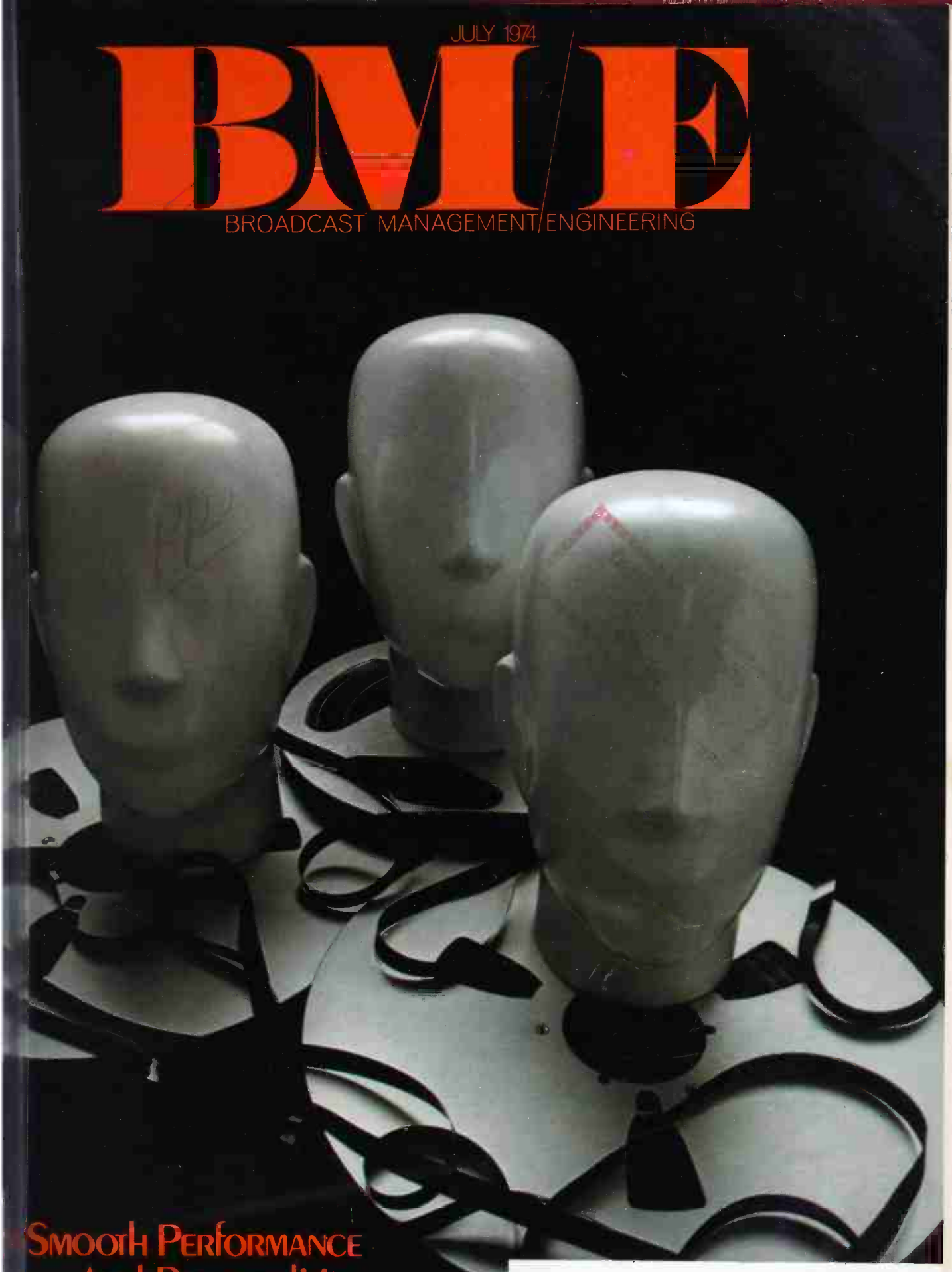
JULY 1974

BM/E

BROADCAST MANAGEMENT/ENGINEERING



Smooth Performance And Personalities Through Automation.

