A MACTIER PUBLICATION / SEPTEMBER 1969

BM/E

BROADCAST MANAGEMENT/ENGINEERING

How Automation Builds Profits

Here's One Place Where Your Dollar Is Worth A Dollar

Two new HP oscillators are teaching the old standard new tricks in performance and value. Both the new HP 204C and HP 209A Oscillators have exceptional spectral purity (<0.1% −60dB). Both have FET's in the bridge for improved stability—balanced output—sync in/out. All this adds up to greatly improved performance. And, you get this extra value at only a modest increase in price over the old standard.

Both oscillators offer improvements that assure you of a consistent signal—test after test—time after time... whether you are testing on a production line, researching in a design lab, or instructing future engineers.

Portable, line or battery powered. The 204C is a clean, inexpensive oscillator with a frequency range of 5 Hz to 1.2 MHz. Power output is 2.5 Vrms into 600 Ω, 5 Vrms into open circuit. Choose interchangeable power packs—line, rechargeable or mercury battery. Price HP 204C, $250 to $285.

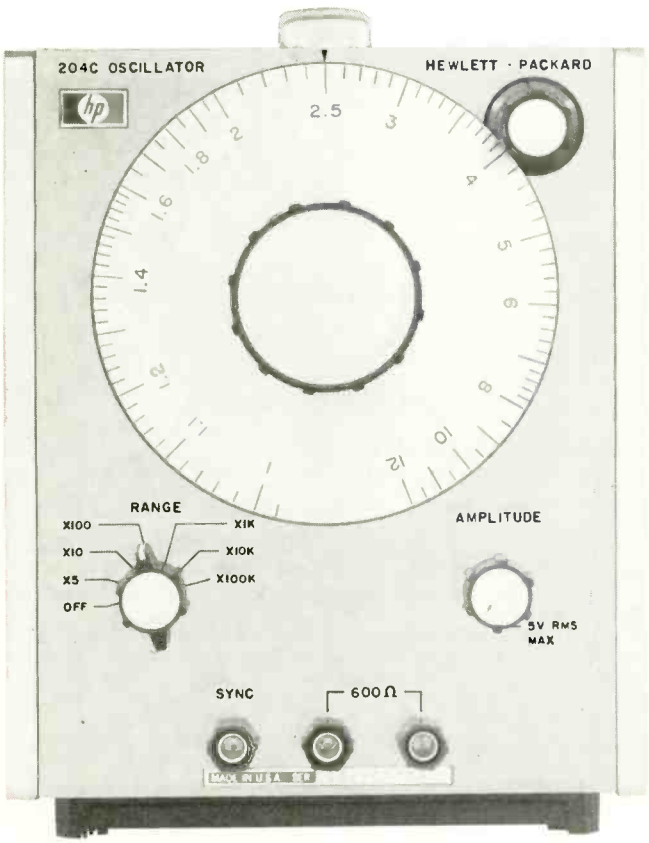
High power output, sine or square wave. The 209A generates simultaneous sine and square wave outputs over a frequency range of 4 Hz to 2 MHz. Amplitudes are independently adjustable. Power output for sine wave is double that of 204C—5 Vrms into 600 Ω, 10 Vrms into open circuit. Square wave output is 20 V peak-to-peak. Price HP 209A, $320.

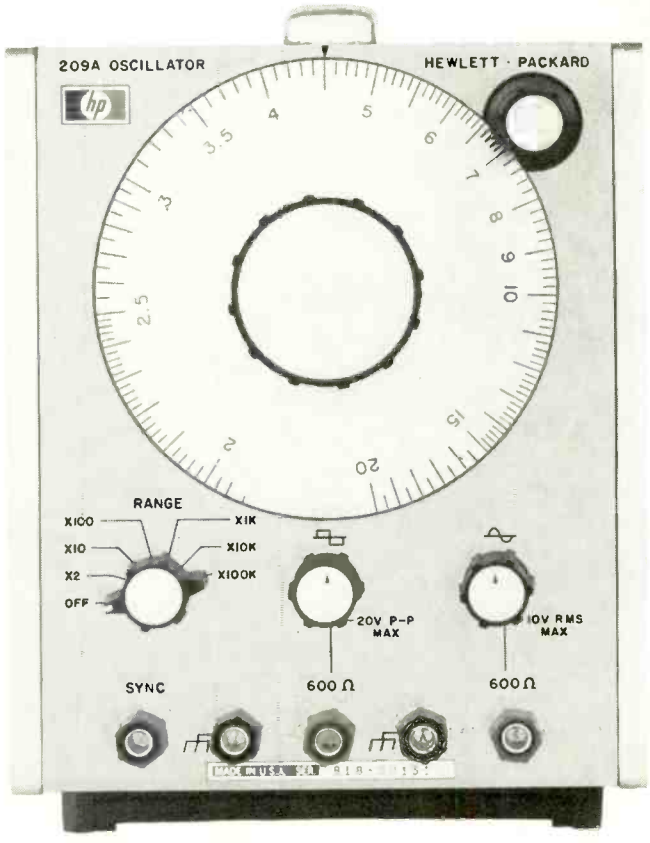
Get full value for your signal-source dollar. Consult your HP Instrumentation Catalog for full specifications and order your oscillator by calling your nearest HP telephone order desk. For additional data, write Hewlett-Packard, Palo Alto, California 94304. Europe: 1217 Meyrin-Geneva, Switzerland.

099/2

HEWLETT hp PACKARD

SIGNAL SOURCES





Circle 102 on Reader Service Card

SEPTEMBER 1969/VOLUME 5/NUMBER 9

BM/E

BROADCAST MANAGEMENT/ ENGINEERING

This month's cover: Station automation is rapidly approaching the "black-box" stage depicted in this month's cover design by artist Vince Lewis. Though your canned announcers may not sound like Charlie McCarthy, there are lots of tricks for keeping your automated station "live" sounding. For more details, see pages 22-32.

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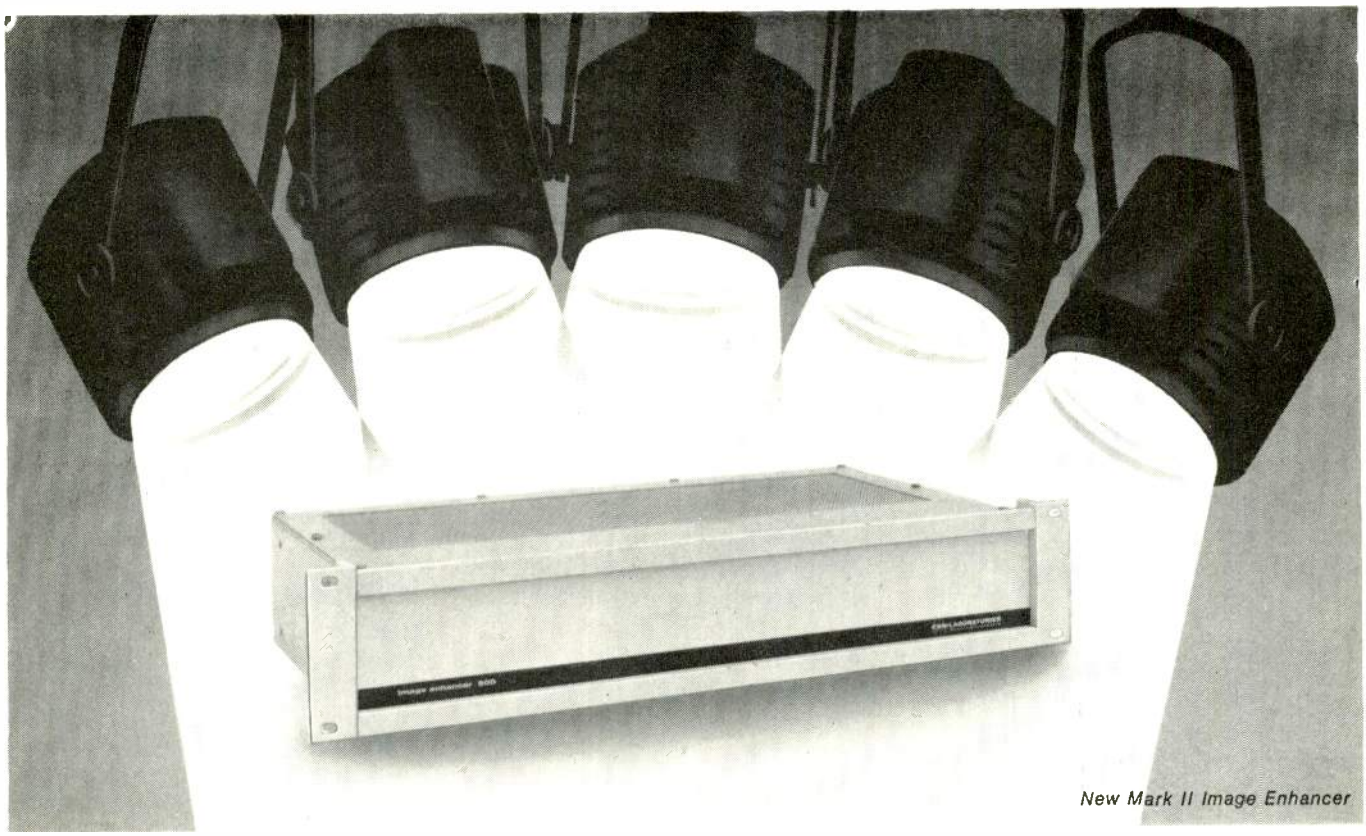

New Mark II Image Enhancer

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The new Mark II is the finest yet! It provides truly effective enhancing of *both* vertical and horizontal detail.

A remarkable new CBS Laboratories' innovation, "crispened comb filter" separates chrominance signals from luminance signals — to permit luminance enhancing without chrominance signal distortion. No degrading of color quality.

What's more — the exclusive "crispening" technique works like an electronic retoucher . . . eliminates unwanted noise . . . preserves picture detail enhancement.

Results? *Spectacular!* Details are sharper. Colors are cleaner. Pictures have unbelievable clarity.

Amazingly enough — the Mark II costs less than first generation models. Models for all cameras and NTSC program line.

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CBS LABORATORIES
Stamford, Connecticut 06905
A Division of Columbia Broadcasting System, Inc.

Circle 103 on Reader Service Card

BROADCAST INDUSTRY NEWS

Free TV not in danger, says Hyde

Allegations that the FCC will take action leading to the demise of free TV service are completely unfounded, said Commission Chairman Rosel Hyde in a recent address before the Electronic Industries Association. "Subscription television will bring new program fare not now available to the public . . . without commercials . . ." Hyde said. The Chairman was quick to point out that "the Commission was very careful to see to it that subscription television will supplement rather than supplant free television."

Hyde went on to outline the various restrictions that the FCC has imposed on pay-TV vs free TV, and assured the industry that the growth of subscription and cable television would provide the benefits of a diversity-type service not now available. "We have recognized that CATV could be a major force . . ." he continued, saying that local origination is a significant contribution.

The Chairman pointed out that the Commission has "taken certain measures to insure that CATV does not act in an unfair and potentially destructive way toward local television broadcast services." He told the assemblage that cable could fractionalize local audiences thereby depriving local broadcasters of their markets.

Keep records seven years, says FCC

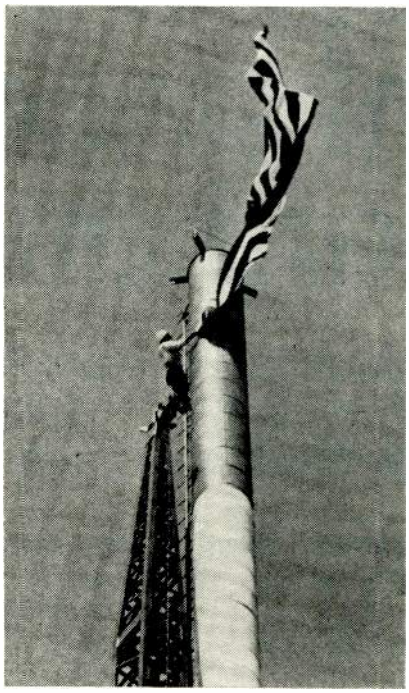
The FCC has proposed that broadcasters keep "local inspection" files containing copies of applications and other material filed with the Commission for seven years. Present rules demand that such files be kept indefinitely.

The NAB had previously requested a time limit of three years, asserting that limited use had actually been made of such retained material. In its proposed amendment of Section 1.525 of the Rules, the Commission has provided that "The permittee or licensee shall maintain such a file so long as an authorization . . . is outstanding . . . other material placed in the file shall be retained for a period of seven years . . . ."

Presumably, this amendment will cut down on needed file space in most stations. The Commission will probably take action on the amendment late in September.

First TV mast on Hancock Center

Late in July, construction was finished on the first of two TV antenna towers atop the 100-story John Hancock Center in Chicago. A workman climbed the tower and displayed an American flag to commemorate the event. The top of the mast is 1456 feet above the ground, just 16 feet short of the height of the code beacon atop New York's Empire State Building antenna mast.



Workman and his flag commemorate Hancock Center's first antenna tower 1456 ft above Chicago sidewalks.

Another mast is yet to be constructed on the other side of the square building top. When finished, the twin masts will support the antennas of on-air stations WBBM-TV, WFLD-TV, WGN-TV, and WMAQ-TV. New stations WCFL-TV and WSNS-TV also plan to transmit from the site. The installation has a capacity of 10 television stations. Total cost of the antenna farm is $1.3 million.

Ruling proposed for phone talk

The Commission has proposed to amend Part 73 of the Rules to provide that prior to recording or broadcasting live any telephone conversation, a station must notify the other party to the conversation of intent to record or broadcast.

For many years, under Commission Rules and telephone tariffs, the only possible way to air a telephone conversation was to record the conversation and broadcast the recording.

Under the Commission's decision in Use of Recording Devices (11 FCC 1033), a "beep tone" warning had to be placed on the telephone line whenever a call was being recorded. This "beep tone" was provided by the telephone-company's interface between the line and the recorder.

Then came the Carterfone decision, which ruled invalid telephone companies' prohibitions against attachment of customers' equipment to their lines. As a result of the Carterfone ruling, broadcast stations may, since July 1, 1969, interconnect their facilities to telephone lines by means other than through a recording device, and may broadcast live two-way conversations without a "beep tone."

In many cases stations recorded conversations from telephone facilities without use of a "beep tone" and in some cases, persons did not realize that the "beep tone" indicated that their cofnversations were being recorded.

Mag discs aid space TV signals

July and August were space shot months with lots of TV images

for superiority in computer centered TV station equipment

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THE INTERNATIONAL LEADER IN VIDEO SWITCHERS—TERMINAL AND PRODUCTION EQUIPMENT

From totally automatic television program master control systems to a unique chroma keyer or studio production switcher, Central Dynamics offers a complete line of quality solid state equipment designed with the station engineer's operating requirements in mind . . . ease of installation and operation . . . reliable performance.

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WVNY-TV	Burlington, Vt.
WLAC-TV	Nashville, Tenn.
WRGB-TV	Schenectady, N.Y.
CFRN-TV	Edmonton, Alberta
CHCH-TV	North Bay, Ontario
CKLW-TV	Windsor, Ontario
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11522

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wafted back to Mother Earth from the moon and from Mars. A key element in translating these images for home TV viewing was a magnetic disc memory.

The system, built for the Jet Propulsion Laboratory and NASA by Data Disc, Inc., consists of a model 5209 parallel disc memory and servo drive unit. The disc memory has 72 individual tracks for the recording data, and each track has its own magnetic read/write head.

In addition to making instant TV viewing of the Mars probe shots possible, the system will aid scientists for several months in reconstructing and analyzing images that covered the 60 million miles between Mars and Earth. Signals received from the Mariner spacecraft were fed into a digital computer at JPL's Pasadena center for initial processing. The computer then fed signals into the Data Disc system, and then the parallel tracks were picked off to assemble a complete image. The disc can store four such pictures simultaneously. Final TV pictures were picked off in 1/30 second—making the scan rate compatible with commercial television transmission.

WHDH-TV gets stay pending appeal

The FCC decision not to renew the license of WHDH-TV Boston has been stayed by the Commission until 30 days after final disposition of any judicial review. WHDH-TV had asked for the stay pending appeal (to U.S. Court of Appeals) of the earlier Commission decision.

The petition was opposed by Boston Broadcasters, Inc., whose application for channel 5 was granted by the Commission.

ACTS names slate

New officers have been elected to the board of the All-Channel Television Society (ACTS) to serve from August 1, 1969 to July, 1970.

Named in the election as chairman and head of the two-year-old group is W. Robert McKinsey, president of WJRJ-TV (channel 17, Atlanta, Ga.). He replaces William L. Putnam. New vice-chairman is Leonard B. Stevens, vice president of WPHL-TV (Philadelphia).

The Society is industry spokesman for uhf stations and their problems. During the past year, it's been involved in hearings regarding land mobile operations and CATV. It has also lobbied for copyright revisions and legislation requiring uhf tuners on all TV sets by 1971.

NAB revises fall schedule

Six fall conferences scheduled by the NAB will meet as follows:

Oct. 19-20, Atlanta, Sheraton Biltmore.

Oct. 22-23, Chicago, Palmer House.

Oct. 26-27, Philadelphia, Benjamin Franklin.

Nov. 12-13, New Orleans, Monteleone.

Nov. 16-17, Denver, Brown Palace.

Nov. 19-20, San Francisco, Mark Hopkins.

These conferences will all follow a 1½-day format, and will include an "early bird reception" the night before in each case. Morning sessions both days will be for both radio and TV delegates. First-day afternoon session will be divided into concurrent radio and TV sessions.

Chromium dioxide tape revisited

Ending industry speculation on what would be the fate of its "Crolyn" (chromium dioxide) tape, DuPont recently licensed three companies to manufacture it on three different continents. In the U.S., Memorex got the nod; in Europe it's Philips; in the Far East, it's Sony.

Philips, LDL-1000

To lend some immediacy to the Crolyn situation, Philips has introduced a ½-inch helical recorder designed specifically to use the new tape formulation. Dubbed the LDL-1000, it measures a skinny 16½ × 13⅜ × 7⅝ inches, tips the scales at 25 pounds, and has a single carrying handle.

Recorder is priced at "under $650," and is said to provide horizontal resolution of 220 lines.

Circle number 301 on the Reader Service Card for more information.

Automated ID tests to continue

The FCC has authorized International Digisonics Corp. to proceed with further limited testing of its over-the-air program and commercial identification system (see *BM/E*, Sept., 1968, pp. 49-50, 68). The system being tested permits automatic recording of the number of times filmed or taped programs or commercials are broadcast by individual TV stations.

Digisonics has proposed a monitoring service to provide critical proof-of-performance data to interested parties—particularly to advertisers and their agencies. The company filed a petition on June 4, 1969, seeking an amendment to Part 73, Section 73.682(a) of the Commission's Rules to permit the inclusion of coded information in TV visual transmissions to operate this program identification system. The system won't work without such coding.

In authorizing Digisonics to continue further limited testing, which according to the FCC, has no adverse effect on TV picture reception, the Commission declared that several major questions have been raised and invited comments to be filed by September 18. Reply comments are due October 17.

FCC commits over $450,000 to research

More than $450,000 was obligated by the Commission to research project grants in the fiscal year that ended on June 30.

The most expensive project ($192,000) involves improving frequency use by computerizing microwave frequency assignments.

Costing $38,960 is an evaluation of the role of the FCC Laboratory.

NAEB convention set

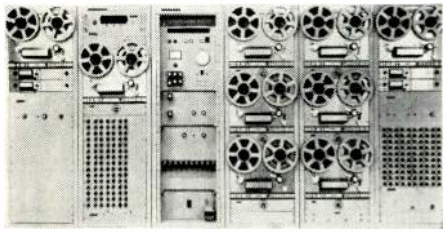
The 45th annual convention of the National Association of Educational Broadcasters, which will focus on educational broadcasting and social responsibility, has been set for November 9-12 1969 at the Sheraton Park Hotel, Washington, D.C. More than 5000 delegates are expected to attend. The NAEB Board meeting will be held on Sunday, November 9.

schafer **AUTOMATION REPORT**

Schafer Electronics • 9119 De Soto Ave., Chatsworth, Calif. 91311 • (213) 882-2000
A division of Applied Magnetics Corp.

Full Automation Spectrum Covered With Relay Control & Computer Control Systems

System Prices Start Under $10,000. Computer Gives Ultimate in Advance Programming, Format Changing, and Access to Billing, Sales, & Traffic Data.



CHATSWORTH, CALIFORNIA — With the unveiling of a powerful new Computer Controlled Broadcast Automation System at NAB '69, Schafer Electronics becomes the first manufacturer to completely cover the automation system spectrum. The addition of the computer gives Schafer Electronics a dynamic one-two punch. The Schafer #800, a relay-controlled automation system has already become the industry standard. More of these flexible systems are reliably operating in radio stations throughout the world than all other makes combined. With 800 system prices starting below $10,000, Schafer Electronics continues to be the leader in all price ranges.

PCC Will Revolutionize Automation

The Schafer Electronics PCC Computer Controlled System ushers in a new era in Broadcast Automation. It has many times the capacity of any present day relay-control system. Yet it is simpler to operate. The PCC Computer, including its electronic memory, is small enough to mount in a desk or a portion of a rack. Up to 64 transports, or carousels, can be controlled by a single PCC. Formats become almost unlimited and can be changed within seconds. Commercials can be added, deleted, or shifted instantly at will. Tomorrow's programs can be updated while the station is running today's events.

Variety of Managerial Reports

Although the PCC has many times the programming capability of any other automation system, it's value to a radio station doesn't stop there. It can also rapidly provide management with valuable business reports. Billing information, for example, by account, commercial or time. Availability lists for the sales department. Instant format control for traffic. Instant access and readout on what has already been programmed. Automatic program and transmitter logging. It can even turn on the coffee in the morning. Turn out the lights at night.

CLEAR Language Used

Operators converse with the PCC in CLEAR Language (Conversational Language Easily Adapted to Radio). The computer understands radio terminology such as "Log, Availability, Delete, AM, FM, Billing, etc." The system is so simple that operation can be mastered with just a few hours of practice. The computer even has the built-in capability of telling the operator, via the teletypewriter, whenever an incorrect instruction has been attempted.

Designed For Growing Stations

Any radio station planning to grow should carefully investigate the Schafer Electronics PCC Automation System. Although it costs slightly more than a relay-controlled system, its flexibility, capacity and expandability are many times greater. With Schafer Electronics you can plan ahead—and move ahead.

Schafer Provides Tape Music Service

Schafer Electronics provides an exclusive tape music service for users of Schafer Automation Systems. The introed "Image" format is bright, up-tempo, middle-of-the-road music. The unintroed "Touch of Velvet" package is slow and sweet, but also middle-of-the-road. 60 tapes consisting of 90 hours of cued music are provided as a starter library; four more tapes are supplied monthly to keep the library up to date and fresh.

Custom Tape Service

The Schafer Electronics custom tape service provides a wide variety of special word-music tapes. These include: Time tapes for the Audio Clock, IDs. Station Promos. Custom commercials. Network fill music. And many "mood intros" featuring word-music vignettes containing historical information, the climate, the seasons, or any other "personalized" subject. A new booklet describing these services is available.

Circle 105 on Reader Service Card

IT ALL STARTED 16 YEARS AGO WHEN SCHAFER ELECTRONICS DELIVERED FIRST BROADCAST AUTOMATION SYSTEM

Schafer Electronics delivered the first Broadcast Automation System 16 years ago. Today there are more Schafer Electronics systems in use throughout the world than all other makes combined. A Schafer Electronics Automation System plays exactly the music you choose. Rock and Roll. Country-Western. Contemporary. Middle-Of-The-Road. Or any other kind you can think of. There is never a pop. A click. A fade-out. Or deadly silence. The system follows your schedule. Inserts commercials. IDs. Time signals. Personality tracks. Mood intros. All types of music. It switches to the network. And back. It's perfect for FM. And for AM. For big cities. For small towns. "Big" stations and "small." With Schafer Electronics automation you capture perfectly the mood of the season—the community—the time of day—because you program by musical category. A sequence never has to be repeated. There are an almost infinite number of combinations to create an ever-continuing fresh "live" sound.

Schafer Electronics Lists Many Automation "Firsts"

Do you know that Schafer Electronics developed:

- The first Broadcast Automation System?
- The first remote control transmitter system?
- The first random access reel to reel spotter?
- The first network switching unit?
- The first audio clock?
- The first automation system for a foreign country?
- The first VLR low speed logger?
- The first computer controlled automation system?
- The first high speed dual spotter for back-to-back commercials?
- The first transport capable of storing and randomly selecting complete music libraries?
- The first system capable of simultaneously programing both an FM and an AM station?

SCHAFER ELECTRONICS LOOKING FOR SYSTEMS ANALYSTS & FIELD ENGINEERS

The rapidly expanding market for Schafer Electronics systems has generated an urgent need for Instructors, Systems Analysts, and Field Engineers, according to company VP, Leon Wortman. Anyone interested in a challenging growth opportunity as a creative-technical man in the digital computer system field as applied to Broadcast Automation should contact Mr. Wortman at once.

Schafer Electronics
9119 De Soto Avenue
Chatsworth, Ca 91311

Please send me information on _____

Please contact me ☐

Name _____

Station _____ Title _____

Address _____

City _____ State _____

Telephone _____

New McMartin Piracy Protectors Stop SCA Signal Stealers Cold

OMAHA — McMartin Industries, Inc., has just made it possible to eliminate SCA signal pirating. To counter the growing availability of SCA adaptors, a special anti-piracy system has just been released for use by authorized SCA broadcasters.

Basic to the system is a Piracy Generator (PTG-10). Installed at the transmitter, it combines interfering signals with all SCA program material. At authorized multiplex receivers, this interference can be removed by an easily installed Piracy Filter (PF-R1 or PF-R2). Without this filter those receiving the subcarrier find listening impossible.

Patented by McMartin Industries after lengthy development and testing, these inexpensive units automatically police SCA transmissions and effectively discourage unauthorized use.

Two Piracy Filters are available. The PF-R1 installs inside the chassis on McMartin TR-66A and TR-66 receivers. It can be ordered already installed on new TR-66A receivers with no factory installation charge. On McMartin tube model receivers and others, the PF-R2 can be mounted externally in a matter of minutes.

NEW McMARTIN ANTI-PIRACY SYSTEM COMPONENTS *are shown here. The PTG-10 Piracy Generator combines interfering signals with SCA programming. To remove this interference at the receiver, the PF-R1 and the PF-R2 are used. Also shown is McMartin's TR-66A multiplex receiver now available with the PF-R1 factory installed.*

SPECIFICATIONS

PIRACY GENERATOR (PTG-10)

FUNCTION: Installs at transmitter. Combines interfering signals with SCA program material.
Input Impedance: 600 ohms balance
Output Impedance: 600 ohms unbalance
Power: 117 V AC, 50/60 Hz, 15 watts
Dimensions: 19" W x 1.75" H x 6.25" D
Front Panel Components: AC switch with pilot light, BNC connector 600 ohm composite output
Rear Panel: Input 600 ohms balanced, output 600 ohms unbalanced
Weight: 6 lbs.

PIRACY FILTERS (PF-R1 & PF-R2)

FUNCTION: Install in or on multiplex receiver. Reduce interference broadcast by PTG-10 to level substantially below normal cross talk readings.

PF-R1 (Installs internally on McMartin TR-66A & TR-66 receivers)
Input Impedance: 600 ohms
Output Impedance: 600 ohms unbalance
Power Requirement: From receiver power supply
Dimensions: 1.50" W x 3.50" L
Mounting Dimensions: 3.25"

PF-R2 (Installs externally on McMartin tube type receivers and others)
Input Impedance: 1000 ohms through phono-jack
Output Impedance: 1000 ohms through phono-jack
Dimensions: 3.75" W x 3.25" L x 1.50" H **Power Requirement:** None

New System Makes Piracy Profits Nil

McMartin Industries' new anti-piracy system can turn the "something for nothing" appeal of SCA pirating into a "nothing for nothing" situation. By installing McMartin anti-piracy equipment, the SCA broadcaster can make the use or sale of unauthorized receivers an unprofitable and impossible task. In addition, the need for expensive court action — previously the only method of halting signal piracy — is now expected to be much less frequent.

SEND COUPON FOR COMPLETE DETAILS

McMartin industries, inc.
Dept. B-9, 3104 Farnam Street, Omaha, Nebraska 68131

YES, I want to make my SCA transmission "piracy-proof".
☐ Please send details on anti-piracy system.
☐ Please have representative call.

NAME_____
FIRM_____
ADDRESS_____
CITY_____ STATE_____ ZIP_____

Circle 106 on Reader Service Card

FOCUS ON
CATV

CATV and telephone companies

Recently NCTA suggested to FCC that any telephone company which refuses to grant pole attachments to independent franchisers be barred from CATV operations. NCTA also asked the Commission to find a way to curb some telco practices, such as:

- Using established relationships with local government officials to obtain franchises.
- Refusing to grant pole attachments to an independent CATV company, and using this as an excuse to obtain a franchise for the telco itself.
- Overbuilding franchised independents in order to drive them out of business.
- Establishing favorable tariff charges on lease-back while periodically raising pole-attachment charges, to force lease-backs rather than pole attachments.

The Justice Department has joined the fray, advising the FCC that telcos may be stifling CATV development by refusing to grant pole attachments. Justice suggested that the Commission use its power to require telcos to grant pole attachments to all applicants on an equal basis.

Canada charges CBS with CATV concentration

CBS, which has interests in 9 Canadian CATV systems, has been told to sell at least one, by the Canadian Radio-TV Commission. CRTC has charged undue concentration, although CBS ownership does not exceed the legal 20% limit (for foreign interests) of each CATV system.

Melting-pot cable series

New York City's position as an immigrant's doorway to the U.S. has made its ethnic neighborhoods rich and varied, from the earliest Dutch settlers to the latest Puerto Rican arrivals. Manhattan Cable Television, which serves the southern half of Manhattan (where most immigrants have initially settled) has developed a program series spotlighting ethnic neighborhoods and their contributions to the city.

The series is hosted by Manhattan Borough President Percy Sutton and shown on Manhattan Cable's local-origination channel 6 facility. Later it will be aired by New York City's WNYC-TV.

Manhattan Cable recently installed what's known as the first broadcast-quality color film chain used for CATV local origination. Employed on channel 6 for movies and newsfilm is an RCA four-tube TK-27 chain. The system reaches several thousand households and some 40,000 hotel rooms in mid and lower Manhattan.

Possible theater-CATV merger

RKO General Inc. has announced plans to merge its wholly-owned Video Independent Theatres Inc. into Cablecom-General, Inc., which is 69% owned by RKO General. Cablecom operates CATV systems in western U.S., while Video Independent operates theaters in southwest.

L'Heureux memorial scholarship established

Those who knew Bob L'Heureux remember how he loved CATV and its people. He spent many years promoting and defending the industry. Now Bob's friends want his name to be remembered in CATV for years to come. They're starting a memorial he would have liked.

CATV Pioneers is soliciting contributions to the Robert D. L'Heureux Memorial Scholarship Fund which is being established at Georgetown University Law School. Bob attended and was graduated from Georgetown. Contributions are of course tax deductible, and will support a three-year scholarship to be awarded once every three years to a deserving student selected by the Georgetown University Law School Scholarship Committee.

Contributions should be checks or money orders payable to the Robert D. L'Heureux Memorial Scholarship Fund. They should be sent to Martin F. Malarkey, Jr., 1225 Connecticut Ave. N.W., Washington, D.C. 20036. Contributions may also be made to any member of CATV Pioneers.

