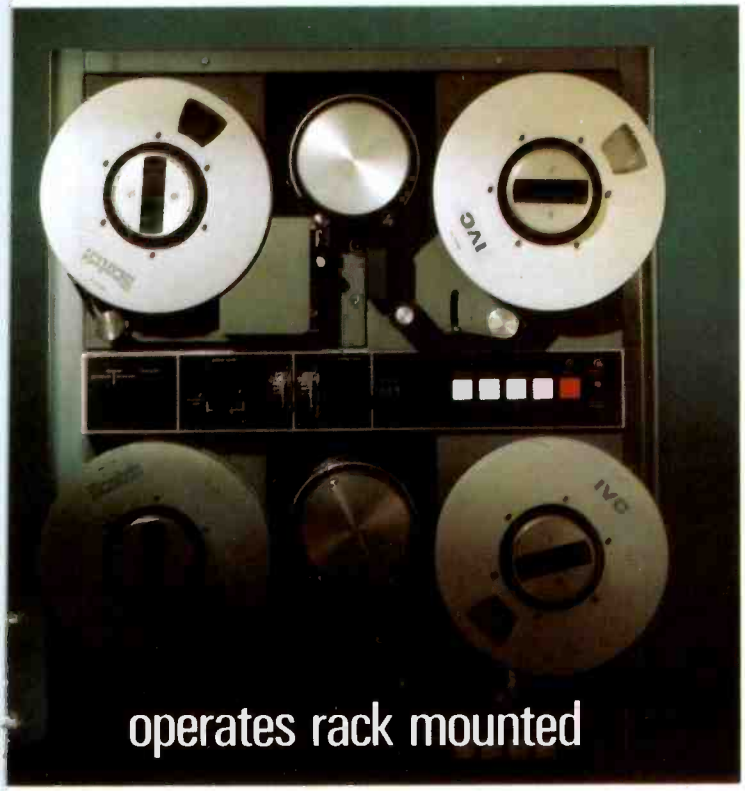
New from Collins is a transistorized fm modulation monitor, model 900C-3, which tunes through the standard fm broadcast band. Unit includes demodulating circuit for measuring carrier modulation percentage on the main channel, stereo subchannel, pilot carrier and SCA subcarrier. It also measures channel separation, crosstalk, S/N ratio and stereo subcarrier suppression. *(270)*

Calling their equipment "Gremlin Chasers," McMartin showed a wide line of fm monitors and receivers—mainly for checking modulation, separation, subchannel characteristics, frequency and other vital fm broadcasting parameters. *(271)*

just thread it, and push the button



30% less tape, 8" NAB reel



operates rack mounted

award-winning design

all this and NTSC color too!

The IVC-800, engineered and manufactured by International Video Corporation, Mountain View, California, is the first helical-scan video recorder to offer this exciting combination of features at any price. A recorder that's not only low-cost, but is versatile, easy-to-operate and maintain. NTSC color system results in more faithful reproduction with chroma stability not previously attainable. The IVC-800 is a significant breakthrough in helical-scan recorder design. Turn the page for price and details.

IVC

All this for $4200 complete! (monochrome $3800)

Full NTSC Color capability

All monochrome machines will record NTSC color signals. Single plug-in circuit board instantly converts unit for NTSC color playback. Conversion may be accomplished by anyone in the field purchasing a plug-in circuit board for $400.00.

High resolution

Patented pulse interval modulation signal system provides bandwidth exceeding 4.2 MHz resulting in 400 lines of picture information.

Just thread it and push the button

Electrical push-button control of transport permits all tape motion functions to be remotely controlled. Advance "Alpha" helical-scan tape path configuration with precisely fixed tape guides eliminates "lost" picture information and allows easier threading.

Full electrical remote control

Electrical push-button control with interlocked logic circuit permits all tape functions to be remotely controlled. Tape is automatically relaxed when stopped thereby eliminating unnecessary wear. These features permit the IVC-800 to be used in dial access applications.

90 second fast forward and rewind

Separate turntable motors for take-up and supply permit rapid fast forward, rewind and shuttling. Dynamic braking eliminates the possibility of tape damage. End of tape sensor activates stop circuit preventing tape spillage.

30% less tape, 8″ NAB reel

Full one hour recording requires only 2150 feet of 1″ tape operating at 6.9 ips, an average saving of $15.00 per hour.

Operates rack mounted

IVC-800 is the only recorder which can be rack mounted in 12¼″ of vertical space. Maintenance is made easier through use of full-suspension, pull-out mounting slides.

60 second head replacement

Video head may be quickly replaced by anyone anywhere using the special tool that is stored under the scanner cover. The head automatically seats itself in the correct position. Advanced design ferrite head is guaranteed for 500 hours (or six months).

Audio cue track

Second audio channel is provided for secondary audio or dial access control signals.

Weighs only 52 pounds

Precision casting and state-of-the-art engineering techniques have produced a rugged, yet truly portable recorder. Dust-proof cover eliminates tape contamination possibility.

Machine-to-machine compatibility guaranteed

All tapes recorded on any IVC-800 can be played back on any recorder using the 1″ IVC format.*

Stop-Motion feature

All units are equipped with stop-motion as standard feature. Electronic editing and slow-motion are options available.

NATIONAL SERVICE PROGRAM Field service, applications engineering, and systems engineering back-up are provided every IVC customer. Factory trained service personnel are available through our franchise distributors or on a direct factory basis. Standard industry warranty on all IVC products.

FULL NTSC COLOR SYSTEMS CAPABILITY WITH THE IVC LOW COST CCTV NTSC COLOR CAMERA. A demonstration of the complete IVC CCTV color system can be arranged by contacting IVC Marketing Operations, (415 — 968-7650). International Video Corporation, 67 E. Evelyn Avenue, Mountain View, California 94040. Detailed product literature on request. *Bell & Howell/GPL/RCA

INTERNATIONAL VIDEO CORPORATION 67 E. EVELYN AVE., MOUNTAIN VIEW, CALIF. 94040 (415) 968-7650 IVC

155M 3-68 IP

Studio Displays

An electronically-generated TV character display format was demonstrated by Visual Electronics. The system can include a number of ancillary devices for short- and long-term storage and instant retrieval. Principal participant is the 990 Display Control unit which generates the alphanumeric characters. Unit consists of a typewriter-like keyboard and edit monitor. Messages can be flashed instantaneously on TV screens for weather reports, sports scores, stock market prices, etc., or stored for instant recall. Special effects are also provided which make the words crawl, roll and blink. *(272)*

A flexible display system from CBS Laboratories uses a series of electromechanical display units. The system's x-y matrix wiring snaps apart easily for quick reconnections needed for different display configurations. The characters are white on glare-free black background and the displays will hold up to 12 different items. *(273)*

A system for in-station weather data is the Mark IV-C "Weatherminder" by Texas Electronics. The accurate instrument board has four instant-readout dials calibrated in wind velocity, wind direction, barometric pressure and outside temperature. *(274)*

Studio Aids and Equipment

Called a "major advance" in TV and motion picture studio lighting, two new series of tungsten-halogen lamps from Sylvania can make a considerable dent in lighting costs. Available in 2000- and 5000-watt sizes, the lamps are smaller and more efficient than conventional studio incandescent lamps of the same rating. Color temperatures available are 3200 K to 3350 K. Color, temperature and light output do not drop off as the bulb ages, adding considerably to the bulb's useful life. *(275)*

An image motion compensator called the "Dynalens" by Dynasciences Corp., stabilizes images from telescopes, handheld or vehicle-mounted movie and TV cameras. The Dynalens can be used with any lens having a clear aperture 58mm or less and can operate from a variety of battery packs. *(276)*

Videotape almost got lost at 3M and Ampex displays while it was pushed hard by Memorex and Visual. Brand new in the tape market, Visual Electronics' "Visual Tape" is a broadcast high band formulation and was used throughout the company's huge exhibit area. Special features of the new tape are high S/N ratio, improved video sensitivity, low-abrasive tape surface, antistatic binder, high pliability for maximum head-to-tape contact. *(277)*

Memorex was loaded for bear with several different TV tape formulations. Standouts among these were type 78V high-chroma tape for high-band color recording and the 79 series for all helical-scan recorder. *(278)*

Evershed's "Servopak" for zoom and focus control of studio TV cameras was a prominent Power-Optics exhibit. Also shown was a variety of other camera servo controls and a new power zoom converter unit RCA TK-42's. *(279)*

Transmitters and Antennas

Gates drew fresh attention to a-m transmitters by claiming its new 50-kW (VP-50) is the first new thing in 50 kilowatters in a decade. A new vapor cooling system which takes advantage of liberation of heat produced in converting water to steam produces a cool, quiet (no water pumps), efficient high-power transmitter. Power consumption is only 85 kW at zero-percent modulation. *(280)*

The CCA exhibit was popular since that's where lowest prices were found. CCA claims it's now number 3 in transmitters. (On the final day every rig on display was market sold.) The highest priced a-m transmitter exhibited was a military designed 10-kW unit displayed by Technical Materiel Corporation. The BCT-10KA sells for $50,000. A feature that's hard to figure out how to use is its ability to tune anywhere from 450 to 2000 kHz. Call it a universal spare! (See p. 90, April/68 *BM/E.*) *(281)*

Granger/Bauer showed new low-powered fm transmitters and Wilkinson Electronics showed a small satellite transmitter for use inside steel-framed areas (transmitter rebroadcast).

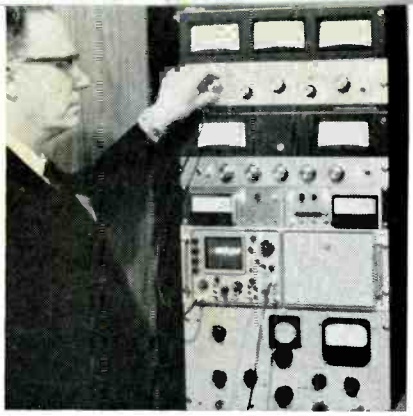
Uhf TV news for 1967 was the introduction of 55-kW and 50-kW uhf transmitters by RCA and GE respectively. This year Visual Electronics showed, for the first time, a 55-kW uhf transmitter. The solid-state heterodyne driver incorporates into one compact package, vestigial sideband filtering, linearity and phase adjustments, envelope delay pre-correction, etc. Eimac's five-cavity, integral-cavity klystrons, with vapor cooling, are paired in the power amplifier stage. *(283)*

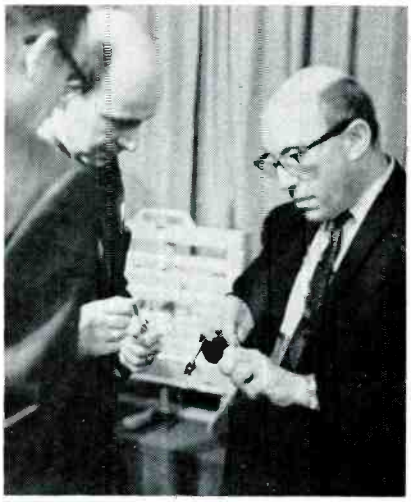
A 55-kW uhf transmitter from Pye Ltd., was exhibited by Phillips.

RCA claimed the most powerful uhf system by combining a new 60-gain five-sided antenna with its 110-kW transmitter. Result: 5,000,000 watts in all directions. RCA also showed how to parallel two vhf transmitters so that one could stay on the air even if one transmitter failed. GE introduced solid-state drivers for both vhf and uhf transmitters. *(284, 285)*

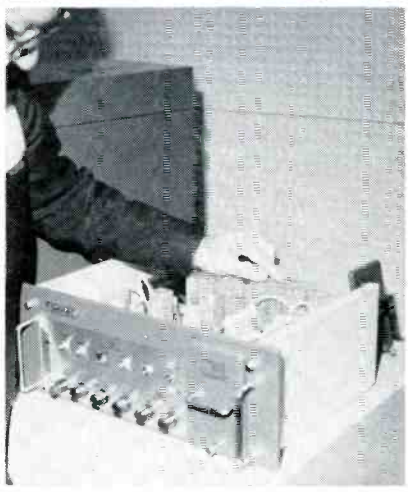
Standard Electronics showed retrofit kits that could convert old standby aural vhf transmitters into visual units. The converted unit can become half of a new parallel transmitter setup at very little cost. Standard Electronics also showed a new 250-W fm transmitter. *(286)*

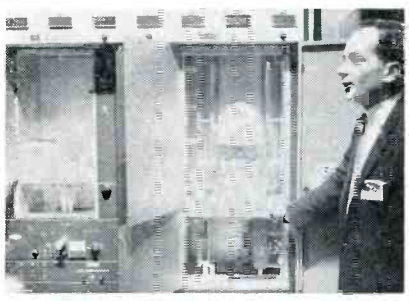
Collins showed an entire line of





Photos top to bottom:
McMartin's "Gremlin-chasing" SCA gear
Easy-assembling rf connectors by Trompeter
Eight-channel recording console by Electrodyne
Microwave Associates' pocket size microphone transmitter
Videodisc animation unit by Ampex





a-m and fm transmitters, most of which were introduced in 1967. American Electronics Labs featured its new 20-kW fm transmitter priced at $21,500. A direct solid-state exciter was used. A stereo and STL generator is available. Only two tubes, the driver and the power amplifier, are used. *(287, 288)*

CCA, Jampro, Gates and Collins has prominent displays of fm circular polarized antennas.

Test Equipment, Frequency Monitors

The test equipment found on broadcasters' work benches is an indication of the quality of his on-air signal. Fortunately or unfortunately, depending on your point of view, there was more equipment on display racks at NAB than generally found on work benches.

Tektronix, Hewlett-Packard, Rohde and Schwarz and Marconi had large displays devoted to test equipment. It is significant that European made test equipment was prominent—Europeans pay more attention to quality than do some American broadcasters. From the other side of the world, Shibaden brought for display a color bar dot generator and other TV test equipment.

Tektronix premiered its solid-state Vectorscope and waveform monitor. Hewlett-Packard drew special attention to its new impulse (as well as RMS and peak) sound meter (based on an imported design we understand). Videometrics, in the Central Dynamics exhibit area, showed a new polyburst generator to facilitate system checkout. Central Dynamics showed a production version of a portable color calibrator originally developed by the National Research Council of Canada. This device gives a "white" standard for checking color television studio monitors. Zoomar, Inc. showed a self-contained device for measuring optical transfer function of lenses. *(289, 290, 291, 292, 293)*

Very stable digital-type frequency monitors drew special attention at Collins' booth (a paper was given on the technique). An fm frequency monitor displayed monitors the carrier frequency and indicates errors in 100-Hz increments. *(294)*

CATV-CCTV On The Fringe

Transmission of TV by cable was featured by Ameco, Entron, Kaiser CATV, Jerrold, Vikoa, and Craftsman. Little brand new equipment was shown. Vikoa stressed underground installations Jerrold stressed its educational systems as well as general capability.

Exhibitors featuring CCTV equipment for schools or CATV local origination were numerous and busy. Scantlin drew heavy attention by demonstrating color TV receiver displays of electronically-generated alphanumeric characters. The equipment was suited for TV studios that wish to inject titles and news directly into the video system but was being promoted heavily as an all-electronic news service for CATV systems. Television Presentations, Inc. is the distributor to CATV systems. *(295)*

Dynair showed a solid-state TV demodulator, a remote switcher-fader and other miniature video components including a new mini sync generator. TeleMation showed a new optical multiplexer, a new monochrome camera and other video processing equipment suitable for CCTV and broadcast work. *(296, 297)*

Philips and Sylvania both had portions of their exhibits aimed at the CCTV educational market.