Photo: Jon Brenneis

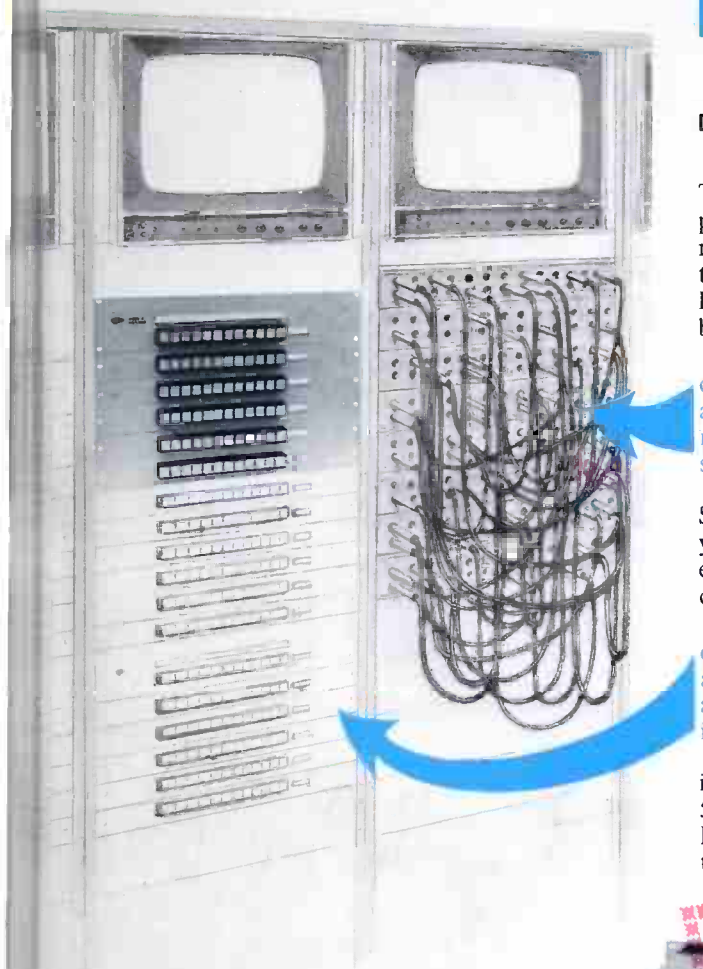
Our Emmy© reads . . .
"For the application of digital video techniques to the 'Time Base Corrector.' "
It's just the beginning of digital video.

Consolidated Video Systems
3300 Edward Avenue
Santa Clara, California 95050
(408) 247-2050

Circle 100 on Reader Service Card

N.A.T.A.S. ©1949

XPANDABLE AUDIO/VIDEO SWITCHER ELIMINATES PATCH CABLES



DYNAIR'S SERIES-X SWITCHERS ARE TOTALLY MODULAR WITH FIELD EXPANSION CAPABILITY

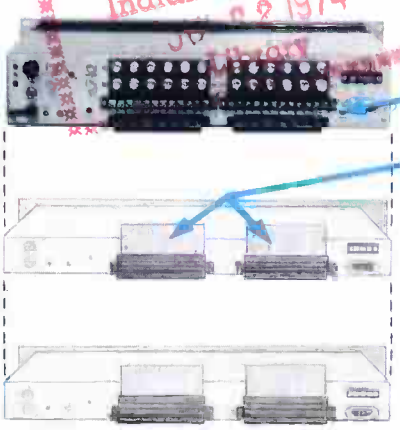
That's right. Now you can replace your video/audio patch panel with a routing switcher made up of off-the-shelf modules. You get the versatility of a custom system with the price and reliability of volume-produced electronics. It makes your signal routing easier and your system looks better too.

Messy, tangled patch cables are a thing of the past. The confusion of patching is being replaced with the simplicity and professionalism of pushbutton selection . . . a more reliable, more compact and – in many cases – less expensive approach.