British CATV system demonstrated

Rediffusion International Ltd. demonstrated its unusual CATV system in Washington recently to interested cable operators, broadcasters, members of FCC and news media. Rediffusion's cable system has been used for years in the United Kingdom and Hong Kong to feed wired receivers. The cable carries what would be considered an i-f signal containing picture and sound at about 10 MHz. The receiver has no front end, and thus costs about 30% less than a standard receiver. The principal system disadvantage is its one-channel limit.

CATV aids moon coverage crew

During the recent moon shot, NBC did TV pickups from the home of Neil Armstrong's parents in the small Ohio town of Wapakoneta. Coverage was live, using microwave from the house. But off-air TV reception was poor in the area, and the Armstrongs weren't cable subscribers. Thus NBC's crew was unable to monitor their air signal.

General manager Don Shuler of Shardoco Cablevision had the Armstrong residence hooked up to his cable—free—just in time for the pickup. And he plans to leave the hookup there.

TeleVision to construct 40-channel CATV system

TeleVision Communications Corporation has announced it will invest $12 million in the construction of a 40-channel CATV system in Akron, Ohio.

The system will develop the fullest potential of cable TV, according to TVC President Alfred R. Stern, in offering up to 40 channels to each home in Lakemore, Stow, Barberton and Silverlake, in addition to Akron.

NCTA convention transcript

Soon to be published by NCTA is the official transcript of the San Francisco Convention held June 22-25, 1969. The publication will include details of technical, legal and management sessions, as well as coverage of the eye-opener sessions held at 8 each morning. Many of those attending the convention found it impossible to hear everything they wanted; NCTA makes this information available as backup and for those unable to attend. Technical sessions were co-sponsored by IEEE and included much useful nuts-and-bolts information. The $6 volume will be available from NCTA headquarters in Washington.

We just widened the generation gap.

It's the significant lag between "our own things" and the also rans.

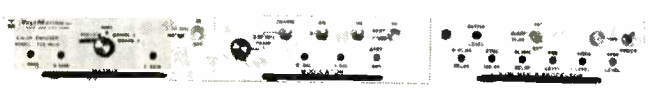
The first time we did it (a couple of years ago) we came up with the first all-digital sync generator with a near perfect time base stability (4 nsec typical) and pulse jitter spec. Nobody else can touch it.

Now we've added a color encoder with all plug-in boards and built-in color bars. It has balanced modulators using linear IC's. Provisions for contours out of green. The works.

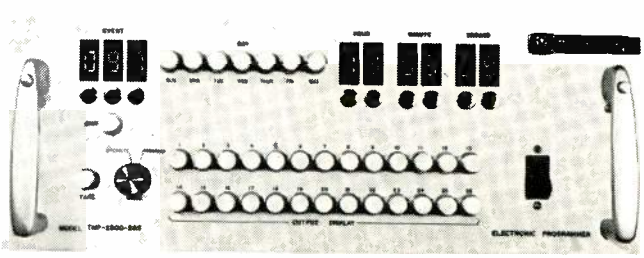
And still another first. A television programmer with magnetic disc memory. Whether used for CATV non-duplication or station automation, it gives maximum capacity and flexibility at minimum cost. Like 200 events on 26 output channels with one second resolution. Repeats to 7 days. (So you could say 1400 event capability.) Greatest reliability. Simplest operation.

Then we have a broadcast electronic character generator. Format is 14 lines of 40 characters each. Raster (not dot) generation assures

TSG-2000 series
All-digital sync generator



TCE-1600 video color encoder



TMP-2500 programmer

(again)

maximum readability even on poorest home receivers.

And EIA video test generators. Multiburst. Stairstep. Sin^2—Window. Modulated 20T pulse. Color bar. All EIA/NTSC/VIT compatible. Can be used singly or with new electronic sequential switcher to provide single continuously switched output. Has it all.

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These are just some of our new ideas. If you take time to check the parameters of the products we've mentioned, you'll find no one else is half as close in concept. Let alone delivery.

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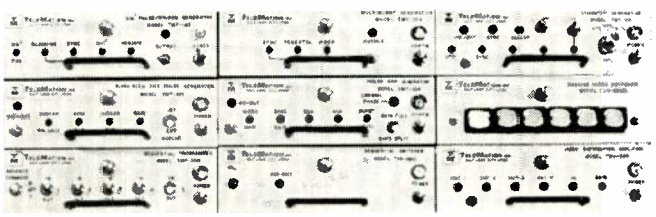
TCG-1440 Character generator



TMT-100 series video test generators

Circle 107 on Reader Service Card

Fight off-color TV

Get precise color alignment of TV monitors with the new EG&G Model 570 TV COLORCOMP

EG&G's new Model 570 COLORCOMP permits precise reproduction of a TV monitor color standard. In use it generates three sets of control readings which define an established color standard for a given monitor. You simply dial the appropr ate control readings on the COLORCOMP and adjust the monitor controls until you obtain a null reading on the instrument meters. Result? Fast, precise line-up of any monitor in any area with equal sensitivity at low, medium, and high light level and with no need for separate memory modules.

To achieve such precise sensitivity COLORCOMP incorporates tri-sensor detector optics and a unique null balance circuit which offers color discrimination capability better than the human eye.

COLORCOMP is complete and self-contained. It mounts easily on the video monitor face with all controls readily accessible.

Show your true color with the new EG&G Model 570 TV COLORCOMP. For details write EG&G, Inc., 186 Brookline Avenue, Boston, Massachusetts 02215, or phone 617-267-9700. TWX: 617-262-9317. On West Coast telephone 213-464-2800.

EG&G
ELECTRONIC PRODUCTS DIVISION

INTERPRETING THE

FCC RULES & REGULATIONS

Nondiscrimination in Employment Practices

ON JUNE 6, 1969, the Commission released two documents of major importance affecting broadcasting industry employment practices. Both documents were issued in the same proceeding (Docket 18244). The first, a "Report and Order,"[1] sets forth the Commission's present fair employment policies and criteria for all broadcasters. The second, a "Further Notice of Proposed Rule Making,"[2] proposes the adoption of new rules and the amendment of several existing rules to foster nondiscriminatory employment practices.

Background

On July 5, 1968, the Commission released a Memorandum Opinion and Order and Notice of Proposed Rule Making, 33 F.R. 9960, 13 FCC 2d 766, stating that discriminatory employment practices by a broadcast licensee are incompatible with operation in the public interest. Finding that it had a responsibility to implement the national policy against discrimination, the Commission announced its intention to act upon *substantial complaints of discrimination—either directly or by referral to an appropriate federal, state or local body.* When deciding this, the Commission doubted the usefulness of embodying the policy in rule form and requiring periodic (e.g., at renewal time) showings of compliance with the policy. With limited staff resources, the Commission chose to proceed primarily upon a complaint basis. However, it did institute rule making at the same time to consider whether (1) the basic nondiscrimination requirement should be embodied in a rule, (2) a showing of compliance should be required, and (3) it should be mandatory to post notices of equal employment rights in employment offices and on employment applications.

Analysis of the Report and Order

The June 9, 1969 employment policies and criteria, effective July 14, 1969, were embodied in the rules adopted to Part 73[3] of the Rules.

They require as a general policy that equal opportunity in employment be afforded all qualified persons by all Commission permittees, and that no person shall be discriminated against in employment because of race, color, religion, or national origin.

Also, they require each station to carry out a positive continuing program of specific practices to assure equal opportunity in every area of station employment policy and practice.

To implement the continuing program provision of its Rules, the Commission will require that each of its permittees and licensees adopt programs to:

(a) Define the responsibility of each level of management to insure positive application and vigorous enforcement of the policy of equal opportunity, and establish a procedure to review and control managerial and supervisory performance;
(b) Inform its employees and recognized employee organizations of the positive equal employment opportunity policy and program, and enlist their cooperation;
(c) Explain the station's equal employment opportunity policy and program and its employment needs to sources of qualified applicants without regard to race, color, religion or national origin, and solicit their continual assistance in recruitment;
(d) Conduct a continuing campaign to exclude every form of prejudice or discrimination, based upon race, color, religion or national origin, from the station's personnel policies and practices and working conditions;
(e) Conduct continuing review of job structure and employment practices and adopt positive recruitment, training, job design and other measures needed to insure genuine equality of opportunity for all employees to participate fully in all organizational units, occupations and levels of responsibility in the station.

3. Sections 73.125, 73.301, 73.599, 73.680, and 73.793 (all reading identically).

These rules apply, from July 14, 1969, to all broadcast stations which have five or more full time employees.

Further Notice of Proposed Rule Making

In the second June 6 document, the Commission said it intends to increase its regulation of employment practices by issuing more rules and

1. In the Matter of Petition for rule making to require broadcast licensees to show nondiscrimination in their employment practices, Docket No. 18244, RM-1144, FCC 69-631.

2. **Ibid,** FCC 69-632.

This section, providing 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.

regulations. The proposed rules would require an annual report (proposed FCC Form 325) to be filed, with information about Negro, Oriental, American Indian, Spanish-surnamed and other persons employed in nine specific categories: officials and managers, professionals, technicians, sales workers, office and clerical personnel, craftsmen (skilled), operatives (semi-skilled), laborers (unskilled), and service personnel. The proposed rules would require an Annual Employment Report to be filed with the Commission's Washington office no later than April 1 of each year, with employment data up to the preceding December 31. The report would be filed for each broadcast station, although one report would be sufficient to cover stations under common ownership and within the same principal city or cities in a standard metropolitan statistical area. Separate reports would be required for each headquarters office of a multiple station owner if the duties of the employees are not covered in the reports filed by the multiple owner of the respective stations.

The proposed rules would also require that the employment practices and policies which become effective July 14, 1969, be maintained in the so-called "public file," as would the proposed FCC Form 325.

Broadcast application forms would be revised under the rules so that applicants for renewal or new facilities or for acquisition of facilities will have space to describe specific practices to be followed in assuring equal employment opportunity for Negroes, Orientals, American Indians and Spanish-surnamed persons in each of the following areas of employment practice: recruitment, selection, training, placement, promotion, pay, working conditions, demotion, layoff and termination. The application forms will require that these programs be specifically geared to station size, location, etc. *A program need not be filed by a station with less than five full-time employees or one in an area with so small a minority representation that a program would not be meaningful. In this case a statement of explanation will be required.*

The proposed rules would require notices to be posted in station employment offices informing the applicant of his equal employment rights and right to notify the Federal Communications Commission or other appropriate agency if he believes he has been the victim of discrimination. Other requirements under proposed rules include:

(a) Placing a notice in bold type on the employment application informing the prospective employee that discrimination because of race, color, religion or national origin is prohibited and that he may notify the Federal Communications Commission or other appropriate agency if he believes he has been discriminated against;
(b) Placing employment advertisements in media which have significant circulation among minority group people in the recruiting area;
(c) Recruiting through schools and colleges with significant minority group enrollments;
(d) Maintaining systematic contacts with minority and human relations organizations, leaders and spokesmen, to encourage referral of qualified minority group applicants;
(e) Encouraging present employees to refer minority group applicants;
(f) Making known to all recruitment sources that

qualified minority members are being sought for consideration whenever the station hires.

The FCC application forms will also require policies to assure nondiscrimination in selection and hiring under the proposed rules—specifically:

(1) Personal instruction of staff personnel (those who make hiring decisions) that minority applicants for all jobs are to be considered without discrimination;
(2) Cooperation with unions to develop programs assuring qualified minority persons of equal opportunity for employment;
(3) Inclusion of an effective nondiscrimination clause in new or re-negotiated union agreements;
(4) Avoidance of selection techniques or tests having the effect of discriminating against minority groups.

On application forms for licensees or permittees under the proposed rules, the following policies must be described to assure that the station will not discriminate in placement and promotion:

(a) Personal instruction will be given to station personnel who make decisions on placement and promotion that minority group employees are to be considered without discrimination and that job areas in which there is little or no minority representation should be reviewed to determine whether this results from discrimination;
(b) Equal opportunity will be given all minority group employees for positions which lead to higher positions. Inquiries will be made of all lower paid employees as to their interest and qualifications for higher paid positions. Employees with interest potential will be given assistance, counseling and other effective help to qualify for these higher paid positions;
(c) Seniority practices and clauses in union contracts will be reviewed to assure they are nondiscriminatory and do not have a discriminatory effect.

Under the proposed rules, FCC forms would be amended to assure that permittees or licensees follow policies of nondiscrimination in other areas of employment practices—specifically:

(1) Rates of pay and fringe benefits for present employees with equivalent duties must be examined and any inequities found must be corrected.
(2) All qualified employees must be told whenever there is an opportunity to perform overtime work.

Assignors, transferors, and renewal applicants will be required to file an exhibit showing how specific practices undertaken pursuant to the station's equal employment opportunity program have been applied and what effect these practices have had upon the applications for employment, as well as the hiring and promotion, of minority group members.

They will also have to file an exhibit showing whether any complaint has been filed before any body having competent jurisdiction under Federal, State, territorial or local law, alleging unlawful discrimination in the employment practices of the applicant, including the persons involved, the date of filing, the court or agency before which the

Continued on page 82

GENERAL ELECTRIC

The General Electric guide to explaining your unfair advantages over competition

Part 1: antennas

Face it. Eventually, at a club or charity meeting, you'll run into a fellow broadcaster and he's going to want to know some things. Like why your market coverage is better. Why you get sharper picture detail. And better color. And a higher profit. All the unfair advantages a General Electric antenna can give you.

To keep your unfair advantage, it's important to know how to handle these questions. Three examples should get you on the right track.

QUESTION: Did you have to do a lot of figuring to get that coverage pattern?

ANSWER: "We made the standard calculations." Understatement is important. No need to tell him about the GE computers that figure the vertical and horizontal radiation patterns. Don't bother to mention the sharp GE engineers that work with you and the computer, either.

QUESTION: Did you do very much antenna testing?

ANSWER: "Just the standard test you'd expect." Being a little devious like this doesn't hurt. GE's *standard* tests go a couple of steps further than the rest of the industry's. The natural "free space" test site at Cazenovia, N.Y. is unmatched for checking patterns and giving predictable performance. And GE can pretest to an alternate pattern, then adjust helical and zigzag antennas *after* installation—something your competition (and ours) has never heard of.

QUESTION: You were pretty lucky last winter, weren't you?

ANSWER: "Pretty much so." Modesty helps here. You don't have to tell him how GE antennas are designed to stand up in all kinds of weather. Just let him guess why GE antennas are on Mt. Wilson and the Empire State Building—transmitting to the country's two major markets where missing a minute of air time would be disastrous.

In fact, don't overtalk at all. You don't have to remind him that GE was the first to develop a high-gain TV transmitting antenna. First with helical and zigzag VHF and UHF installations. The industry leader in super-power.

If he doesn't know, don't tell him.

If by some chance you don't know, someone may be taking unfair advantage of you. Today, ask your General Electric Broadcast Sales Representative for a copy of the GE antenna story, "The High and Mighty." Or ask us. It could give you the unfair advantage you're looking for.

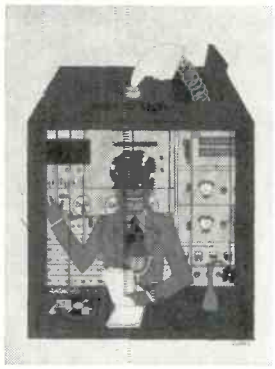
General Electric Company,
Visual Communication Products
Department, Electronics Park,
Syracuse, New York 13201.

GENERAL ELECTRIC

Circle 112 on Reader Service Card

Total Automation Helps Billings

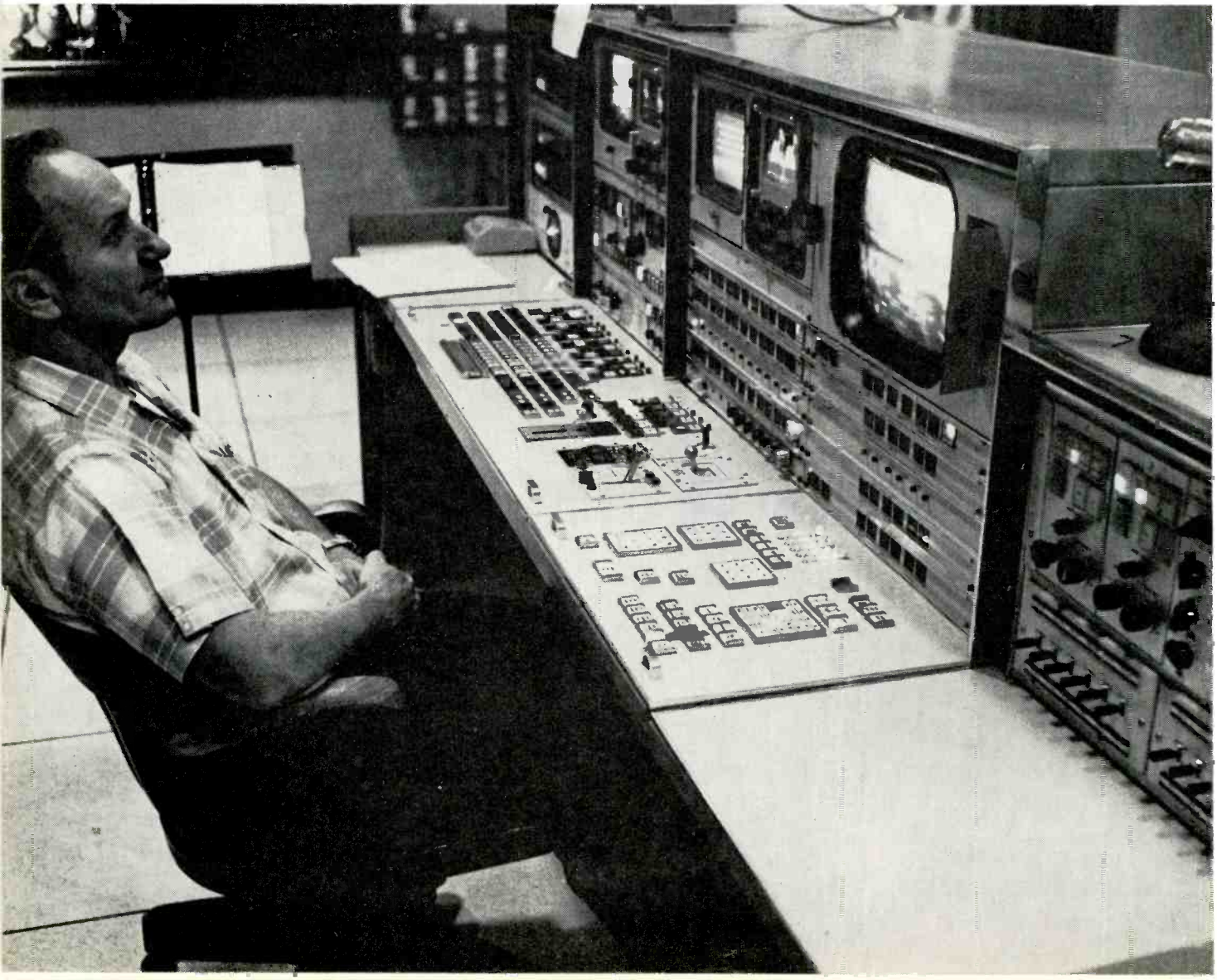
Pilot station WTTV has completely integrated its automation facilities—everything from time availabilities through programming and billing. Result: faster end-of-month turnaround with full documentation, happy agency people and $$$ savings.



BLOOMINGTON, INDIANA'S WTTV is in many ways an experimental station. Started initially with all "home-made" equipment in 1949, the station has continued to be a kind of proving ground for parent company Sarkes-Tarzian's broadcast equipment. This time around, it includes the latest and most completely integrated station automation in the country.

This situation is rather unusual—WTTV is in a medium size market, yet it has taken the lead in the development of the television industry's most highly sophisticated automation. The sta-

Automated production control leaves little to do for engineer who might as well be home.



tion's owner is a large manufacturer of TV automation gear, which provides this independent with operational gear that's obviously out of the reach of such medium-market stations for now. But is it really out of their reach? A closer look at the total automation concept reveals some built-in positive features along with new operating economies and an excellent public-relations image for the station.

Elements Aren't New

The various elements of total automation aren't all that new. Various segments have been implemented individually in many TV stations across the country. It's the total integration of production, logging, proof-of-performance and billing with a single central computer that sets the tone for this total concept. Such full automation of the variety of operations of a TV station has been thought by most industry executives to be a long way off.

One station that has a completely automated accounting and billing operation—KSTP in Minneapolis-St. Paul—has an IBM computer which the management hopes to extend to include program automation in the near future.

The accounting and billing computer system at WTTV is called one of the most efficient such systems in use and has already brought about changes in agency-media-rep relations that are called "bordering on the revolutionary." In billing procedures, the station's system is geared to maintain a running account of all advertising spots that appear on the air. Five days before the end of the month, the account cards are run through the computer for a final analysis and check and then they go through the parent company's big computer.

Then, on the last day of the month, the last five days are processed, rechecked for accuracy, and invoices are mailed. The bills are highly accurate and are generally received within five days after the end of the month. This lets the agency bill its clients earlier than is possible with more conventional station bookkeeping systems.

The invoice sent to the agencies is itself another major innovation at WTTV. Devised specifically for this type of automated operation, the form is a combination invoice and certification of all completed spots—something agencies have been wanting to see implemented for quite some time.

Sam Vitt, senior media vice president at Ted Bates Agency, had many kind words about this invoice: "There has long been a crying need for standardization of information and clarification of identification in station invoices. The WTTV form does both. It actually gives us more information than we really need. Even more important —it gives us exact certification of when, how and in what form the spots ran. And it gives this information to us fast, which helps us tremendously and cuts paperwork to a minimum."

The invoice form was the result of a joint effort by WTTV General Manager Elmer Snow and Sarkes Tarzian engineer Jack Baker. They spent two weeks of research working with top agency people in New York, who lent the project their enthusiastic cooperation. One agency man (from BBD&O) welcomed them with the comment, "This is the first time a station has ever come to us for information of this kind." He hoped this would signal closer liaison between stations and

Newly designed contract form comes off high-speed Telex with instant confirmation of contract orders.

agencies in the future to help solve the mounting paperwork problems.

Benefits were obvious almost from the start. For one thing, the automated system cut down the number of "Discredit" letters received by 90 percent. It also reduced the station's 90-day receivables by nearly 20 percent. And added to this, the agencies involved have indicated that the system has cut their own paperwork in half.

Large-Scale Integration

One of the many things going for WTTV has been its long experience in using program automation—particularly with the Sarkes-Tarzian APT-1000 computer. Station personnel have had an opportunity to develop techniques and operational efficiency to a high degree. Other factors that have speeded up computer use have included increased use of more sophisticated associated electronic equipment (in film chains and video tape particularly) and the proliferation of what would ordinarily have been production problems.

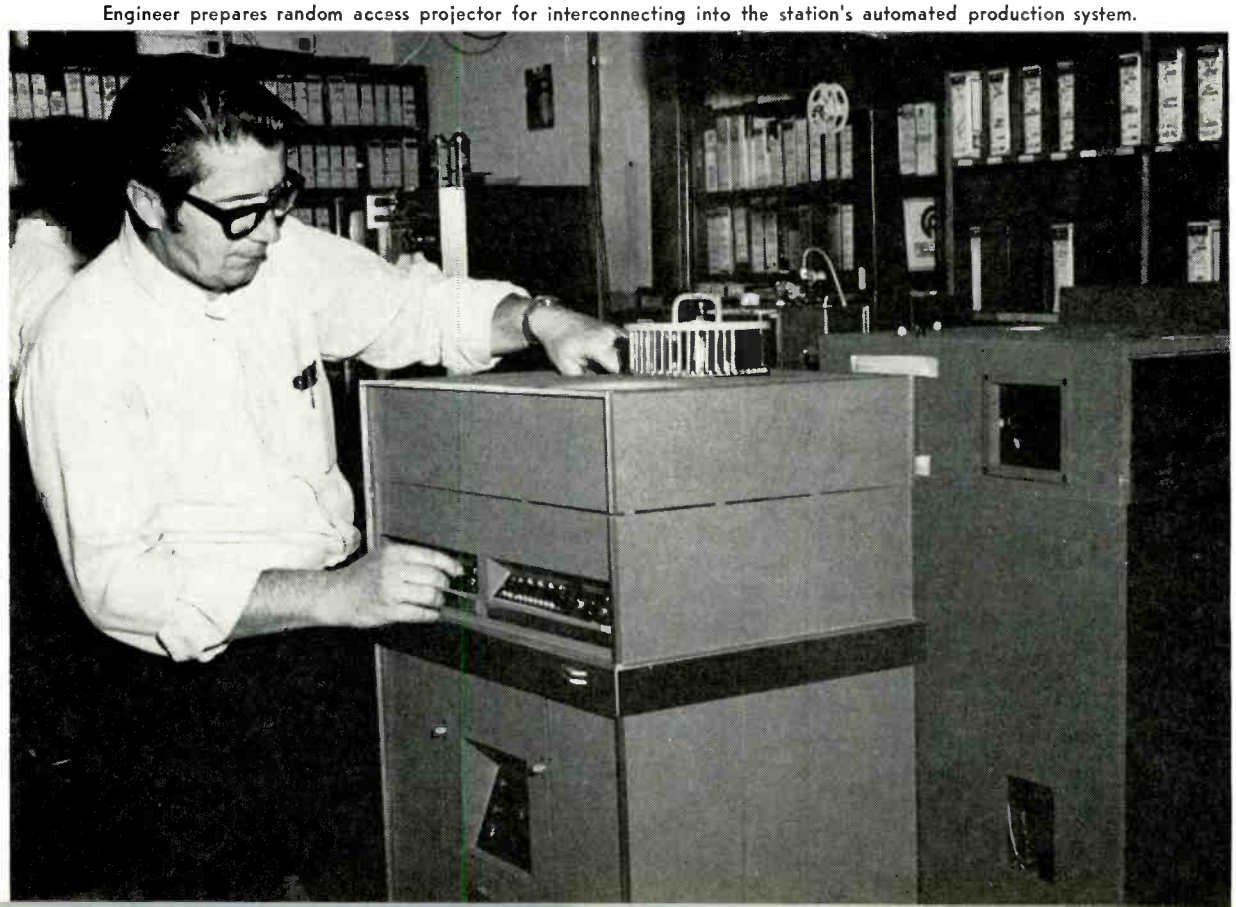
The station's production and administrative operations have been gradually integrated, ultimately resulting in a full automation system done the painless way. Data from one system are automatically fed into the other—such as spot information being programmed from the central computer into the APT-1000. When an on-the-air spot is completed, data are fed back to the administrative computer for accounting and billing.

The final phase—probably the most exciting—will be the interfacing of traffic and sales for instant availabilities data. This aspect of the operation is now being tested at WTTV. Once this system is connected to the IBM computer at the Sarkes-Tarzian plant, it will be possible to have all data available on the status of spots, price, various periods not available, specific control restrictions and other pertinent information—all on a quick recall basis.

This new interface can be made even more accessible by using already established high-speed Telex lines between the station rep and the computer. Thus, the needed information can be made available in the field almost immediately. A further extension of this program under consideration would use a telephone line tie-in with computers used by New York agencies for direct data transmission. Main problem at this point: how can management still retain complete control of spots available and the types of commercials?

But with the central IBM computer linkup, a punch of a button will retrieve any kind of information needed. Called the ultimate in automation integration, this system will process the status of all time periods in a matter of minutes. This will let management interpret, analyze and make projections for future programs almost at a moment's notice. Such total automation can be set up in stations that don't have a powerful computer available simply by leasing time from a computer service company. Generally, such leased-time arrangements are handled over telephone lines through simple data terminals installed in the broadcast station. Then this computer can "talk" to the New York agency computers, and so on. It's an exciting blueprint for the future of TV automation—one that's being proven right now to be perfectly workable. **BM/E**

Engineer prepares random access projector for interconnecting into the station's automated production system.



Station log at Knoxville's WEZK (FM) is checked by program director.

Broadcast Automation and the Computer

By Rogan Jones, Jr.

This is the computer age, and electronic brains make out bills, send men to the moon and match prospective husbands and wives. Will the computer play a significant role in broadcasting? How can a broadcaster best use a computer? When should he use noncomputer automation? Here are a few answers.

BROADCAST AUTOMATION seems a natural place for a computer. Until recently, the most common objection was cost. Now, computer sales climb and cost goes down. Most of today's computers are third-generation types, and a fourth generation is appearing. A further cost reduction is attainable through time sharing, where you pay only for the time that you're actually using a remote computer.

Although used widely, general-purpose com-

Rogan Jones, Jr. is president of International Good Music, a major supplier of broadcast automation.

puters have not yet significantly penetrated the broadcast industry. Probably the chief reason is that there are no standards for input data. Until users can agree on and stick to a set of rules, few large computers will be used in broadcasting.

Computer Jobs

At a broadcast station, a computer can perform two useful functions: housekeeping control and machine control. Housekeeping includes such jobs as time availability search and display; accounting; and furnishing management-control data (comparative sales, billing, equipment maintenance cost, etc.).

The comparatively low cost of time-sharing a large general-purpose computer (like the IBM 360/80 series) makes housekeeping an attractive function for group broadcasters and individual stations which bill $300,000 and up. But the price is still a bit high for smaller stations.

Machine control means switching program sources (live, tape, film, network, etc.) according to a programmed schedule, and printing the logs. Along these lines, the computer can do little more than present automation equipment does. In fact, a general-purpose computer is at a disadvantage, for several reasons:

- Automation gear is less expensive.
- Computer preparation time is considerable, as the broadcast schedule must be revised and updated constantly.
- Existing FCC- or union-required operators must learn computer operation.
- Station technical personnel may have to learn computer maintenance.

Housekeeping requires a large memory, capable of storing perhaps 100,000 bits of information. Machine control requires less than a tenth of that. To function effectively for sales, traffic and management, a housekeeping computer must provide several input and output terminals around the station. Those who schedule events must be able to get at the computer easily, or there is no advantage to using it.

All the machine control device has to do is take the data traffic gives it, put programs on the air in the right order and at the right times, and keep a record of what happened. A general-purpose computer can do the job, but it's like using a battleship where a rowboat would suffice. A small, specialized computer or a computer-oriented automation system works fine.

Computer vs Automation

The dividing line between a small computer and the control provided by an automation system is difficult to place precisely, as their functions are similar.