Photos top to bottom:

New pickup equipment from Gray

Inside McCurdy's audio control console

Regenerated sideband receiver by Conrac

AEL's 20-kW fm transmitter

"Twintape" dual cartridge unit from Collins

Rust Corp.'s remote control

Microwave Relay & STL

Microwave Associates used the NAB to introduce its new B-line—a total solid-state (no klystron) fm microwave communications link for color television and other data transmission. The compact units, featuring modular construction, are available in seven models covering the frequency bands of 0.7 to 13.3 GHz. The company also showed a mobile microwave relay system used in Vietnam but suitable for broadcasters use such as in helicopters. *(298)*

Raytheon announced 30-day delivery of its standard dual link 2A microwave equipment (solid-state except for a klystron). The 2A is "hot standby" TV equipment providing automatic transmitter switching and duplicate receiver protection for STLs. Collins showed its MW-808D microwave system intended for short-haul transmission of color. *(299, 300)*

Lenkurt stressed its system's capability for long haul as well as STL. Marti and Moseley also featured STL equipment. *(301, 302, 303)*

Cable and Accessories

Boston Insulated Wire focused attention on damage-proof connectors (introduced last year); Brand Rex on lightweight cable (featured on Ampex's portable and lightweight cameras). Andrew Corp. showed low loss 8-in. helix cable. *(304, 305, 306)*

Coaxial cable handling was stressed by both Cooke Engineering Co. and Trompeter Electronics—Cooke showed cutaways of its coaxial patch jack and Trompeter featured a new crossbar panel and easy-to-assemble rf cable assemblies. *(307, 308)*

The CATV Nonduplication Controversy

PART I

by Lon Cantor

CATV operators and broadcasters have strong opinions about the FCC nonduplication and carriage rules. Here's a sample of the CATV side of the story. Next month broadcasters have their chance.

A GOOD DEAL OF THE CONTROVERSY generated by the FCC's Second Order and Report has been centered around the local channel carriage and nonduplication requirements.

CATV operators and TV station owners alike have been screaming that they are being driven out of business.

However, most charges and counter charges have been vague. Amid the noise and confusion, few solid facts have emerged.

In an effort to close the evidence gap, the FCC recently requested TV stations and CATV operators to report on how the new rules have affected them.

The FCC Notice of Inquiry stated that most CATV operators have been able to live with the new rules "without undue difficulty."

They did express concern that the rules may "unnecessarily inconvenience subscribers or CATV operators."

With respect to broadcast stations, they wanted to find out if the rules have "been sufficient to accomplish the purpose for which they were designed."

So far, the FCC has accumulated four volumes of replies in Docket 17505. The bulk of evidence submitted indicates the following:

1. The FCC is right. Most CATV systems can live under the new rules. No system has actually gone out of business. But several say that if they comply with the new rules, they will be forced to shut down and a few give concrete evidence of economic injury.

2. Most stations feel they would get enough protection *if* the present rules were enforced. A few, however, presented persuasive arguments for even more protection.

3. A large percentage of CATV systems are not yet complying with the new rules. Some have sought relief by requesting waivers and others have simply ignored the rules.

4. Switching equipment and labor are so expensive that small systems cannot afford it. They must either delete the offending channel entirely or ignore the FCC Rules.

5. Where the rules have been adopted, subscribers are very, very unhappy.

Subscriber Complaints

Since the public interest must be a prime consideration for any government agency, let's consider the effect of the new rules on CATV subscribers. (Nonsubscribers have never expressed themselves either way.)

For example, Lawrence Flynn Jr., who operates a system in Vestal, N.Y. said, "Subscribers are frustrated and annoyed with nonduplication switching. Often TV stations change schedules, switchers don't function right . . ."

C. E. Murray, of Niagara, Wisconsin, reported that channel 12 Rhinelander asked his system for protection from channel 5. They provided protection for about 45 days "but the complaints from our membership were so great" that they have put channel 5 back on the system.

The cable system in Huntsville, Texas stated: "Our subscribers are very unhappy over the deletion rule. The telephone is constantly ringing . . ."

"Our customers feel they should be able to view the station of their choice. Approximately 75 percent of our customers call the office and express their opinion in no uncertain terms . . ."

"Sports warmup programs usually start 15 minutes before the game. Usually the game starts on the hour or half hour and there is no way of knowing how long it will last. This causes the viewer to miss a part of the program following the sports event."

The Selingsgrove, Pa. system is trying to satisfy both subscribers and the FCC by rebuilding to 12-channel capacity.

S. W. Camp, manager of the system, reported ". . . we did delete WFBG Altoona in order to provide WTPA full time carriage. WFBG had been carried on the system for 13 years. When this change was made, hundreds of calls and oral expressions were received in our office about taking off the Altoona stations . . ."

"We created an additional uproar when we deleted channel 8 Lancaster to provide WITF channel 33, ETV from Hershey . . ."

"If we are forced to make further changes due to several stations' requests for nonduplication, our subscribers are going to lose two additional stations that they have viewed for 14 years."

Mark K. Shadle, general manager of the cable system in Lykens, Pa. said, "Subscribers have become very indignant over the removal of two vhf Philadelphia stations, channel 6 (WFIL) and channel 10 (WCAU) which provided excellent non-network programming. The uhf stations, channel 15 (WLYH) Lebanon and channel 21 (WHP) Harrisburg, do not. The news broadcasters of the uhf stations do not have the high professional demeanor or presentation manner that the viewers have been accustomed to over the past 12 years . . . The movies carried on the uhf station channels cannot be compared to the vhf stations."

One of the big problems of the Lykens system is that no switching is used. Instead, the U's are substituted for the V's on a full time basis.

The local editor was so upset by the situation that he not only wrote angry editorials, but took a reader poll. The result: 587 to 2 preferred the TV schedule as it had been before the Second Order and Report had gone into effect.

Many editors in CATV towns were angry. An editorial in the *Daily Times Herald,* Alliance, Nebraska said, "As we understand it, the free air has been let out of this portion of the Nebraska panhandle to protect the Scottsbluff station from the economic impact of cable systems.

"Sterling, Colorado had cable service some 9 years before the same Wyoming people built a TV station there last year."

"Cable TV forced the Wyoming people to make something of their Scottsbluff outlet."

"To this newspaper, free enterprise is being flouted by this whacky blackout . . ."

"Federal agencies . . . have the perogative to protect the public interest—not to protect private industry or individual gain."

Economic Injury To CATV Systems

CATV systems claim that the new rules hurt them in three basic ways:

1. Switching equipment and labor are expensive.

2. They lose subscribers, or fail to add subscribers.

3. System expansion and new systems are not economically viable in many areas.

American Cable Television, Inc., with systems in Waco and Temple, Texas, gave an excellent breakdown of the cost of complying with the nonduplication rules.

1. A switcher costs almost $2000.

2. $20 per month in switching circuits and switching costs.

3. 4-6 hours per week extra technician's time.

American Cable Television's president, Arlo Woolery, also did a good job of documenting economic injury. He stated that a careful analysis had been made of a 32-week period after the rules went into effect. During this time, 287 subscribers were lost. This is a loss of $1500 per month in income. Looking at it another way,

since systems often sell at the rate of about $300 per subscriber, Mr. Woolery feels that the new rules so far have cost his company more than $86,000 ($300 × 287) in lost subscribers.

B.F. O'Connell, who runs a cable system in Menominee, Wisconsin claims that he cannot comply with the rules.

He said, "The cost of required equipment is prohibitive at this point in our operation. Present financial obligations preclude any other payments."

Many people are of the opinion that CATV is a sure road to riches, but Mr. O'Connell said, "We show a loss of $63,000 for the first five years of operation. To be forced into compliance would cause loss of system control for me. This is something I've worked toward for six years."

Several other systems also reported noncompliance, claiming that they would have to go out of business if they tried to follow the new rules.

The Marion, Virginia Cable System complained about the cost of switching equipment and added, ". . . in previous years we have enjoyed an annual net gain of 50 to 75 subscribers. We have no net gain or loss this year."

"Compliance with the rules has stopped the growth of the CATV system, eliminated any plans for expansion of the system, and has slowed the sale of TV sets, especially color sets."

They also gave an example of economic injury to CATV subscribers: "In several instances home owners had erected high towers to bring in signals from Roanoke, Virginia and Bluefield, West Virginia. They were pleased to be able to remove these structures, connect to the cable and receive a much higher quality picture. Now, they are left without the right to view the stations of their choice, due to the nonduplication act."

They report that the usual complaint from subscribers is that "it is odd that subscribers who pay for their service are denied their right to view the station of their choice, while those with private antennas are not in any way protected."

Wenton F. Stewart of GT&E Communications, Inc. in Angola, Indiana provided excellent documentation of the costs of compliance.

He said, "the programming of the nonduplication switcher each week is difficult and time consuming (approximately 12 hours per week) and, therefore, extremely expensive."

"The total investment in the Angola system is nearly $250,000, or in excess of $27,000 per channel carried. One third of our investment is affected by the nonduplication rules. This $83,-333 worth of equipment is only being used 38 percent of the time. It is idle 62 percent of the time. This represents an investment of $51,666 in equipment which is idle due to the nonduplication rules."

"Due to the customer confusion associated with the nonduplication, we feel a program schedule must be provided to our customers other than the TV guide and newspaper listings. This is an expensive process. Estimated cost for this program is $5.00 per year per customer."

One respondent pointed out that his system was so small that "reliable (switching) equipment would cost more than my entire head end."

In Kernville, California, Pearson TV Antenna Systems claimed that their growth rate has suffered by 25 percent.

"In order economically to service some 550 subscribers in an area this size, we had to erect three separate head ends," they pointed out. "Programmable switching for these head ends is not economically feasible for this size system." Therefore, they have totally deleted Los Angeles channels 2 and 4.

Tehachapi TV Cable, in Tehachapi, California said, "The time clock and relays are a large investment for a small system . . . The very minimum cost of a decent clock and all other equipment necessary is over $2000, plus at least another $4000 for something to fill in the blackout, for instance a weather channel. The operation and maintenance is one of the most time consuming tasks our technicians have."

Robert L. Pace, manager of a system in Taft, California has been providing exclusivity since March 1, 1967. Since then "the Taft CATV system has sustained a net loss of 92 subscribers in previously served areas."

He attached to his filing an unsolicited petition protesting the exclusivity ruling.

Benjamin Conroy, Jr. submitting comments on a Gencoe, Inc. System in Abilene, Texas summed up a long history of subscriber complaints and switcher frustrations saying, "At this writing we have made 12,812 connections and have kept only about 55 percent of them or 7072; our turnover, therefore, is about 45 percent compared with an industry average of from 32 to 35 percent.

"We certainly cannot attribute all this attrition to our program protection problems, as the normal transiency of population will account for much of it. We are forced to conclude, however, that our higher attrition average, backed up by comments of subscribers and viewers who no longer choose to subscribe, is attributable to the fractured and unpredictable network scheduling our subscribers must endure in the program duplication protection process."

This article has told the story primarily from the point of view of the CATV system operators. The second article in this series will cover the comments of the TV stations and discuss other related issues. ●

LBJ Kicks Off NAB

This year's NAB Convention featured many highly frustrated broadcasters—frustrated because of the fast-breaking explosive news at home and abroad that they had to hear about second-hand from newspapers and other people's radio and TV stations. But they too had their breaks; some of the news came to them first hand as President Johnson made a surprise visit and speech at the NAB's General Assembly only a day after his world-shaking announcement about curtailing the bombing and not running for re-election.

The NAB Newsroom was bulging at the seams that Monday as hordes of reporters waved their police press passes and ran for the typewriters and telephones. BM/E's editors were there too, wedged in among TV and movie cameras on the balcony to bring you this on-the-spot report.

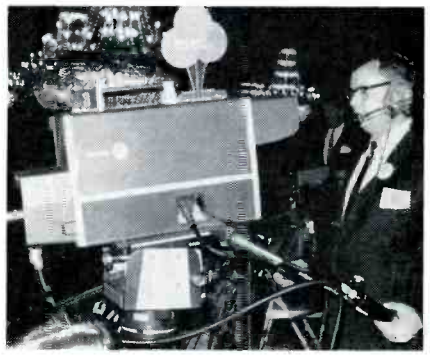
First word of LBJ's impending arrival flashed through the massive Conrad Hilton at about 9 a.m., and by 10 the hotel began to fill with hordes of Chicago police. Workmen ran up the thickly carpeted stairs to the Grand Ballroom carrying lumber for makeshift stage accessories and camera platforms. Police cordons were formed and advance elements of the Secret Service arrived and began to map out the presidential appearance. Walkie-talkies appeared from nowhere to add radio-directed coordination to the proceedings. Rust Corp.'s micro-skirted girls gaily pranced up and down the police lines pinning tiny roses on lapels until they, too fell prey to the Secret Service's humorless directives.

The General Assembly's program started as had been originally planned, complete with the WGN orchestra and the necessary contingent of NAB officials and guests, including Convention co-chairman Daniel W. Kops and Dr. Norman Vincent Peale. The NAB's Distinguished Service Award was presented to Lowell Thomas. If Thomas had any prepared comments, they went by the board as he ad-libbed about the surprise visitor who would upstage him at any moment. One of the famous newsman's comments: "You undoubtedly know why I'm here. I'm here to welcome LBJ back into the broadcasting industry."

He went on to say that people used to listen to him on the radio only because he was on just before Amos and Andy; this time people were listening to him only because . . . and right on cue, the WGN orchestra struck up **Hail to the Chief,** a brace of White House staffers and reporters scurried into the roped-off front seats in the audience, and a very tired Texas broadcaster mounted the steps to the stage.

In keeping with the humor of the situation, LBJ quipped about taking elocution lessons from Lowell Thomas and about an aide who told him he thought he was going to the wrong convention in Chicago. Focusing on the presidential lectern were dozens of newsreel, newspaper and magazine cameras. Live TV coverage for the network pool was afforded by monochrome equipment—all that the local stations could muster on a moment's notice. The show stealers were the Ampex color cameras—moved only a few hundred feet from their demonstration areas in the Normandie Lounge. There wasn't time to set up a live color transmission link, so Ampex's color videotapes were used for later news programs.

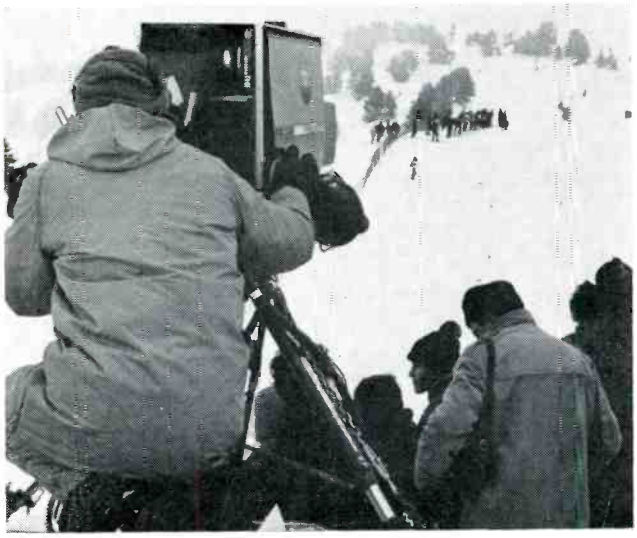
On hand in the Grand Ballroom were Ampex two-Plumbicon color cameras—one BC-100 (hand-held portable) and one BC-200. Also used in the Ballroom was the VR-3000 backpack video recorder, while four studio quad-head machines in the Normandie Lounge were slaved to the color cameras by extra cable furnished by Brand Rex.



Carefully planned schedules went awry as President Johnson made a surprise visit and addressed General Assembly. LBJ's podium is flanked by NAB officials and guests who somehow let him get in without a registration badge. Only color coverage of presidential appearance was by cameras moved only a few hundred feet from their display area. Four Ampex quads were slaved to hastily strung cables.