You receive a lot of other extras when you go the Series-X route. Like illuminating pushbuttons, which give you an instantaneous indication of signal routing. And . . . each pushbutton can be easily labeled in the field to indicate the signal it controls.

Expansion is easy too . . . you simply add input or output expansion modules as required. Up to 36 inputs and 120 outputs without adding external DA's. Inputs are added in increments of six or twelve, and outputs are added in increments of one.

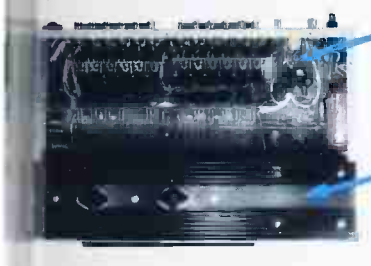
Unlike many other switchers of this type, the Series-X is a broadcast quality unit. Worst case crosstalk isolation: 50 dB at 3.58 MHz. Frequency response: 12 MHz, ±0.5 dB. Differential gain: less than 0.5%. Differential phase: less than 0.5°. State-of-the-art integrated circuit design.



Master 12 x 1 switcher supplies power for up to eleven output expansion units. Unique 3-way connector for signal and power bridging.

Etched circuit interconnect.

Output expansion units provide one additional output each. Receive power and signals automatically when plugged into switcher. Switchers of almost any input-output configuration can be easily assembled from off-the-shelf modules; inputs or outputs can be added in the field.



Plug-in modular construction simplifies servicing and allows various options to be added in field. Liberal use of integrated circuitry.

Precisely regulated power supply designed for continuous-duty applications.

The new Series-X provides exceptional performance at prices which are, in most cases, much less than competative versions. For reference, a 12-input, 12-output audio-follow-video Series-X occupies only 22¾ inches of standard rack space and costs only $4495. Wouldn't a Series-X switcher solve some of your distribution problems?

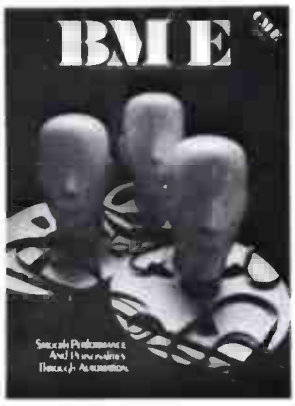
DYNAIR ELECTRONICS, INC.
6360 FEDERAL BLVD. SAN DIEGO, CALIF. 92114
TELEPHONE: 714-582-9211

DYNAIR

Circle 101 on Reader Service Card

BM/E
BROADCAST MANAGEMENT/ENGINEERING

JULY 1974/VOLUME 10/NUMBER 7



There's been no question about getting smooth performance out of automation. Now you can get that alive personal touch too. Color in your own personalities after reading the article beginning on page 24.

BROADBAND INFORMATION SERVICES, INC.
274 Madison Ave.
New York, N.Y. 10016
212-685-5320

Editor
James A. Lippke

Associate Editor
Robin Lanier

Washington Editor
M.L. Hollowell

Contributing Editor
Robert Wollins

Assistant Editor
Djuna Zellmer

Art Director
Gus Sauter

Production Manager
Helen Horan

FCC Counsel
Pittman Lovett Ford and Hennessey

Publisher
Charles C. Lenz Jr.

BPA BM/E, BROADCAST MANAGEMENT/ENGINEERING, is published monthly by Broadband Information Services, Inc. All notices pertaining to undeliverable mail or subscriptions should be addressed to 274 Madison Ave., New York, N.Y. 10016. BM/E is circulated without charge to those responsible for station operation and for specifying and authorizing the purchase of equipment used in broadcast facilities. These facilities include AM, FM, and TV broadcast stations; CATV systems; ETV stations; networks and studios; audio and video recording studios; consultants, etc. Subscription prices to others: for U.S., U.S. possessions and Canada: $15.00 one year, $25.00 two years. Foreign: $20.00 one year, $35.00 two years. Foreign Air Mail: additional $24.00. Controlled circulation postage paid at Easton, Penna.