As an example, here's how the IGM model 600 radio automation system operates: Punched cards, produced either by a computer or manually, are fed into the 600, just as they would be to a computer. These cards control program source switching (tape transports), and cause a line printer to type out the log. They are also used for random selection of multiple cartridge playback machines, thus eliminating a sub-memory. After the preceding actions have taken place, the punched cards representing commercials go to the accounting department, where they are used as the basis for billing. They can be handled manually, or may trigger simple-punched-card or computer billing equip-

AFRTS Tests Automation

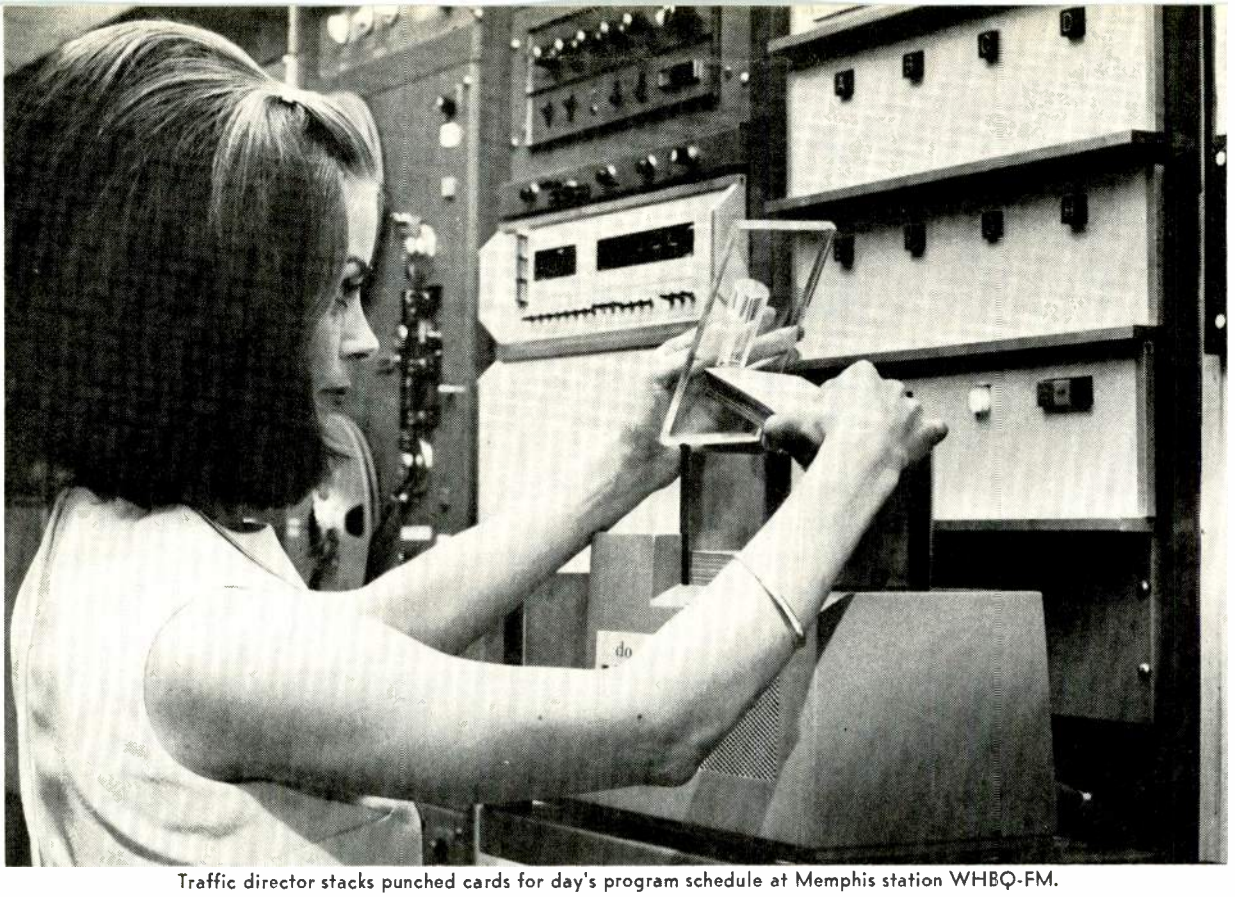
The Armed Forces Radio and Television Service is currently evaluating automation for its operations. Recently AFRTS conducted a month-long test in Frankfurt and Stuttgart, Germany. Tentative specifications were written by the Department of Defense and the Sacramento Army Depot, and submitted to interested manufacturers with a request for bids on a test system.

IGM won the competitive bid to package the test system, and used its special-purpose computer-oriented model 600 system at the Frankfurt net control point. A modified model 500 system was used at Stuttgart. Network programs originating in Frankfurt were carried by the Stuttgart station with local announcements, station IDs, and special programs inserted automatically on command from Frankfurt. In computer parlance, the Frankfurt system was the main, on-line computer, and the Stuttgart system a remote-controlled terminal or subsystem.

The requirement for random access to virtually all types of programming stored in the Frankfurt system involved numerous design innovations. These included high-storage capacity reel-to-reel tape transports containing up to 80 hours of programs, and 140 hours of recorded music used for local DJ shows. Any program or musical selection had to be available 2½ minutes after command (research and cue time). Capability of joining real-time programs smoothly was also required. Standard random access multiple-cartridge machines were used for local and network announcements.

IGM felt that the specialized requirements, budget limitations, caliber of operating personnel, and state of the art argued for the computer-oriented system. Standard punched cards were used as the memory. A solid-state buffer for several upcoming events permitted random inquiry and readout of programming instructions. Enough time had to be allowed to search and cue random-access sources. Much AFRTS programming is fixed, and this permitted the use of hard-wired control logic, rather than expensive, talent-demanding software-controlled logic.

Much information about AFRTS requirements and the ability of automation in general was gained from the 30-day test. This information is still under evaluation by AFRTS, and may lead to near-total automation of its facilities.



Traffic director stacks punched cards for day's program schedule at Memphis station WHBQ-FM.

ment. If the station uses a computer which does not accept cards, the 600 system can punch a paper tape to drive the billing computer.

An automation system is about the equal of a small computer in broadcast operations. Neither will do the housekeeping job a general-purpose computer will do. The memory capacity of a small computer exceeds that of an automation system, but access capability is roughly similar.

Program Storage

Memory capacity of a system is a much misunderstood factor. Many persons ask "How long can we go without having to re-program the system?" That depends on two things: the memory capacity of the automation control and the capacity of the program sources. If the tape decks can hold only six hours of material, you don't need a computer with a memory capacity of two days' programming. Furthermore, how far in advance can a station prepare *in detail* its program content? Suppose a DJ show is being prepared with a talk tape and music. Does the programmer, who is making up the material the night before, know how many breaks will be taken, which spots will be called for, and which music transports to schedule in what order? If he knows, memory is important. If he has to wait until he cuts the talk tape, then memory capacity is not as important as access when the programmer wants to get in and add or change something.

Any automation system must be a compromise between memory capacity and ease of access for updating or revising programming. At one extreme there is the day-long program which cannot be altered; at the other, manual control. Most systems are somewhere in between.

A small, specialized machine-control computer has excellent access and a reasonable memory capacity. You can change any part of the program while leaving the remainder undisturbed. An automation system using punched-card input, such as the IGM 600, also has this capability. It wouldn't be very useful at a broadcast station if it didn't.

By the way, time-sharing a remote computer for machine control purposes is terribly complicated and expensive; it just isn't done.

Service and maintenance are important. The best solution is probably to train your own personnel, although major computer suppliers, like IBM will make service calls. But you might be off the air waiting for a technician to arrive.

If a computer is used only for machine control, the station is at the mercy of the speed and accuracy of the input data. One operator, instead of calling his control system a brain, refers to it as an electronic idiot. It can do only what it is told to do. In other words, unless the memory capacity and decision-making ability of the computer can first be used for traffic, a machine-control computer is a waste.

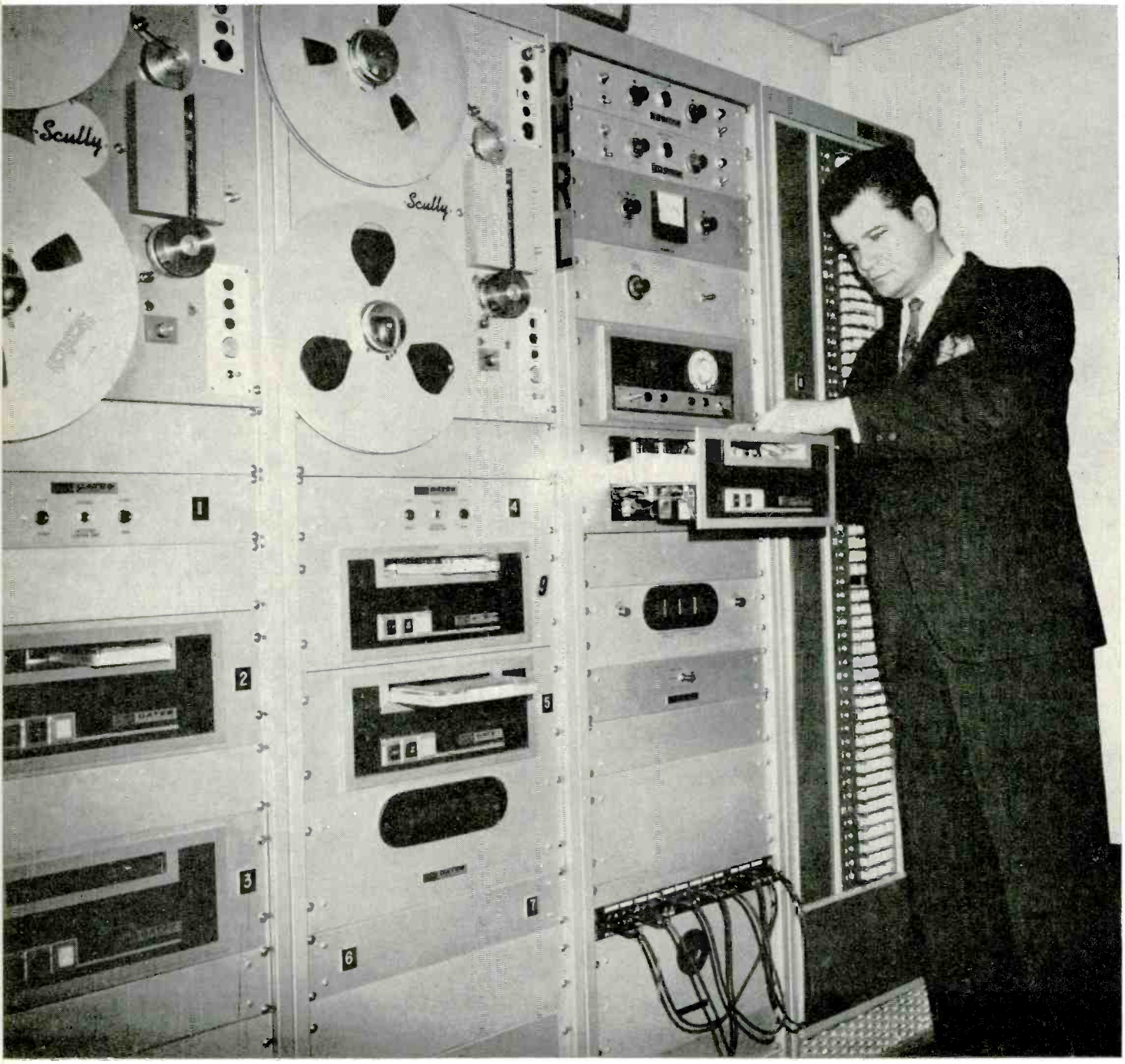
Most stations want computers first as housekeeping devices. It's therefore useful to be sure any automation system can be successfuly interfaced with the computer, so that the computer can order the automation system. Some will, and some won't. It is also useful if the automation system can reverse the flow of information, and tell the computer what actually went on the air.

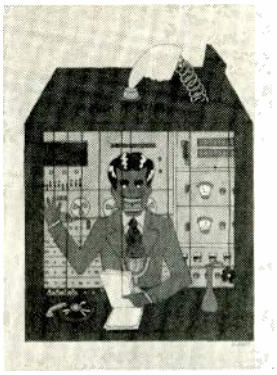
At this point, the large, general-purpose computer seems best used for housekeeping functions. Machine control is best accomplished by a small, specialized computer, or a computer-oriented automation system. **BM/E**

Keeping up with the Competition; Radio Automation at CHRL

Small-market operation requires tight control of operating cost, because available revenue is limited. Automation can maintain quality sound while holding down overhead and freeing announcers to perform other station work.

Chief technician checks pressure roller on SP10 programmer.





"WITH THE NUMBER of new stations increasing in Canada, competition is becoming increasingly severe," says Benoit Levesque, president of CHRL in Roberval, Quebec. "For many stations, survival depends largely on the operating economies offered by program automation and network affiliation."

CHRL is an 18-hour-a-day French-language a-m station programming music, news and community events, and has been automated since 1967.

"With another station in our area," says Levesque, "we had to stabilize our costs to remain competitive. Automation was the only way. We looked at all available packages, trying for flexibility and network-joining capability. We decided on a system manufactured by Gates Radio Division of Harris-Intertype Corporation."

CHRL operates automated 50% of its weekday air time. On weekends, programming is completely automated except for a half hour on Saturday.

"We could operate in a totally automated mode with no real difficulty," says Levesque. "We use an average of 37 events during a half-hour's air time, or 444 events during a six-hour block. The programmer in our system gives us the capacity for 1000 events without reformatting.

Automation has brought CHRL the cost reduction it needed. "Our announcers aren't salesmen," explains Levesque, "so the system hasn't increased our sales. But it's freed announcers for other tasks." Station announcers cover local news and community affairs during times they were formerly tied to the board. As some music programs are broadcast live, they are taped for emergency use. If an important news event occurs, an operator can substitute a spare tape and go cover the news event.

Program Sources

Except for network and occasional local live broadcasts, all CHRL programs are stored on tape, as follows: Musical selections are contained in two Scully reel-to-reel decks on 14-inch reels: commercial announcements are recorded on cartridges, and loaded into a 55-cartridge machine; package programs (news, weather, etc.) and other material are cartridge taped and loaded into single-cartridge machines.

Format Tape

The automation system memory consists of one or more tape cartridges which have been recorded with the sequential switching information needed to put the various program sources on the air exactly when and for as long as desired. This tape is made up on an SP-10 Recording Programmer, which consists of an encoder circuit driven by a telephone-type dial, and a cartridge recorder. The operator loads the machine with a blank tape and starts it running. Then he follows the program schedule, and dials the code number assigned to each source in sequence, just as the material is designed to go on the air.

For example, he might dial the following sequence: Source 1 (voice intro); source 2 (musical selection); source 8 (commercial); source 2 (station ID and weather); source 1, (musical selection). The dial encodes the tape with digital information, in the form of pulses of an 8000-Hz tone.

Program Control and Switching

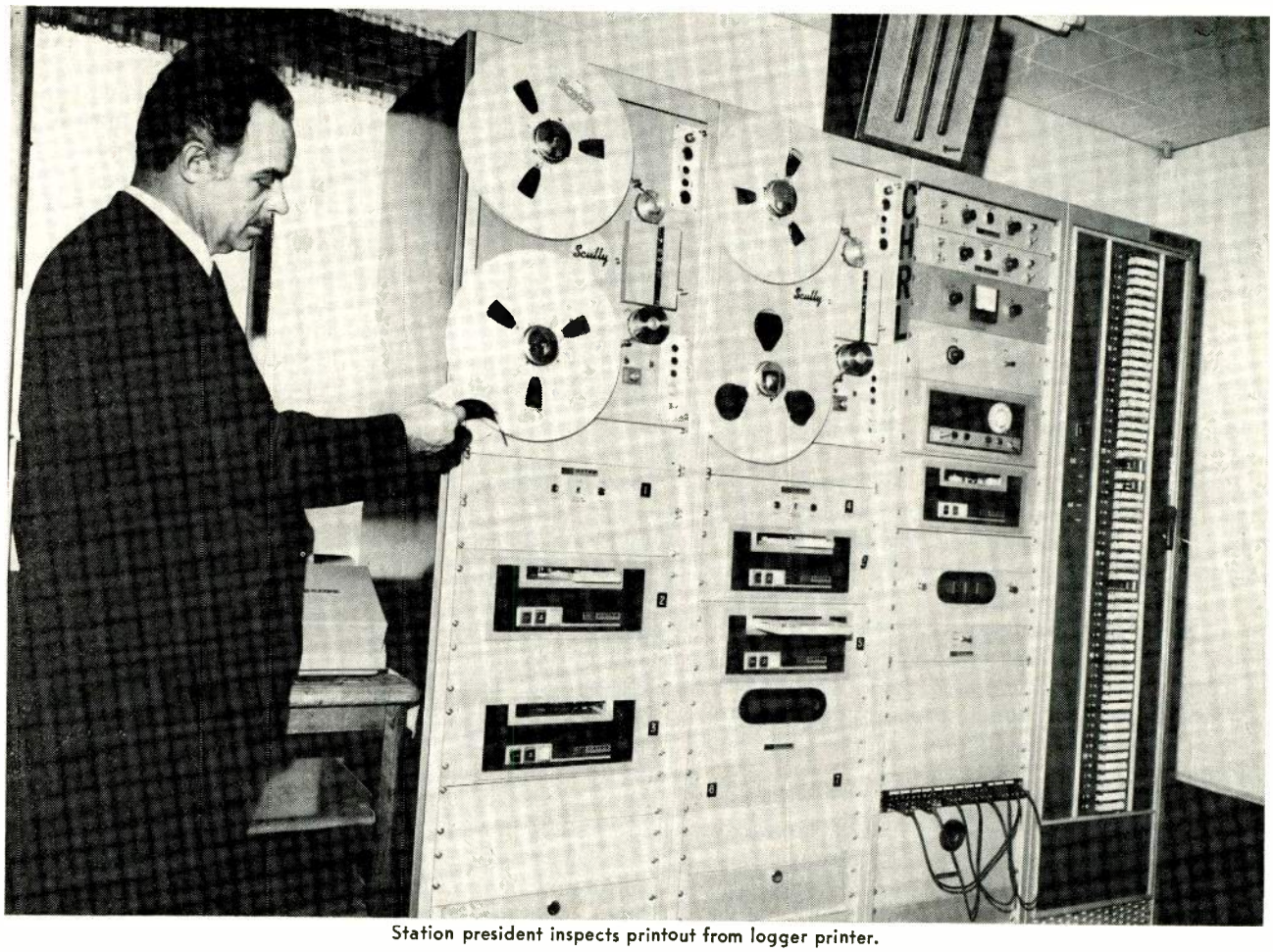
As many as 1000 events may be stored on a 31-minute format tape cartridge. And a format tape may be used over and over again as long as the pattern isn't changed. Once the format tape is made up, it is inserted into a SP-10 Playback Programmer, as shown at the left in the diagram. As the format tape plays, it selects the source called for by the digital code, and transmits a 1000-Hz start pulse which starts the tape. From the source, audio, end-of-message and logging information are sent to the AMS-10 Switches. The audio goes through a motor-driven fader (master gain control), through an audio control and amplifier, past the system VU meter, and on to the transmitter. Note the audio monitor across the output. It's switchable to any source for cueing.

Meanwhile, end-of-message information is routed back from the switcher to the programmer. A 25-Hz tone denotes the end of each musical selection on each reel-to-reel deck. In a cartridge machine, a 150-Hz tone (on the cue track) denotes end. When an event has ended, the end cue is routed through the switcher to the programmer, where it triggers the next event. Thus the system is a closed loop; an upcoming event can't start until the on-air event gets off.

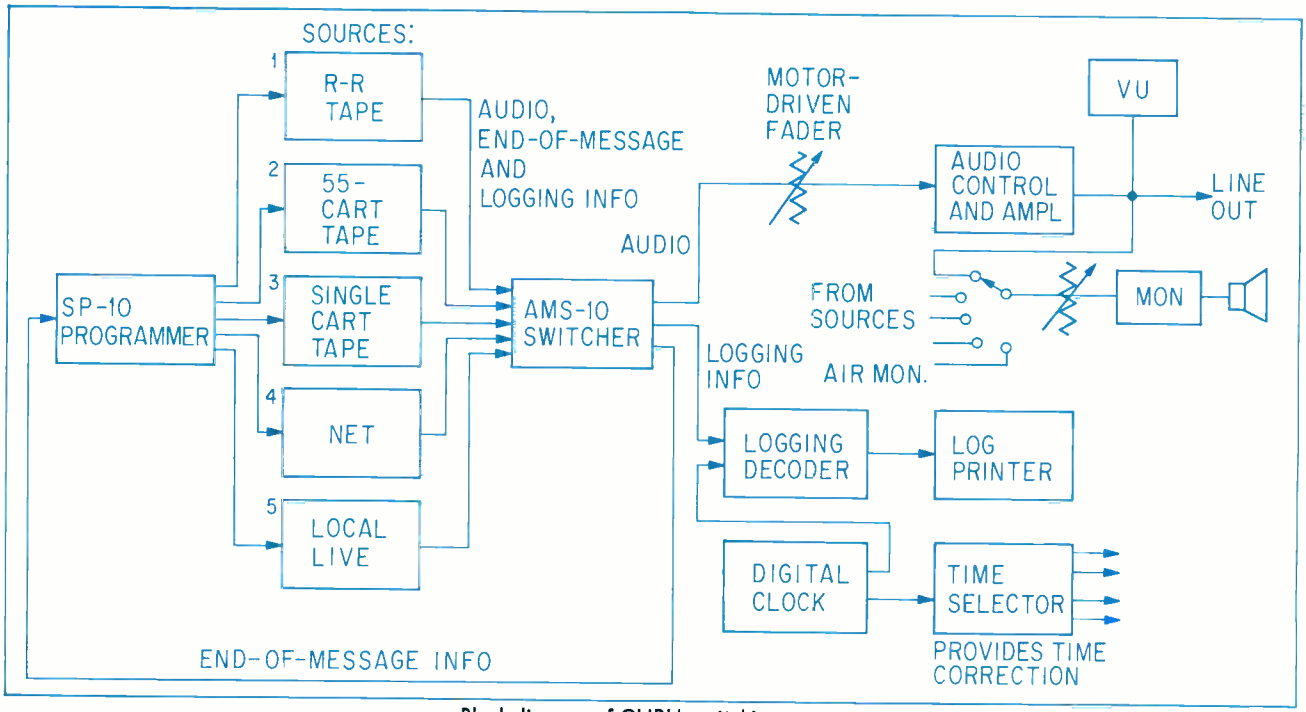
A third output from the switcher feeds logging information to the logging decoder. This consists of the digital identification of each source, and it causes the logging printer to print out the program log. All commercial announcements are logged, as are station breaks and other required announcements. (Music is coded with five zeros, as it's not required to be logged.)

Digital Clock

Reference for the system is provided by a digital clock locked to the 60-Hz power line frequency. The clock has a visual display on its front panel, and furnishes digital time data (hours, minutes and seconds) to the logging decoder. Time information is fed, along with logging information, to the printer. Thus the printer shows



Station president inspects printout from logger printer.



Block diagram of CHRL's switching system.

the source identifying number along with the exact time that source went on the air.

Another important use for the clock is to air station IDs and permit joining the network at the proper times. When the format tape is made up, most events are done sequentially, without regard to time. When a station ID must be done at or near a certain time, the operator making up the format tape depresses a pushbutton. This switch impresses a 150-Hz tone on the format tape. Also on the format tape is the digital information that's dialed in. The 150 Hz pulse is used to differentiate between source codes and time information. Thus, to air a station ID at 11:30 a.m., the operator dials the source code and then holds down the 150-Hz button while dialing 11:30 into the tape. Upon playback, the system waits for 11:30 to arrive, as stated by the digital clock. Then it starts the cartridge containing the station ID.

Network Programs

A similar idea is used to join the network on time. When the source code for net is dialed into the format tape, a time code is also dialed. The system then waits until the proper time to join net.

Since joining net on a time basis is critical, many automated stations reset their clocks periodically to sync with network time.

An even more foolproof system is used at CHRL. The format tape contains a time code associated with the net join signal. But the join circuit is actually a logic AND circuit. Before CHRL can join net, the time must be correct, and an incoming join cue must be received from CBC. Thus the circuit is armed by the time code on the format tape and the proper time given by the digital clock. The system waits; when the CBC join signal is received, CHRL takes net.

Time Selector

The clock is a reference, and doesn't initiate any action. The operating circuit driven by the clock is the time selector, which operates only when time correction information appears on the format tape.

Musical programs (as contrasted with news and other tight-timed programs) are usually overprogrammed, so there's more than enough music to fill the time block. At the end of a block, or when an ID or net-join must be made, time-correction information appears on the format tape. This time-correction data tells the time selector to skip the overmatter and initiate a three-second fade, using the motor-driven fader. Then the station ID or network program is switched in.

Obviously any system occasionally malfunctions, and a safeguard must be provided for such happenings. CHRL's system contains two silence sensors for such purposes. Each silence sensor actuates after a preset silent period has occurred in the circuit it monitors. The first sensor monitors the output of the automation system. When silence occurs, the on-air source has usually failed. The remedy, at the user's option, can be to go to the next source, bypassing the defective one. But it's also possible, if source packages are tightly timed, to go to a standby fill tape until it becomes time to go to the originally scheduled next source. The silence sensor may also trigger an external alarm and summon the human operator.

The other silence sensor air-monitors the transmitted signal. Thus if anything past the automation system should fail (like the STL or transmitter), sensor #2 knows about it. It can be armed to trigger an external alarm or take other steps the user desires.

The log printer normally prints events and time codes in black, providing that the material was actually broadcast. Should sensor #2 actuate, indicating that the station is not transmitting the program, the log printer is shifted from black to red printout, clearly indicating downtime.

Time Announcer

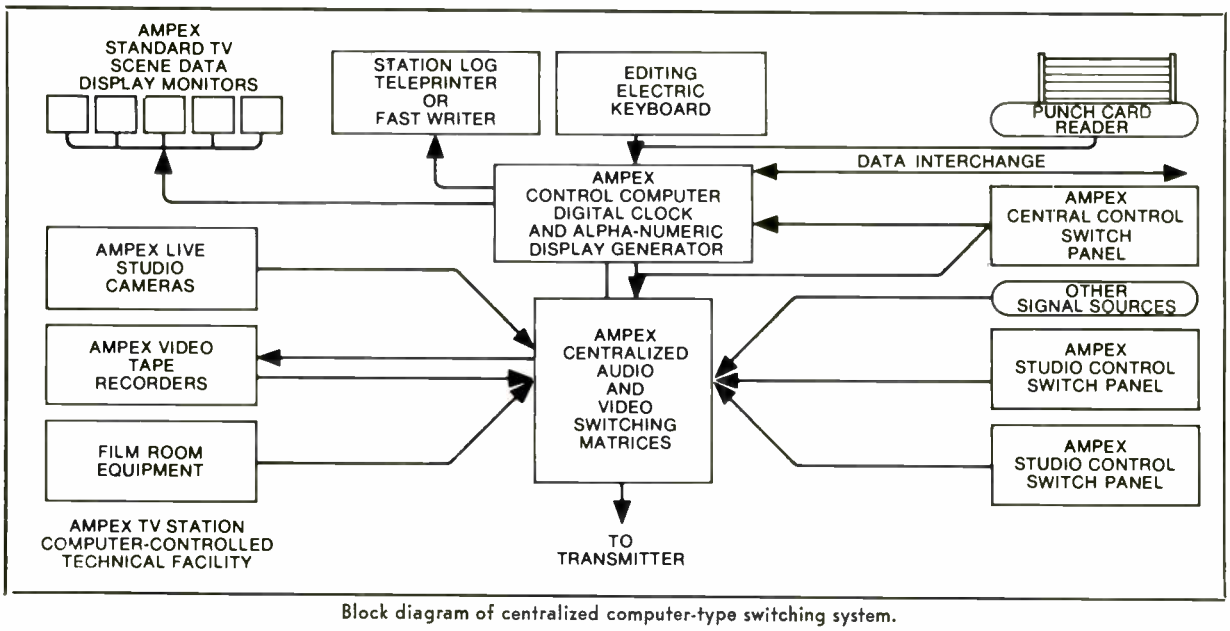
Although not used at CHRL, a Gates automation option used by some stations is the time announcer, actually a pair of tape machines. Machine #1 contains odd-minute announcements, while machine #2 contains even-minute announcements. Driven by the digital clock, the time announcer makes available one announcement per minute. While one machine is available, the other is cueing itself up.

Operating Modes

When operating in the total automation mode, the system runs continuously from sources as determined by the format tape. Time correction is inserted for station ID's and network feeds, keeping the system tied to real time.

It's also possible to operate in a semi-automation mode. The system basically runs automated from normal sources. But at preset times it waits, playing overmatter, until a live operator overrides and goes on the air.

Finally, manual operation is possible at any time. Normally it's more convenient to cartridge tape a newscast, timing it to fit the schedule, and load it into a single cart machine for automated airing. But when a bulletin or serious weather report arrives, it's possible to go to full manual control, using a remote-control facility which enables the operator to run any source on command. **BM/E**



Block diagram of centralized computer-type switching system.

Hands-off TV Switching

Marry your manual and automatic TV gear to a switching computer, and relieve panic-period pressure. Here's a system where punched cards trigger the action, print the program log and even originate billing information.

MANUAL TV SWITCHING is rapidly becoming obsolete at many stations, simply because the system complexity generates errors during the panic period. Automation minimizes errors, frees personnel for more creative tasks, and automatically keeps logs and provides data for billing.

New from Ampex is a general-purpose, stored-program digital computer and peripheral equipment. The switcher contains integrated circuits and digital logic.

The computer is linked to a core memory that can handle up to 150 scenes, or about five hours of programming. Scene information is fed to the computer via punched cards. A real-time clock, locked to the 60-Hz power line (or other time standard such as WWV) is the refcrence for all computer action and switching.

Binary Language

Both the software program and IBM card-scheduling data are fed to the computer in the same binary language (ASCII code) used by business computers, so program logs can be fed directly from the switching computer to the accounting computer for billing.

By contrast, the program log is recorded in plain language, and displays an accurate record of programs that actually have been broadcast (not simply pre-broadcast schedules) and the real time that each event occurred. The printed log need be merely verified and signed by the operator to meet FCC requirements.

A plain-language monitor display is also provided by the computer memory. This information includes time of day (hours, minutes and seconds), identification of the "on-air" event (including duration of time remaining in scene), and identification of the next five or more scenes programmed to follow (including scene duration, source equipment, program number or name and transition instructions). The operator can see any five scenes scheduled in the computer.

Any portion of the information entered into scene storage may be deleted, edited, or alternatively, an addition can be made until a few seconds before a scene goes on the air. Manual switching is always available.

All programs are organized and executed with punched cards. Each 80-column card is punched with a six-digit number representing an event in the daily station operation. The cards are prepared by the traffic department and stacked according to time sequence in a card reader which converts the data to digital code for storage by the memory cores. As events take place, information from unprocessed cards is automatically en-

Continued on page 82

NO.400

New "Scotch" Brand Color Video Tape guards itself against damage.

Guards against cinching. "Scotch" Brand No. 400 now solves your video tape handling and shipping problems. A new, matte-finish back treatment virtually eliminates cinching, windowing and creasing. Capstan slippage is a thing of the past.

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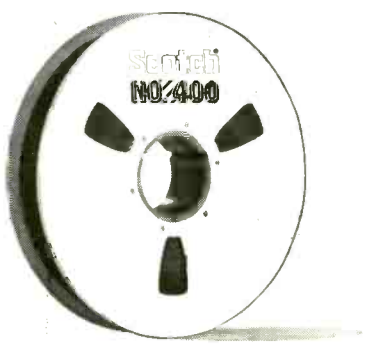

Circle 113 on Reader Service Card

Circle 114 on Reader Service Card →

The switch-hitters

THE PHILIPS PC-70 ... the prime time king of color cameras ... serves on more live and taped studio color shows, by far, than any other camera.

And it's a fantastic switch-hitter. If the PC-70 is a winner in studio work, in the field it's no contest. For major outdoor news and sports events, the PC-70 consistently takes the most valuable player award.