Grenoble: ABC's Trial and Triumph

Mountainous snow drifts, mercury forever below zero, color cameras tossed like driftwood on the waves of a blizzard's winds, camera locations accessible only by helicopter . . . the result: a brilliant and epoch-making TV coverage by one of the industry's most dedicated technical groups.



Chained down to wooden platform for easy helicopter lifting, General Electric color camera with directional mic up front, captures action on the slalom.

ABC-TV'S YEAR AND-A-HALF of advance preparation for the Winter Olympics paid off handsomely in sporting event coverage on a grand scale. The network's massive technical effort coupled with the "largest single use to date" of Comsat's orbiting relay provided American TV viewers with a never-to-be-forgotten experience. The Olympic coverage used many new technical innovations and products—so much so, that the transmission was not only a fabulous sporting event—it also was a showcase for new broadcasting technology.

In a joint effort with ORTF, the government-owned French TV network, ABC's technical personnel manned a variety of equipment and used techniques that may well point the way for all such special-events coverage in the future. The pickup was made with both ABC's and ORTF's equipment. The American gear included one mobile unit, nine additional color cameras and camera chains, special effects generators, master control equipment and five videotape recorders (Ampex 2000's and RCA TR-22's). Also packed off to Grenoble were several portable videotape machines and the Ampex-developed slow-motion and stop-motion videodisc.

The French TV network supplied mobile units at several locations and color tape machines (Ampex VR-2000's) and audio facilities at the switching centers. All of the European equipment had been modified to accommodate NTSC color. The network's mobile rigs are all dual-system units—designed to be used with either NTSC or SECAM, and quickly switchable from one system to the other. Since U.S. equipment doesn't have this dual compatibility, it had been up to the French to build NTSC compatible broadcast hardware for the frequent trans-Atlantic satellite telecasts.

In the forefront of the technological effort were the new Ampex BC-100 portable color broadcast cameras. Weighing in at 35 pounds (camera head 20 pounds, backpack 15 pounds), these cameras provided ABC with a degree of portability that added an immediacy and closeup coverage that would have been impossible with larger conventional color cameras. This hand-held color camera will be equipped with a microwave pack for total portability at the upcoming political conventions and the Summer Olympics in Mexico City. ABC engineers are currently checking out first production models of this rf package put to-

gether for them by Microwave Associates. The camera uses a semidirectional antenna, and the associated mobile van or other control station is equipped with a highly directional dish antenna. The camera's rf package transmits audio and video at 13 GHz, and receives camera sync, cueing, communications and iris control on a 950 MHz channel. Total weight of the battery-powered package is 57 pounds, which includes batteries, zoom optics, harness and other hardware. About 35 pounds of this weight is in the back pack.

The camera itself uses only two Plumbicon tubes in a matrixing three-color system. The luminance signal is simultaneous, while the red and blue are sequential, making it a simul-sequential camera.

Over 21 Miles of Cable

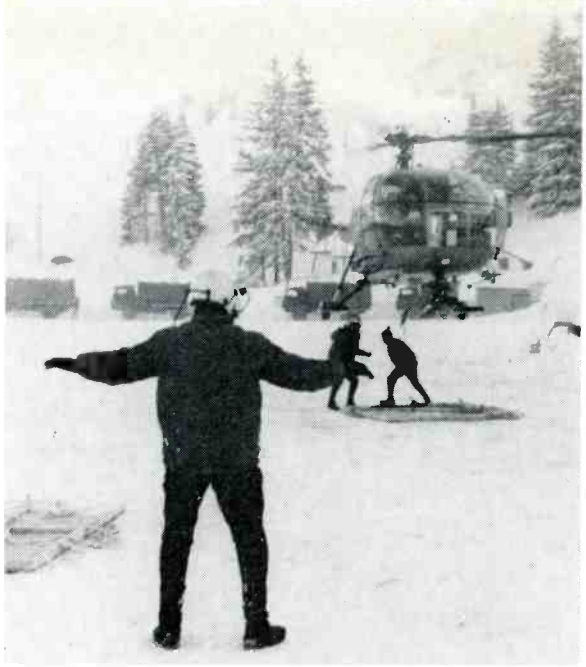
Preparations for the Winter Olympics included purchasing and installing some 84,000 feet of a special 85-conductor TV cable supplied by Boston Insulated Wire & Cable Co., along with the highly critical connectors needed. ABC also used about 24,000 feet of coax purchased in France. Much of the cable-laying was done by French Alpine troops, a group of highly trained army specialists who are well qualified to work in the deep snow. ABC officials indicated that about 80 percent of this cable will be salvageable, and by March 6, had already retrieved some 24,000 feet of it. Cable runs ended at mobile units equipped with Holland Electronics switching equipment.

In anticipation of the adverse weather conditions, ABC ordered newly designed cable connectors from BIW. ABC spokesmen indicated that in conditions such as they found at Grenoble, the cable connector is potentially the most troublesome single element. BIW's new 85-pin design overcame a great many possible problem situations, while providing helpful extra features.

Cold weather wreaks havoc with all kinds of TV production gear and personnel. Says Merle Worster, ABC-TV's Technical Operations director, "The working conditions in some locations were just beyond description. We lost Joe one day (Joseph DeBonis, Television Field Operations manager)—he sank in snow over his head running cable, there was that much snow. To give you an idea . . . we were looking for some cables one day and we dug down 12 feet and we were still digging in the snow to find the cables that we'd put in last November.

"We started to lay cables in November . . . using French Alpine troops . . . to assist. We also used helicopters to move our equipment from location to location, and we used snow cats when the helicopters couldn't fly."

Underscoring the choppers' importance, Joe DeBonis pointed out that, "This whole endeavor was successful because of the use of helicopters . . . We'd put a camera on a platform . . . chopper'd come along, pick it up and fly it to the new location. Seven locations on the hill had to be covered on a daily basis—giant slaloms, special slaloms, giant downhill, and so forth . . ."



Top. Helicopter picks up camera platform for trip to top of Chamrousse for Alpine event.

Below. GE Camera and operator atop Chamrousse.

The cold generated a host of equipment problems. Cameras had internal electric blanket-type heaters turned on 24 hours a day to keep them from freezing. Hair dryers were used to defrost iced-over lenses, and cameramen were kept from freezing by propane gas heaters. Many camera locations were nearly inaccessible. Crews would ride chair lifts up the mountain, and then climb down to the camera locations. In some cases they had to ride to work on snow cats, while others had to be air-lifted to work by helicopter.

Language Barrier Crumbled

Altogether, ABC used about 70 of its own technical people in Grenoble, in addition to personnel supplied by ORTF. The French TV workers were most cooperative in spite of the language barrier. As Worster explained, "The language barrier was always a problem, although a great

New Generation of Color Cameras Stresses Compactness

As if on cue from a teleprompter, three different studio equipment suppliers announced similar miniaturized broadcast quality color cameras and associated rf equipment for wireless operation. First in the circle were RCA, Philips and Ampex, and now CBS Labs has unveiled their portable, hand-held rf color camera.

All four entries weigh in at about the same avoirdupois—from 35 to 45 pounds in the cable version and 50 to 60 pounds in the wireless models. The camera head itself weighs from 18 to 23 pounds, and the rest of the weight is distributed over a back-back frame. (See BM/E Dec. '67, p. 6)

The RCA camera was primarily designed for astronauts in lunar exploration forays. It's been through some rigorous environmental testing, and it may be suitable for broadcasting.

In virtually all cases, color quality has not been sacrificed. The miniaturization is possible through the use of integrated circuit technology and uses a new approach to color imaging or a rearrangement of camera head elements. The Philips unit has been trimmed by putting the bulk of the circuitry into the backpack, but uses essentially the same Plumbicon setup as the studio color camera.

The Ampex unit uses just two Philips Plumbicon tubes for all three primaries and the luminance signal. Based on work done by Dr. Hughes at Oklahoma State University on color matrixing, the camera's two pickup tubes matrix the primary colors sequentially. The luminance signal is matrixed simultaneously; thus the system has been dubbed "simul-sequential."

The microwave link strapped to the backpack in wireless versions includes a battery power supply, which adds substantially to the total weight. Typically, the batteries and rf package tip the scales at 20-plus pounds, and while the total weight is still small as color cameras go, at least one industry wag is vying for the mobile van linament concession.

many people spoke some English . . . the understanding of (certain technical) terminology would present a barrier . . . We used quite a few French technical personnel, in many cases intermixed with Americans . . . The language barrier was more of a delay . . . than an obstacle . . ."

The only ABC casualty during the entire Winter Olympics meeting was one engineer who broke his leg skiing on his day off. It could have been much worse. Weather conditions changed drastically in 15 minutes' time. The French, in describing the situation, said: "They built the ski-jump where the most wind blew, the bobsled run where the sun was shining all the time, and the downhill Alpine events where the fog came and went that fast." In the midst of the Olympics, as if to prove a point, a blizzard struck with such ferocity that a camera was blown off a tower and the tower was ripped apart. Providentially, the camera landed in a tree and was repairable, and once again, helicopters came to the rescue by placing an entire new camera installation on location.

Signal Processing

Actual shooting started with the individual camera locations, which sent signals via cable to switching centers and the central control in ABC's mobile van. Instantaneous transmission to the U.S. was impractical because of the six-hour time difference, so everything was taped in Grenoble, with backup tapes made in the mobile vans. The tapes were edited and transmitted via satellite to New York where the program was again taped and transmitted at a later hour. ABC sent two separate programs—one a running coverage of the events, and the other a condensed wrapup version for evening viewing.

Satellite transmission was called "entirely satisfactory" by ABC engineers, except for the very first day which was beset by some noise problems. No other broadcaster had previously used the Comsat satellites so much in a given period of time. ABC used two different birds—one for video and audio, the second for audio backup only. Further audio backup was made via undersea cable. Total cost for satellite transmission ran close to a half-million dollars—this in addition to some $3-million in equipment and production costs and $2-million paid for the TV rights.

More Equipment Needed

According to ABC officials, the rf pack for the Ampex cameras could have been ready to use in time for the Winter Olympics, but it was felt that there was no real need for it there. The rf camera will be used extensively at the two national nominating conventions and at the Summer Olympics. ABC men feel that the Grenoble experience was merely a door-opener for the conventions and Mexico City coverages which will both require much more in the way of equipment and technical personnel, although the problems of deep snow and subzero temperatures will be absent.

Of the equipment used at Grenoble, ABC will be using practically all of it at the Mexico City Olympics, plus a great deal of additional gear. These extras are a must since there's no ready source of supplemental equipment in Mexico as there had been in France. The switching apparatus is ABC-designed for portability and forms the backbone of their control operations—both at the conventions and at the Summer Olympics. The required extras at Mexico City will virtually double the amount of equipment that ABC freighted to Grenoble. At the Winter Olympics, microwave links carried program material from the mobile vans to Grenoble itself for taping. In Mexico City, cable will be used, and microwave relays are being built to connect with stateside TV links. A few things will be missing, though—no electric heaters, no snow cats, no parkas, and most of all, no snow! •

Better product balance, accurate sales projections, internal accounting, billing, revenue forecasts and sales commissions, accurate logging—KTLN's computer does it all and more economically.

President Wheeler going over time availability report produced by IBM 402 in background.

Denver's KTLN Grows with

By Richard Wheeler

RADIO STATION KTLN in Denver has reached a point in its growth that calls for more efficient methods of processing and utilizing the complex, voluminous records required by a broadcasting operation.

The station, which is celebrating its 20th anniversary this year, recently moved into a new headquarters building. On November 1, 1967 it became the Mutual Network affiliate in Denver, and manual record keeping was no longer efficient or effective.

The system installed was designed for KTLN by William Cole of Denver, a broadcast industry data processing consultant who has installed about 30 similar systems in radio and TV stations throughout the country. Cole also designed a number of forms for specialized KTLN operations.

The new installation consists of only three pieces of low-cost IBM punched card equipment: 402 accounting machine, 026 card punch and 082 sorter. The equipment, as it stands, is capable of handling considerable volume growth without additional personnel.

The accounting machine prepares reports and records, in both numerical and alphabetical form, from punched cards. It reads 80-column cards, recording details, and printing any desired combination of totals. The sorter groups cards of similar classifications in numerical or alphabetical sequence. The card punch has special new features that punch alphanumeric data and special characters from source documents into cards.

Benefits already provided by the system include automatic printing from punched cards of complete daily program log by the 402. The log includes time scheduled on and time scheduled off, program title and sponsor, elements, spot length and commercial type, program source and type, actual time, and a provision for announcer sign-on/sign-off.

The system also provides automatic printing of more than 250 statements and affidavits of performance each month. Both of these are on specially designed forms. The affidavit includes date of broadcast, description of spot, time of broadcast, length of broadcast, and rate for all spots per account in the past month. The statement shows date of charge and payment, description, gross, agency commission, and net amounts for current charges, net balances forward and net balance due. For added efficiency, both these forms are on the same roll of paper for input to the printer; they are rouletted for separation.

The machine handles automatic printing of accounts receivable aging notices 30, 60, 90 and 120 (delinquent) days after billing. Accounts receivable aging is performed on a specially designed form which includes salesman number, customer name, total bill, current due, and amounts running 30-60 days, 60-90 days, 90-120 days, and over 120 days.

Another specialized service is total revenue forecasting nine weeks in advance for both local and national billing. Formerly, this was less accurately estimated to only 30 days in advance. There is also individual revenue forecasting up to nine weeks in advance for each time salesman, along with automatic printing of salesmen's commission reports.

Author Wheeler is president and general manager of KTLN, Denver, Colorado.

Corinne Hunt, bookkeeper for station, converts operating data into punch cards.

Michael Mervis, production manager, inspects program log before a show goes on air.

Computer Accounting

Automation and high accuracy is also provided for logging repeat spots—formerly done by hand.

Time availability schedules that list open spots in the current broadcasting day and projections as far as a month in the future are printed automatically. Also automated is distribution of spots in the program log without conflict.

Generally, the new system permits the station to make more accurate analyses and projections; to determine strengths and weaknesses and to take remedial measures in time for them to be effective. This technique has the potential to strengthen the entire operation, including spot density and distribution, product mix and total sales.

Primary source of data is the traffic order form, prepared by hand when a spot is ordered. Data from this form is transferred by key punch to a set of several commercial cards. Each of these cards is a master card, containing all data on the account, including names of both salesman and client, contract number, source, type, program identity, sequencing code, commercial type, trade, product code, schedule, day, time scheduled, length in seconds, sponsored program length, rate, rate change or adjustment, expiration date, time and date performed, and the weeks scheduled throughout the year.

The card punch has several special features which permit use of multiple punched card files efficiently. One of these features is the ability to use a master card for automatically transferring selected data columns from one card to another. When basic information is transferred, special information may be entered on each card at the keyboard.

Properly sorted in the 082, these cards provide complete records to perform all of the operations described. The scope of the information available is impressive. In product categories alone, KTLN uses the standard Radio Advertising Bureau list of more than 50 product areas. This in turn provides good data for comparisons with national statistics by product, by spot frequency, etc. Thus the station not only has a good standard for measuring its own performance, it also has a good data base for sales promotions.

Cornerstones of the system is a group of forms specifically tailored to KTLN's operation. These forms offer maximum flexibility and utilization of the equipment. In addition to these, there are several forms designed to facilitate report preparation on the accounting machine. These include an availability schedule, printed as desired for the current day, same day a week away, two weeks away, or three weeks away; and a single form which serves as salesman commission form, cash receipts journal, or sales journal. Standard columns are set up for salesman number, client number, description, collection date, gross, agency commission, net, date of charge, and type of charge.

Most important is mechanization of daily program log preparation, end-of-month billing and affidavit preparation, accounts receivable aging, and forecasting. The station now obtains more detailed reports in many areas that could never be reasonably compiled by hand before the system was installed, and the reports are delivered quickly and efficiently.