APC-2000 AUTOMATION SYSTEMS

How do I make last-minute changes, additions, or deletions?

Can I intermix elapsed time, real time, manual, and externally cued events?

Can the on-air switching automation equipment be interfaced to a time-shared computer system?

How many days' programming will the system store?

Can the system be modified easily?

Can the system be expanded at a later date?

For answers to these or any other questions about television automation, call or write The Grass Valley Group, Inc.

THE GRASS VALLEY GROUP, INC.

A TEKTRONIX COMPANY

Station Plaza East
GREAT NECK, NY 11021
(516) 487-1311

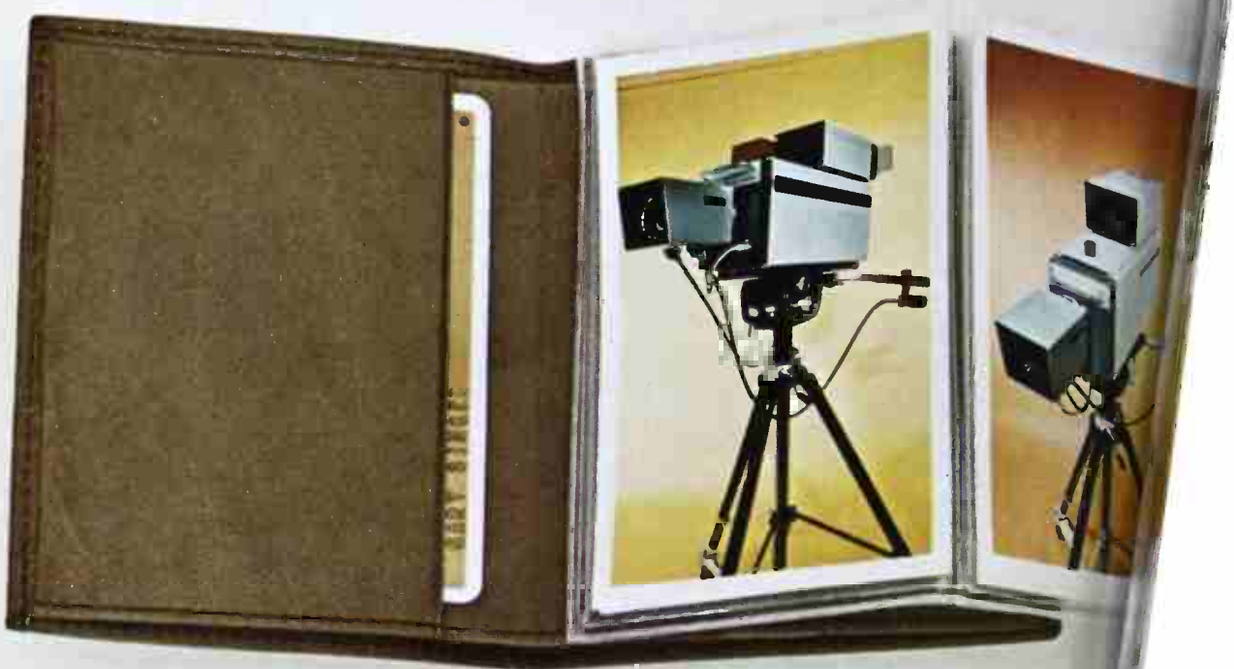
4419 Van Vuys Blvd, Ste 307
SHERMAN OAKS, CA 91403
(213) 990-6172

1644 Tullie Cir, NE
ATLANTA, GA 30329
(404) 634-0521

P.O. Box 482
MABANK, TX 75147
(214) 887-1181

125 So Wilke Rd
ARLINGTON HEIGHTS,
IL 60005.
(312) 394-1344

showing of



We're proud to show off our family of professional color video products. Each is an excellent example of the latest video state-of-the-art. And each offers superb picture quality and fine craftsmanship. Look over our family. See why Hitachi-Shibaden — with 25 years of professional broadcast experience — is called "The Image Makers".