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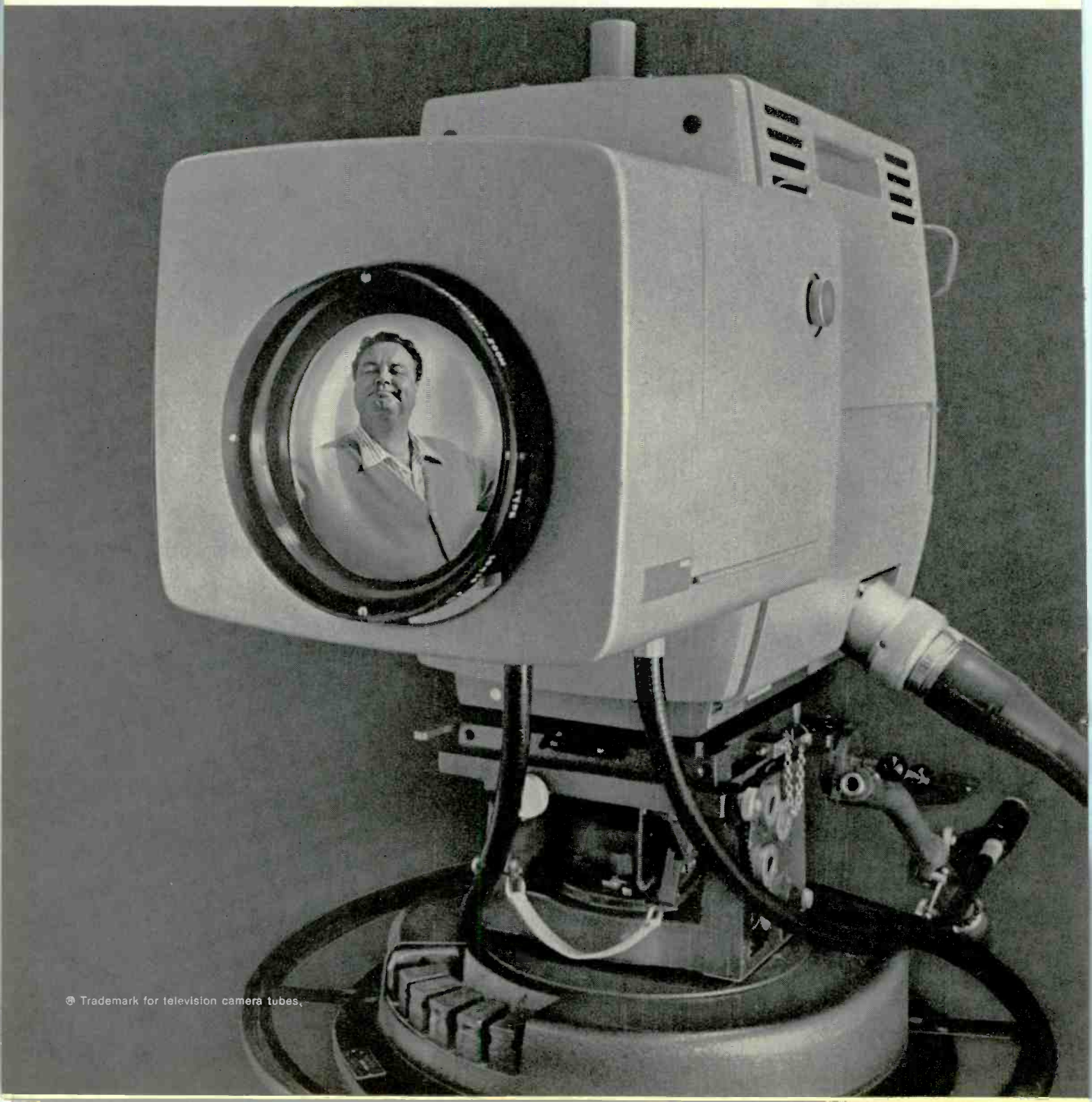
When a better camera is built, Philips will build it.* In the meantime, the PC-70 is the ticket.

*The Philips PC-100, announced at NAB '69, will be available early in 1970.



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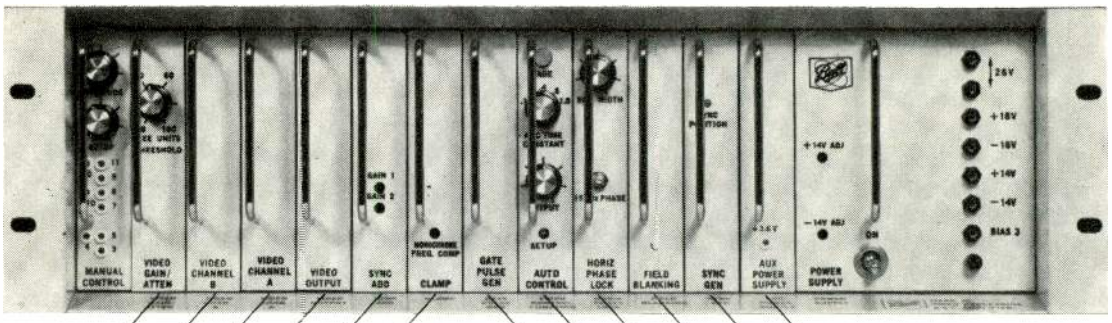

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BB9/5

Circle 115 on Reader Service Card

Phase Correction Holds Colors Steady

Switching video sources in a control room can be a colorful problem unless the relative phases are equal. Newly developed equipment equalizes phase error, keeping colors the same.

By Rolf Drucker

IN A TELEVISION STATION using either the NTSC or the PAL color system, signals from all video sources (live cameras, film chains, VTRs, etc.) must arrive at the switcher input with sync pulses in time and color subcarriers in exact phase. It's assumed that all video sources are driven from the same sync generator, or are individually Genlocked so that driving pulse error is minimal. The range of allowable subcarrier phase error is quite small; each six inches of coax causes a one-degree phase shift.

In a small installation, each video source is generally fed to not more than two switchers. Since the equipment is usually grouped closely, it's easy to make coax path lengths equal, and once the plant is phase trimmed, it seldom gives much trouble.

However, in the more complex installations found at larger stations, networks, production centers and government installations, the color-phase problem becomes more severe. Plant area is usually large and the several control rooms are at varying distances from the telecine, video tape, or camera-control center. Furthermore, all video sources should be available to all control rooms at any time. Whenever a source is connected to a control-room switcher, someone has to adjust its subcarrier to be in phase with all other sources feeding that switcher.

The crudest, yet presently most common method is to get telecine on the telephone and "talk" the video operator into the proper adjustment. This system takes a lot of time and wastes manpower, especially when several control rooms want phase trimming done at once. Color film chains and VTRs are very expensive devices which pay their keep only when actually in use. Setup or adjustment time is almost as wasteful as down time, and should therefore be minimized.

Equal Cable Lengths

One solution to the phase problem is the use of equal-length cable runs from telecine or VTR control to each control room. Unfortunately, all cable runs must then be as long as the longest. This is an expensive system which wastes cable and requires storage space for the coiled lengths of the shorter runs. And if a new control room requiring a longer cable run is added, the system must be completely rewired.

Fixed video delay lines could be used to compensate for unequal cable lengths, but they cause undesirable level loss and require equalization.

Another solution is to use a video delay amplifier at each switcher input, combining delay, equalization and amplifying functions into a single equipment. While this method overcomes the phase problem, it's expensive and still requires manual trimming each time a source is assigned to a control room.

Automatic Phase Correction

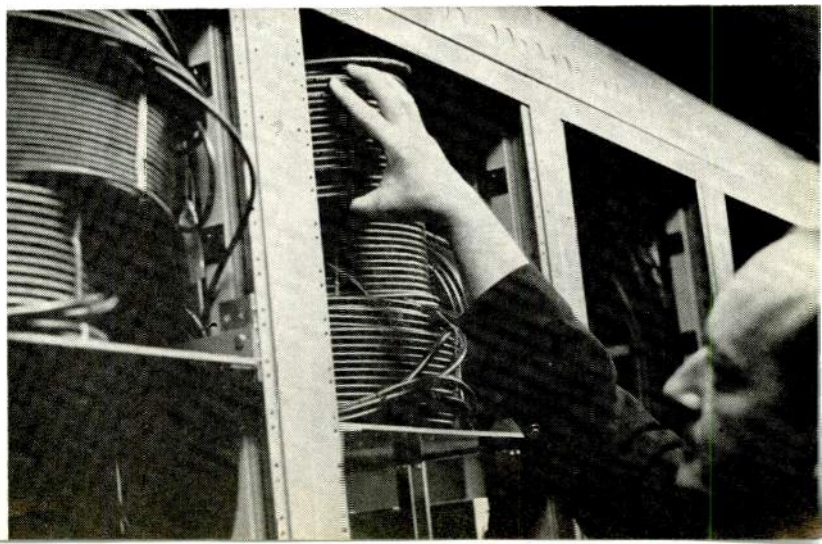
The obvious answer to the phase problem is an automatic corrector driven by, say, reference black, as seen at the switcher input. Nippon Electric has proposed such a device, a phase comparator at the switcher input. The circuit compares the phase of the incoming subcarrier with reference black, producing a dc correction voltage which is fed back to the video source. At the source, the correction voltage shifts the subcarrier phase.

Although this device is automatic and gets the job done, it requires a feedback path from switcher to source, which means more cable. And the method allows for phase correction at only one switcher; video from the same source to other switchers is still out of phase.

A more satisfactory solution is shown in Fig. 1. The circuit is located at each switcher, and

Author inspects coils of coax used to delay signals to "equalize" cable runs.

BM/E Photo



Rolf Drucker is technical director, ABC-TV, New York City.

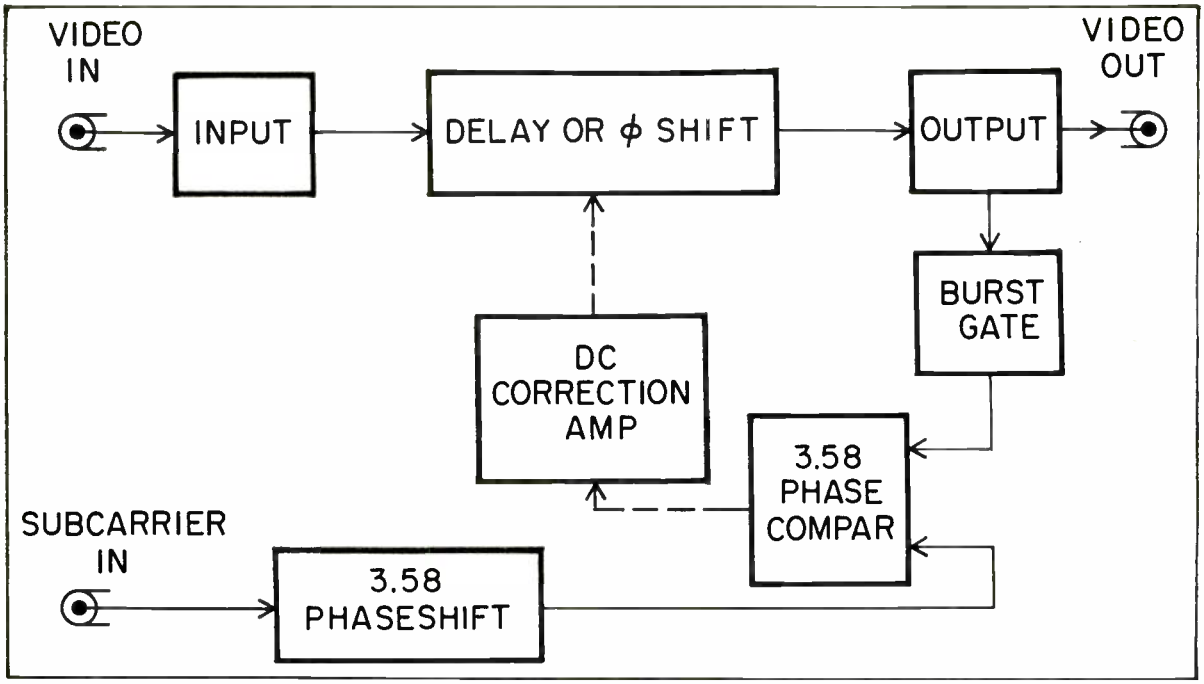


Figure 1. Color phase correction system block diagram as used in commercial delay units.

accepts video feeds from any source. The comparator circuit is driven by reference black, and automatically phase shifts any incoming subcarrier to the proper value.

At the suggestions of the author and others, at least two manufacturers have developed phase-correcting devices. Control Concepts Corporation calls its unit an *Automatic Delay Line* (or ADL), while Videon Corporation uses the term *Autophaser*. A somewhat similar circuit is the *Colortec* used in Ampex color VTRs, which corrects subcarrier phase error caused by the mechanical limitations of the headwheel.

In the Automatic Delay Line, incoming video passes through a variable delay line so that the subcarrier is brought into phase with a reference sample. Output phase is adjustable over a range of more than 360°; once set, output phase is constant and independent of input phase. Note that the Automatic Delay Line combines delay, amplification and equalization, by contrast with a fixed delay line, which has delay, loss and non-flat response.

The Autophaser uses a phase-shift network to correct phase error. The results of both devices are similar, but the Automatic Delay Line corrects even minor path-length errors.

In a plant using the ADL, all pulse times and subcarrier phases are adjusted at the source to arrive in time and phase at the master control transmission video patchfield or routing switcher. Any timing and phase errors which occur beyond that point are automatically corrected by the ADL.

BM/E Photo

Automatic delay line by Control Concepts Corp., as installed in ABC Network's New York switching control.

Where It's Hooked Up

In general, there are two points within the system where the ADL may be connected. The first and most desirable point is at the output of each video source, before the cable run to master control. Obviously this method requires a separate phase corrector at each video source—quite an expense in a large plant.

The alternate method is shown in Fig. 2 and is satisfactory in most cases. One ADL is placed at the output of each switcher deck where phase relation to another video signal is critical, or at the outputs of the *Mix* and *Effects* switch decks. Since most studio switchers have two *Mix* and two *Effects* decks, four ADLs are required for each switcher.

In special circumstances, as some network feeds, some ADLs are used at certain sources, as well as at switchers.

Network Use of ADL

The first practical application of the Automatic Delay Line was by ABC-TV during the 1968 Summer Olympics in Mexico City. At the origination point, a rubidium frequency standard locked the sync generator. Such a standard is normally specified with an accuracy of 4×10^{-11}, but a matched pair is good for an accuracy of one power higher. The Mexico City standard had been matched to a twin at ABC-TV Master Control in

New York. Thus incoming Olympic video had highly stable sync which matched New York sync. But subcarrier phase drifted slightly, necessitating automatic phase control.

The situation, a rare occurence, was an unlocked feed of known stability under actual field conditions, available for testing during a two-week period. The automatic phase correction was first used on a test basis. But monitoring and measurement proved it so accurate that it was soon used on the air and the previously-employed Genlock assigned to backup duty.

By using automatic phase correction, ABC was able to integrate Olympic video with local New York feeds of tape and film.

During field testing, two condtions were found which disturbed the control. These are:

- When a monochrome signal appears at the input, and there is no color burst. If no external, fixed delay were inserted, the servo loop would continuously hunt for the nonexistent subcarrier.
- When incoming subcarrier frequency is out of control range from the house reference. This is a period of 30 percent in excess of one cycle of 3.58 MHz, or about 350 nsec.

To compensate for these conditions, the ADL must break the servo loop and insert a fixed delay. In this situation, the device sets itself to a fixed delay, and a warning light indicates that correction is not taking place.

Delay Lines at ABC

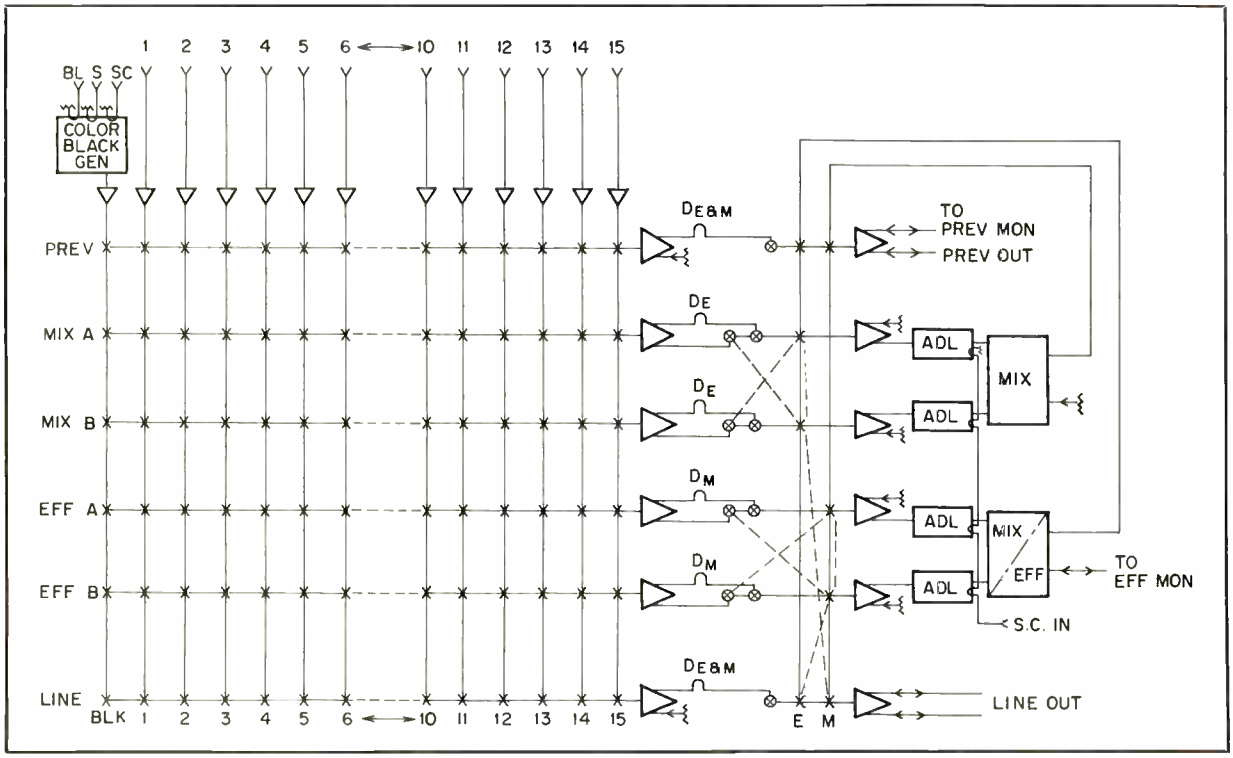
Today an Automatic Delay Line is used at ABC-TV Master Control in New York for the ABC Evening News. Portions of that program originate in New York (Frank Reynolds) and Washington (Howard K. Smith). Split-screen and Chromakey techniques are used extensively, requiring accurate frame and subcarrier phase lock between the two points. Genlock cannot be used, because Genlock rolls disturb the VTR servo control, causing video breakup for several seconds. Besides, that program is fed delayed on videotape to much of the country.

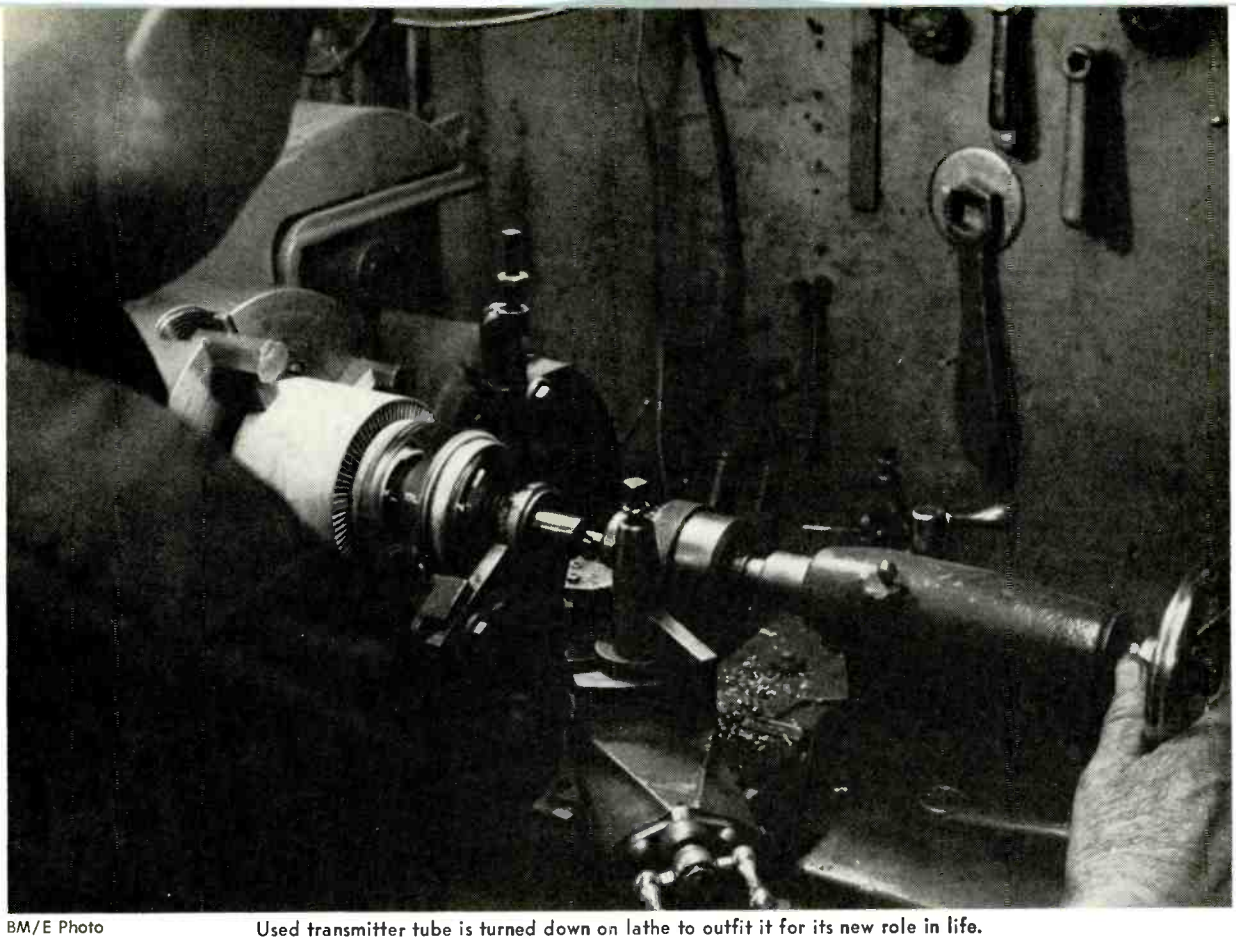
Thus a refinement of the Mexico City technique is used to lock New York and Washington. Twin rubidium frequency standards, matched to each other and to the U.S. Standard Frequency, drive the New York and Washington sync generators. Before each program, frame and subcarrier frequency coincidence are checked, and the Automatic Delay Line is set to the middle of its correction range. From then on, during the two-hour period or rehearsal, air time and two tape playbacks, the correction system needs no adjustment. During delayed tape playbacks, live segments are sometimes inserted to update late news events, which would be difficult or impossible without automatic phase control.

ABC plans to install new routing switchers in its New York and Hollywood plants soon. Each will be equipped with Automatic Delay Lines. Thus each control room will be able to select any video source without resorting to master control. And when the source is selected, it will be in phase with all other sources arriving at that control room.

The Automatic Delay Line has a bonus feature; it corrects creeping phase shift which shows up eventually in any system. **BM/E**

Figure 2. A technique for switching in automatic delay lines (ADL) as needed.





BM/E Photo

Used transmitter tube is turned down on lathe to outfit it for its new role in life.

Finals from the Garbage

Bothered by the high cost of fm transmitter tubes? Raiding a-mers' garbage may turn up perfectly good, usable power triodes that can save you $$$.

WANT TO CUT DOWN your fm operating costs? Who doesn't? Jerry Cobb, general manager of Reno, Nevada's KNEV, has an unusual way of obtaining his transmitter final tubes for little or no cash outlay. "We just want to keep the overhead down," says Cobb. "Most fm operators have had or know of problems in this area. This is just one of many ways we've learned to economize."

Cobb uses tubes that have previously seen service in a-m transmitters—Eimac type 3-2500F—a tube type that has filament leads "permanently" bonded to external metal parts. Without these filament leads, the tube is identical to type 3-2500A-3—the tube which KNEV's transmitter calls for.

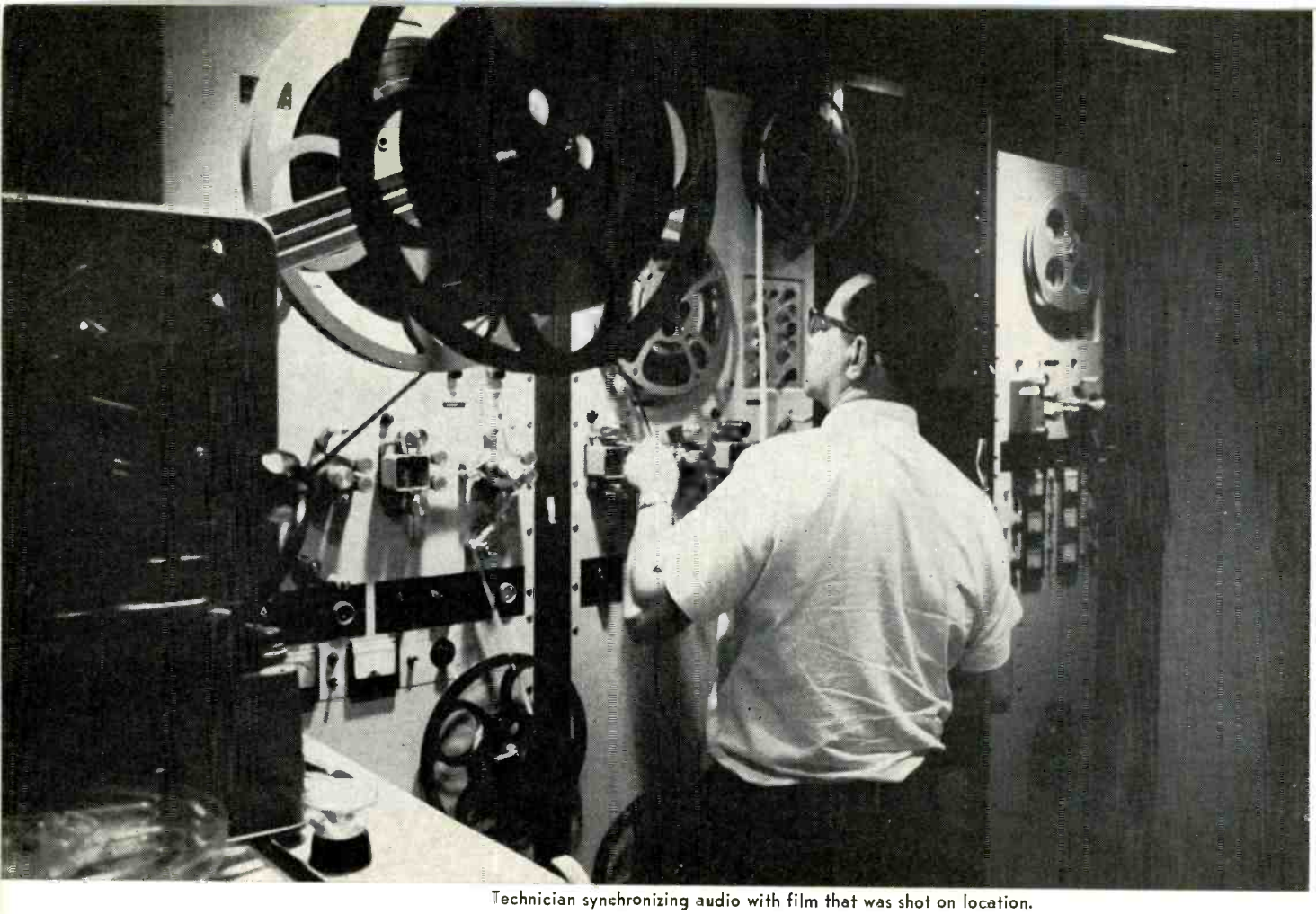
Popular A-m Tube

The "F" tube is a popular type in a-m transmitters. Cobb first cuts off the filament leads, and then has engineer/machinist John Schlenk turn down the tube on a lathe so it'll fit the socket in its new role in life. A-mers remove this tube from service because of failure to meet amplitude surge requirements. The tube, which may no longer be suitable for a-m pulse-type service, is still perfectly all right for fm use, since there are no surge peaks to be transmitted.

"We sometimes jack up the filament voltage a bit, too," continues Cobb, "and we find that we can get at least a year's operating life out of these 'used' tubes." Cobb pays a nominal $5 for each tube, although he picks up a number of them at no cost at all. A-m stations discard them and he raids the garbage. These tubes sell new for $110. "A-m stations discard tubes that they no longer can use—tubes that have already given them the service that they want," states Cobb. "We find that this tube simply can't make power in most a-m transmitters unless it's in absolutely perfect condition."

Grounded-Grid Triode

The 3-2500F is a general-purpose triode specifically for frequencies below 30 MHz. In grounded-grid configuration, KNEV finds the tubes work exceptionally well at fm frequencies. The tube is designed to dissipate 2500 watts. A pair in the transmitter final provides 5 kilowatts plate dissipation, or 10 kilowatts transmitter power in the grounded-grid circuit. While this tube may not work in your particular rig, if you're designing a new transmitter, or want to diddle with the final a little, it's possible Jerry Cobb's savings formula might work for you too. It's certainly worth considering! **BM/E**



Technician synchronizing audio with film that was shot on location.

Seattle's King: Pro Movie

Until it copped the 1968 Oscar for its Redwood documentary, King Screen Productions was a relatively obscure outfit in the Pacific Northwest. Now it's helping put Seattle on the map as a major force in TV film production.

SEATTLE SEEMS A STRANGE place for an Oscar-winning film production company to have its shop. New York, Chicago and Hollywood are the traditional headquarters for film production. Yet in spite of this tradition-bound limitation, Roger Hagen's King Screen Productions has grown to a high degree of stature in the Northwest (and nationwide) since it was formed three years ago.

Hagen, who is general manager, describes the reasons for the firm's growth in Seattle: "Seattle is a fast-growing, progressive city. It has a moderate climate, a healthy economy and beautiful scenery. But, by any measure, it is a long way from New York, Chicago and Hollywood, where the film production industries have traditionally focused."

Even so, during the three, short years that have passed since King Screen Productions was organized by King Broadcasting Company in early 1966, an impact has been made upon the national scene. King's staff, which started with twelve people, mostly from Portland, Oregon's disbanded KGW-TV documentary film production department, has grown to 32 at this writing.

Crews Are World-Traveled

King's film production crews have traveled the world, ranging from the primitive farm-villages of Colombia, South America, to the forests of Canada and the distilleries of Scotland. In addition to television and theatrical entertainment, more than 100 commercials and nearly a score of non-entertainment films have been produced for business, industrial and educational sponsors.

Asked if King Screen Productions began with a basic policy or philosophy, Hagan replied: "There are commercial film production houses located in every major city in this country. However, with few exceptions, only those in New York, Chicago and Hollywood have the opportunity to compete for national business. Our idea was to be a commercial house like the others, but also

Cinematographer lines up studio shot for TV commercial.

Maker with Midas Touch

to aim at producing some really good films. By good, I mean both artistic and worthwhile. The understanding that we will do "good" things has drawn excellent people to our staff. Because of this high caliber of talent, we have been able to compete with anyone, anywhere for any job.

"As an example, we made a film for the Peace Corps. The concept was that we would show how a Peace Corps team operated in a farm town located in Colombia. However, instead of just documenting how the team lived and worked, we concentrated upon capturing the essence of the culture in which they worked, and the impact that they would leave behind.