Immediate results: better balance product-wise; harder hitting in special areas indicated in the forecasts, relating both to time and products. The new projections help salesmen keep their billings up, and show management where special attention may be necessary. ●

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Especially in the multiple channel transmission business.

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International Telemeter Corporation.

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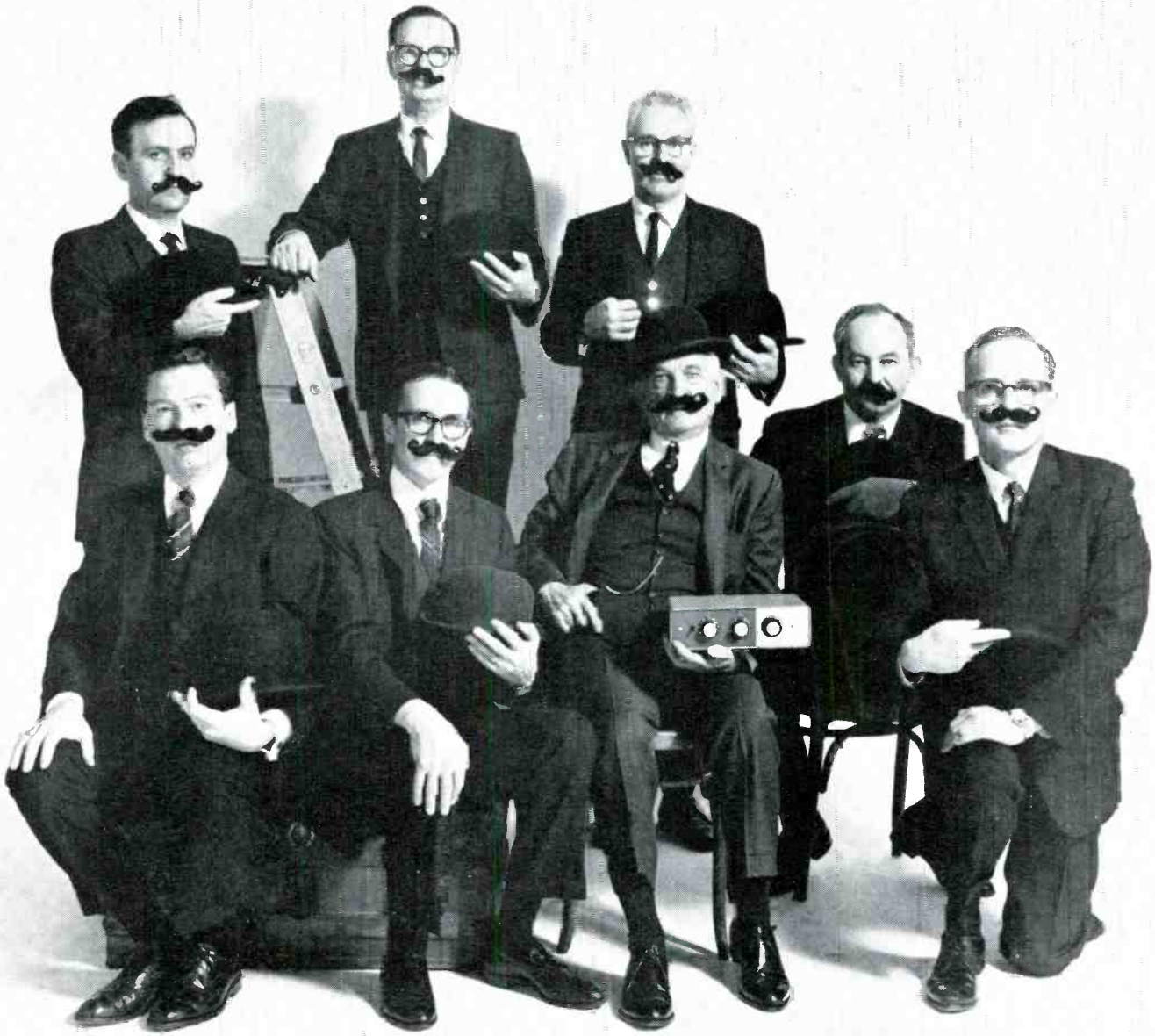

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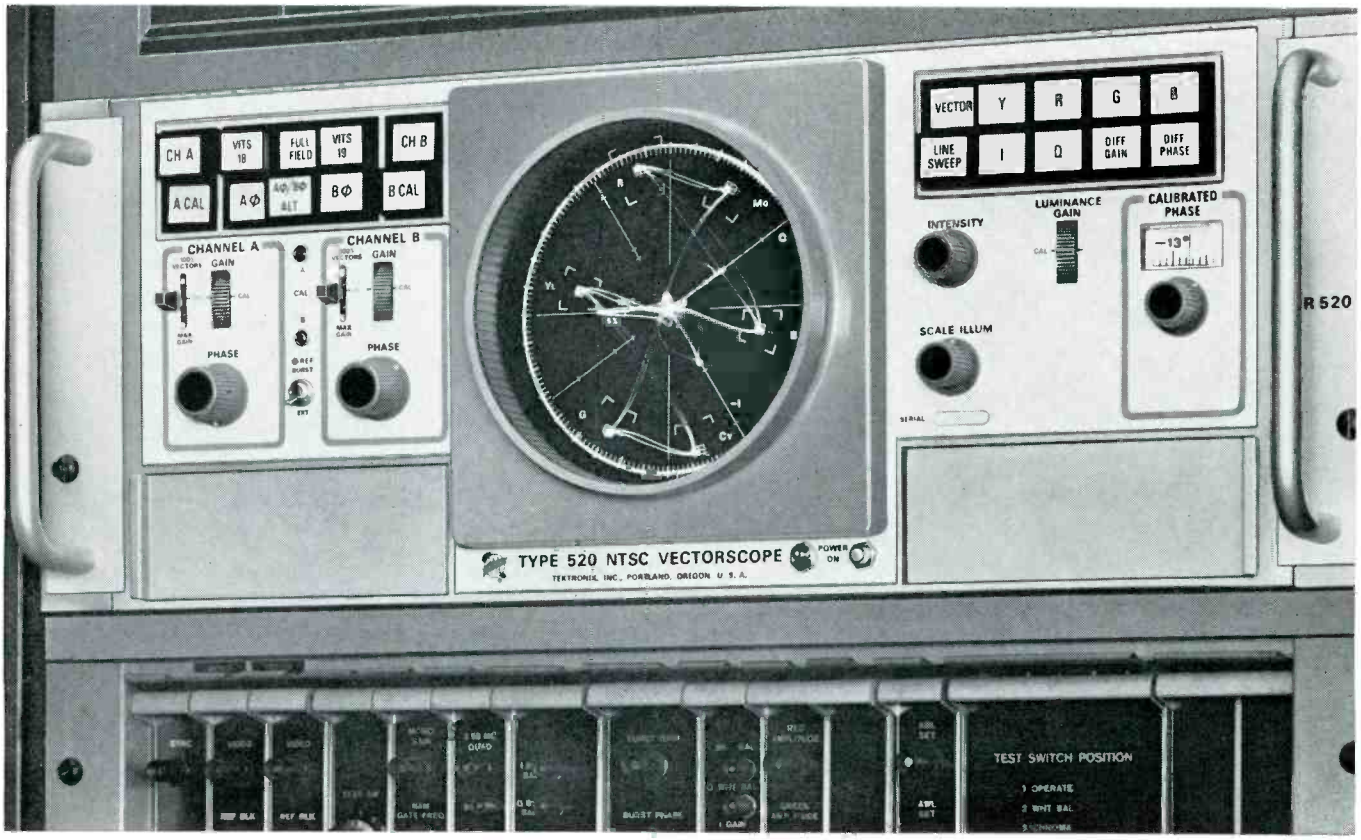

A New Vectorscope from Tektronix

- New measurement capabilities
- Push-button operating convenience
- Accurate measurements of chrominance and luminance amplitude
- All silicon solid-state reliability. Cool, quiet operation

The Tektronix Type 520 NTSC Vectorscope provides new operator convenience, new measurement capability and silicon solid-state reliability. Push-button operating controls permit rapid selection of displays for quick analysis of color signal characteristics. A new luminance channel separates the luminance (Y) component of composite color signals for display at a line rate. Combining the Y component with the chrominance demodulator outputs provides displays of the Red (R), Green (G), and Blue (B) values, revealing luminance to chrominance amplitude and delay errors if present. Line Rate displays of chrominance demodulated along the I or Q axis are provided for checking encoder performance.

Phase and amplitude accuracy of the vector presentation is verified by internally generated test signals. Errors in color encoding, video tape recording or transmission processes are readily apparent and are easily measured. Separate 0° to 360° phase shifters provide independent phase control of channel A and B displays. Excellent resolution for measuring small phase-angles is provided by a 30° precision calibrated phase shifter where 1 inch of dial movement represents approximately 1° of phase shift. Differential gain and differential phase measurements are made with accuracies within 1% for gain and 0.2° for phase. A unique graticule switching arrangement provides automatic selection of an IRE graticule or an illuminated parallax-free vector graticule. The selection occurs at the same time the operating mode is established.

The Type 520 Vectorscope provides the ability to check equipment performance during regular programming times through the utilization of Vertical Interfield Test Signals. A digital line selector permits positive selection of Vertical Interval Test Signals from lines 7 through 21 of either field 1 or field 2.

For a demonstration contact your nearby Tektronix field engineer or write: Tektronix Inc., P. O. Box 500, Beaverton, Oregon 97005.

Type 520 NTSC Vectorscope $1850
Rack Mount Type R520 .....$1850

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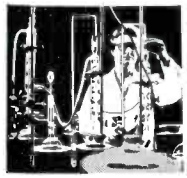


... part of the Tektronix commitment to progress in the measurement sciences

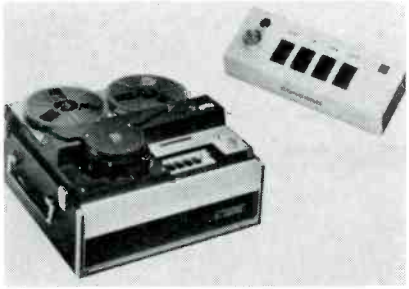
Circle 23 on Reader Service Card

← Circle 22 on Reader Service Card

BROADCAST EQUIPMENT

CCTV VTR Recorder

A portable videotape recorder for continuous, automatic recording and playback with remote control operation for business and industrial applications has been introduced by

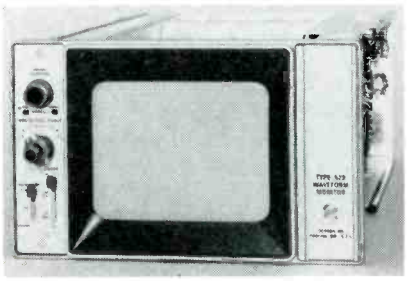


Concord Communications Systems, Los Angeles, Calif. A major feature is the hand-size remote control panel which allows all functions of recorder to be controlled remotely. VTR-700 records picture and sound simultaneously and may be programmed to record automatically or play back on a continuous basis, or for a selected time period. It automatically records or plays back, stops, rewinds, then begins again, or shuts off automatically. The VTR-700 is a helical-scan, dual rotating head system operating at 12 in./s with ½-in. magnetic videotape. Weight is 60 lb; dimensions, 16½ × 16½ × 10 in.

Circle 100 on Reader Service Card

Compact Waveform Monitor

Type 528 solid-state television waveform monitor, made by Tektronix, Inc., Beaverton, Ore., requires only 5¼ in. vertical height and ½ rack width mounting space. Either of two video inputs, selectable from the front panel, may be displayed. Calibrated, 1-V and 4-V full scale (140 IRE Unit) sensitivities are provided for displaying standard video input levels. A variable sensitivity control permits uncalibrated displays from 0.25-V to 4.0-V full scale. Horizontal sweep selection provides 2 H



(two line), 1 μs/div (expanded line), 2 V (two field) and 2 V MAG (expanded vertical blanking). A 9-pin connector for applying external staircase and relay control signals is provided on the rear panel for YRGB and RGB displays. Price is $800.

Circle 101 on Reader Service Card

'Shock Shield' Video Case

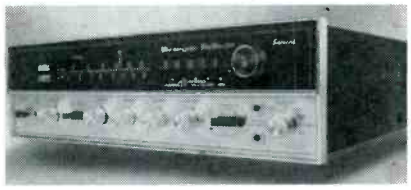
3M Co., St. Paul, Minn., has announced the development of a "shock shield" videotape shipping container designed to eliminate damage to tapes and reels as the result of rough handling in transit. The con-

tainer features two molded plastic discs which suspend a roll of videotape and allow it to turn freely when vibrated, dropped or bumped. The new free turning approach drastically reduces problems of tape windowing and cinching. The discs also have a ribboned surface designed to absorb shock and eliminate flange dishing. The container is made of molded high impact plastic which is high in resistance to impact and puncturing. The plastic also is highly stable under a wide range of temperatures.

Circle 105 on Reader Service Card

IC Stereo Receiver

Sansui Electronics Corp., Woodside, N.Y., announces the introduction of its completely new Model 5000—a 180-W a-m/fm stereo receiver. Featured in the all solid-state receiver are four integrated-circuit components in the i-f section plus a specially selected FET fm front end. Specifications include 180 W of IHF music power, providing 75 W per channel of continuous power at 4 ohms. Fm tuner sensitivity is 1.8 μV (IHF); selectivity better than 50 dB at 98 MHz; stereo separation better

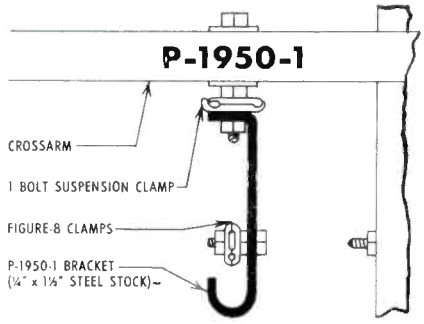


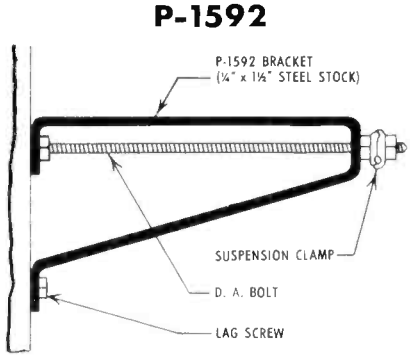
than 35 dB. The amplifier section provides a frequency response from 10 to 50,000 Hz ±1 dB. Price is $449.95.

Circle 103 on Reader Service Card

Brackets for CATV Construction

Pruzan Co., Seattle, Washington, is introducing two CATV brackets that meet new pole clearance requirements present in many areas. The P-1592 hot-dipped galvanized bracket provides 15 in. pole clearance, requiring only 9 in. of pole mounting space. The top holes are centered so mounting may be done with double arming bolt for added reinforcement on heavy loads or corners. Outside mounting hole may be used for attaching one-bolt or three-bolt clamps, Figure 8 clamps, or other fittings. Bracket gives linemen greater clearance and is more durable than wooden crossarm. Type



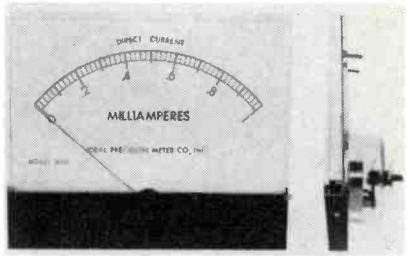


P-1950-1, also hot-dipped galvanized, permits mounting of a second Figure-8 cable on a crossarm directly under cable suspension clamp (5/8 in. bolt for suspension clamp attaches through 11/16-in. hole), and there's no need for clamp over crossarm. Clamps for gripping Figure-8 or as many as 3 feeder cables are mounted on ½-in. bolt through 9/16-in. hole.