HITACHI SHIBADEN
Corporation of America
Exec. Off: 58-25 Brooklyn-Queens Exp'y,
Woodside, N.Y. 11377 Phone 212-898-1261
Offices in Chicago, Los Angeles, Dallas, Toronto

FP1212
Professional three tube 1″ Plumbicon* color camera. High quality, advanced technology. Bias light for low-light conditions, FET pre-amplifiers offering a 46dB S/N ratio (luminance channel), I&Q broadcast encoder with color bar generator, and many more features found in much higher priced cameras. Camera head with 3 industrial grade Plumbicons (extended red optional) 5″ viewfinder, 10:1 zoom lens, CCU and 50′ cable. **$18,655.**

FPC1000B
Superb qual
camera usi
⅔″ Vidicor
PC boards
solid-state
(except Vi
Camera n
5″ viewfi
zoom le
and 50′
(Chalni
optiona

*TM N.V. Philips

he family

C Vidicon. quality, econ- gt weight (under ,nd ease of un is important, amera excels. All mount lenses ac- . Camera head, nd 15′ cable. 6.

100S2
prior color at mod- cost. Light weight lbs.). Three ⅔″ alnicons (no burn, uced lag tubes). cellent for remote eration and micro- scope application. "C" ount camera head, CU and 45′ cable. **12,333.**

HSPC
Color Teleproduction System. Self contained portable color studio for business, industry and medicine. Consists of two single-tube color cameras with viewfinder, headset, and 5:1 zoom lens on tripod/dolly. Consoles incorporate preview monitors, color bar generators, audio mixers, special effects amplifier, sync generator and head set. **$15,280.**

HV1100
Three ⅔″ Vidicon non-viewfinder color camera. Low silhouette. Registration and set-up functions remotely operated from CCU. Accepts all "C" mount lenses. Camera head, CCU, 45′ cable. **$9,450.**

CM181
Professional 17″ R.G.B. color monitor. Outstanding features. **$1,690.**

SV530
½″ EIAJ color video cartridge recorder/player. Trouble-free features in superbly crafted cabinet. Auto-threading and keyboard operation. **$1,285.**

CA520M
High-quality 15″ color receiver/monitor. Excellent complement for Hitachi-Shibaden VTRs. All Solid-State (except picture tube). **$650.**

FP1214X
Broadcast quality sports camera. All features of FP1212 but modified to accept the ultra-fast Fujinon F/1.8, 14:1 29.5mm-415mm focal length zoom lens with electron-beam coated optics. Produces full NTSC color down to 10 foot candles. Includes FP1212 features, 1½X range extender, extended red tube, CCU and 50′ cable. **$32,700.**

All prices subject to change without notice.

Circle 102 on Reader Service Card

BROADCAST INDUSTRY NEWS

Transmission From World Trade Center

Eight New York City TV stations have been granted permission from the FCC to change the locations of their transmitters to the north tower of the World Trade Center building. Most of these transmitters are presently located atop the Empire State Building. The existing facilities on the Empire State Building must be maintained and cooperative measurements and observations to test the quality of reception must be taken from both transmission sites for comparative purposes.

Fuji to Sell Videotape Direct

Fuji Photo Film USA Inc., has formed a Fuji Videotape Division which will take over the marketing of Fuji videotape. The Coltape Div. of Columbia Pictures has been dissolved. John Dale continues as general manager. New address is 350 Fifth Ave., New York, N.Y. (212) 736-3335.

Urban Cable TV Lab

Robert F. Kelly, chairman of the New York State Commission on Cable Television, has called for the creation of an Urban Cable Television Laboratory to insure the development and success of urban cable systems. He said that it is needed to "develop the full range of potential urban cable services" and to identify financially feasible urban services for the cable company. The New York State Commission is looking for funding to establish an Urban Lab in the State of New York.