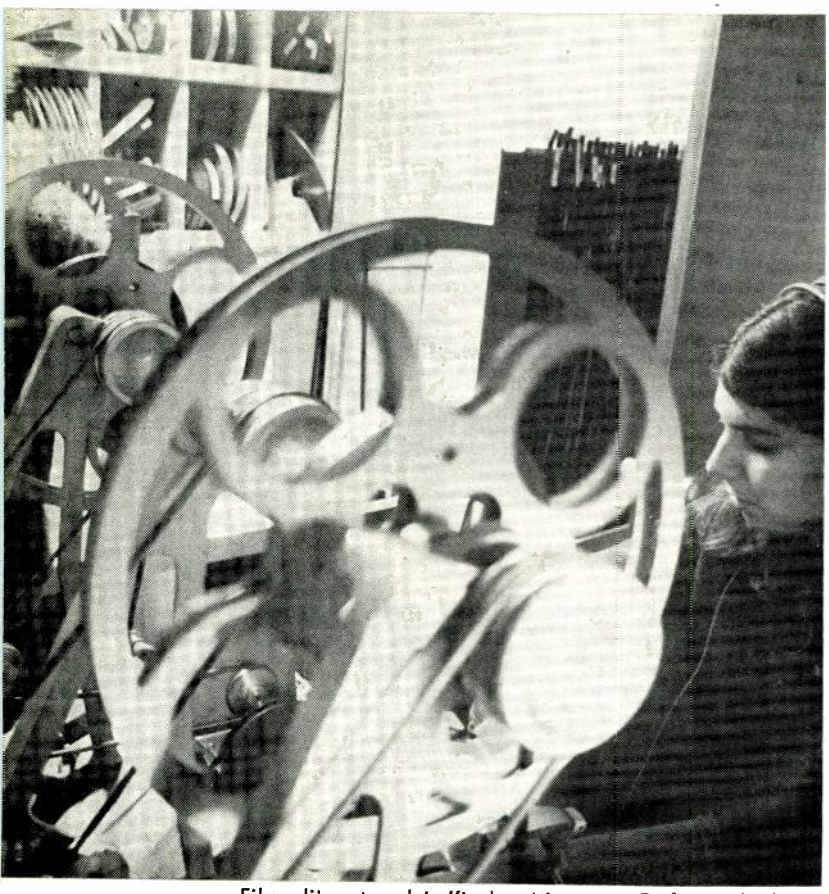
"We did this by sending a small crew, three men, who were able to develop a rapport with the people involved. The cameraman, Richard Chew (who also filmed Oscar-winner "the Redwoods") is a graduate of UCLA and went partway through Harvard Law School before choosing this career. The producer-writer, Mark Harris, and the director-sound recording specialist Skeets McGrew, are also brilliant young men who entered the film industry because they were interested in communications.

"Harris and McGrew spent several weeks just getting to know the people. Then, they came home and worked with the director of photography to create a treatment. When we went back to shoot, we supplemented the camera crew with local talent. By then, we were in empathy with the people —so, we were able to document their perspective of how the Peace Corps affected their lives.

"This was important because people who join the Peace Corps are highly motivated. They want to achieve results. They also want to learn about themselves. Anyone seeing this film can feel the impact that the Peace Corps made on this one village, as well as the impact the village made on the volunteers."

Recruiting Talent

King makes a major effort to have company representatives visit the better college campuses and to tell its story. The studio receives applications from the film schools and from professionals, but Hagan is really looking for young, well-edu-



Film editor at work in King's cutting room. Professional editing is integral part of operation.

cated people who have the ability to learn and to move up fast. Most of his cameramen, for example, have less than three years of experience.

High-brow film projects are not regarded as a trend at King. Hagan feels that there will always be specials of this sort, but, few sponsors are willing to invest in this type of programming. King is simply trying to put itself in a position where it is able to claim a share of the most interesting work.

There's no quick-success secret in the television production business. Rather, Hagan feels that success is due to foresight, the ability to envision what the public will want tomorrow, coupled with the courage to then produce what you believe in. "We don't always have the former or the latter," Hagan says, but we're always experimenting, trying to open new areas of opportunity. For example, we've created some five-minute pilots meant for daytime strip programming. One series deals with sex education and it is quite frank. We're also doing some serious experimentation with children's programming; one such show is built around the adventures of a group of children living on Puget Sound.

Genesis of an Idea

A film subject can start with a sponsor or can be based on a speculative idea. In the case of commercials or industrials, agencies will usually come in with fixed ideas and if King wants the

Films for Commercials

The volume of color films used in color television commercials today far surpasses the quantities of black and white films used in the heyday of monochrome TV. The production of color commercials is a major industry supported mostly by color television, with a small percentage of production being shown by indoor and outdoor theaters.

The largest number of color commercial films are supplied to the local television stations by the various advertising agencies. These films, in the motion picture format, are produced by the thousands for the ad agencies, usually in the 16mm width and on negative-positive color film. The local station can then air these films as received or, as is often done, the films are recorded on magnetic tape. This taping has some advantages in that it protects the film from the ravages of repeated projection, and also lets the station superimpose its own local message, logo, pictures, etc.

Local ad agencies and TV stations that make their own commercials usually use color reversal films such as Anscochrome and Ektachrome. These films can be processed locally and the work is often done by the station's photographic personnel. This is especially helpful if the station has its own reversal processing equipment for color news films.

As with the color commercials supplied by the agencies, these films can also be taped with the addition of local messages, logos, fades, wipes and other effects inserted electronically. If the original color footage is shot on "silent" film, taping lets you add synchronized narration and background music. From a synchronization standpoint, this is a definite improvement over the use of separate film and tape cartridges.

Occasionally, submitted slides are recopied by the local station using Anscochrome T/100, Anscochrome Duplicating Film Type 5470, or Ektachrome Type B, and the local message is incorporated in the duplicate slide. The local message can also be superimposed on the color slide during the broadcast.

Slides from flat art work are usually made on a copy stand using incandescent illumination and 35mm tungsten type films, such as Anscochrome T/100 or Ektachrome Type B. Anscochrome Duplicating Film Type 5470 can also be used for making slides of flat art work where softer contrast and greater economy is desired. All of these 35mm slide films can be processed by local photo labs or by station personnel using the available processing outfits and one-pint or one-quart size tanks.

job, it adheres to the customer's ideas. "After all," says Hagan, "it's their money." Other times, clients will come in with objectives and will ask for ideas. A major client in the Midwest, for example, wants the studio to develop both a television special and some spots. In these cases, Hagan presents the problem to a Creative Board, made up of the art director, writers, at least two film directors, the head cameraman, a sales person, an estimator, and of course Hagan. In general, Hagan has found agencies and sponsors to be more flexible and open to creative ideas.

In the non-sponsored field, the studio has originated and started a number of films. The Academy-Award-winning documentary, "The Redwoods," was not sponsored at first. Other films have been started with the idea in mind of getting a network interested. Several of these films are currently in some phase of production. King also originates and speculates on all of its educational films.

There's no clear-cut trend towards *cinema verité* as such.

Pure *verité* is ill-adapted to many assignments according to Hagan. "Certainly film equipment has become lighter and color films faster," he says, "making a naturalist technique easier to adopt. I would say use it where the actual non-directed situation has a lot of momentum, but not with passive subjects. As for hand-held cameras, that is not *verité*; it's simply an alternative to a dolly and can be used in any kind of filming where responsive action is required of the camera."

Most significant in today's film-making industry, according to Hagan, is the demand which has been created for visual, non-directive learning by the broad exposure to films that people are receiving in school, business, industry and elsewhere in their everyday lives. This presents a tremendous opportunity for film-makers. The new generation of teachers demand good film, because they and their pupils are visually sophisticated.

"We are heavily into classroom films now," Hagan states, "and we find that the best filmic ideas are also the most salable. What used to be the sluggish part of the industry, education film, will now become a talent medium as well. And it will be open to young talent as a proving ground because the proven talent will move on to more lucrative segments of the industry. Education will take the place of television in this regard.

"Television is no longer an open field for the young film-maker. Local production is almost dead except for hard news, and national production is the closed club of seasoned professionals in the guilds. You will soon see people going from the education work directly to low-budget features. Features will be more experimental, distributors more various. That is the direction of our development, anyway: via education to features and to the actuality film for industry. The latter will overtake the old-style industrial because the new generation demands credibility, so the nature of public relations for business will have to change in the 1970's." **BM/E**

King's President Roger Hagen (left) looks at story board with art director.

Kept company by "cold nose" Duke, Hill readies disc for his show on WPTH.

Blind DJ Gives Radio Station New Dimension

With his dog at his feet and his wife by his side, Tim Hill holds the night spotlight at WPTH-FM. So what? Hill is the only blind DJ known to do the news and operate the controls himself. That's what.

WPTH-FM MAY BE THE ONLY STATION in America with braille copy in its daybooks. After all, the Fort Wayne, Indiana, stereo station boasts Tim Hill—the only blind disc jockey in the country known to do his own news and operate his own controls. Indications are that Hill is adding all kinds of dimensions to listeners' enjoyment and perhaps to the future of the blind in radio.

A tap on the shoulder from wife Angie tells Hill it's news wrap-up time and he intros, "Now there's my song—'On a Clear Day You Can See Forever'!" Engineers break up, Angie giggles and Hill's "cold nose" named Duke scratches. Thanks to an article in *The Journal-Gazette* some months ago that told listeners Hill is blind, the WPTH night-time crew probably isn't smiling alone.

"Blindness isn't a handicap; it's an inconvenience," says Hill, who has to spend 30 minutes every day brailling out just the news. Sightless for 21 of his 23 years, Hill found it hard at first to adjust to reading ahead of himself, instead of taking one word at a time. This kind of frustration seems nebulous in comparison with the feelings Hill suffered when job hunting.

The first steps to a career in broadcasting went well; everyone who heard his audition tapes and saw his resume wanted to meet him. "I never stated I was blind in the resume; I figured if they liked my voice on the tapes, they would have that voice," says Hill. The interviews went differently. After setting Hill up for a test in a studio, a man

at the Traverse City radio station noticed Duke, realized Hill was blind, handed him the resume and "ran." That same day, another interviewer asked Hill, "How do you crawl up the stairs?" and told him the studio was too small for him. Hill recalls, "That was a laugh—the smaller the studio, the easier it is for me. He had a million excuses and they all came about after he knew I was blind." Bill Shaw, former manager of WPTH-FM, was one of the few who greeted Hill with a handshake. But in Shaw's case, he added, "We've been waiting for you."

Hill's interest in forging a career in an area where only three other blind men are known to have "made it" was far from one of those storybook "burning desire" deals. Rather, it was born of "the ingenious idea of getting an hour's credit for being a DJ." Hill was majoring in mass communication at Wayne State University in Detroit. "Everybody at school kept telling me I couldn't make it in radio and so I guess I finally quit college to find out if what they were saying was true," says Hill, who went on to learn fm controls and graduate from Rets Electronics in Detroit. Then the "burning desire" and determination grew, helping Hill get the experience needed to approach WPTH-FM for a radio announcing job.

Says WPTH Manager Dave Miller, "It's a well-known fact that in industry blind employees often make the best workers where accurate touch is required . . . a radio station's 'image' is based on what its listeners HEAR. And I don't mean just the type of music put out . . . We chose Tim Hill solely on the strength of his radio voice: pleasant, with a youthful assurance and timber and a special blend of humor which . . . tends to make the listener feel good." That Hill also handled tapes, discs, fm controls, was "frosting on the cake," says Miller.

There is a resemblance worth noting between blind radio script writer Hector Chevigny and Tim Hill; both have proven through their work that blindness actually helps sharpen a radio man's "ear." Chevigny imbued his best seller, *My Eyes Have a Cold Nose* (written in the year Hill was born), with that message.

Hill's message is no less personal: "I just hope that wherever I get in the business, that the next blind announcer who comes along can get a step farther because of me . . . so that in 10 years, it can be common to hire blind announcers." **BM/E**

Equally at home with tape and discs, Hill starts up Ampex. Hill knows distinctive feel of each machine.

Oscilloscope display indicates accurate focusing on test rig. Chart recorder prints transfer curves automatically.

No-Guess Tester Profiles Camera Lenses

By Dr. Frank G. Back

Plagued by unmatched lenses or repair jobs that throw off crucial optical calibration? Zoomar has come up with a no-nonsense lens calibrating system that shows you exactly what a lens can and can't do.

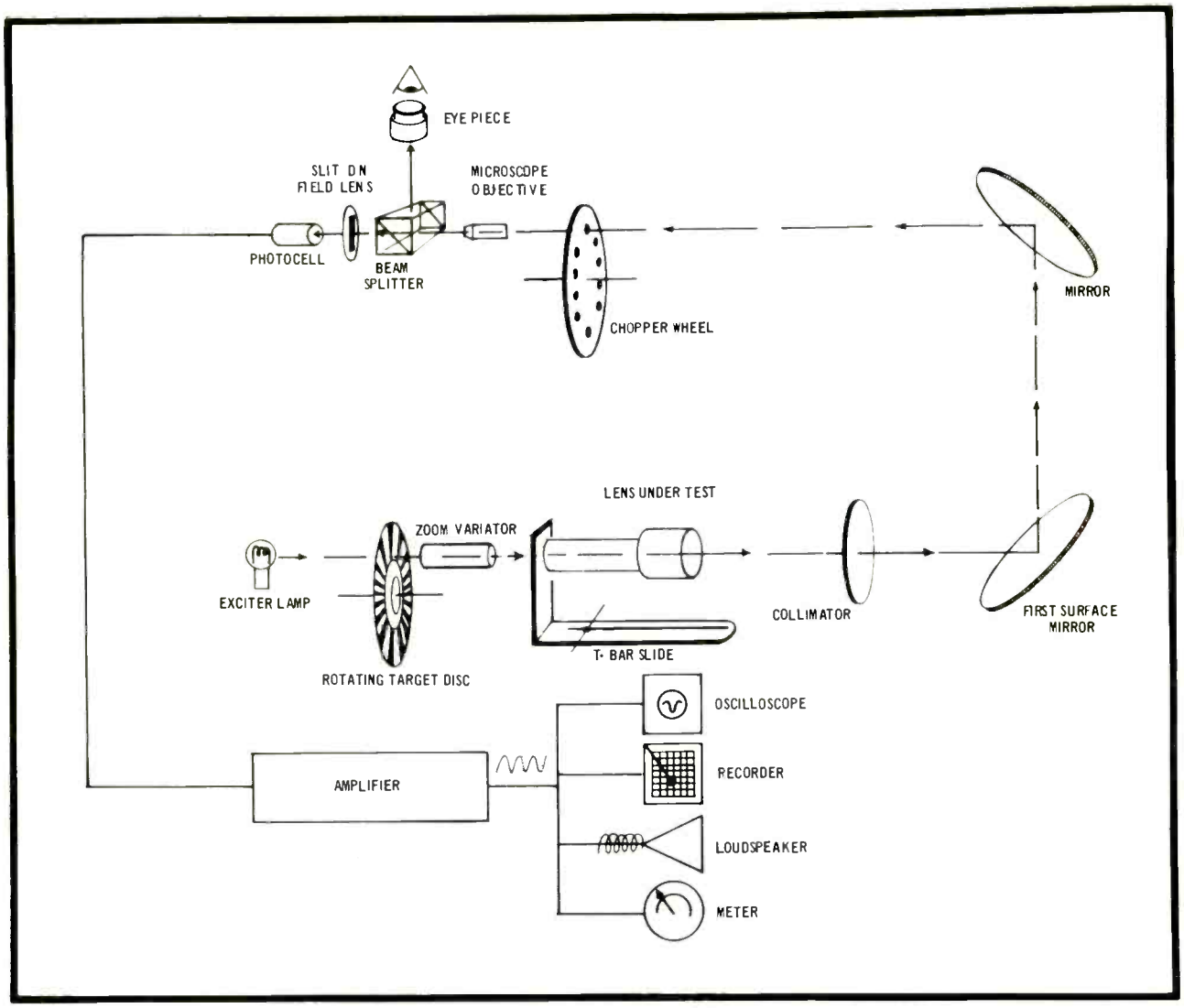
CAMERAMEN AS WELL AS OPTICAL ENGINEERS have long known that there is no universally perfect camera lens. A lens that's ideal for color may be a poor performer with monochrome. Even the best zoom lens will work differently at different focal length settings. Finding a practical, convenient yardstick for evaluating lens performance has been a continuing problem both for the camera department that must spend its lens dollars wisely, and for the engineer concerned with quality of picture transmission.

Until recently, it has been general practice to evaluate lens performance in terms of resolving power. For TV applications, special test targets have been developed by the broadcasting industry and are used to read the number of TV lines that can be resolved. One difficulty with these tests is that the observer has to judge when he can no longer see any lines. Since the disappearance of resolution is gradual, different observers will get different results.

Also, we know from practical experience that a lens can have an extremely high target resolution but produce a picture that appears washed out and lacking in crispness. This is because resolution tests tell us nothing about the lens' contrast characteristics—a factor of major importance in the final picture quality.

The Zoomar modulation transfer function meter was developed to provide TV stations and other major camera users with a simple, reliable means of measuring lens quality without relying on an inspector's subjective judgement. Although the optical industry over the past ten years has adopted the modulation transfer function technique as a standard method of lens evaluation, instruments for measuring MTF have until now been complex, cumbersome devices, and their use has thus far been limited to the largest optical laboratories. In contrast, the Zoomar MTF Meter will fit on top of a desk, plugs into a 120-volt wall socket, and automatically prints out quantitative data of lens performance in as little as 20 seconds.

The underlying principle of modulation transfer, on which the Zoomar meter is based, is es-



Basic operating elements in the MTF Meter system.

sentially simple. Instead of saying that a particular lens resolves a certain number of lines per millimeter, the technique measures the percentage of picture information that remains after passing through the lens at various spatial frequencies. Plotting a number of these measurements on a graph results in a curve that shows the lens' ability to transmit image detail. Unlike resolution tests, MTF measurements account for all the image-degrading effects of resolution loss, contrast loss, veiling glare and phase shift.

Rotating Target

In operation, a spoke-pattern target, rotating at a constant speed, is projected onto the focal plane of the lens being tested by a calibrated motor-driven zoom lens system. This varies the size of the target image to produce spatial frequencies from 10 to 80 lines per millimeter. Light pulses passing through the lens are picked up by a photoconductive cell and are converted to voltage pulses at a constant frequency of 400 Hz. Filters remove the higher harmonics from these voltages, thus providing sinusoidal signals which are amplified to drive a chart recorder pen. This eliminates the need for a sinusoidal test target, a serious obstacle in past attempts to develop a simple MTF meter.

A T-bar slide permits tilting the test lens around its nodal point without moving the target image out of its focal plane. This feature permits quick and accurate measurement of off-axis performance as well as effective focal length of the lens. The spatial zero frequency for normalizing the instrument is obtained with a chopper wheel that can be moved into the light path to modulate the entire light bundle into 400-Hz on-off pulses. The meter includes an oscilloscope as well as a loudspeaker for visual and audible indications of correct zero calibration.

The MTF Meter is designed to accept any lens having a focal length from one inch up to 40 inches, with outside diameters up to 12 inches

Continued on page 80

Getting Rid of Film Static

This little bar, containing Microspheres of nuclear isotopes, is a big problem-solver in film-processing equipment.

Processing machines cause static buildup on film, attracting dust and debris which foul projectors. Here's an easy way to eliminate static and keep your film clean.

LIKE MANY TV STATIONS, KSTP-TV (St. Paul) processes more than 100,000 feet of magnetically-striped 16-mm color newsfilm per year. As at many other stations, maintaining film cleanliness at KSTP-TV was getting to be a problem. The processor caused static buildup on the film, and this static attracted dust particles, ashes and even film scrapings. The station attempted to solve the problem by running the film through two ganged cleaning machines. This helped, but didn't do the job completely.

Next the station considered installing a film-cleaning machine on its processor at the point where film emerges from the dry box. "That's the static buildup point; the film runs at 60 feet per minute over plastic rollers, at a temperature of 135°, and relative humidity only 28 percent," says KSTP photo supervisor Jerry Renchin.

"You could hold the back of your hand near the film and watch the hairs stand up, attracted by the static electricity. But installing a film cleaning machine at this point would have been very difficult."

Static Eliminator

KSTP-TV also investigated various types of electrically operated static elimination devices. But these units erased the magnetic sound stripe at the same time they prevented static.

About a year was spent experimenting before the station tested a nuclear static eliminator manufactured by 3M Company. This unit solved the problem in two weeks.

The nuclear unit was first laid across a strip of magnetically striped film. It had no adverse effect on the sound quality.

The static eliminator was then mounted on the dryer outfeed of the processor. "We noticed a definite change within 36 hours," Renchin says. "When processed film was projected, we could see the difference in the image. Dust on the film was no longer a problem."

The problem-solver is 3M Co.'s Model 210 Static Eliminator. It's a self-powered, portable unit and needs no electrical connections of any kind. Thus it can't cause sparks which might be a problem in a film processor.

The static eliminator produces ionized air, which neutralizes both positive and negative static charges. This ionization is done by nuclear isotopes in inert ceramic beads called Microspheres. They're harmless to any nearby personnel.

KSTP-TV leases the unit on an annual basis from 3M and it doesn't require an Atomic Energy Commission license. **BM/E**

MANAGEMENT
ROUNDTABLE

Does Fm Always Have to Be Second-Best?

Success stories about fmers continue to be few and scattered. The watchword should be "promote," but too often, promo dollars are too few and poorly used.

By Marlin Raymond Taylor

ONE FM STATION in a large eastern market went over the million-dollar mark in 1968, and a few others broke the $500,000 barrier. Still, when you consider that a number of a-m stations in every large market go well past a million dollars in annual billings every year, these few prosperous fm operators really don't yet qualify fm for the "Fortune Maker" title.

Why hasn't fm begun to earn the big dollars? The percentage of homes owning one or more fm receivers is now very high in most areas, with Philadelphia, Chicago, Washington, D.C. and Columbus, Ohio, among the leaders. Nearly three-quarters of the homes in these metropolitan areas contain fm radios. Most cities have a great variety of programs today, especially musical, on the fm band—in some cases providing a greater choice than does a-m. With all this going for it, fm should at least be beginning to pull the lion's share of the nationwide radio listening audience.

But it isn't! It hasn't pulled any large part of the audience away from a-m, except for a few individual stations which have gained audience shares in line with the leading a-m stations. Most of the high-billers are from this latter group, but so are some members of the low-income set. So what can the fm-station owners do to correct the situation? The average fm station already runs only one-third to one-half the amount of commercial time of its a-m counterpart.

Where ratings are the problem, programming may very well play a major role and there are very few fmers who couldn't do a better job of it. There aren't many markets in this country where the number one fm station couldn't quickly be displaced by a competitor who uses a little aggressive programming and promotion. If this is true, then how can an fm station make a dramatic impact against his a-m competition if he can be knocked out of the box so easily?

A Long Look

One major thing wrong with fm programming (and some a-m programming for that matter), is that 90 percent of all station managers and owners still never stop to take a hard look at what their station is broadcasting—not necessarily the type of music, but the finer points such as whether the music has the right content or pattern to satisfy the target audience and how well the format is being executed. For that matter, is the format right for the music being programmed and for the target audience? Is the program director or operations manager given a free hand on programming matters? Is he qualified to make decisions and judgments on his own concerning audience tastes? Then too, the same person may be operations manager, music director, production manager and the afternoon announcer. One person just can't handle all these duties effectively and give you a top-notch on-air sound even if he is qualified. When time is limited, it's usually the music programming that gets the short end of the stick. Can this be allowed to happen if you want to gain or hold those rating points? Music is to most stations what merchandise is to the retail shopkeeper—the only commodity you have to sell to listeners and advertisers.

A station must have strong programming before sales results can be expected and before you bother spending any promotional money. Strong programming does not mean copying your successful competitor's sound and expecting to get the same numbers, unless you've come up with a magic formula that will make your station 500 percent more enjoyable for the listener. If you go this route, you're fooling no one but yourself, because it just doesn't work that way. You must first apply common sense to your programming problem, and ferret out the niche

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Marlin Taylor has been involved in fm broadcasting for nearly a decade, spending much of that time helping Philadelphia's WDVR onto the road to financial success.

where your station can fit into the overall programming available to the radio listeners in the market. Then you can set out to fill that need in the best possible manner. Only then will you be ready to begin selling and promoting your station into a high-rated, fortune-making position.

Needed: Good Promotion

The real problem for many stations isn't just programming; what's needed is aggressive, effective promotion followed by a carefully planned, aggressive and sincere sales effort. Promotion can be created that will do an excellent job without costing a small fortune, especially if you don't have one to spend. If you're sincere and willing to work to put your station on top, you can create methods and generate ideas that fit the funds available.

A couple of years ago, at an fm station in New England with a monthly promo budget of $13.40, we borrowed an idea Metromedia's John Kluge used in Silver Spring, Maryland, back in 1948. It was based on the World War II phrase, "Kilroy Was Here," and proved effective in creating talk and interest in a station very few persons had heard of previously. The promo item was a table tent slightly smaller than a folded 3 × 5 index card. On the outer sides, it said, "A Friend From wxwx . . . 108 Stereo Fm . . . Was Here." The inside said, "If You Like . . . " and listed 16 recording artists we played most often, followed by "Then You'll Like wxwx . . . 108 Stereo Fm . . . More Music —Less Talk." Everyone on the staff carried these at all times, dropping them wherever they went. We even sent them to listeners who wrote the station, asking them to drop one at any place they visited.

There's an old standby that has done a lot for Philadelphia's WDVR during its 5½ years on the air. It's an fm dial card the size of a postcard, listing all the fm stations within a 40-mile radius of the city. This handy card, now being used by several promotionally-minded stations in other markets, has its own special holder which says, "Fm Dial Card—Take One," which adds much to the card's effectiveness. These are placed in every location where fm radios of any kind are sold. Since this is a useful item to fm receiver owners and a beneficial sales tool for sellers of radios, it is accepted everywhere from radio-TV departments of department stores to automobile showrooms. WDVR boasts a distribution of 1.5 millions of these cards since the first printing over five years ago.

These are just a couple of inexpensive, yet effective ways of promoting an fm audience. There are dozens of others now in use in our industry and hundreds, perhaps thousands, more being used by other lines of business that with a little ingenuity and creative thought can be turned into excellent pieces for your station. The larger your budget, the bigger and better job that can be done, because promotional dollars spent wisely and effectively are never wasted dollars.

Your Last Promo

When was the last time an fm station in your area did some audience promoting? Did you feel it was well done and effective? Your answer will probably tell you why fm isn't catching up with big brother a-m with any great speed. Sure there are lots of promotional efforts that aren't bad, but they must carry through to completion or should tie in with other promotion to achieve their fullest impact. A radio station, a-m or fm, like any business, must let its potential customers—in this case the listening public—know that it exists and what it has to offer.

In most instances, programming and promotion play important roles in determining your station's earning ability. But, without sales and advertising revenues, it's an impossibility, unless you've discovered a method the rest of us know nothing about.

To break $100,000 a year, you need only $2,000.00 of weekly income. Further, $2,000.00 should represent only 20 advertisers spending $100.00 a week. Except for possibly the smallest of markets, no business of any size (auto dealers, furniture stores, banks, appliance dealers, clothing stores, or moving and storage companies) should be spending less than a hundred dollars a week if it expects results from advertising on your station. And, you shouldn't be pitching less than that amount to these people if you want to keep them on the air. Even if your audience is small and you can't get more than $2.50 a commercial, sell them forty spots a week. They'll need this many to get the kind of results they expect and need to be satisfied.

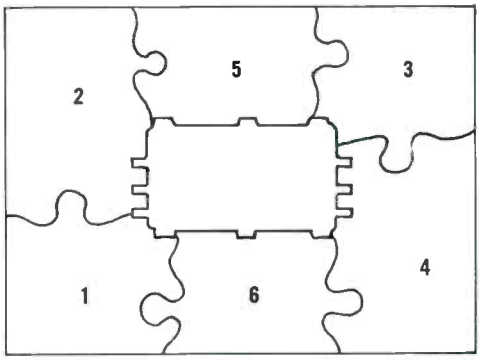
Results Are Most Important

Remember always that results are the game in sales, not ratings, when dealing with local retail advertisers. Sell only those retail merchants that you can do a good job for, and sell them a schedule that includes enough weekly spots and runs enough weeks so you'll get results for them. Results for an advertiser mean a renewal. Without renewals you're fighting a losing battle in building your station into a fortune maker. The backbone of every station's client list should be twenty, thirty or more local and regional advertisers who are with you month after month, year in, year out, spending fifty, seventy-five, a hundred dollars or more a week. These people pay the electric bill and the announcers' salaries and keep the salesman's commissions from drying up. On top of this base you build your profits with short runs for special sales at the department stores, the two, four and six-week flights of national advertisers and business from those seasonal and in-and-out advertisers.

It takes only a little concerted effort to put your station on the right road. Put some forethought and planning into your on-air sound, then tell your target audience in the best way possible that you offer what they want to hear, and follow that with an organized campaign to sell those businesses that can benefit the most from your listeners. **BM/E**

Where does Kaiser CATV fit into your CATV plans?

Everywhere!



KAISER CATV

1 **Surveys & Estimates** — Feasibility studies, reception surveys, strand maps, pole make-ready studies, system layouts and complete estimates so you will know from the beginning whether your proposed system is practical not only from a technical but also from an economic standpoint.

2 **Turnkey System Construction** — Kaiser CATV will assume full responsibility for the installation of your complete CATV system, right down to the last bolt. The industry's most knowledgeable personnel will relieve you of every detail, including the red-tape and paperwork required by Federal, state and local laws. When it's completed (on time and within budget) we hand you the key and you're in business!

3 **Engineering Assistance** — If you're already in the business, or do not need the complete Turnkey service, we can offer a competent staff of construction supervisors and systems engineers to assist you on a per-job basis. Quotes will be supplied on request.

4 **Space-Age Product Technology** — The Kaiser CATV Phoenician series of amplifiers is the most advanced, most efficient, most copied equipment in the industry today.

5 **Research & Development** — A continuing program of product design, testing and field study assures you of the finest and most economical products available, end-to-end.

6 **Quality Control** — Kaiser CATV not only conducts exhaustive QC tests on its amplifiers and the separate modules that go into our products — but we also check-out each individual component as it's delivered to us — **before** it is installed in the equipment! Our standards exceed military specifications because your profits are geared to reliability of service.