Circle 112 on Reader Service Card

Eight-In. Panel Meters

A new 8-in. line of panel meters has been added to the Ambassador Series of Ideal Precision Meter Co., Brooklyn, N.Y. With a 7.4-in. scale length, the new meters are easier to read and provide better reading ac-

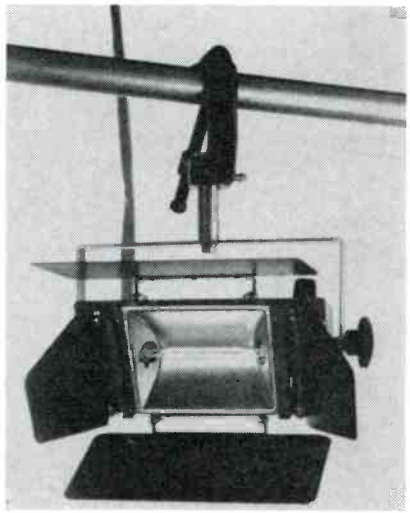


curacy because of their uncluttered scales. Meters have movements as sensitive as 50 μA, and an accuracy of $\pm$2 percent full scale. Either rear or internal illumination is possible, and the zero adjust is positioned in the front of the meter. Both shielded and unshielded movements are available.

Circle 104 on Reader Service Card

Compact Fill Lamp Has Barndoors

Berkey-ColorTran, Inc., Burbank, Calif., announces the introduction of a new lightweight and compact Mini-Lite "6" and "10" with integral



BESIDES PRESTIGE, WHAT DID FULL-COLOR NEWS GIVE WFBM-INDIANAPOLIS?

A SPONSOR WAITING LIST.

In April 1967, WFBM-TV in Indianapolis changed to full color for all local news.

Station Manager Don Menke says, "We are in a favorable sponsor position." News Manager Bob Gamble was even more graphic. "Advertiser interest in news is at an all-time high."

Gamble tells why WFBM decided to switch to color in the first place. "We figured we couldn't afford *not* to go to color. It's an important new dimension in broadcast journalism, and if you're going to do your job right —sooner or later you have to add that dimension."

Gamble knows whereof he speaks about doing a job right. For two years running, WFBM has been chosen The News Film Station of the Year by the highly respected National Press Photographers' Association. Do they shoot color exclusively? "All the footage is in color. We just don't shoot black-and-white anymore."

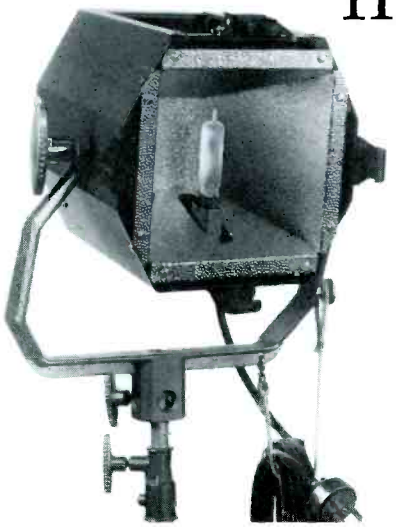
A Kodak engineer helped WFBM set up for color processing with the Kodak ME-4 chemicals. They are pre-packaged—everything is a snap. Kodak engineers are as near as the phone to answer questions. Sooner or later everyone's local news will be in color. Why don't you make it sooner? Contact Kodak.

Kodak

EASTMAN KODAK COMPANY

ATLANTA: 5315 Peachtree Industrial Blvd., Chamblee, 30005, 404—GL 7-5211; CHICAGO: 1901 West 22nd St., Oak Brook, 60523, 312—654-0200; DALLAS: 6300 Cedar Springs Rd., 75235, 214—FL 1-3221; HOLLYWOOD: 6706 Santa Monica Blvd., 90038, 213—464-6131; NEW YORK: 200 Park Ave., 10017, 212—MU 7-7080; SAN FRANCISCO: 3250 Van Ness Ave., 94119, 415—776-6055

What
can you expect from another broad?



LQTB-10 TRU-BROAD
Motion Picture Model

Great things, when it's the new TRU-BROAD from Berkey-ColorTran ! This newest member of Berkey-ColorTran's extensive line of floodlighting luminaires is perfect for motion picture and television applications to illuminate large surfaces in confined areas. Flick the switch. TRU-BROADS produce wide . . . smooth coverage with *single ended* Tungsten-Halogen "Quartz" lamps.

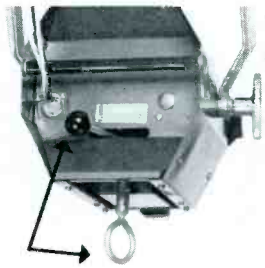
LQTB-10/TV
TRU-BROAD
Television Model

There's no peaking and the center of the beam is flat. At 10 feet, coverage is variable from 12 to 16.5 feet, using a 1000 watt lamp. Coverage at 10 feet is continuously variable from 21 to 30 feet in width.

Choose from 16 long life, low cost, constant color temperature Tungsten-Halogen "Quartz" lamps. 500 to 1000 watt lamps are available, operating directly from 120 volts AC or DC.

And TRU-BROADS operate easily and smoothly. Readily accessible, full focusing controls are used for hand operation in the motion picture model (LQTB-10), and for hand or pole operation in the television version (LQTB-10/TV).

Full focusing controls for easy operation are shown in the LQTB-10 (motion picture model, above) and the LQTB-10/TV (television model, below).



Accessories include a four leaf barndoor, diffusion glass, dichroic daylight conversion filter that converts tungsten (3200°K) to daylight (5500°K).

This new rugged, compact, portable, well ventilated broad is a beauty. TRU-BROAD.

Write for complete data.

Berkey-ColorTran®
Incorporated

Solving your lighting needs worldwide:

Berkey-ColorTran, Inc., U.S.A. • Berkey Photo Ltd., Canada • Berkey Technical (U.K.) Ltd., England • Berkey Technical, Denmark • Berkey Technical, West Germany • Berkey Photo, Italy Motran Film Services Ltd., Israel • Berkey-Australia Pty. Ltd. • Berkey-RDS Co. Ltd., Japan.

A Division of Berkey Photo Inc.

Berkey-ColorTran, Inc., 1015 Chestnut St., Burbank, Calif. 91502 / Tel: (213) 843-1200 / Cable: ColorTran / Telex: 67-7252

Write Dept. BME 568 for Berkey-ColorTrans new 1968 catalog and price list

Circle 25 on Reader Service Card

4-leaf barndoors, incorporating a new and improved reflector design which increases light output by more than 30 percent. Lamps weigh less than 5 lb and measure less than 3 in. deep. Designed for fill applications in motion picture, TV and still photographic studios, the Mini-Lites utilize a 650-W 3200°K "quartz" lamp, producing 97 ft candles at 10 ft with a broad and smooth light pattern. Integral 4-leaf barndoors provide sharp cutoff. Mini-Lites can be stand mounted or fitted with a C-clamp. Prices for Mini-Lite "6" and "10" in motion picture or TV models range $38.95 to $53.00.
Write on Letterhead Stationery

Cartridge Telephone Answering Machine

Minatronics Corp., Pittsburgh, Pa., is introducing a general-purpose cartridge telephone answering machine known as the Minatronics 520. Unit uses endless tape, which is contained in snap-in cartridge, onto which can be recorded any outgoing

message desired. Since no solenoids are used, cartridges with almost any length of recording time can be used. Unit is not wired into telephone lines; thus eliminating monthly rental or installation charges.
Circle 107 on Reader Service Card

Modular Audio Components

Arbor Systems, Ann Arbor, Mich., is now producing a series of solid-state plug-in modules, designed primarily for broadcast applications. The line includes a preamplifier, mixing amplifier, power amplifier,

tone oscillator and two power supplies. With the exception of the largest power supply, modules are mounted on 8- or 11-pin standard plugs. Amplifier frequency responses range from 20 to 20,000 Hz ±0.5 to 3.5 dB THD, depending on amplifier and load impedance. Modules are small enough to be hand-held; weights range from 7 oz to 5 lb. Prices of modules range from $30 (utility amplifier) to $95 (power supply).

Circle 106 on Reader Service Card

High-Power Balun

Kappa Networks, Inc., Carteret, N.J., announces a series of high-power baluns, offered for applications in matching unbalanced transmitter outputs to balanced antennas or transmission lines. Models are currently available in 100-, 500-, and 1000-W ratings for the frequency range of 2 to 30 MHz. Photo illustrates Model PB 500, conservatively rated at 500 W average power at maximum frequency. Packaged in a 2 × 1¾ × 3½ in. hermetically sealed enclosure, unit is designed to meet applicable military specification. Price is $65.

Circle 108 on Reader Service Card

Zoom and Focus Drive

Zolomatics, Hollywood, Calif., has developed a combined zoom and focus drive for the Angenieux 12 to 120 zoom lens. The zoom and focus motors are mounted on the same bracket and operated from a hand-held battery pack that provides for low and fast speeds. Zolomatics also has similar controls for other types of zoom lenses. Price is $750.

Circle 113 on Reader Service Card

NEW!

Equalize 16-MHz Video Through 10,000 Feet of Balanced Cable for under $3000!

...with DYNAIR'S EQUA-DYN System

LDA-1001A Balanced Line-Driving Terminal for short-run applications. Has 75-ohm unbalanced input and 124-ohm balanced output with complex termination circuitry. Use with LRA-3035A for distances to 5,000 feet. Price: $620.00

LDA-1025A Balanced Equalizing Line-Driving Terminal for medium-run applications. Similar to LDA-1001A, except has a switch-selectable 25-DB equalizer for pre-equalization. Use with LRA-3035A for distances to 10,000 feet. Price: $900.00

LRA-3035A Equalizing Line Receiver Terminal. Has precision clamper and 35-DB adjustable equalizer, with 75-ohm unbalanced or complex-terminated 124-ohm balanced input. Use alone for RG-11/U runs to 5,000 feet, with LDA-1001A for balanced runs to 5,000 feet, or with LDA-1025A for balanced runs to 10,000 feet. Price: $1,985.00

DYNAIR'S new solid-state EQUA-DYN system is ideal for studio-to-transmitter links and other short to medium run applications. Equalization is easily adjusted, making the system very useful for temporary transmission of video from special events. The differential phase and gain problems encountered in most systems of this type are avoided due to the extended 16-MHz bandwidth of the EQUA-DYN system. Transmission over distances greater than 10,000 feet is possible by cascading EQUA-DYN systems. Video may be passed through several systems with negligible signal deterioration.

Mail the coupon today for complete information on the EQUA-DYN system and a variety of other products DYNAIR manufactures for the educational, industrial, broadcast and community antenna TV industries.

MAIL THIS COUPON TODAY!

DYNAIR ELECTRONICS, INC. SAN DIEGO, CALIFORNIA

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San Diego, California 92114
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- ☐ Please rush literature on EQUA-DYN system
- ☐ Please place my name on your mailing list
- ☐ Please send catalog
- ☐ Please send free 26-page "Video Switching Techniques" book

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COMPANY _____

ADDRESS _____

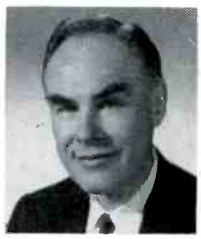
CITY _____ STATE _____ ZIP NO. _____

Circle 28 on Reader Service Card

NAMES
IN THE NEWS

General Electric recently announced the following series of appointments: **William R. Webber** as manager of Business Planning Operation for the Consumer Electronics Division; **Stanley W. Wickliffe** to the position of supervisor for Western Region of Closed Circuit Television Business Section; **George J. Kazacos** as district representative for the Cleveland office of the Visual Communications Products Department: **O.A. (George) Lively** to the position of manager, marketing research and planning, Visual Products Department; and **Harry J. Craig** as district sales representative for the Cleveland office of VCPD.

Nathaniel M. Marshall



Paul J. Weber

The Ampex Corp. announces the appointments of **Albert Slater** as northeast regional sales manager, Audio/Video Communications Division, according to A.A. Sroka, national sales manager; **Nationiel M. Marshall** as vice president, Industrial and Educational Products Division, according to Rein Narma, president and general manager; and **Paul J. Weber** as marketing manager, Magnetic Tape Division, it was announced by Leonard R. Salisbury, vice president and general manager.

Amperex Electronics Corporation announces the appointments of **Albert H. Katz** to the position of vice president of marketing, Professional Tube Division and **Allan L. Merken** as general manager of the Component Division.

Murray Tucker

Kenneth W. Taishoff

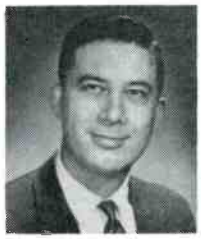
Murray Tucker has been named director of Technical Operations and **Kenneth W. Taishoff** has been

"Audiopak's all-around performance is better than any other cartridge I have used."

"The qua ity is better and they outlast all others."

Warrer Rossin, Warren Rossin Productions, Philadelphia, Pa.

named promotion manager for Fetzer Broadcasting Co. (Radio-Television), according to announcements made recently by Gene Ellerman, vice president and general manager for WWTV/WWUP-TV.



Wayne Beaverson

William S. Sadler

Wayne Beaverson has been elected president of Electro-Voice, Inc., Dr. Leslie K. Gulton, president and chairman of the board, recently announced.

Ball Brothers Research Corp., Boulder, Colo., has announced a major change in the video products segment of its business. **William S. Sadler**, director of the firm's Miratel Division in St. Paul has been named director of long-range product planning for the Company, reporting to R.C. Mercure, Jr., BBRC vice president.

Elliot (Biggie) Nevins, program manager of WIOD Radio and **Richard Whitcomb**, news commentator for WCKT-TV, have been initiated into Sigma Delta Chi, the national journalistic society.

CBS Radio announces the appointments of **Mike Palmer** as writer-producer in the Sports Department and **Bob DiMattina** as account executive. The CBS EVR Division announces the appointment of **Robert E. Brockway** as president.

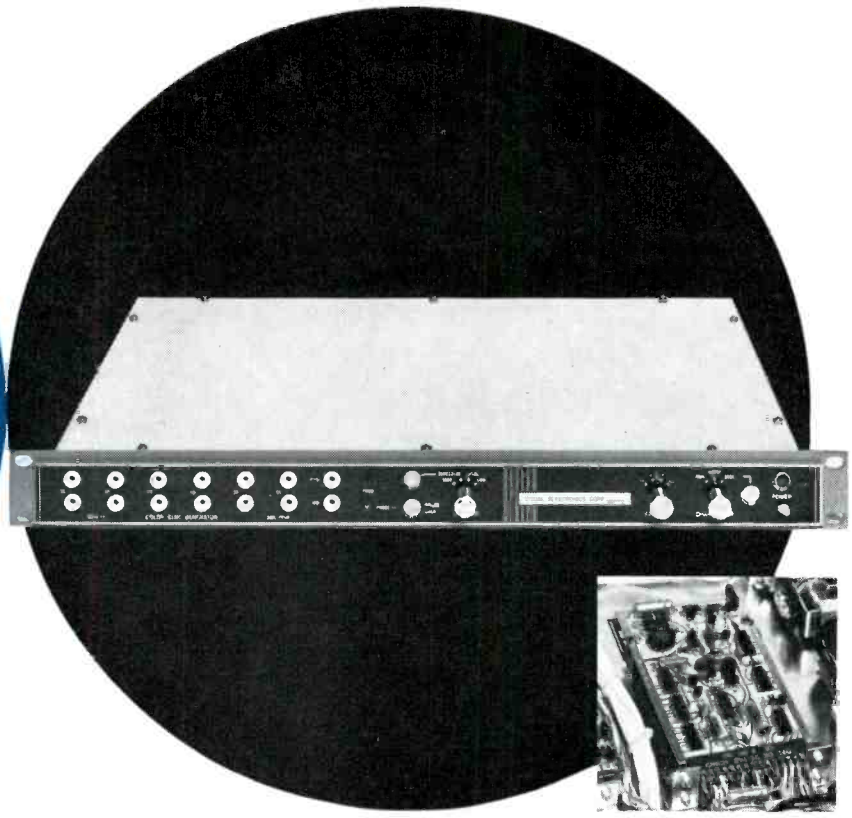
Peter W. Smith

James E. Landy

Central Dynamics, Ltd., announces the appointments of **Peter W. Smith** as chief engineer and **James E. Landy** as vice president and general manager.