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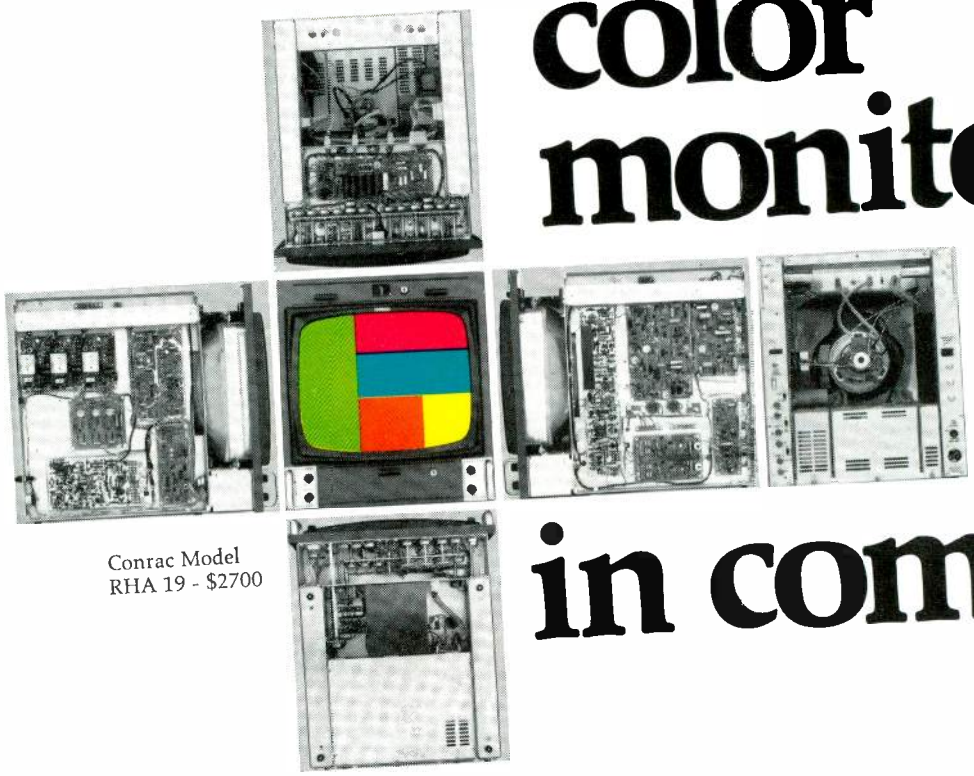
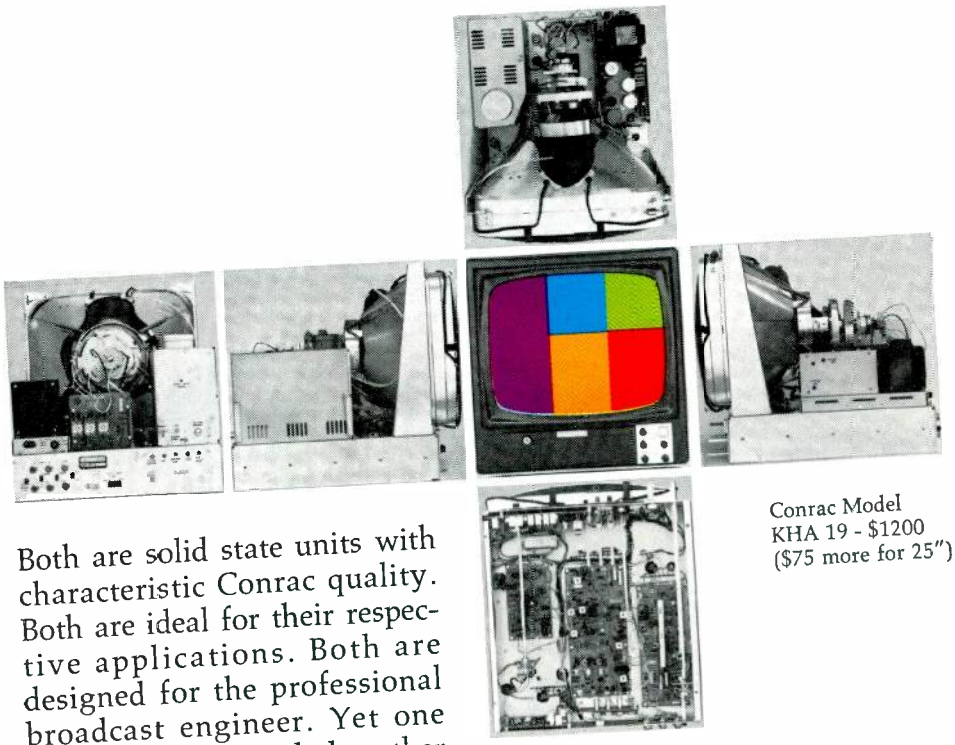
Circle 117 on Reader Service Card

we've uncovered two conrac color monitors with a lot in common.



Conrac Model
RHA 19 - $2700



Conrac Model
KHA 19 - $1200
($75 more for 25")

Both are solid state units with characteristic Conrac quality. Both are ideal for their respective applications. Both are designed for the professional broadcast engineer. Yet one sells for $1200 and the other $2700. With their covers off you can see why at a glance. Inside, where it counts, there is a difference between them of 25 diodes, 113 transistors and 10 circuit boards. That difference is design refinement which makes one a high-quality professional unit well suited for rigid broadcast-studio requirements, and the other an excellent utility monitor for less stringent audience or client-room use. The two complement each other. It all depends upon what you want to do. Compare the photos above. You'll see what we mean.

CONRAC

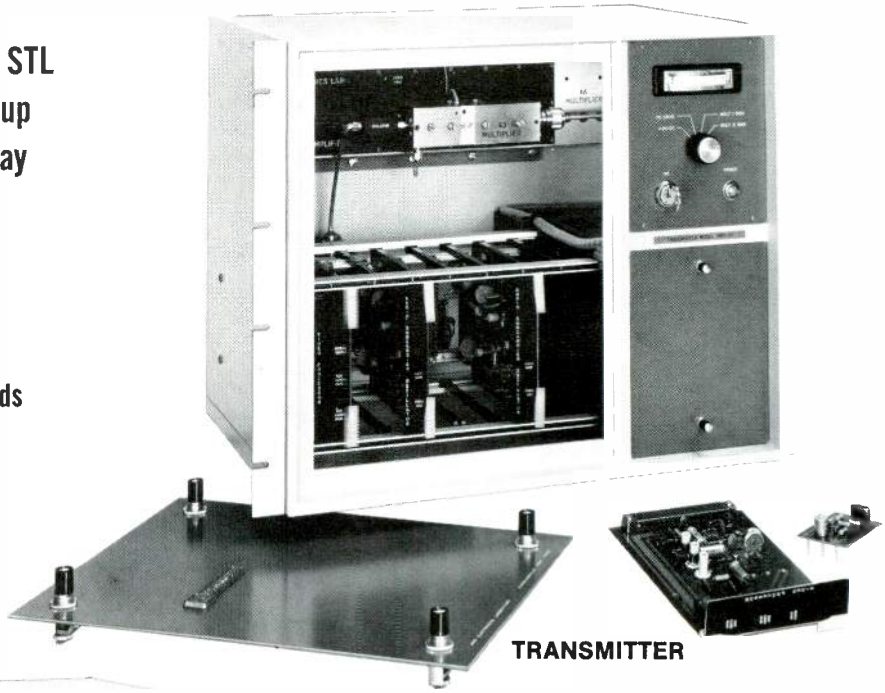
600 No. Rimsdale Ave. • Covina, California 91722 • (213) 966-3511

Circle 118 on Reader Service Card

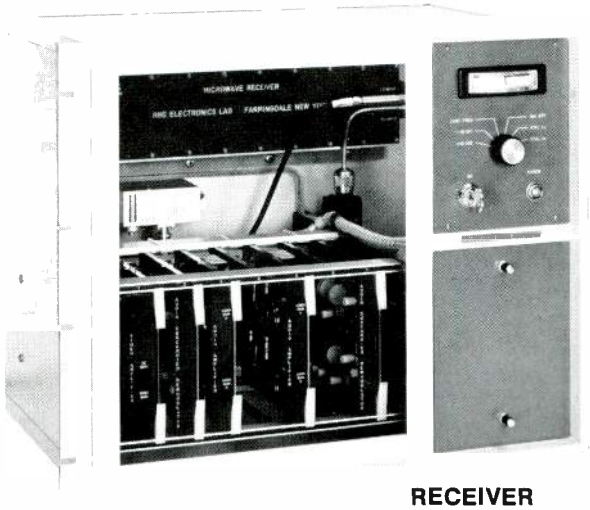
all solid state TELEVISION MICROWAVE RELAY LINKS for high quality color and monochrome TV systems

Use as rack mounted STL
or Remote TV Pick-up
or for Intercity Relay

- Meets EIA, CCIR, and FCC standards
- Available in all FCC authorized bands
- High fidelity color



TRANSMITTER



RECEIVER

- Ferrite isolator
- All Solid State RF Module
- Key lock switch
- Removable power supply module
- Plug in pre/de-emphasis
- Plug in printed cards
- Optional audio subcarriers

RHG, a leading supplier of military TV relay links, now offers Series MRS to the broadcast industry. Transmitters and receivers, with advanced field proven designs provide solid state reliability, no warmup, and low power drain.

To improve your color transmission quality and to insure trouble free operation specify RHG equipment fully described in Bulletin 69C. Call for "no obligation" demonstration.

RHG

RHG ELECTRONICS LABORATORY, INC.

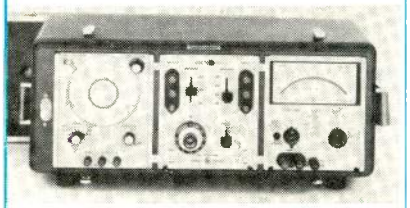
94 MILBAR BOULEVARD
FARMINGDALE, LONG ISLAND
NEW YORK 11735 (516) 694-3100

Circle 119 on Reader Service Card

BROADCAST EQUIPMENT

Transmission test set

Model 3550B audio and carrier-frequency test set includes oscillator, gain set and impedance matcher and audio voltmeter. Useful for measurement of audio levels and proof-of-performance runs. Oscillator output is flat within 0.05 dB from 30 Hz to 300 kHz, and distortion less than 0.1% to 200 kHz. Fre-

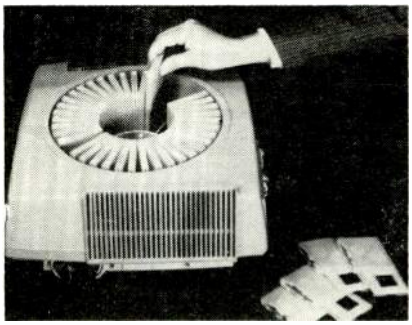


quency range is 5 Hz to 1.2 MHz. Impedance matcher handles 135-, 600-, and 900-ohm circuits. Voltmeter reads in volts or dBm, with ranges from −72 to +52 dBm, and frequency range of 5 Hz to 2 MHz. Portable, with protective cabinet and handle. Price $1150. Hewlett-Packard Co.

Circle 275 on Reader Service Card

A-V slide sound system

The latest idea in sync slide/sound equipment, the "Kalavox" unit fits on top of most Kodak Carousel and Ektagraphic slide projectors. Kalavox holds up to 40 tape slide/cassettes, and each of the specially-designed

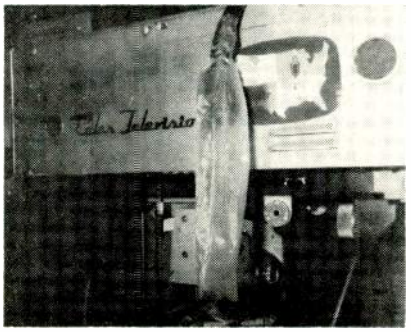


cassettes, contains enough tape for 60 seconds of audio. Triggering is via barely-audible tone on the tape. Systems can slave two additional Carousel projectors for total capacity of 200 slides with 40 minutes of audio. Kalavox will sell for about $325 and cassettes for $1 each. The Kalart Co., Inc.

Circle 291 on Reader Service Card

Cable connector sleeves

Polyethylene sleeves—200 in one role—protect TV cable connectors from dust, moisture, while letting air circulate inside enclosure, during



outdoor filming. Sizes range from eight- to 10-in. wide and from 24- to 30-in. long. Protective Plastics Co., Inc.

Circle 276 on Reader Service Card

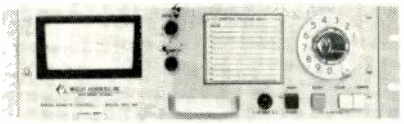
Stereo mixer

Stereo attenuator is rated ½ W and provides 75- to 80-dB isolation between channels. Available in either 20 or 30 step unbalanced ladder or potentiometer circuits. Impedence is 600/600 ohms, standard (available also according to specification). Size: 2-⅛-in. diameter × 1-⅞-in. back panel depth. Shallco, Inc.

Circle 287 on Reader Service Card

Remote control system

Model RRC-10T remote control system has 10 metering positions plus calibration and 20 control functions. Control subcarrier generator and detector are included for interfacing with aural STL's. Routine maintenance is accomplished by sliding out a drawer; metering is returned via a subaudible signal, 22-36 Hz, sinusoidal. This metering is used by many fm stations to allow metering return on an SCA channel while simultaneously programming this SCA channel; such metering return signals are also used by a-m stations in Docket #17873, RM-320, submitted by the Santa Barbara firm and now pending before the Commission. Moseley Associates, Inc.



Circle 283 on Reader Service Card

Electrostatic headphone

Model ESP-7 self-energized, electrostatic headphone offers lighter and less expensive alternative to the original ESP-6 line. Designed to sell for $79.00, it gives peak-free re-

sponse from 35-13,000 Hz ± 6 dB—a frequency response within half-an-octave of the ESP-6. The new model also offers fluid-filled ear cushions for high ambient noise isolation. Koss Electronics Inc.

Circle 277 on Reader Service Card

'Screen writing' device

The Telestrator is an electronic device which enables writing, drawing and diagramming over a live television image. Ideal for news, sports and weather commentators' superimposing moving dotted, dashed and continuous lines in diagrams and drawings over the image under discussion. Instructional Dynamics Inc.

Circle 280 on Reader Service Card

Television camera

The "Mini-Compact" television cam-

The FIRST Major Advance in RASTER DISPLAYS Since The "50's"

FROM NOW ON . . . OTHER RASTER DISPLAYS ARE FOR YESTERDAY'S SYSTEMS

A complete kit on Raster Displays is yours for the asking, including:

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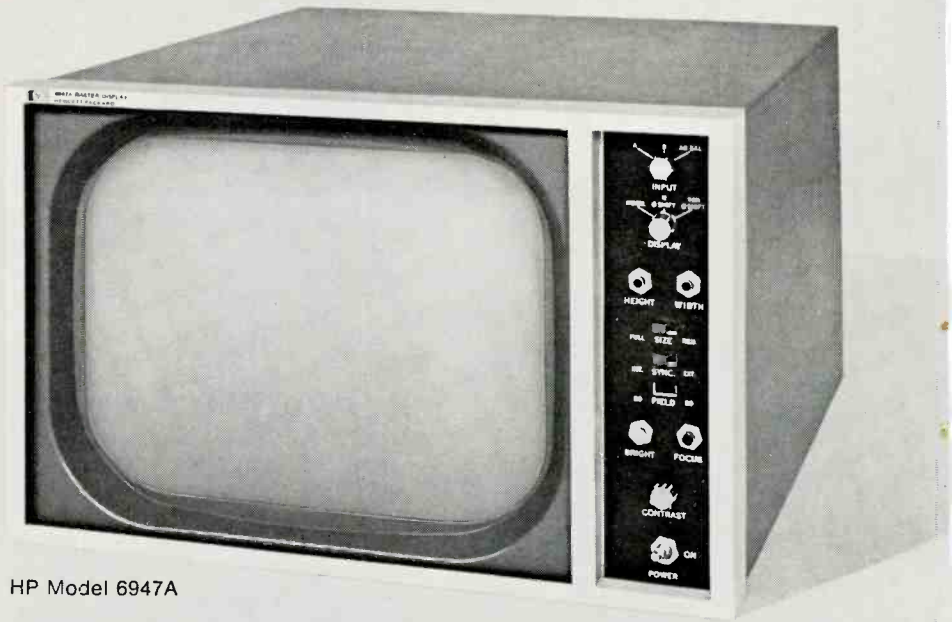


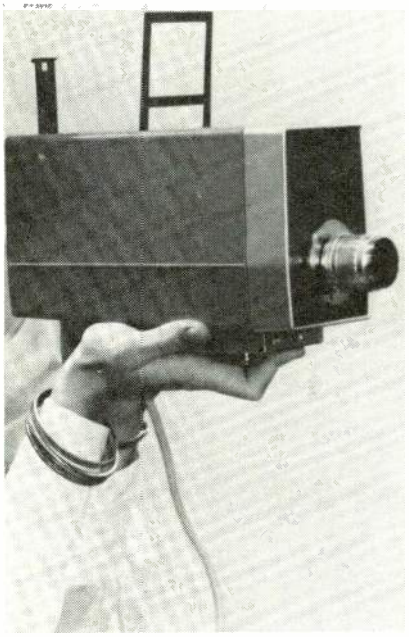
HP Model 6947A

HEWLETT hp PACKARD

COMMUNICATION INSTRUMENTS

100 Locust Avenue, Berkeley Heights, New Jersey 07922 • (201) 464-1234

21910

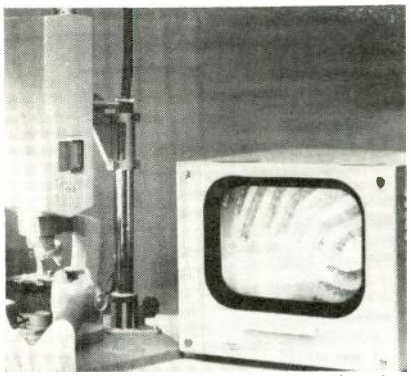


era is a 7½-lb monochrome camera that is applicable especially to CCTV uses. It produces 600 line resolution and has video and rf outputs. The solid-state vidicon camera also has a 2:1 interlace. Operable from a 110, 117, 220 or 234 volt ac or a 12 volt dc power source. Only camera control is the lens control. $695 with vidicon tube, one-in. Schneider lens and power cord. Philips Broadcast Equipment Corp.

Circle 308 on Reader Service Card

High-resolution CCTV system

Series 6000 system includes type 6100 camera, 6900 control unit, and microscope. Camera available with bandwidths of 8, 16 or 32 MHz and vertical resolution (center of picture) up to 825 lines. Uses 1-inch separate mesh vidicon, horizontal scanning rate up to 1225 lines. Control unit may be up to 2000 ft



away from camera. Accessories include focus modulator for improved corner resoluation, shading circuit to improve vidicon and lens response; and automatic video-peak for low-

← Circle 120 on Reader Service Card

light scenes with bright highlights. Price $3500. Cohu Electronics, Inc.
Circle 303 on Reader Service Card

Two helical scan VTR's

Helical scan video tape recorder designed for color, which uses one-in. tape, is available in two versions—Model 2020 and Model 2000. Both have playing time of one hour with 2150 ft of tape and weigh 47 lb including carrying case. The former model costs $2335; the latter $1835. Bell & Howell Co.
Circle 296 on Reader Service Card

Cable plow attachment

New vibratory cable plow attachment for Model T-200 Pow-R Trencher is available. Designed for service line work, the Trencher plows

to a 15-in. depth, 16-in. width and may be mounted on either crawler tracks or rubber tires. Hydraulic backfill blade and boring attachments are available. Vermeer Manufacturing.
Circle 282 on Reader Service Card

Camera/recorder

Model 2965 portable video camera/recorder combination called the "Rover" is a monochrome system priced at $1395. Including F2.0 zoom lens and microphone, the system weighs 21 lb. The "Rover" operates on either self-contained rechargeable battery pack or normal ac power; recording time is 20 minutes with a five in. reel of ½ in. video tape. The solid state camera accepts standard C mount lenses and has a built-in electrical viewfinder. Camera weighs 5 lb. Bell & Howell.
Circle 292 on Reader Service Card

Mono console

Yard II has 12 inputs, eight mixers, and two utility keys. Program and audition buses, and muting relays

It's here.

The only demodulator designed specifically for use in CATV head-end systems.

A new approach to perfect off-the-air color . . . for only $1275

Now you can have high-fidelity off-the-air color from your head-end. Utilizing completely new filtering and signal-restoration concepts, the DYNA-TUNE provides superior adjacent-channel color performance in either microwave-fed or demod-mod systems. These important developments allow the DYNA-TUNE to actually improve the color signal in many critical areas over that produced by the broadcast RF transmission system.

You can also forget the problems inherent in outdated tube-type tuners . . . the DYNA-TUNE uses a field-effect front end and the latest in integrated circuits to provide performance and reliability previously unattainable in this type of equipment.

Mail the coupon today for complete information on this important product.

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San Diego, California 92114
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Please send me complete information on the RX-4B CATV Head-End Demodulator.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

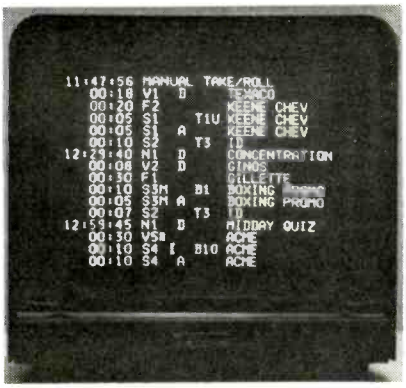
Circle 126 on Reader Service Card

are included. Self-contained except for external power transformer. Frequency response is within 1 dB and distortion less than 0.75% from 30 to 15,000 Hz. Hum and noise is more than 73 dB below normal output. Gates Radio Co.

Circle 299 on Reader Service Card

TV automation with crt readout

Basic STEP TV automation system uses crt readout which displays 16 upcoming events. Can be used for station-break or all-day operation. Display information includes dura-



tion or real-time for event, video and audio sources, machine control functions, special-effects and transition data and identification of event. Insertions or deletions are possible at any time. Options include real-time programming, all-day program storage, paper tape or punched card storage, magnetic tape storage, computer linkage, and hard copy output. Basic system price is $30,000. Chrono-Log Corp.

Circle 278 on Reader Service Card

Color set/monitor

Model JM-897W, 23-inch (diagonal) color receiver will accept rf or direct video and audio as monitor in non-critical studio areas. Priced under $400. RCA Commercial Products Sales.

Circle 279 on Reader Service Card

Gray-scale generator

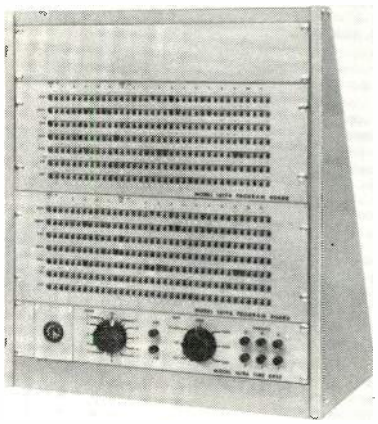
Model 2909/1 generates staircase, sawtooth, bar and burst signals in several combinations. Bars may be switched manually, remotely or automatically from black to white to vary average picture level. Equipment is slaved to local sync, color subcarrier and burst. Useful for

checking video transmission levels and system gamma. Marconi Instruments.

Circle 281 on Reader Service Card

CATV auto switcher

Model 1619 automatic program switcher provides switching information at half-hour intervals for 18-hour program day, and seven-day period. System includes one model



1619A time base and two program boards, 1619B and 1619C. 1619B is used for first channel requiring nonduplication protection; each succeeding channel, (up to six), is handled by 1619C. Unit will operate continuously for one month on standby power (9-volt transistor-radio batteries). Rack or wall mount. Price: $1195 for time base, $350 for first program board, $300 for each succeeding board. Essex International, Inc., Controls Div.

Circle 284 on Reader Service Card

Color VTR

Model VP-4900C color videotape player handles one-inch color or b-w tape in helical mode. Video bandwidth is 4.2 MHz, b-w horizontal resolution, 350 lines. Video s/n ratio,

43 dB. Rewind and fast-forward time for one-hour reel is 4 minutes. Maximum playing time, one hour. Price $1950. Ampex Corp.

Circle 285 on Reader Service Card

Portable studio lighting

Porta Studio is a portable lighting kit consisting of grid, housing, lamps, and cables. Grid poles are spring

WTEV-6 turned a move to local color news into an overnight success.

"Let me talk to any station that thinks it can't go into the Kodak ME-4 Process," says Lee Tanner, Assistant Operations Manager and Chief Engineer for the Providence/New Bedford station. "We bought one of the new smaller processors now on the market. In one night we moved our old B&W processor out, piece by piece, and replaced it with our color machine. We were B&W one day, and full color the next. It was spectacular.

"The Kodak people were fantastic. A Sales and Engineering Representative was up all night to mix the first batch of chemistry. We ran test strips the next day and were right on target.

"Now we're processing an average of 900 feet of color film daily—not only for local news, but also commercials for our advertisers. The ME-4 Process is so simple . . . let me put it this way: We hired a smart young man to run the machine. He had no experience with color processing. The packaged chemistry made it so easy that he could now go anywhere and talk competently about ME-4 processing of Kodak Ektachrome films.

"Listen, I'm sold 100% on the ME-4 Process. I can talk about it all day if you want."

That's it. New, smaller, less expensive processors. Packaged chemistry. All the Kodak assistance you need. Talk with a Kodak Regional Chief Engineer. He'll show you how to go full color with an ME-4 package just right for your station. In New York, call Ray Wulf; Chicago, Dick Potter; Hollywood, John Waner. Get moving.

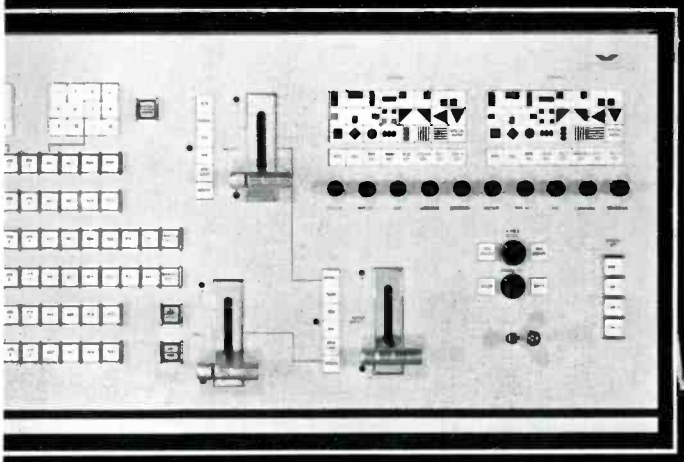
EASTMAN KODAK COMPANY
ATLANTA: 404/351-6510, CHICAGO: 312/654-0200, DALLAS: 214/FL 1-3221, HOLLYWOOD: 213/464-6131, NEW YORK: 212/MU 7-7080, SAN FRANCISCO: 415/776-6055.

Kodak

no credibility gap

in a Vital

VERTICAL INTERVAL SWITCHER



FIRST VIDEO SWITCHER
TO USE DIGITAL
COMPUTER TECHNIQUES

it keeps performing and outperforming

The Vital VIX-108 vertical interval switching system uses the latest state of the art electronics and is production-oriented in design. All electronic components such as effects, mixers, delays, proc. amps., etc. are designed and manufactured by Vital Industries, Inc. for total system responsibility. We custom-build a switching system to reflect your station's personality rather than govern your production expressions by the limitation of the equipment.

FEATURES:

- Extensive use of integrated circuits with solid state cross points for long term stable performance.
- Unique electronic packaging uses minimum coax interconnections for any size system. Typical system cross-talk 60 DB down at 3.58 MHz.
- Production oriented design with automatic sync and clamping on all inputs for bounce-free switching of video with varying luminance levels.
- True composite additive/non-additive mixer with automatic inhibit of non-synchronous dissolves.
- Fade network color to network black burst with automatic inhibit.
- Fade to monochrome, maintain color burst or choose to drop color burst. Only one reshaped burst and constant level sync during all dissolves.
- Custom built production or routing switching with the latest state of the art accessories designed as an integrated system are all furnished by Vital Industries, Inc.

OTHER VITAL PRODUCTS:

- VSE-2000 Special Effects
- VI-750 — VI-1000 Video Proc. Amp. with automated features.
- VI-500 Stab. Amp. with AGC.
- VSG-100 Digital Sync. Generator.
- Video and pulse distribution equipment.

Selecting the right switcher is Vital

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Call or write for systems engineering ideas and services

VITAL INDUSTRIES, INC.

3614 SOUTHWEST ARCHER ROAD
GAINESVILLE, FLORIDA 32601 — PHONE (904) 378-1581

Circle 131 on Reader Service Card

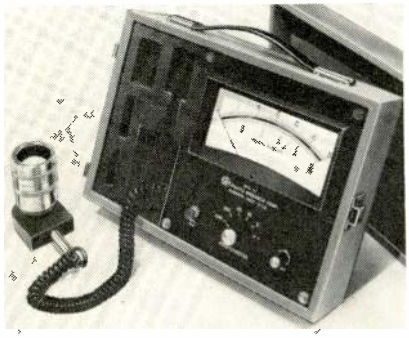
loaded, not bolted to floor or ceiling. Lamps are tungsten-halogen quartz, and may be powered from existing wall ac circuits. Berkey-ColorTran, Inc.

Circle 286 on Reader Service Card

Illumination meter

Spectra TV Snooper measures scene illumination in footcandles, is useful for specifying and setting up CCTV systems. Unit consists of light meter with lens mount on front of photocell. Full-scale ranges from 1 to 100 footcandles. Price $389. Photo Research, Div. Killmorgen Corp.

Circle 289 on Reader Service Card



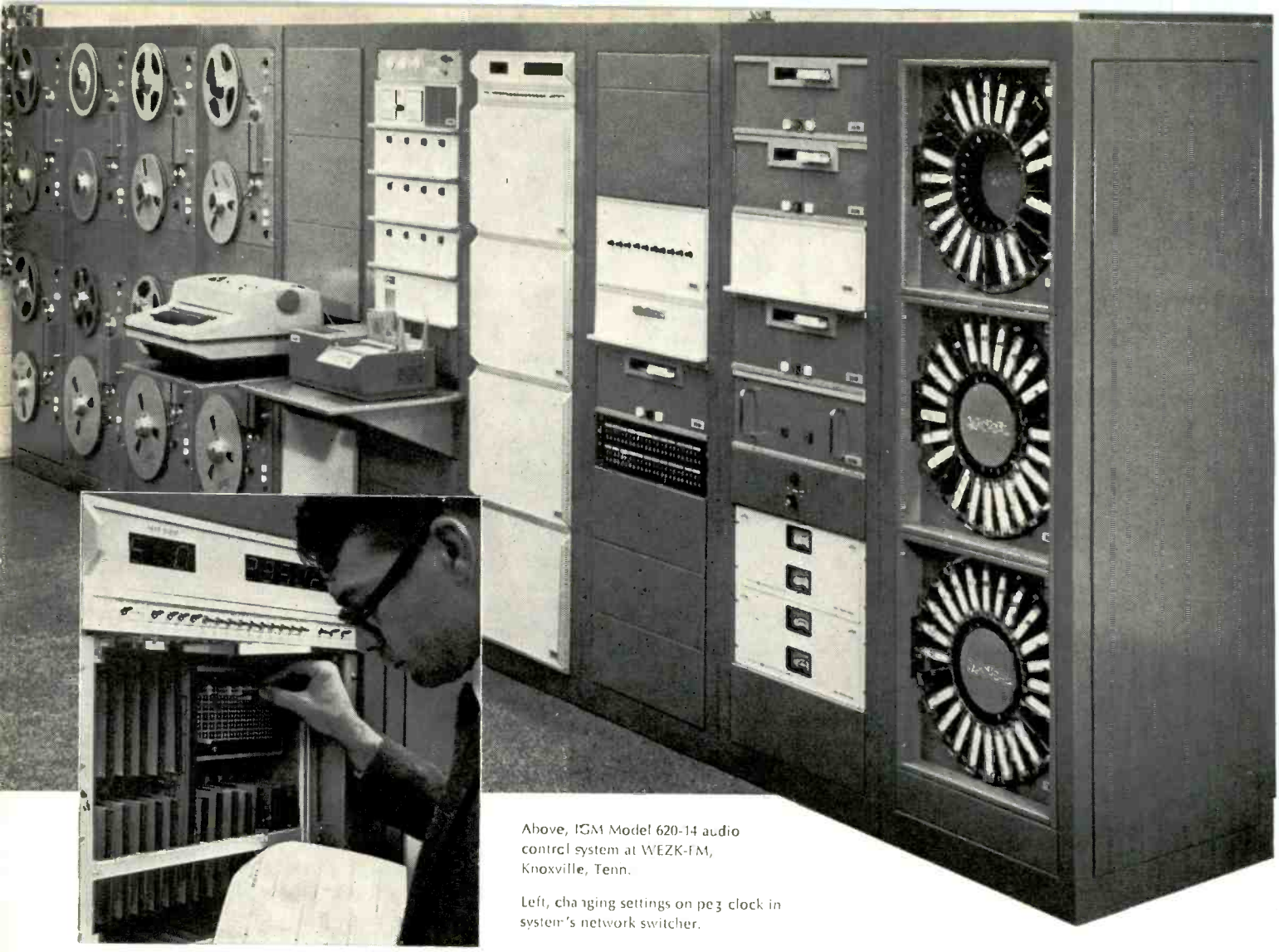
Agc amplifier

Solid Statesman agc amplifier is engineered for wide range of control and adjustable attack/recovery time to insure greatest flexibility in programming. Close balance of its "differential amplifier" used as a gain-controling device is key to its wider control range, lower distortion and rapid attack time. New feature is selectable attack recovery time. Front panel controls permit engineer to disable both expansion and compression functions separately for proof-of-performance tests. Three in. of standard rack space are required for the amplifier. Gates Radio Co.

Circle 309 on Reader Service Card

Fresnel spotlight series

Seven spotlights for single-ended tungsten halogen lamps: 16 x 12 (5000W), 12 x 9 (2000W), 8 x 5 (1000/2000W), 8 x 8 (1000W), 6 x 4 and 6 x 3-7/16 (500/750W), and



Above, IGM Model 620-14 audio control system at WEZK-FM, Knoxville, Tenn.

Left, changing settings on peg clock in system's network switcher.

Want a specialized computer for audio control? Get an IGM 600 system!

WEZK-FM, Knoxville, Tenn. chose a Model 600 IGM control system to realize all benefits of automation presently attainable, including the flexibility to handle any type of format, now and in the future.

What WEZK's 600 system delivers: (1) 14 program channels; (2) control by punched cards, with a reusable, revisable "deck" for each day; (3) instant changeability right up to air time; (4) flexibility to accommodate any conceivable format, an entire day, each hour different—now or later; (5) random access to all sources; (6) full automation or any degree of live participation desired; (7) maximum reliability and ease of maintenance; (8) accurate, verified FCC log, typed automatically as each feature is aired; (9) tie-in with punch-card traffic and accounting functions, including general purpose computers.

If you're looking for state-of-the-art automation for your station, with complete freedom of programming and ease of operation, see the IGM 600 system. Write or call International Good Music, P.O. Box 943, Bellingham, Wash. 98225. Telephone (206) 733-4567.

IGM audio-video controls

Automatic switching and monitoring of multi-channel ETV broadcasting; non-duplicating CATV switchers.

IGM taped music services

Contemporary to classical, announced or unannounced. World's largest, highest-quality taped music service for radio.

"Tomorrow's engineering today"

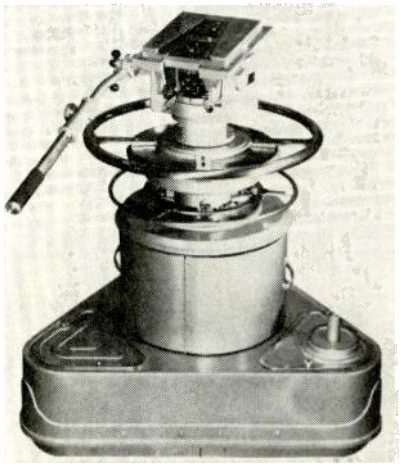
IGM

Circle 134 on Reader Service Card

3 x 2 ¼ (150/250W). External focus slide allows smooth transition from spot to flood mode, or any setting in between. Century Lighting, Inc.
Circle 288 on Reader Service Card

Color cam head and pedestal

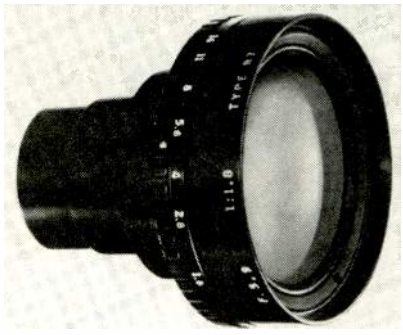
Able to accomodate any color-TV camera, new cam head has extreme tilt capability and sensitive drag controls. New camera-lock device



complements standard V-wedge mount. Pneumatic pedestal shown, lightweight remote style available. Price $950 (cam head), $2850 (pneumatic pedestal). Television Equipment Associates.
Circle 290 on Reader Service Card

Extremely wide-angle lens

Type R7 lens is 7.5 mm, f/1.9, with 94° field angle. At three ft, field covered is 3'4" x 4'8". Overall



length is 3.7 in, diameter is 3 in. Weight 14 oz, with fixed focus "C" mount. Angenieux Corp. of America.
Circle 294 on Reader Service Card

Piezoelectric mike

Model 4117 is one inch in diameter, has response from 3 Hz to 10 kHz, and dynamic range to 140 dB SPL;

DUAL CHANNEL PERFORMANCE...

at single channel price

Collins' new 212V-1 Audio Console, with its 8 mixers and 2 metered program channels, increases a station's capability for high fidelity AM and FM, TV broadcasting, and program control.

Though priced at only $2600, the new unit carries Collins' reputation for quality, design, performance and styling. Also the 212V-1 is easily maintained. A hinged front panel tilts forward, allowing easy visual inspection or removal of all components.

Find out how Collins' 212V-1 Audio Console lets you combine economy with solid-state reliability. Contact a Collins representative or write Broadcast Communication Division, Collins Radio Company, Dallas, Texas 75207.

COMMUNICATION / COMPUTATION / CONTROL

COLLINS

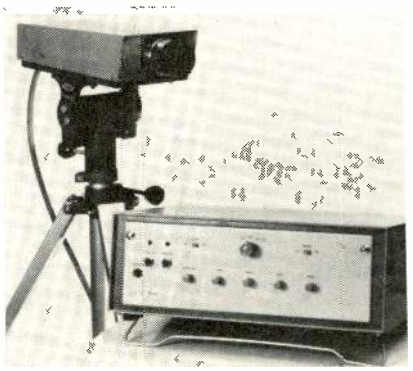
← Circle 136 on Reader Service Card

microphone has high capacitance, permitting use with wide variety of amplifier input impedances. Mounts in small space, and has front-end equalization for installation flush with ducts or walls. B & K Instruments, Inc.

Circle 293 on Reader Service Card

Multi-purpose camera chain

Camera head accomodates one-inch or 30-mm vidicon or Plumbicon pickup tubes, at user's option. Scan rate is also optional: 525/60= 625/50 switchable; or 735/60= 875/50 switchable. Intercom is pro-



vided between camera head and control unit, which is available in either cabinet or rack mount. Other options include viewfinder, pan/tilt head and zoom lens. Power supply may be 100, 117, 220, or 234 Vac. Suitable for broadcast, CCTV and CATV. Basic price of $3220 includes Plumbicon tube and rack-mounted control unit. Philips Broadcast Equipment Corp.

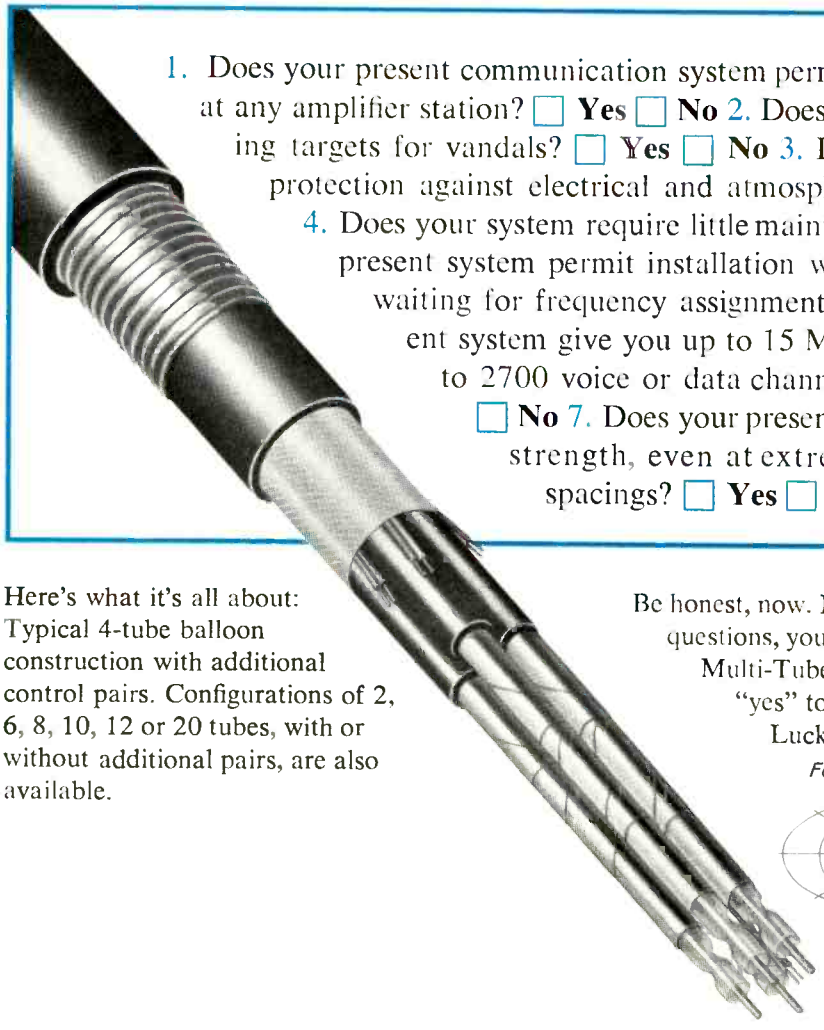
Circle 295 on Reader Service Card

Impedance adapter

Model 11138A impedance adapter—a new accessory for the 675A/676A network analyzer—makes it possible to determine on a swept-frequency basis, between 10 kHz and 32 MHz, the magnitude and phase of antennas and cable networks, filter and amplifier inputs, outputs, or of any two-terminal devices. A twin-channel device, the adapter accepts rf drive

What's the future of your present communication system? Take this quick quiz and see.

1. Does your present communication system permit you to break off in any direction at any amplifier station? ☐ **Yes** ☐ **No** 2. Does your present system present towering targets for vandals? ☐ **Yes** ☐ **No** 3. Does your present system give you protection against electrical and atmospheric disturbances? ☐ **Yes** ☐ **No** 4. Does your system require little maintenance? ☐ **Yes** ☐ **No** 5. Does your present system permit installation when and where you want without waiting for frequency assignments? ☐ **Yes** ☐ **No** 6. Does your present system give you up to 15 MHz bandwidth for transmitting up to 2700 voice or data channels per pair of conductors? ☐ **Yes** ☐ **No** 7. Does your present system maintain signal purity and strength, even at extreme-distance (20 miles) repeater spacings? ☐ **Yes** ☐ **No**



Here's what it's all about: Typical 4-tube balloon construction with additional control pairs. Configurations of 2, 6, 8, 10, 12 or 20 tubes, with or without additional pairs, are also available.

Be honest, now. If you answer was "no" to two or more of these questions, you should investigate Comm/Scope Direct Burial Multi-Tube Balloon Coaxial Cable. If your answer was "yes" to **all** of these questions, you're already using it. Lucky.

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from the signal generator and splits it into two channels, converting rf voltage in each channel to a constant-level rf current and applying this current to the device under test. $175.00. Hewlett-Packard.
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CATV fault analyzer

Model 492OA coaxial fault analyzer is a portable device that locates faults in 75 ohm coaxial systems. Information is provided about the nature of the fault, position and magnitude; it determines impedance characteristics and checks for defective in-line taps which cause impedance discontinuities. Two pulse modes are available: Step Mode, with a 1.3 nanosecond system risetime and Impulse Mode where the step is differentiated to eliminate low frequency resonances. Weight is less than 25 lb. $1825. Hewlett-Packard.
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NEW LIT

For copies of these literature offerings, circle numbers for appropriate items on Reader Service Card.

A 16mm color sound movie describing how its facsimile recorders help WTVT-TV, Tampa, Fla., with weather service broadcasting is available on a loan basis for private showings. Alden Electronic & Impulse Recording Equipment Co., Inc., Alden Research Center, Westboro, Mass. 01581.

Helical scan VR-660C portable color videotape recorder for closed circuit TV production and monochrome broadcasting is described in brochure from Ampex Corp. **208**

Video disc file system that stores up to 600 separate images on a 16-in. disc **(209)**, 7200 series disc memory system **(210)** and video disc recorder **(211)** are delineated in data sheets from Data Disc, Inc.

Antenna catalog 26 now available from Andrew Corp., includes in 96 pages antennas, transmission line and accessories for broadcast and commercial applications. **204**

Connectors, hardware, sockets are contents of 18-page catalog GL-2 from Amphenol Distributor Div. Photos, specs and drawings are provided for each example. Sections list tube and relay sockets, test jacks, microphone connectors, ac plugs and

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receptacles, coaxial connectors and switches. **206**

Low-noise audio tape for recording and other critical applications is subject of brochure T-343 from Ampex Corp. **207**

Wire and cable catalog, 36 pages, has just been revised by Garrett Electronics and Cable Co. **200**

Broadcast television switching and control systems are described in bulletin V240 from Ampex Corp. **201**

Base and mobile two-way radio gear is covered in 26-page brochure from Motorola Communications & Electronics, Inc. **202**

CCTV video tape recorders, applications and features, detailed in four-page brochure VTR-620 from Concord Communications Systems. **203**

Frequency instrumentation (synthesizers, multipliers, dividers, standards, crystal oscillators and ovens) is described in 10-page catalog 094-005173 from Hallicrafters Co. **205**

NAMES
IN THE NEWS

Albert P. Fredette, manager of Albany Medical College radio station WAMC-FM, has been elected president of Eastern Educational Radio Network (EERN).

The new vice president-general manager of Ampex Magnetic Tape Division is **John L. Porter,** formerly corporate comptroller.

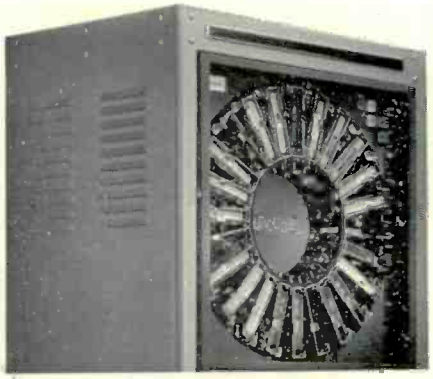
Ernie Crisp, manager of the WFBM Stations Production Center, has become president of the National Press Photographers Association. He was also awarded the group's Award of Merit.

William E. Osterhaus was named general manager of KPIX (TV) in San Francisco. He succeeds **Richard H. Harris,** who becomes president of Radio Advertising Representatives in New York. Both are Group W subsidiaries.

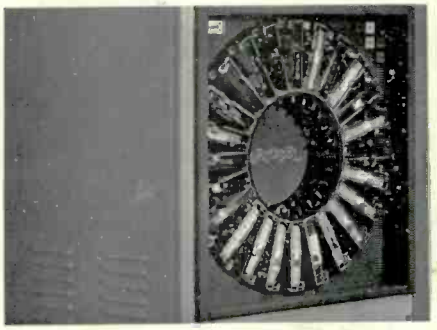
New engineering manager at WKBF-TV Cleveland is **N. William Faun.**

Leon A. Wortman has been appointed vice president marketing for Schafer Electronics.

J. A. Leonard has been promoted to marketing administration manager of the Audio-Video Systems Division of Philips Broadcast Equipment Corp.

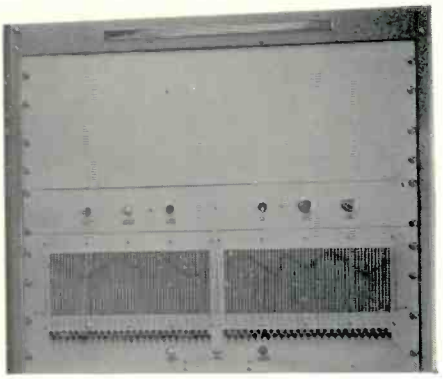


THE TAPE-ATHON 5000 SYSTEM



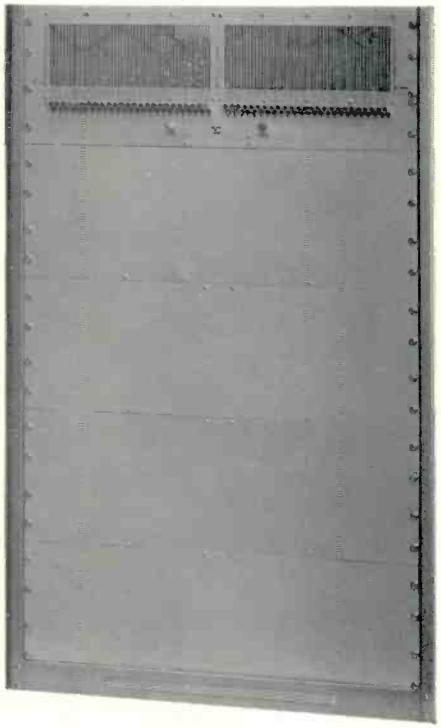
IS DESIGNED AND PRICED TO GET *ANY* STATION INTO SOPHISTICATED AUDIO AUTOMATION

By incorporating a "building block" engineering concept and using high quality mass produced equipment, Tape-Athon can deliver a sophisticated audio automation system for ⅓ less than comparable units. Starting with standard "Carousel" cartridge decks (from one to eight per system) we add *our own* tape transports (up to 9 if you like) and our logger/recorder (optional). The Tape-Athon master timing control and solid-state intersperser permit a wide range of music sequencing.



The ultimate in programming of course is provided by one or more of these switchboards which allow an infinite variety of music/announcement ratios and timing.

Before you invest in any system, contact your Tape-Athon rep or write for our 5000 System brochure giving complete details.



Tape-Athon Corp.

502 S. Isis, Inglewood, Calif. 90301
Tel: (213) 776-6933

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How to show the best profit picture in town.

Get the VHF transmitter with the best specs in the world.

Color is the medium that sells—and pays—and the new Maxim-Air can make the most of it!

The solid-state Maxim-Air TT-30FL is twice as good as the transmitter you're now using. It can help you attract more sponsors by providing you with a promotable difference they can see and appreciate—the best and most stable color signals in town!

What's more, you can forget about having to make rebates or make-up commercials. Maxim-Air not only offers you 100% better specs (and performance) than any other VHF made—but 100% redundancy as well! That's right, there are *two* of them (15-KW each).

You can forget about black-outs seconds before a touchdown, or smack in the middle of a $10,000 commercial. If anything ever goes wrong with one 15-KW, the other one takes over—instantly, *automatically!* The odds against going off the air with Maxim-Air are virtually infinitesimal!

For a better profit picture, put a better picture on the home TV. Color it Maxim-Air!

For the complete Maxim-Air story, call your local RCA Broadcast Representative or write: RCA Broadcast Equipment, Building 15-5, Camden, New Jersey 08102.

THE NEW MAXIM-AIR TT-30FL 30-KW

RCA

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SPARTA-MATION
CUTS AUTOMATION COSTS AND CONFUSION

CONTROLS PROGRAMMING AUTOMATICALLY FOR UP TO TWENTY-FOUR HOURS

Until now, broadcasters have faced confusion, frustration, disappointment and even disillusionment in the choice of available automation equipment. SPARTA leaves all that behind and takes a giant step ahead with SPARTA-MATION! This simple and flexible approach takes the complicated electronics out of automation for years of service at a fraction of the cost of other systems!

IF YOUR STATION IS ALREADY AUTOMATED, the "726" will provide just the increased source capability you need. Let SPARTA show you how easily your existing cartridge and reel-to-reel equipment can be plugged-in to the SPARTA-MATION Automatic Program Controller to save you even more. For the latest word in automation call or write SPARTA today!

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CROSS-TALK

Dear BM/E:

In your June issue, Ernest Clay calls for a "sane" CATV policy grounded on facts. Mr. Clay uses a "quickie" tabulation of the November 1968 ARB sample for San Diego County and another tabulation for Tuscaloosa County, Alabama. Presumably, this latter was also a "quickie" though he doesn't say so.

The data relied upon by Mr. Clay simply will not support his conclusions. Indeed, Mr. Clay's and other readily available data convincingly demonstrate that CATV distant signal importation seriously fragments the audiences of local stations, whether vhf or uhf, whether affiliated or independent, even when same-day nonduplication treatment is accorded the local stations.

The Galax, Virginia data purport to show overall TV usage of 40.9 percent in non-CATV homes and 60.6 percent in CATV homes during a noon-to-10:00 p.m. Monday-through-Friday period in January, 1968. Mr. Clay interprets the San Diego and Bakersfield data as showing higher HUT figures for CATV homes in prime time but he sees no "great difference between CATV and non-CATV viewing levels in the afternoon and early evening time periods."

Some of the data cited in Mr. Clay's article show that distant signal operations very substantially reduce the audiences local stations might otherwise expect to receive. The ARB "breakouts" of the San Diego and Bakersfield market reports for November, 1967, as Mr. Clay notes, show substantially less viewing of local stations in CATV homes **despite** the fact that total viewing (both local and distant stations) is higher in CATV homes. A similar breakout of the ARB Bakersfield market report for November, 1968, of which Mr. Clay was apparently unware, confirms the results of the earlier data.

The audience fragmentation which the local station suffers concerning its non-network programming is a particularly serious matter. Frequently, an affiliate's non-network programming accounts for 50 percent or more of the station's total revenues.

Mr. Clay is also wrong in assuming that the audience fragmentation experienced by local affiliates in the prime time, when network programming takes up a large proportion of the total offerings, is due simply to the failure of CATV systems to comply with the nonduplication rules except as to one CBS affiliate in San Diego.

Mr. Clay seeks to perpetuate the now largely discredited myth that CATV operations—even when distant signals are imported—benefit local uhf stations in intermixed markets. One would suppose that the sophisticated uhf operators in Philadelphia, Cleveland, San Diego, Toledo and many other intermixed markets (if there were anything to Mr. Clay's theory) would have "seen the light" by now and would have stopped opposing the importation of distant stations.

In any event, Mr. Clay's data do not support his theory. The idea that CATV carriage is, in Mr. Clay's words, "the best or possibly the only way that the uhf station can achieve technical parity with vhf stations" falls flat when one considers the great strides uhf stations are making in intermixed markets without CATV's "help." This is the kind of "help" dispensed by mercy killers.

Roy W. Easley
Assistant Executive Director
Assn. of Maximum Service Telecasters, Inc.
Washington, D.C.

Delighted to hear you liked the article.

Lens Profiler

Continued from page 49

and speeds up to *f*/1.8. A set of adapters permits the meter to accommodate all commonly-used lens mounts, including C-mount, Leica, Mitchel and others, and assures the proper seat of the lens in relation to the zoom lens image of the target in the focal plane of the lens under test.

Automatic Measurements

Once the meter has been zeroed for the lens under test, measurements are automatic and require only the push of a button to provide a printed graph showing the percent modulation transfer at each spatial frequency over the range. The system automatically produces curves for the lens. Complete performance data for a fixed focal length lens are obtained from a series of nine of these curves. For an *f*/2 lens, for example, curves taken at *f*/2, *f*/4 and *f*/8 on axis and at two positions off axis will provide all necessary evaluation data. For a zoom lens, a series of 27 curves is used.

For the broadcaster who makes substantial investments in camera equipment, the MTF Meter thus offers a simple means of evaluating lens purchases against manufacturer's specifications. It also makes possible periodic equipment checks for possible damage, and can be used as a calibration standard after repair. The measurements also provide a library of data for predicting the suitability of each lens in the lens bank for particular shooting assignments.

For those stations that want to evaluate their camera lenses but are unable to justify purchase of the meter for only occasional use, Zoomar has set up a testing service, using the MTF meter. Through this service, any station can have its camera lenses tested on either a single-project or contract basis. Service users receive a complete set of MTF curves for the lens tested along with interpretations of the data by Zoomar engineers. The cost: $150 for a fixed-focal-length lens and $375 for a zoom lens.

Military and other government agencies are now requiring MTF data as documentation of lens performance under the terms of their procurement contracts. With the availability of this simple meter, it is now practical for lens and camera manufacturers to supply such data to purchasers who want it. For the TV station, it may soon be possible to buy lenses with accompanying performance curves that remove any guesswork about capability—making it a simple matter to get the best picture possible. **BM/E**

WFLA had an opening in their recording studio. They filled it with a Magnecord 1021.

Magnecord tape recorders occupy a large number of highly responsible positions in the communication's world. Somewhere in the hills of Turkey, Magnecords are listening to foreign language broadcasts. And closer to home, voice-controlled Magnecords wait patiently to hear from our men in outer space. These are the kind of recommendations that got Magnecord its position at WFLA.

The tape recorders at WFLA run day after day, all day, under the most exacting broadcast conditions. And that's Magnecord's kind of work. The tougher the better. (Because Magnecords are built to take it, day after day, every day of the year.) The die-cast mainplate assures you of permanent mechanical alignment. Timing accuracy is held constant by the hysteresis synchronous capstan tape drive. And the payout and take up reels have their own heavy duty split-capacitor motors.

The quality of a Magnecord does not vary from model to model. But features do. If you would like the complete story on our full line of Magnecords, write. We'll see that you get an answer. Promptly.

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FCC Rules

Continued from page 18

matter is or has been, the file number (if any) and the disposition or current status of the matter.

The Commission requested that interested persons file comments on its proposed rules before August 4, 1969, and that reply comments be filed on or before September 5, 1969.

Undoubtedly, the Commission will adopt its proposed rules in some modified form with no substantial change in the philosophy underlying the rules.

Licensees and key station personnel should be thoroughly familiar with the new rules. The Commission will probably use its forfeiture powers to enforce these policies. The Commission may also assure compliance by writing letters to licensees if policies outlined in the proposed FCC Form 325 do not appear to meet Commission requirements. The Commission can, and probably will, defer processing on applications for new, renewed, or improved facilities and on applications for transfer of control or assignment of licenses, until satisfactory showings in the area of employment practices are submitted by one or both parties, depending on the circumstances.

The guidelines in this area are not yet well defined. Commission standards are expected to become established in the several months or so before it finally completes consideration of the proposed rulemaking proceeding and all broadcasters are encouraged to keep alert for any new developments. **BM/E**

Hands-off TV Switching

Continued from page 32

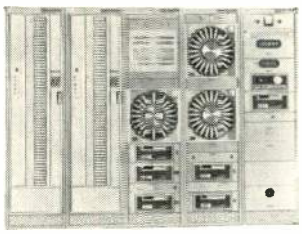
tered into the memory by the card reader. Typically, a backlog of 100 scenes is maintained in the memory by automatic card-reader action.

Attached to each reel of program material (except news) is a small, plastic *associate* card, bearing that program's six-digit number. The card also indicates program duration and level data for color, mono, and audio.

When the schedule calls for a six-digit number corresponding to some scheduled scene, the material is pulled from the storage file by number and placed on any convenient machine capable of reproducing it. The associate card is inserted in the card-reader at that machine. Assuming material and card are correct and that the schedule has been entered in the controller memory, an "association" will take place and information as to duration, identification of machine and type of material is entered into the controller memory. The readout monitor immediately displays all these data for key areas.

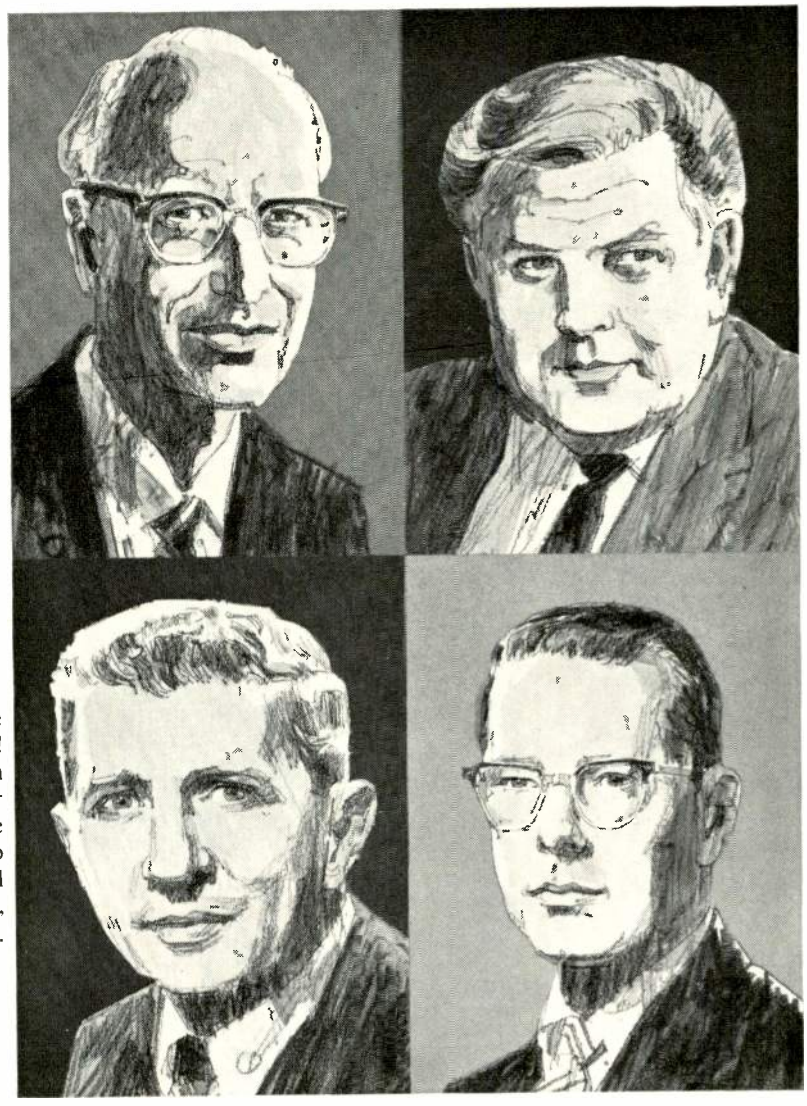
If there's no "association," possibly due to non-programmed material in the stack, the monitors will indicate an error, and the system will refuse to accept additional entries until the error is corrected.

The use of cards not only guards against error and eliminates complicated scheduling, it also simplifies repetitive sequencing. **BM/E**



Look what our customers say about the live sound of Gates automation systems...

"Our Gates automation system sounds as live as 'live.' The only difference is we do our production before we go on the air —and do it in a lot less time." Bill Fleckenstein, WRED-FM, Youngstown, Ohio



"We're in the 'numbers' now that we have consistent programming quality with our Gates automated system. The numbers help to make our P&L black instead of red." Roger Larson, KARM-FM, Fresno, California

"My best announcers are heard seven days a week! This makes quite an impression on our sponsors who take time to really listen to radio on the weekends." Paul Marion, WBT-FM, Charlotte, N.C.

"We can really maintain the quality 'on-air' sound with our Gates automation equipment. We use only our best people on automation." Phil Sheridan, WNCI Columbus, Ohio

The soundest sound in automation is the living-sound of Gates. And we have the customers to prove it! For more information about "live" automation, call us at (309) 829-7006, or write Gates, Automatic Tape Control Division, 1107 Croxton Avenue, Bloomington, Illinois 61702.