Raytheon announces the appointments of **Francis S. Fox** as president of Raytheon Education Co.; **Mahlon King** as manager of central regional office, corporate government marketing; **Charles H. Resnick** and **Dr. Joseph F. Shea** elected vice presidents; and **Henry W. McMurtray** as

VISUAL...
your major source for advanced equipment



Close-up detail of integrated Circuit Module in CSG-1.

NOW . . . NEW PERFORMANCE STANDARDS IN SYNC PULSE STABILITY with Visual's CSG-1 Digital Sync Generator

Incorporating the latest state-of-the-art components—including digital design techniques and the reliability and simplicity of integrated circuits—Visual's CSG-1 Digital Sync Generator offers vastly improved time-base stability which eliminates loss of color-lock on video tape recording.

An unusually high frequency clock allows digital frequency division only, without the need for frequency multiplication with its inherent time-base errors. Other features include: Dual Outputs, permitting pulse assignment to Operation and Production; Built-in sync changeover for standby operation; Synclock, to provide uniform positive lockup to external color or monochrome sync, and Bar-Dot, a switch-selectable test signal for monitor linearity and color convergence alignment.

For that extra edge of performance and reliability at a practical price, upgrade your video signal origination and transmission with this state-of-the-art development from Visual Electronics!

the Blue Ribbon Line

VISUAL ELECTRONICS CORPORATION

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Circle 32 on Reader Service Card

assistant plant manager of the Company's North Dighton, Mass., manufacturing facility.

Dr. Frederick Breitenfeld, Jr., executive director of the Maryland Educational-Cultural Broadcasting Commission, has been appointed to the Federal Communications Commission's National Committee for the Development of International Television Fixed Service. He has received a simultaneous appointment as chairman of a statewide committee on ITFS for Maryland.

Richard Estell, manager of WKAR-AM-FM, East Lansing, Mich., and **Jack D. Summerfield,** general manager of WRVR-FM, N.Y., have been elected to the advisory board of directors of the National Educational Radio Division of the NAEB.

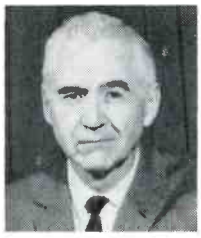
Eli Manchester, Jr., has been named vice president and general manager of Boston Insulated Wire Co.

Albert P. Fredette has been named to the editorial advisory board of *Educational/Instructional Broadcasting*, a new radio and television journal for educational broadcasters.

Jack Dichtenberg has been named to handle technical-commercial operations for the Norelco Radio Department of North American Philips Co., Inc., it was announced by William B. Keepin, department manager.

Carl W. Claras has been named vice president of International Video Corporation, according to Donald F. Eldridge, IVC president.

Robert H. Jones



John P. Taylor

Robert H. Jones has been appointed chief engineer of WBLG-TV, Lexington, Kentucky, it was recently announced by Roy B. White, president.

RCA announces the following series of appointments: **Kenneth T. Giebel** as sales manager of RCA Parts and Accessories; **John P. Taylor** as Division vice president, Marketing Programs, Commercial Electronic Systems Division; and **Fred E. Folsom** to the position of staff vice president, Southern Distributor and Commercial Relations.

You can earn more money if you get a Government FCC License

...and here's our famous CIE Warranty that you will get your License if you study with us at home

NOT SATISFIED with your present income? The most practical thing you can do about it is add to your Electronics know-how, pass the FCC exam and get your Government License.

The demand for licensed men is enormous. Today there are over a million licensed broadcast installations and mobile transmitters on the air, and the number is growing constantly. And according to Federal Law, no one is permitted to operate or service such equipment without a Government FCC License or without being under the direct supervision of a licensed operator.

This has resulted in a gold mine of new business for licensed service technicians. A typical mobile radio service contract pays an average of about $100 a month. It's possible for one trained technician to maintain eight to ten such mobile systems. Some men cover as many as fifteen systems, each with perhaps a dozen units.

Opportunities in Plants

And there are other exciting opportunities in the aerospace industry, electronics manufacturing, telephone companies, and plants operated by electronic automation. Inside industrial plants like these, it's the licensed technician who is always considered first for promotion and in-plant training programs. The reason is simple. Passing the Federal Government's FCC exam and getting your License is widely accepted proof that you know the fundamentals of Electronics.

So why doesn't everybody who "tinkers" with electronic components get an FCC License and start cleaning up?

The answer: it's not that simple. The Government's licensing exam is tough. In fact, an average of two out of every three men who take the FCC exam fail.

There is one way, however, of being pretty certain that you will pass the FCC exam. That's to take one of the FCC home study courses offered by the Cleveland Institute of Electronics.

CIE courses are so effective that better than 9 out of every 10 CIE graduates who take the exam pass it. That's why we can afford to back our courses with the iron-clad Warranty shown above: you get your FCC License or your money back.

Cleveland Institute of Electronics

WARRANTY

OF SUCCESS IN OBTAINING A GOVERNMENT FCC LICENSE

A Cleveland Institute of Electronics FCC License course will quickly prepare you for a Government FCC License. If you don't pass the FCC exam after completing your course, CIE will refund all your tuition. You get an FCC License...or your money back!

Mail Coupon for Two Free Books

Want to know more? Send the coupon below for free copies of our school catalog, "How To Succeed In Electronics," describing opportunities in Electronics, together with our special booklet, "How To Get A Commercial FCC License." If coupon has been removed, just send your name and address to us.

ENROLL UNDER NEW G.I. BILL
All CIE courses are available under the new G.I. Bill. If you served on active duty since January 31, 1955, or are in service now, check box in coupon for G.I. Bill information.

Matt Stuczynski, Senior Transmitter Operator, Radio Station WBOE: "I give CIE credit for my First Class Commercial FCC License. Even though I had only six weeks of high school algebra, CIE's lessons made Electronics easy. I now have a good job in studio operation, transmitting, proof of performance, equipment servicing...and am on my way up."

Thomas E. Miller, Jr., Engineer, Indiana Bell Telephone Company: "I completed my CIE course and passed my FCC exam while in the Navy. On my discharge, I was swamped with job offers from all over the country. My only problem was to pick the best one, and I did—engineer with Indiana Bell Telephone. CIE made the difference between just a job and a management position."

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Please send me without cost or obligation:

1. Your 40-page book "How To Succeed In Electronics" describing the job opportunities in Electronics today and how your courses can prepare me for them.
2. Your book "How To Get A Commercial FCC License."

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(BM-9)

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Circle 37 on Reader Service Card ➔

ELECTOGRAPHY

Videotaping has gotten so good, it has a new name!

Tape is more versatile than ever!
Everybody knows the key advantages of video tape. You work fast. You see your work as you go. You can be more daring and experimental.

But perhaps you didn't realize how sophisticated the art of videotaping has really become: You can edit instantly . . . electronically . . . frame by frame. You can use slow motion, fast motion, stop motion and reverse action. You can go out on location. And you can combine all types of existing footage (stills, film) with new footage.

Now, the most life-like color yet: "Scotch" Brand Color Tape Plus.
"Scotch" Brand Video Tape No. 399 gives you the ultimate in color fidelity. The brightest, clearest, most life-like color ever. Color Tape Plus is so ultra-sensitive, you can use the most subtle lighting techniques. Copies are perfect. Blacks and whites are stronger. And No. 399 is almost impossible to wear out.

So please don't call it videotaping any more. There's now a new name for this complete creative medium . . . electography!

Want more facts? Write: 3M Company, Magnetic Products Division, 3M Center, St. Paul, Minn. 55101.

3M COMPANY

BROADCASTERS SPEAK

We apologize (or—oops! We goofed). Our March 1968 guide to cable selection included the statement (p. 52) that the dielectric in seam welded cable is not compressed as much as it is in solid aluminum sheathed cable. This was a misstatement. Modern manufacturing techniques make seam welded cable the equal of seamless in this report.

This excerpt from a letter by F.W. DeTurk of Phelps Dodge explains the matter in full:

"In the manufacture of seam-welded aluminum sheath cables, flat tape is formed into a tubular construction and welded. Due to heat at the weld point the tube must be greater than its final diameter. The tube then is drawn down to final size. The drawing operation is the same as the drawing operation utilized in the manufacture of seamless cables. The amount of compression on the foam dielectric material is a function of the individual manufacturer's practices. The amount of compression has nothing to do whatsoever with the seam-welding operation.

"At Phelps Dodge we have and still are manufacturing both seamless and seam-welded cables. The amount of compression placed on the foam dielectric material is the same for each operation."

John E. Thomas of Lindsay Specialty Products—also writing on the subject—provides a plus for welded cable: "Welded cable also overcomes the serious shortcomings of seamless cable—that of excess hardening, which is caused by the work hardening of the extrusion process to which seamless cable is subjected."

On p. 53 of the same article, we said that hermetically sealed cable uses an aluminum strip less than a thousandth of an inch thick. Actually, it is 8 thousandths of an inch thick.

Sirs:
Thank you for my subscription to *Broadcast Management/Engineering*. It seems, however, that some others have taken my copy of your magazine and, therefore, I would appreciate it if you would send further issues to my home address . . .

Thank you very much.

J.C. Allison
WLAP-WLAP-FM
Lexington, Kentucky

Sirs:
You are to be congratulated on the series, "Interpreting FCC Rules and Regulations," which began the March issue of *BM/E*. The interpretation of FCC rules and policies can become rather hectic, and the clarification provided in your series is most enlightening.

I realize that your historical review and interpretation is no substitute for legal counsel, but it is certainly of value to the broadcaster who is trying to fully comprehend FCC rules, policies and regulations.

Thank you for making this information available.

Robert K. Avery
Assistant to the President
WQED-WQEX
Pittsburgh, Pa.

Sirs:
WCHC is a carrier a-m student-operated radio station here at Holy Cross. Just last January we moved into new facilities in a new campus center building. We began receiving *BM/E* in September of last year and have been very pleased with it—the ear-marked issues in our magazine rack give plenty of evidence.

Early this week the regional executive from United Press Interna-

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GET MORE INFORMATION on products, free of charge. Just circle appropiate number below and mail card today.

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3	18	33	48	63	78	93	108	123	138	153	168	183	198	213	228	243	258	273	288	303	318
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214	229	244	259	274	289	304	319
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215	230	245	260	275	290	305	320
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216	231	246	261	276	291	306	321
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217	232	247	262	277	292	307	322
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218	233	248	263	278	293	308	323
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219	234	249	264	279	294	309	324
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220	235	250	265	280	295	310	325
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221	236	251	266	281	296	311	326
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222	237	252	267	282	297	312	327
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223	238	253	268	283	298	313	328
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224	239	254	269	284	299	314	329
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330

Tell us what you like or dislike in this issue.

Pages # _____

Comments: _____

YOUR NAME AND ADDRESS:

Name: _____

Title _____

Station or Company _____

Street _____

City _____ **State** _____ **Zip** _____

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NAME ..... TITLE.....

STATION or CO. .....

STREET .....

CITY, STATE, ZIP .....

Is this your business address? ☐ Yes ☐ No If not your business address, please give us your business address below so that we can avoid sending duplicate copies.

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7. ☐ For Address Change — Give OLD Address below

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4	19	34	49	64	79	94	109	124	139	154	169	184	199	214	229	244	259	274	289	304	319
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215	230	245	260	275	290	305	320
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216	231	246	261	276	291	306	321
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11	26	41	56	71	86	101	116	131	146	161	176	191	206	221	236	251	266	281	296	311	326
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222	237	252	267	282	297	312	327
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Name: _____

Title _____

Station or Company _____

Street _____

City _____ **State** _____ **Zip** _____

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tional paid us a visit, and in the course of our conversation he mentioned an article in *BM/E* that dealt with setting up a newsroom properly. I was especially interested in this article as I am news director here. I checked all our back issues and did not find the article. The man from UPI said it must have been the August issue—a month before we began receiving the magazine.

If it is possible, I would very much appreciate a back copy of the magazine, or a reprint of the article. Thank you very much.

Thomas Milewski
News Director
WCHC Radio
Holy Cross College
Worcester, Mass.

July/67 BM/E on the way, T.M.

Sirs:

With reference to the Akerman, McAulay, Roycroft comments, something has been overlooked in the discussion by Mr. Roycroft of the comments of Mr. McAulay to Mr. Akerman. Mr. McAulay rightly raised the specter of heat as the probable cause of most premature tube failures in equipment using 4-400's, 3X2500's, etc. I submit—based on 15 years of living with a BC 5B Gates a-m on 1590, and three different transmitters, an RCA BTF-250, ITA FM -1000, and RCA BTF 10D, over the same 15 years—that heat and excessive filament voltage contribute to the early failures. Our tube life in the BC 5B, using 3X2500F3's runs 12,000 to 15,000 hours.

In our fm transmitter, the first tube shorted at 300 hours, which I believe was due to vibration in shipping. The second tube was removed from service at 11,000 hours, when filament emission started to drop. This was a 4CX5000A. I understand this is not an unusual length of service. Two factors are helping here, and I believe that our methods could be used to advantage at any station, 250 W to 250 kW. First, we run our filament voltages at the *low* range of the manufacturer's specs. This aids in reducing the inrush current to the tube. We leave filaments *on* in extremely cold weather, during periods when the station is off the air.

To keep things cool in the summer, each of our transmitters has its own exhaust fan (3500 ft^3/min.) ducted directly to the top of the transmitter cabinet, and to the outside. Besides keeping the transmitter cabinet cool enough to touch in 90-degree weather, getting that heat outside has kept our staff cooler to the touch as well. Incidentally, if one reads the instructions, the equipment manufacturers specify the volume of cooling air and size of fans required.

One other thing: make certain your transmitter is *properly tuned and loaded*. This is particularly true in fm service, and will keep those 4-400's et al happy much longer, thus station owners will smile.

I feel attention to these items is doubly important to stations operating by remote control; and to those, an investment in some sort of automatic power line voltage regulation should be considered.

Virgil M. Royer
Operations Manager/
Chief Engineer
WTVB, WANG Radio
Coldwater, Mich.

Sirs:

Will you be so kind as to inquire with KLTZ about the brand and price of the microphone stand illustrated on page 49 of the November/67 *BM/E*.

Incidentally, please also tell them that we plan to copy their control room layout.

Jose Arturo Fernandez
WORO-FM, Puerto De Tierra
Puerto Rico

KLTZ tells us it's a Luxo-Lamp—made in Sweden and available from Crabtree Electronics, Dallas, Texas. There cost was less than $15 at the time of purchase. KLTZ suggests that you specify a wall mount or a desk base.

LITERATURE of INTEREST

For additional data, circle No. shown on Reader Service Card.