HARRIS INTERTYPE CORPORATION

GATES

AUTOMATIC TAPE CONTROL DIVISION

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FCC ACTIONS

Leapfrogging permitted in Canisteo, N.Y. CATV. Commission has granted petition of Hornell Television Service, Inc. to carry three New York City independent TV stations on a CATV system in Canisteo. System already carries network affiliates and educational stations in Buffalo, Rochester, and Elmira, N.Y. But Canisteo system's proposal would leapfrog WPGH-TV (independent) Pittsburgh, Pa., which would be inconsistent with proposed Section 74.1107(e)(1). Petitioner stated that community of Hornell, adjacent to Canisteo, already receives the three New York City independent stations. Since Hornell and Canisteo are essentially one community, it would be unfair to deny the three channels to Canisteo.

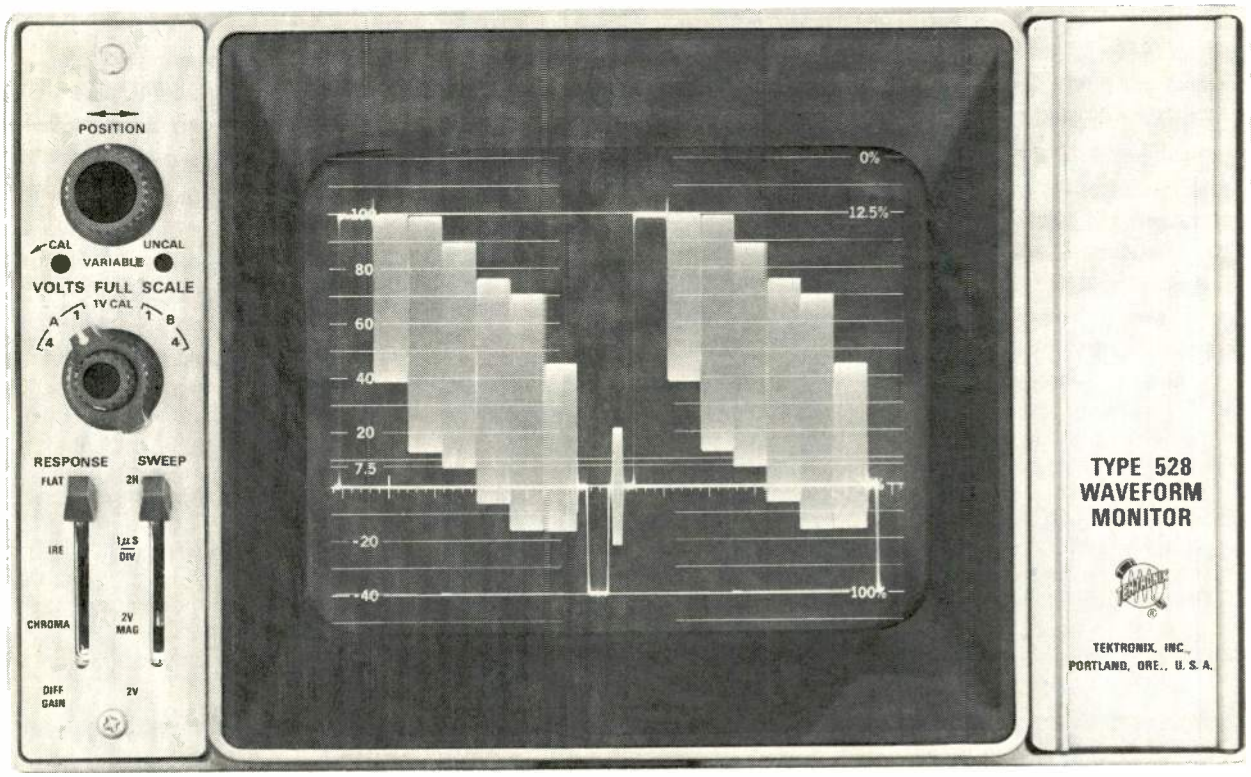
Merger approval has been granted for Filmways, Inc., producers of "Beverly Hillbillies," "Green Acres," and "Petticoat Junction," and Cascade Broadcasting Co., licensee of KIMA-TV, Yakima, Wash., KEPR-TV, Pasco, Wash., and KLEW-TV, Lewiston, Idaho.

Nonduplication: Great Lakes Community TV, Inc., owner and operator of a CATV system at Petoskey, Mich., has been directed by the Commission to show cause why it should not be ordered to cease and desist from further violation of Section 74.1103(e) of the Commission's Rules by failing to provide program exclusivity for WTOM-TV, Cheboygan, Mich.

Request for fm channel assignment to Batavia, N.Y. denied by Commission. Batavia Broadcasting Corp., licensee of a-m station WBTA, sought assignment of the channel 269A and an fm construction permit. Batavia Broadcasting also asked waiver of either the separation requirements of Section 73.207 or the transmitter location requirements of Section 73.315(a). Alternatively, Batavia Broadcasting proposed that channel 269A be assigned to West Batavia, N.Y. If the assignment were made in or immediately adjacent to Batavia so as to provide minimum required field strength of 3.16 mV/m, the station would be short-spaced with respect to WNYR-FM, Rochester, N.Y. If a site were selected which met spacing requirements, minimum field intensity would not be provided. The Commission ruled that strict enforcement of the mileage separation rules is of paramount importance to the integrity of the entire fm allocation plan. The use of a site meeting spacing requirements would not provide needed service for all of the county. The Commission rejected the alternate proposal to assign the channel to West Batavia, which has a population of 25 persons, as there was no showing that such a small community has a separate need or could support an fm station.

General Telephone of Florida has been ordered not to begin operation of any CATV distribution facilities in Manatee County, Fla., pending resolution of a hearing. Further, the Commission ordered General Telephone of Florida to show cause why it should not be ordered to cease and desist for

COMPACT, SOLID-STATE waveform monitor from TEKTRONIX®



3/4 Actual Size

general purpose video signal monitor

The Tektronix Type 528 solid-state Waveform Monitor is ideally suited for monitoring waveforms from camera outputs, video system output lines, transmitter video input lines, closed-circuit TV systems and educational TV systems. This compact instrument requires only 5 1/4-inches vertical and 8 1/2-inches horizontal mounting space.

Either of two video inputs, selectable from the front panel, may be viewed on the 8 x 10-cm screen. The video signal being displayed is provided at a rear-panel connector for viewing on a picture monitor.

Calibrated, 1-volt and 4-volt full scale deflection factors provide convenient displays of typical video and sync signal levels. A variable control provides uncalibrated full scale deflection factors from 0.25 volts to 4.0 volts. FLAT, IRE, CHROMA, and DIFF GAIN vertical amplifier response positions permit rapid observation and measurement of waveform characteristics. A slow-acting DC Restorer maintains a constant back porch level despite changes in signal amplitude, APL or color burst and may be turned off when not needed.

Sweep modes are: 2 V SWEEP (two field), 2 V MAG SWEEP (expanded two field), 2 H SWEEP (two line) and 1 μs/div SWEEP (calibrated sweep with accuracy within 3%). Internal or external sync is selectable. Provision is made for YRGB and RGB displays. Nominal 1-volt drive for picture monitor is provided on rear panel.

This lightweight waveform monitor converts to a portable unit for field service applications by simply adding an optional protective cabinet. An optional Rack Adapter permits side-by-side mounting of 2 Type 528's.

Your Tektronix Field Engineer will be happy to demonstrate this solid-state waveform monitor on your premises at your convenience. Please call him, or write: Tektronix, Inc., P.O. Box 500, Beaverton, Oregon 97005.

Type 528 Waveform Monitor	$890
Type 528 Mod 147B (with protective cabinet for out-of-rack applications)	$920
Rack Adapter for mounting 2 Type 528's side-by-side (016-0115-00)	$ 85

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further construction, operating and offering of CATV facilities in Manatee County. Action came in response to petition by Manatee Cablevision, holder of nonexclusive franchise to provide CATV service in Manatee County. Manatee Cablevision charged General Telephone of Florida and its affiliates have engaged in anticompetitive practices and has acted to circumvent Section 214 of the Communications Act. Manatee Cablevision charged it was denied a pole attachment agreement with Florida Power and Light and was promised such an agreement by General of Florida but rebuffed when General purchased the rival CATV system.

Wheeling Antenna Co., Inc. (WACO), owner and operator of a CATV system at Wheeling, W.Va., has been directed by the Commission to show cause why it should not be ordered to cease and desist from further violation of Section 74.1103(d)(3) of the Commission's Rules by failing to provide program exclusivity for WSTV-TV, Steubenville, Ohio.

Request was denied for reconsideration of ownership hearing order. Lee Enterprises, Inc. had earlier filed application for new FM station in Billings, Mont. The Commission then scheduled a hearing on possible undue concentration of media control. The Commission said that Lee publishes the only daily newspaper in Billings and that its Montana newspapers control nearly 60 percent of the total circulation for all Montana dailies. Also mentioned was Lee's ownership of 3 a-m, 4 fm, and 3 TV stations.

KWAD, Wadena, Minn. is apparently liable for $500 forfeiture for failure to have a properly licensed operator on duty at the transmitter control point. Station has 30 days to pay or contest the forfeiture.

Pre-sunrise rules adopted for Class II's. Class II a-m station with presunrise authorization may begin operation with 500 watts at 6 a.m. local time (or sunrise at the dominant station if located east of the Class II station, whichever is later) under an amendment to presunrise rules adopted by the Commission. Class II stations located east of the dominant co-channel Class I-A station will continue to be prohibited from pre-sunrise operation. The 500 watts' power limitation may be subject to further reduction by international agreement. Commission action consisted of deletion of the Note to Section 73.99(b)(1) of the Rules. Under the terms of the order, stations now operating under the Note may continue to operate through September 14, 1969 with sign-on time adjusted to 6 a.m. local time (or sunrise at the dominant station, whichever is later). After September 14, 1969, presunrise operations may be conducted only with pre-sunrise authorizations.

Application for transfer of control of Old Pueblo Broadcasting Company, licensee of KOLD-TV, Tucson, Arizona, from Tom Chauncey, Gene Autry, Isa M. Autry, Anne L. Kerney, E. S. Mittendorf and Frank W. Beer to Universal Communications Corp., has been granted with the condition that the Edward W. Scripps Trust divest itself of all ownership interest in the Evening News Association in excess of one percent within 120-days from June 19. Consideration for transfer was about $4,100,-000.

Helpful Books that Belong in Every Station—Now on 10-Day FREE Trial!

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MANAGING TODAY'S RADIO STATION by Jay Hoffer, KRAK

Sacramento. This brand-new and entirely original book completely covers radio management, programming and sales—answers the long-felt need by the industry for a book on today's needs.

No radio station should be without this practical, all-encompassing guide to operating a professional, commercial broadcasting facility. Analytic and interpretive in its content, the book is uniquely written and easy-to-understand. Based on actual experience, the content will enable you to handle day-to-day problems as well as plan future growth for tomorrow. Here are the straightforward answers every station executive needs to the problems involved in assembling all the component parts and building them into a smoothly-running profitable operation. This invaluable text will be worth its small cost many times over—for those who aspire to any level of management and for those already there. It offers practical solutions and experienced advice on the duties of a manager. It thoroughly examines the cold, hard facts of station operation—the nature of the business, expected return on investment budgeting and projections, etc. It offers in-depth coverage on audience ratings, advertising, automation, double billing, unionism, preventive maintenance, etc. It covers format control methods, station image, community involvement, news, editorials, sports, copywriting, sources of air talent . . . and much, much more. This volume is perhaps the only current source of information on selling radio. It provides a wealth of information on how to find and train salesmen, employment contracts, sales meetings, house accounts, rate cards, keeping tabs on the competition, how to combat the newspaper "habit," reps, merchandising tie-ins, how to avoid bad debts and speed up collections, etc. The book is profusely illustrated with scores of photos, diagrams and examples of contracts, promotion material, program and personality synopses, advertising, station newsletters, sales letters, rate cards, merchandising gimmicks, publicity material, etc. 288 pps., Hardbound.

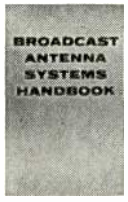
Order No. 461 ..... **$12.95**

AUDIO SYSTEMS HANDBOOK

by Norman A. Crowhurst. This brand-new, authoritative reference and guide encompasses professional audio systems of all types—studio, public address, commercial sound, hi-fi reproduction, intercom, etc. Coverage is complete—from microphones to loudspeakers from mixers and filters to amplifiers. Here is essential technical data on such important facets as loudness compensation, low-level distribution, noise suppression, pre-emphasis, equalization, constant-voltage lines, studio systems, program sources, special devices, remote controls, radio feeds, phono and tape pickup, compression and limiting and much, much more. Indispensable for: Chief Engineers, studio technicians, recording engrs., stereo experts and all audio system technical personnel. Will greatly aid professional audio engineers and technicians in evaluating and selecting (or designing) system components to achieve flawless performance. Moreover, the data can be used to improve performance of present systems and provide the basis for meaningful tests and measurements to check component and system performance. 192 pages, over 125 illus., hardbound.

Order No. 494 ..... **only $7.95**

BROADCAST ANTENNA SYSTEMS HANDBOOK



Brand-new, practical, guide to all types and styles of broadcast antenna systems. Covers preparing engineering data for the FCC, designing, engineering and operating systems, selecting antennas, measuring performance, improving coverage, etc. Includes AM-FM-TV UHF, FM DA antenna systems, FM dual polarization, microwave, directional AM, etc. 18 BIG Chapters — 160 pps. — over 100 illustrations.

Order T-44 ..... **only $7.95**

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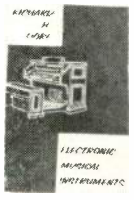

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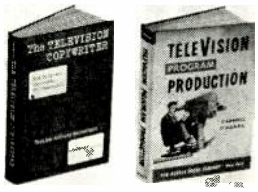

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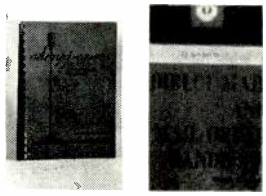

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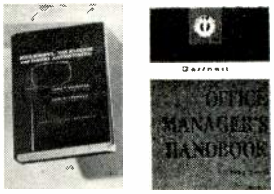

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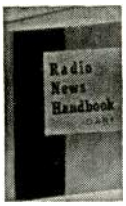

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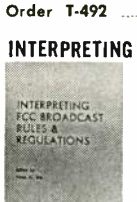

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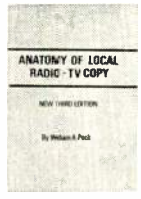

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1776 East 17th Street, Cleveland, Ohio 44114

Please send me your FREE book, "How To Get A Commercial FCC License."

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Circle 156 on Reader Service Card

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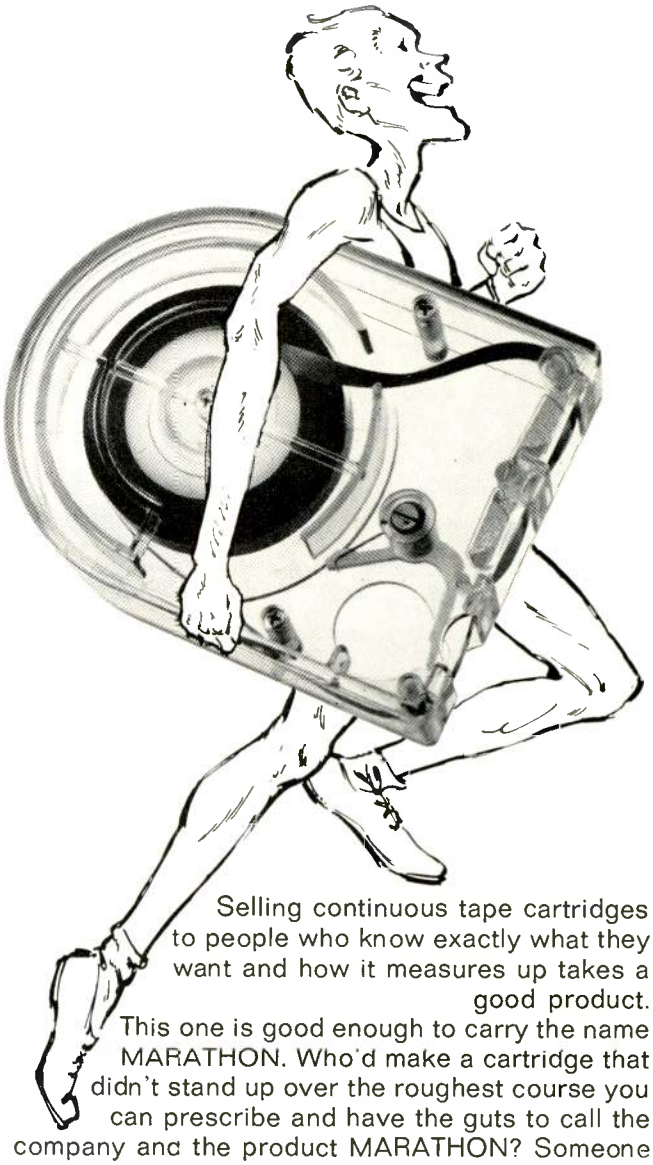

Selling continuous tape cartridges to people who know exactly what they want and how it measures up takes a good product.

This one is good enough to carry the name MARATHON. Who'd make a cartridge that didn't stand up over the roughest course you can prescribe and have the guts to call the company and the product MARATHON? Someone with a cartridge that is a consistent winner — that runs and runs and runs in dependable manner — that incorporates in an NAB-approved package features other cartridges don't have.

The major cartridge users are already running the MARATHON. We move fast. Can we send you complete engineering specifications, and prices today?

run the MARATHON

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Circle 157 on Reader Service Card

BM/E CLASSIFIED MARKETPLACE

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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

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Exclusive territory for sale of rapidly expanding line of broadcast equipment requires highly motivated, sales-minded individual with strong technical knowledge of equipment primarily to AM, FM, and TV stations. Leading company with history of high profit and rapid growth.

Salary plus commission—with full fringe benefits and travel expenses paid.

Send resume or call Robert T. Fluent, Assistant Personnel Manager, 123 Hamphire, (217) 222-8200.

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Chief Engineer immediate opening for right man. Applicant must have strong background, both technical and administrative. We are a full color station with color mobile unit and now in the construction stage of new facilities including; new tower, antenna, transmitter, master control, and studio control for two studios. Salary commensurate with experience. Send resume, references and salary requirements to WKYT-TV, Box 655, Lexington, Kentucky 40501.

Salesman for single station market 5000 watt AM and new 50 kw FM station with separate programing. May advance to management. Guarantee plus commission. Other radio work available. Prefer family man for permanent work. Write to WSLM, Salem, Indiana, phone (812) 883-5750.

News Director for strong local news operation. Take charge of smooth functioning local news bureau. Above average pay for man unafraid of hard work with ability to gather, write and deliver local news. Opportunity for play-by-play sports, WCOJ, Coatesville, Pa. (215) 384-2100.

Engineer, full color, full power VHF-TV and daytime radio. Maintenance and operation. All new equipment. Position requires experience in highband VTR, live color cameras. Southwest area. Excellent fringe benefits. Reply with resume, references, and requirements to Box 969-1, c/o BM/E, Blue Ridge Summit, Pa. 17214.

TV-MOVIE PRODUCER/DIRECTOR, COPY-WRITER, MARKET RESEARCH MGR., ART DIRECTOR, INTERIOR DESIGNER. Outstanding opportunities at expanding company. Excellence the byword. Professionals only. Alderman Studios, P.O. Box 26, High Point, N.C. 27261.

Needed immediately . . . first phone engineer capable of maintaining AM & FM transmitter and studio gear and installation and maintenance of background music service. Send complete resume to Gene Rader, Director of Engineering, P.O. Box 910, Roswell, N.M.

Field service engineers, full or part time openings throughout U.S. enable you to share in exciting new Automation generation. Write L. Wortman, Schafer Electronics, 9119 De Soto Ave., Chatsworth, Calif. 91311.

First-class ticket, capable of maintenance and short announcing shift. Will later become chief. Lowell Jack, KMAN, Manhattan, Kansas 913/776-4851.

Midwest group has openings in announcing and in sales. Send resume, photo, tape or sales record. Box 969-2, c/o BM/E, Blue Ridge Summit, Pa. 17214.

#1 engineer for Pennsylvania CATV. Get in on ground floor of expanding operation. Box 969-7, c/o BM/E, Blue Ridge Summit, Pa. 17214.

POSITIONS WANTED

Calypso anyone? West Indian with experience seeks part-time tight board week ends. Dynamic personality. Sales. Box 969-5, c/o BM/E, Blue Ridge Summit, Pa. 17214.

POSITIONS WANTED (cont'd.)

Young, black experienced, female TV news reporter. Solid journalism background (Time, AP, N.Y. Times). Working for award winning news show. B. A. English, two languages, well traveled. Available Sept. or winter as air reporter or news writer, east or west coast, Europe. Joyce Powell, c/o KQED Newsroom, San Francisco.

Disc jockey—Broadcast school graduate, draft exempt, dependable, experienced in all phases of radio broadcasting, tight board control; third class endorsed. Willing to relocate for the right opportunity. For inquiry write Harold Robinson, P.O. Box 752, Newark, N.J.

Man, 3rd endorsed, with some radio experience, wants to work part time at rural radio station. Please write to Bruce Langdon, 9312 13th Ave., So. Minneapolis, Minnesota 55420.

Experienced—who wishes to go into management. Medium sized market. Write Norman Thomas, P.O. Box 428, Chattanooga, Tenn.

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Complete details forwarded on request: Address:

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SEEBURG MUSIC LIBRARY, INC.
1500 North Dayton Street
Chicago, Illinois 60622

EQUIPMENT FOR SALE

Jack Panels and patch cords, Audio and Video, new and used. Precision video coax cable and connectors (Belden 8281). Write for catalog. Gulf Electro-Sales, Inc., 6325 Beverly Hill, Houston, Texas 77027. Phone 713-781-3066.

EQUIPMENT FOR SALE (cont'd)

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 parts, 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.

U.H.F. Television transmitter, RCA TTU 12.5 KW, modified for color, complete with accessories, now operating on Ch. 27. Synch Generator, 2 x 2 slide projectors, TA9 stablizing amplifiers, Collins audio console, video distribution amplifiers, side band analyzer and UHF converter, power supplies. TRT-1B video tape recorder (color), TK-31-C (2) Field camera chains, TS-11 Studio Switcher, 35 ft. mobile unit, 500 ft. Tower. Contact Hal Schumacher, Ph. 606-254-2727, P.O. Box 655, Lexington, Ky., 40501.

New Collins TT 400/200 turntables. Due to the acquisition of QRK by CCA Electronics, it has been mutually agreed, QRK will no longer manufacture these turntables for Collins. QRK has available a limited number of these turntables at 10% discount, with full warranty. QRK will maintain a complete inventory of parts for Collins TT 400/200 turntables. Contact QRK (209) 251-4213 or your CCA area representative: CCA Electronics Corporation, 716 Jersey Avenue, Gloucester City, New Jersey (609) 456-1716.

BEST DEALS: SPOTMASTER, SCULLY, MAGNECORD, CROWN, INFONICS PULICATORS, TELCO, CBS AUDIMAX-VOLUMAX, PULTEC, FAIRCHILD, LANGEVIN, UNIVERSAL AUDIO, METRON MODULATION MONITOR, QRK, RUSSCO, REK-O-KUT, GRAY, SHURE MICROPHONES AND MIXERS, TURNER, VEGA, AUDIOPAK AND FIDELIPAC CARTRIDGES. FINANCE, LEASE, TRADE. AUDIOVOX, BOX 7067-55, MIAMI, FLORIDA. 33155.

SCULLY TAPE RECORDERS: Mono., 2, 4, 8, 12, & 16 track models plus 270 automatic players. Some models in stock now. W.A.L. custom audio control consoles & console modules. Solid state 120 Watt power Amps. We buy and rebuild Scully lathes. WIEGAND AUDIO LABORATORIES, INC. 3402 Windsor Road, Wall, N.J. 07719. Phone 201/681-6443.

Visual 6000 TV Automation system-true time and elapsed time switching, 12 pre-rolls 2-punch tape readers, one tape punch-audio switcher for mixes and audio follow. Unit in service and can be seen by appointment. Also —GE PF 10-16 mm continuous motion TV projector; GE TV86 optical multiplexer; GE PE21 vidicon film chain. John Neeck, WPIX, 220 E. 42nd St. New York, N.Y.

Hickok DMS-3200 Digital Measuring System. Main Frame and DP-150 frequency counter. Also Hickok 288AX AM-FM generator. Both used just a few hours and in mint condition. Cost $830—will take best offer. Jack T. Sharp Advertising Agency, Inc., 14055 Cedar Road, Cleveland, Ohio 44118. (216) 371-2000.

Immediately available—Two Ampex VR-1100 VTR's priced for immediate sale. Two RCA TK-11C Camera chains, complete for $1,950.00 each. Surplus Tektronix 453 scopes and vectorscopes. For the finest in used equipment, contact Ed Ries and Associates, 414 No. Alfred Street, Los Angeles, Calif. 90048. (213) 651-5080.

USED VTR BARGAINS—2 Sony PV-120U VTR's w/new warranty @ $4475., 3 Ampex VR 6000 VTR's @ $550., 4 Dage DV300 VTR's @ $1600., tape available; 2 Sony EV200 VTR's @ $2500. with new warranty. Contact Alexander Electronics, Inc., 4747 Wyandotte St., Kansas City, Mo. 64112. (816) 531-4390.

"Used equipment—like new; automatic balance control Telechrome 617-BR, Lambda Power Supply 290V-800ma. Channel amps for GE PE-24. Gamma Boards for GE PE-24. Monitor Select Panel TC-63-B GE, Color Encoder TV-58-D1, GE. Best offer." Box 969-6, c/o BM/E, Blue Ridge Summit, Pa. 17214.

1 RCA power max negative peak limiter MI-34654, like new. 1 Martin FM modulation monitor TBM-3500, 92.1 MHz very good condition. 1 RCA type BA-46 limiter unit, MI-11456, BA-43 Program amplifier, very good condition. WLBB Radio, Carrollton, Georgia.

EQUIPMENT FOR SALE (cont'd)

Ampex 300, 350, 352, 400, 450 users, for greater S/N ratio, replace first playback stage 12SJ7 with our plug-in transistor preamp. For specifications write VIF INTERNATIONAL, PO Box 1555, Mtn. View, Ca. 94040.

AMERICA'S LARGEST STOCK AND CONSIGNMENT LISTING of new and used broadcast and recording equipment. We trade-sell and buy. THE MAZE CORPORATION, P.O. Box 6636, Birmingham, Alabama 35210.

Gates 10 w BFE-10C FM transmitter, 1 yr. old, perfect condition. Tuned to 91.1 mHz. James Harvey, WGGL-FM, Mich. Tech. University, Houghton, Michigan 49931.

Protect your Lps. Heavy poly sleeves for jackets 5¢; paper poly sleeves for records 10¢; min. order $5.00. Record Supplies, Hillburn, N.Y. 10931.

TRY US FIRST. New and used Broadcast equipment and supplies. Package discounts. Vernon Steed Associates, Box 616, Warrenton, N.C. 27589.

Gates Vanguard 1 one kilowatt spare crystal, final, tuned 970, $3,150.00 FOB. GR-1606-A RF bridge $775.00. GR 1330-A oscillator used once $695.00. Mervin Ling, KAYT, Rupert, Idaho.

Schafer Automation Model 1200 C; 6 Ampex playbacks; brain; no make-up unit; good condition. $6,000.00, FOB. Box 969-3, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Schafer Automation, 7½ years old; make-up panel; brain; complete, $4,700.00; Six playbacks, Model 1200 C. Box 969-4, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Western Electric 506-B2 10 kw FM transmitter. Uses Eimac 4CX10,000A final. Best offer. KNOB, Anaheim, California 92802.

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

30,000 feet #10 soft drawn, non-insulated new copper wire for antenna ground system. Cost us a Grand. Make offer. KOLY, Mobridge, S.D.

Practically new Smith TV tape splicer. KLOC-TV, P.O. Box 3689, Modesto, California 95352.

MISCELLANEOUS FOR SALE

Third Class License instruction booklet, reviews all phases necessary for license, also contains sample test. $1 each. Order from Baker Publishing, 443 So. 13th Street, Lincoln, Neb. 68508.

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Self-supporting and guyed towers. Any type ground wire—68¢ per pound. Bill Angle, P.O. Box 55, Greenville, N.C. 27834. (919) 752-3040.

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FCC License in six weeks from the nation's largest license school. Compare reputations and success rates before you invest. Professional announcing training on the nation's only fully school-operated commercial station used solely for training. School locations in Dallas, Houston, Atlanta, Chicago, New Orleans and Minneapolis. Write Elkins Institute, 2603 Inwood Road, Dallas, Texas 75235.

First phone through tape recorded lessons at home plus one week personal instruction in Washington, D.C., Atlanta, Boston, Detroit, New Orleans, Minneapolis, Seattle, Denver, Portland, Los Angeles. Proven results. Our 17th year teaching FCC license courses. Bob Johnson Broadcast License Training, 1060D Duncan, Manhattan Beach, Calif 90266. Phone 213-379-4461.

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Central Tokyo, Japan
Yoshi Yamamoto

FROM THE EDITOR

Protecting SCA Transmission

SCA subscription service is typical of the many technological advances of the last 3½ decades that aren't provided for in the woefully outdated Communications Act of 1935. SCA is an important income source for a growing number of fm stations—more than 600 of them at last count.

A culprit in the pantry that's been difficult to track down is the background music pirate. Typically such an operator will offer the same music as the franchisee, but at reduced rates. He sets up his receiver in the subscriber's place of business and tunes in the local SCA program. The broadcaster is automatically done out of a hunk of revenue. Such pirating is clearly illegal as ruled by the U.S. District Court in California, when KMLA brought suit against Twentieth Century Cigarette Vendors in 1967. The defendant was selling KMLA's music at a cut rate, and the court ruled in favor of the broadcaster.

Adding to the already muddied situation are the companies that manufacture and sell SCA adapters and receivers for home use. There's nothing clearly illegal about such sales and use, nor is there anything to stop the pirate from using these handy equipment sources. One large mail-order electronics firm recently stopped selling these home receivers at the FCC's request. The firm was violating no rules or laws, but felt that the dollar volume involved wouldn't justify a protracted court battle. Paradoxically, some of the largest customers for such home units are the broadcasters themselves who often find this equipment cheaper than that from the traditional suppliers.

Every market area with SCA is fertile ground for pirates. About the only way they can be sniffed out is by pure dumb luck—the music operator's salesman calls on a supermarket to make a sale only to hear his own station's SCA channel coming out of the public-address system. At this point, serious financial damage may already have been done to the broadcaster or franchise-holder.

Discovering the pirates can be made easier if companies manufacturing SCA detectors or receivers keep geographically-indexed customer lists. A provision in a new Communications Act (which hopefully will be enacted some time before the end of this century) could require that such lists be kept and made available to SCA operators. The law might also require the manufacturer to report any large orders of receiving equipment to the FCC or to the fm/SCA stations in the areas involved. This would be a big help in playing sleuth.

If your station carries SCA, you've probably already had some problems. We'd like to know how bad the situation has been for you, how you've been handling it, and what you think should be done. Let's hear from you.

Walter G. Salm
Managing Editor

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* More in use than any other model in the world
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The 3205 permits on-air adjustment of phase disturbances in the troublesome 15KH$_z$ to 500KH$_z$ range. And it does it at base band before switching into the program line.

What's more, the 3205 boosts both color and monochrome pictures to desired strengths.

With over 500 in use at Cape Kennedy alone, you know you can depend on the fully transistorized Equalizer-Amplifier 3205. And since it weighs just 6½ pounds and measures 19"w. x 1¾"h. x 12"d., it's certain to fit into your picture.

For more information and complete specs, write or call: Telemet, Amityville, N.Y. 11701, (516) 541-3600.

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