Automated programming case history, explaining how system made uniform program and improved efficiency possible at KTBT-FM, is available from Ampex (Bulletin 6276). **150**

Terminal facility bays used to provide interface between multiplex channelling and radio equipment are described in Term-Fac-1. Issue No. 2, from Radio Engineering Laboratories Div. **151**

"Hot Lights and Cameras—Basic Techniques for Educational Television" is a 35-page bulletin from Hub Electric Co., covering architectural considerations, electrical guidelines and lighting principles and other useful data for ETV broadcasters. **152**

Audio-visual system from CBS Laboratories—the Viewlex-10—is attractively presented in Bulletin AVS10-268(4623). System uses "unbreakable" one piece combined sight and sound program cartridge. **153**

"What CATV needs is a selling tool that pays for itself" is the title of a brochure from Television Presentations, describing *Alphanumeric News,* the first all-electronic news service for home TV sets. **154**

Mimeographing Model 530, capable of producing 7200 copies/hr is presented in Brochure 67-145 from A.B. Dick Co. **156**

Revised resistor standard (RS-344) is a revision of REC-117, and includes power ratings of 1- through 15-W ratings with resistive tolerances of ±5 and ±10 percent. Standard is available from EIA Engineering Dept. for $2.20. **157**

Wall-chart (PLL-1), listing specifications on wire-cable tubing, electronic hardware and switches, and radio-TV accessories is available from Birnbach Co., Inc. **158**

Latest edition of English Electric Valve's 78-page "Abridged Valve Data Book" covers power, microwave, light conversion applications and other products such as lasers, cold cathode tubes and vacuum capacitors. **159**

Audio connector adaptors are the topic of Bulletin No. 171 from Switchcraft. **160**

Use of CCTV in conjunction with X-ray equipment at U.S. Naval Hospital, San Diego, Calif., is covered in 4-page Bulletin 8-86 from Cohu. **161**

Jacks, plugs, switches, connectors, indicating devices and audio accessories are topic of 55-page short form catalog from Switchcraft. **162**

Lightning arrestors standard for alternating-current power circuits, IEEE No. 28(USAS C62.1—1967), provides transmission line discharge and a pressure relief tests for station and intermediate arrestors. Standard is available from IEEE for $3.00 (members, $1.50). **163**

Elapsed time meters are topic of Bulletin P-601 from Simpson. Ac and dc types are presented. **164**

"The Use and Abuse of Children's Time"—a psychiatric examination of the beneficial and harmful effects of television viewing on child audiences—is a reprint available from NAFBRAT for 25 cents. **165**

Solid-state X-Y monitors are topic of a 2-page bulletin from Measurement Control Devices. **166**

Modular enclosures for electronic equipment are topics of Emcor I and Emcor II catalogs. **167**

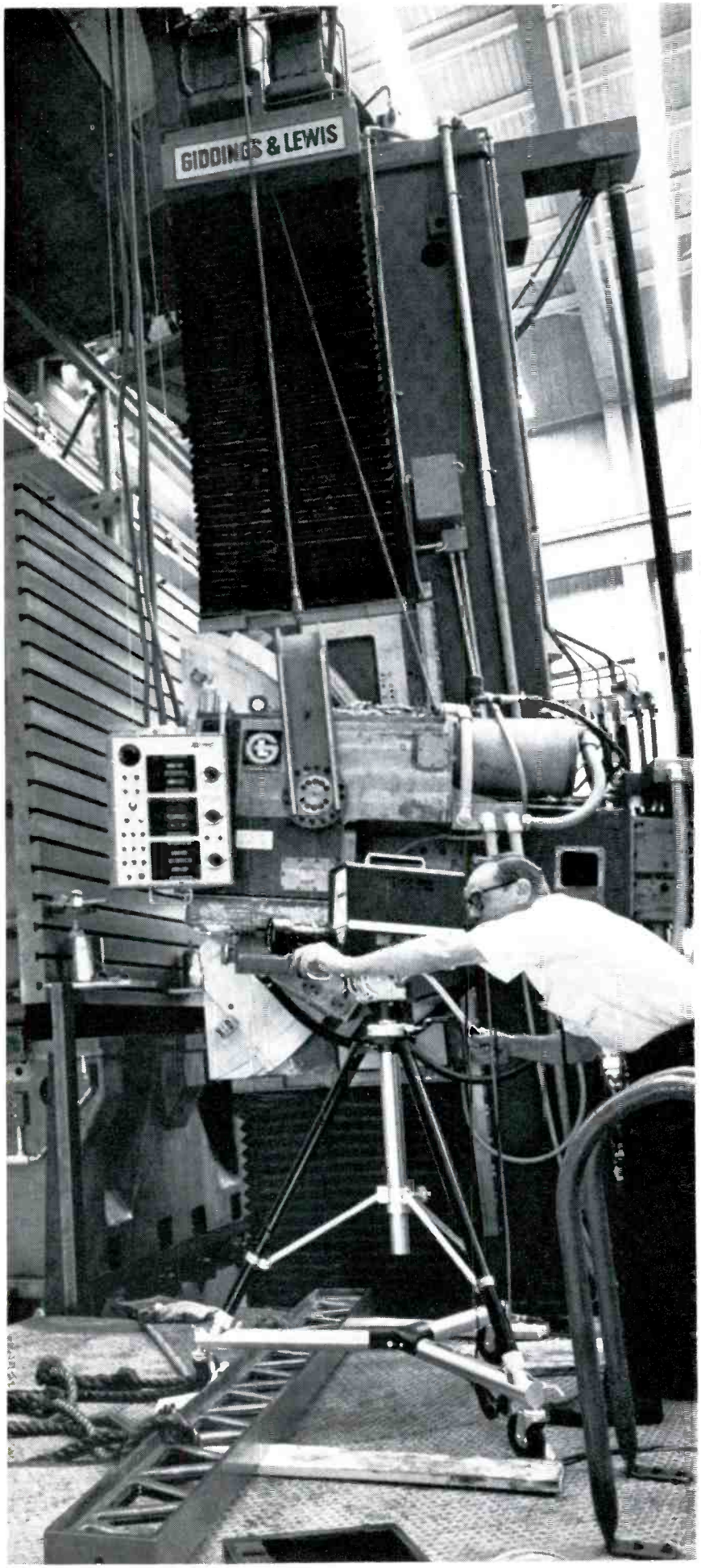
"Printed Circuit and Electronic Packaging Products" is a 64-page catalog describing over 23 product families containing a total of more than 1000 individual components. **168**

Audio distribution amplifier (Model AA-60)—with one input and a number of outputs, like a video DA—is topic of brochure from Ward Electronic Industries. **169**

Balun amplifier (Model BUDR-1), accepting balanced and unbalanced inputs and eliminating frequency interference, is topic of data sheet from Applied Electro Mechanics. **170**

Rear projection 16mm projectors with continuous loop film magazines, and attachments for converting standard projectors for continuous operation are topics of data sheets from Kalart. **176**

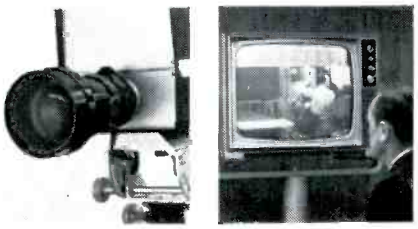
"A Little Less Hypocrisy, Please"—first of a series in defense of television by Eric Sevareid—is a reprint from *TV Guide* available from the Television Information Office. **179**



How to train personnel with the new 3M 11:1 TV Zoom Lens

Training customers' personnel is just one reason Giddings & Lewis Machine Tool Co., a division of Giddings & Lewis, Inc., in Fond du Lac, Wisconsin, uses a new 3M 11:1 TV Zoom Lens. It also helps them with sales training, sales meetings and with recording service manuals on video tape.

Giddings & Lewis designs and builds numerically controlled machine tools for heavy industry. These tools, as big as a two story building, will be operated by personnel who must be trained.



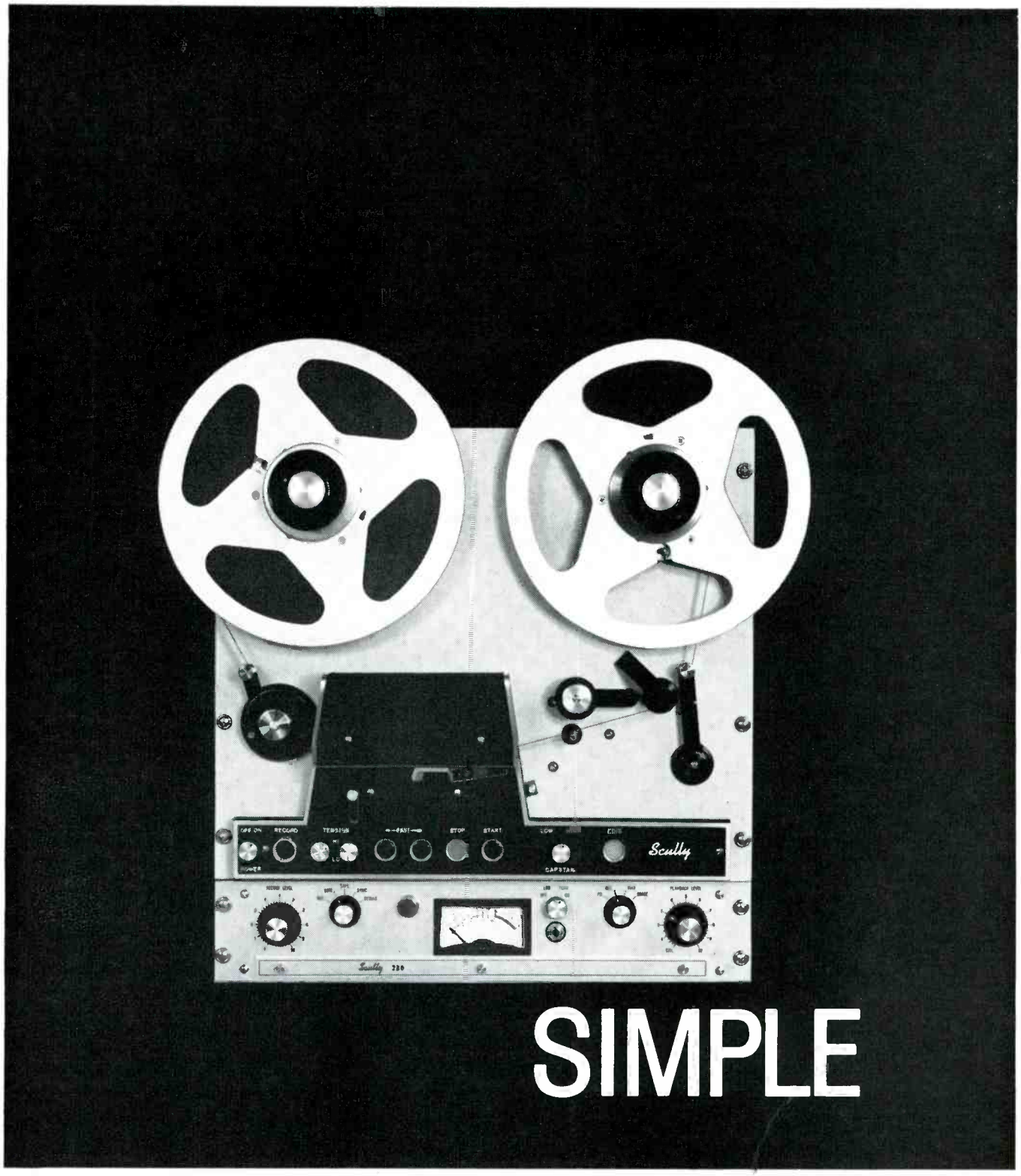
G & L video tapes information about their products with a closed circuit television system. Taping is done right in the shop using available light. In turn these tapes are made available as instruction guides to companies buying the machine tools.

The 3M 11:1 TV Zoom Lens allows a broad look at the huge machines, as well as extreme closeups. At f/2.2, it allows use at low light levels. The focal length range of 11 to 1 maintains perfect focus. And the lens' "C" mount will fit any Vidicon camera. The 3M 11:1 is American made, and available in motorized and manual models.

Discover what this remarkable lens can do for you. Write to R. V. Clapp, Product Sales Manager, 3M Wollensak Television Products, 3M Center, St. Paul, Minn. 55101.

3M COMPANY
Wollensak
TELEVISION PRODUCTS

Circle 43 on Reader Service Card



The Scully 280. Station engineers tell us that "its beauty is in its simplicity". Minimum gadgetry means minimum downtime. Simple, close-tolerance construction of the transport deck on a sturdy base means longer periods between alignments. Simple plug-in assemblies mean instant repairs. Simple operating procedures mean less chance for human error. There's a lot of meaning in simplicity. Call your nearest Scully Distributor and talk it over with him soon. Simply.

Scully

Recording Instruments Company

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(203) 335-5146

Makers of the renowned Scully lathe, since 1919
Symbol of Precision in the Recording Industry

Circle 44 on Reader Service Card

BM/E CLASSIFIED MARKETPLACE

CLASSIFIED ADVERTISING RATES

DISPLAY CLASSIFIED ADVERTISING: $22.50 per inch 1x; $22.00 per inch 3x; $21.00 per inch 6x; $20.00 per inch 12x. ALL OTHER CLASSIFIED ADVERTISING 25¢ per word; minimum $3.00. BLIND BOX NUMBER: No extra charge. Replies sent to address below will be forwarded to you. PAYABLE IN ADVANCE; send check with order. CLOSING DATE: 5th of 2nd month preceding issue date.

BM/E, Monterey and Pinola Avenues, Blue Ridge Summit, Pa. 17214 Phone 717/794-2191

BUSINESS OPPORTUNITIES

WANTED
to buy, finance, or participate in CATV system or franchise. Will consider all proposals in confidence. Clear Vision CATV Services, Inc., P. O. Box 3125, Meridian, Miss., 39301.

SALES REPS WANTED

Sales representatives wanted for CATV products, log periodic antennas, components. John Thomas, Lindsay Electronics, Lindsay, Ontario, Canada. Phone: 705/324-2196.

HELP WANTED

ENGINEERS—TV—Sunny California. Discover job security, and a new way of life in California. Have top openings for qualified Maintenance Engineers, especially Video Tape and Live Color Video. Send resume or letter to The AMPS Agency—3924 Wilshire Boulevard, Los Angeles, California 90005. 388-3116.
By Broadcasters—for Broadcasters

Ass't chief engineer needed for aggressive UHF station in Nation's Capital area. Must know all types of equipment and be able to take over supervision of engineering department functions. Good salary and opportunity for future advancement. Send resume and references to Box 568-27, c/o BM/E, Blue Ridge Summit, Pa. 17214.

IMMEDIATE OPENINGS—Qualify for any of the following positions: Technicians for RCA closed Circuit Television equipment—Camera men—Maintenance men—Video Tape Men—Video Engineers, RCA Rep. 143-08 94th Ave., Jamaica, New York, or (212) 297-4344.

First Class men, all levels, for maintenance only. No mike work. If you have experience we will pay for it. If you need experience we will train you. Pleasant operation. East Coast. Box 568-28, c/o BM/E, Blue Ridge Summit, Pa. 17214.

MAINTENANCE TECHNICIAN—To work on VTR's, film and live cameras. Installing color equipment. Experience desired. First class license required. Send resume with salary requirements to Chief Engineer, WTTW, 5400 North St. Louis Avenue, Chicago, Illinois 60625.

SALESMAN WANTED: Personable, self-starter who likes people, can become involved in community. Pleasant announcing voice helpful for brief board shifts, heavy selling. Air mail resume to: KSEW, Box 258, Sitka, Alaska 99835.

ANNOUNCER WANTED: Small station with M O R format local orientation, good equipment, want self-starter who enjoys being creative. Air mail resume to: KSEW, Box 258, Sitka, Alaska 99835.

Opening for 1st Class studio engineer. Color experience desirable, but will consider aggressive learner. Call or write Arthur Bone. WJRT-TV, P.O. Box 12, Flint, Michigan. 313/239-6611.

Television Engineer—for studio operation, live, film, and VTR. Color experience preferred. Southwestern VHF station. Box 568-14, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Chief engineer: take complete charge in top 15 market. Good salary, challenging growth opportunity. Box 568-15 c/o BM/E, Blue Ridge Summit, Pa. 17214.

Studio Technicians for all color VHF First Class license required. Will train for color operation. Send resume to WSAZ-TV, P.O. Box 2115, Huntington, W. Va.

Combo man wanted. Accent on announcing, but some basic technical knowledge desirable. Atlantic coast area. Box 568-29 c/o BM/E, Blue Ridge Summit, Pa. 17214.

"Engineer wanted. Daytimer adding FM. Position immediate and permanent. WRMF, Titusville, Florida. Phone 305/267-1121".

HELP WANTED (continued)

PRODUCT PLANNING MANAGER
TV BROADCAST EQUIPMENT

Company: Radio and TV transmitting equipment manufacturer.

Position: Product Planning Manager reporting to the General Manager. Responsible for the product planning activity including establishing product concepts, prices, sales requirements and guiding product development.

Qualifications: College graduate preferably in EE. Indepth knowledge of TV broadcasting equipment market. Strong background in sales and marketing responsibility required. Some product development experience desirable.

Compensation: Salary commensurate to background plus executive incentive participation. Full fringe benefits and profit-sharing retirement plan.

Future: Full opportunity to guide personal growth in relation to the growth of a new product area while functioning within a growth-minded, profit oriented company.

Location: Medium-size midwestern city with excellent schools and full facilities for the finest of family living.

Send resume or call Robert T. Fluent, Employment Manager, 217/222-8202.

Gates Radio Company
Quincy, Illinois 62301
An equal opportunity employer (M&F)

POSITIONS WANTED

Looking for a really good salesman? You're talking to one! I never met an account I couldn't sell. 35. Now in radio, I'm looking for solid TV sales with some announcing. Have on camera experience. Now in market of 110,000. Wish larger market. Fourteen yrs. experience. Now in southwest, but will consider any locale. Box 568-1, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Newscaster with background in two metropolitan area stations (one as news director). Mature, married, looking for permanent home at station with future. Also interested in TV or radio-TV operation. Experienced in gathering, writing, editing, interviewing, "on the scene" reports. Would also accept overseas position. (Interested in British location). Box 568-2, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Have rate card will fly. Seeking management position where these qualifications will be utilized: broadcast "idea" salesman, creative programming. Bachelor Science degree, radio/TV, developing active advertisers, commercial pilot license, instrument and multi-engine rating. Resume is in Box 568-3, c/o BM/E, Blue Ridge Summit, Pa. 17214.

"Graduating June with degree in Management. Seek position with aggressive organization. Ambitious, reliable, hard working, 3rd class with four years college and commercial experience including two years as manager of highly successful college station." Box 568-4, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Radio-tv announcer looking for first position. Broadcasting school graduate. 3 yrs college, military completed. 3rd endorsed. Will relocate. Dependable, anxious to get started. Paul Siragusa. 79 Chatsworth Ave., Kenmore, N.Y. Phone: 716/873-2930.

Negro announcer, authoritative newscaster, family man, tight board, non-floater, non prima donna. Graduate of New York broadcasting school. Have third class ticket. Box 568-20 c/o BM/E, Blue Ridge Summit, Pa. 17214.

POSITIONS WANTED (cont'd.)

Kovacs-type TV personality/writer. Brilliant. Funny. Reasonable. Box 568-19, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Beginning announcer-dj. Broadcast school grad., 3rd endorsed. C&W, MOR, play by play for baseball, basketball. Prefer midwest, Arizona or Nevada. Available now. Robert Erschen, 313 Bryant St., Dubuque, Iowa, 319/582-0870.

Career Academy New York graduate. Good voice, young, ambitious, 3rd endorsed. Willing to work hard for first break. Will relocate east of Mississippi. Jeff Nichols (201) 627-1128, 94 Hill St., Rockaway, N.J.

Creative TV Producer/Director, 36, with heavy experience videotaping productions, remotes, music scoring, desires position with production center or station, or as production manager. Box 568-5, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Disc Jockey, newscaster, salesman, experienced, authoritative, aggressive, versatile, run tight board with third endorsed, dependable family man. Box 568-6, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Twenty years in and around broadcast field, all phases. Interested in CATV—TV—Radio—Recording. Desire Florida. Box 568-7, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Deejay, announcer, newscaster. Experienced, dependable, third endorsed, tight board. Authoritative, versatile, creative. Box 568-8, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Need PD or top staffer? Ten years experience. Family man. Dependable, First phone. $180 minimum. Box 568-9, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Available June 1—College student with first, transmitter and cameraman experience, car. Desire overtime, morning or daytime schedule, midwest. Box 568-10, c/o BM/E, Blue Ridge Summit, Pa. 17214.

POSITIONS WANTED (Cont'd.)

Negro announcer—dependable—experienced. Reliable—can work any type station. Third endorsed. Box 568-11, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Program director, prefer MOR or top 40, major market experience, available immediately. Box 568-12, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Announcer, authoritative newscaster, mature sound. 3rd class endorsement. Looking to settle. Box 568-13, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Negro broadcast school graduate. 3rd endorsed, draft exempt. Anywhere. Needs a start—NOW! Box 568-21, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Authoritative newscaster DJ, announcer third class ticket, non-floater, family man. Jazz or popular music. Box 568-22, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Rock, Top Forty, Rhythm and Blues. Authoritative Newscaster, 3rd Class Phone. Draft Free. Box 568-23, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Soul jock—3rd endorsed, tight board. Draft exempted. College training, relocate. Box 568-24, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Soul R&B, top 40 dj—Needs start—authoritative news—excellent commercials—third endorsed. Clarence Collins. Box 5627, Chicago, Ill. 60680.

Sportscaster, 22, play-by-play, college, draft exempt, eight months experience. Box 568-25, c/o BM/E, Blue Ridge Summit, Pa. 17214.

EQUIPMENT FOR SALE

ANTENNA FOR SALE

1 RCA TFU-24BLS Antenna (Ch. 27) with ½ degree electrical beam tilt. Good condition (VSWR 1.1 to 1 or less). 28 sections RCA MI 19089 UHF Trans. line. 3⅛ inch—20 ft. sections.

Contact: R. J. Wickham, Dir. of Eng. WKOW-TV Madison, Wisconsin 53701

TRANSLATOR POWER now put your translator where antenna should be for best coverage, not where power line happens to be. Use a TELAN thermoelectric generator. No moving part, simple to operate, leave unattended 6-12 months. General Instrument Corp., Thermoelectric Division, Dept. BM, 65 Gouverneur St., Newark, N.J. 07104, 201-485-2100 ext. 481.

Scully tape recorders, finance and trade. Two Spotmasters Playback, and one record/playback, all three, $38.25 monthly. New equipment. QRK or Russco deluxe turntables, $10.80 monthly. Write for list. New cartridges shipped freight prepaid. Audiovox, Box 7067-55, Miami, Florida 33155.

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Reduce interference in FM monitors, RF Amplifiers and FM Relay Receivers. Reduce spurious and harmonics from low power FM transmitters. Sharp tuned coaxial resonators. For information, write: Sugarloaf Electronics, 1 Crestview Ave., Waterford, N.Y. 12188.

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Ampex VR-1000C videotape recorder/reproducer for monochrome broadcast. Refurbished. Rebuilt quad head. Picture, wave-form, and audio monitors, $10,500. Write Box 568-16. c/o BM/E, Blue Ridge Summit, Pa. 17214.

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Gates BC-1T accessories. 1590kc plug-in crystals $25 each. Mica capacitors .0005 .0025. RCA 66-A modulation monitor $50. Collins M-20 mike, $10. Gates M5214 RDC-10 remote control system. KOZE, Lewiston, Idaho.

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Whatever your equipment needs . . . check first with Broadcast Equipment and Supply Co., Box 3141, Bristol, Tennessee 37620.

Towers, broadcast, microwave, CATV, TV, new and used, phone 224-9922 Tower Maintenance, Inc., 2408 Old St. Rd., Tallahassee, Fla.

6 element circular vertical and horizontal antenna. Price $2,400.00. Box 568-26, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Protect your records. Send for our free Lp supply lists. Record Supplies, Hillburn, N.Y. 10931.

GOVERNMENT Surplus Electronic catalog — 25¢. Meshna, Nahant, Mass. 01908.

EQUIPMENT WANTED

Wanted: guyed or self-supporting tower 610 ft. Capable of supporting 12 bay hi-band pedestal mount antenna and 6 bay FM antenna and related equipment. Minimum 40 pound wind load. Contact William A. Ekberg or Ivar Nelson, KFYR-TV, Bismarck, North Dakota. Telephone 701/223-0900.

WANTED: all equipment for the construction of small black and white television studio. Seeking donations but will consider purchase. Supt. of Schools, Dr. James P. Harrison, Nether Providence Township, Wallingford, Pennsylvania 19086, 215 LO 6-9000.

Need one complete ten (10) KW AM transmitter, self contained and in good condition. Will consider a five (5) KW transmitter. Box 568-17, c/o BM/E, Blue Ridge Summit, Pa. 17214.

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SIGNS, NAMEPLATES, LABELS, Decals, Badges, Trophies, Plaques. Seton Corp., Dept. BM/E, New Haven, Conn. 06505.

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BROADCAST EQUIPMENT REBUILDERS has moved! Our new address is P.O. Box 276, Hickory, N.C. 28601. B-E-R still offers the same professional service on cartridge rewinding, and all work is fully guaranteed. Write Quin Morrison about your used equipment needs.

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Deejays! Monthly gag service exclusive for jocks. "Hollywood Gag Digest" 711 No. Cherokee, Hollywood, Calif. 90038.

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FROM THE EDITOR

A Rerun, or, Same Old Story

At last year's NAB, the fieriest session was the industry-FCC panel discussion. Manufacturers and broadcasters agreed that the pace for approving new ideas or new equipment was too slow. The FCC had to get with it, they said.

Last year at this time, Collins Radio had filed a petition to change the FCC rules to permit automatic fm transmitters. The first action, some 377 days later, was not a proposed FCC rules change, but simply the mailing of a Notice of Inquiry to the industry. Will it be another year before regs catch up with technology?

Last year, broadcasters and manufacturers agreed that the FCC rules were largely obsolete. FCC panelists agreed, but said it didn't have the budget or manpower to tackle the problem.

Last year, broadcasters said they'd pitch in and recommend where and how the rules should be changed. One year later, what correspondence did the FCC get? "Damn little," said one FCC panelist.

The FCC panelists, both last year and again this year, were not easily intimidated. Harold Kassens said the FCC doesn't change rules until it thoroughly understands how the change will affect most operators and how on-air performance is likely to be affected. That's why broadcasters have to respond by filing comments. And, partly to get off the hook, the FCC said it couldn't do such a good job of handling daily matters promptly if it diverted its manpower.

So, will it be another year of the same? Will the groups meet again next year and find catharsis by sounding off vituperatively, then go back to business as usual?

There's some hopeful reform move afoot. Panelist A. Prose Walker of Collins proposed that a committee be constituted in 90 days, that it establish milestones and target dates for rule revisions, that it file three quarterly progress reports and that a full report be given next NAB. Moderator Malcolm Burleson said he would urge the proposal at the NAB Engineering Committee.

But, let's not let "George" do it (in this case of NAB's George Bartlett). Engineers must give their views on FCC letters of inquiry. Do not let management put you off by saying the station's legal attorney has to file and that it will cost $500 or more. Follow the advice of John Hurbut, president of WVMC, Mt. Carmel, Ill., who, at the small market radio panel, said that to be heard at the FCC, it isn't necessary to go through intermediaries and file legal briefs. Hurbut said just "start talking."

James A. Lippke

Let's put a stop to all those off-color remarks about your station.

Color television, as you know, is pretty popular these days. Otherwise, you wouldn't have spent a fortune installing color equipment. But, if you're in a multi-station market, viewers may be reluctant to turn to your channel because they know they'll have to fiddle with the color to make it right.

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Now folks in Nashville have stopped all that "off-color" talk.

They're back to cussing the Dove in Mrs. Murphy's kitchen.

For more information, write or wire or phone collect:

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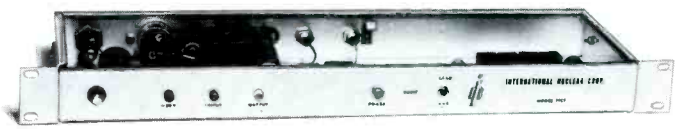

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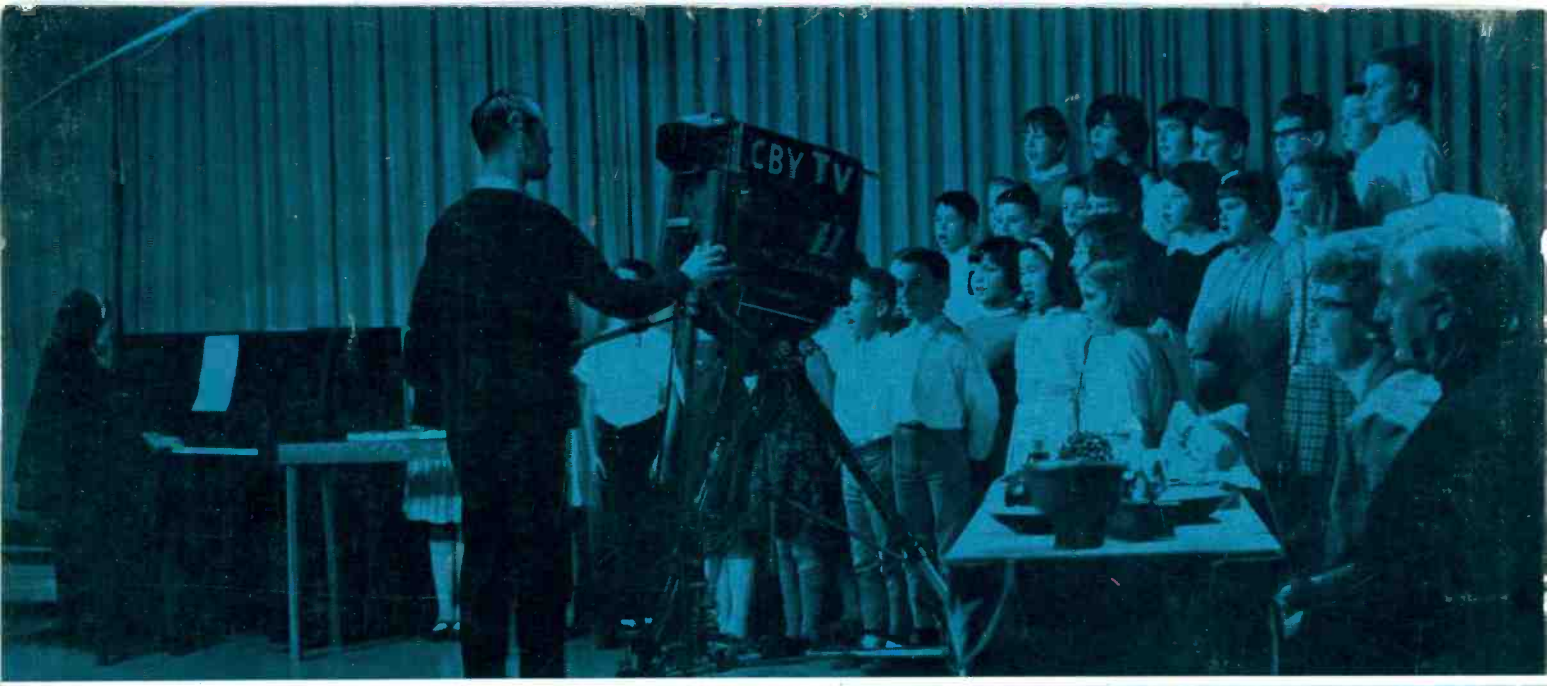

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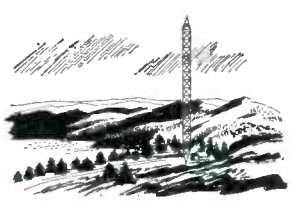

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