Production Manager's Tape Swap

To establish an exchange of ideas about sets, commercials, show openings, artwork, policies and procedures, etc., a Production Manager's Association is being formed by Ralph T. Kuehn of WISN-TV, Milwaukee and Ron Prange of WBNS Columbus, Ohio. Once a year each member of the association will bicycle a video tape among the members which will show some of their station's works and explain how they have achieved certain effects.

There will be a one station per market restriction so that the members can have the freedom of informing the association of some of the unique innovations they have come up with.

Any person interested in joining is urged to contact Ralph T. Kuehn at WISN-TV, 759 N. 19th St., Milwaukee, Wisc., 53233; phone: 414 342-3000.

Midwestern Extends Relay System

Midwestern Relay Company, the month old Milwaukee based specialized common carrier serving the upper Midwest, has extended its video transmission network to NBC and ABC affiliated television stations in Rockford, Ill.

The company now serves television stations and CATV systems in principal cities in Wisconsin, Minnesota and Northern Iowa, with 45 channel miles of microwave. It also interconnects with independent stations in Milwaukee and Minneapolis and with Wisconsin educational network stations in Milwaukee, Madison, Green Bay, Eau Claire and La Crosse, Wisconsin.

continued on page

NBC Purchases Two NEC Frame Synchronizers

The first product of its kind (see BM/E, May, page 32), the FS-10 frame synchronizer manufactured by Nippon Electronics, represents a revolutionary step in handling non-synchronous video sources. It allows switching and special effects of asynchronous sources (studio/remotes/network/satellite) without the usual program disruption.

Through digital conversion of the analog signal, a complete frame of video information is stored in a 3-megabit semi-conductor memory at the incoming frame rate and reconverted synchronous with local reference sync. Conversion is made with no detectable loss in picture quality.

Telemation is NEC's sales representative. NBC is the first customer. Pictured left to right are Vern Pearson, Telemation, Frank Flemming, NBC Vice President of engineering, Saburo Oyama, NEC Exec. Vice President and Richard Koplitz, NBC purchasing manager.

TRINIDAD TO BANGKOK-TORONTO TO MEXICO CITY

Auditronics, Inc. sound mixing consoles are in use around the world.

More than 60 studios depend on Auditronics systems and equipment for ease of installation, reliability, performance, and quality.

Now is the time to find out what makes Auditronics products accepted worldwide in professional audio.

auditronics, inc.
P.O. Box 12637 • Memphis, Tenn. 38104
901/276-6338

Circle 103 on Reader Service Card

NEWS

International Cablecasting Society Formed

Following three days of organizational meetings held during the recent NCTA National Convention in Chicago, Flemming Nielsen, Program Manager of Community Antenna Television, Ltd., Calgary Alberta, was elected president pro-tem of the International Cablecasting Society.

ICS aims to be a professional society for individuals involved in cable system production. Primary goals are member education, and information and public relations functions. An ICS resolution declares "that an organization be created to serve the needs of (the cablecasting) profession, to instill pride and promote professionalism among its members in the work they perform; and to help foster growth, prosperity and recognition for the profession from the public and from the industry it serves, as well as from related industries and professions . . ." For more information contact: Mary Catherine Oltman-Woodward, P.O. B 416, Malvern, PA 19355 (215) 6 8210.

Quello Confirmed

James H. Quello was confirmed as Commissioner of the Federal Co munications Commission, bring the Commission to a quorum agai Commissioner Quello was sworn i on April 30, and his term of offi will end June 30, 1980. He fills t seat formerly held by Nicholas Jo son.

Fairness Doctrine Urged B NCTA In Pay Cable Fight

Pay cable was the issue of contro sy over which the National Ca Television Assoc. filed formal co plaint with the FCC, charging th WCBS-TV violated the Fairne Doctrine. The complaint charg that on Dec. 7, 1973, WCBS-T broadcast a report of a speech b CBS president Arthur Taylor befo the Arizona Broadcasters Assoc., in which Taylor was critical of th cable TV industry and pay cable That the issue is important and con troversial, NCTA claimed is obviou from the broadcast industry's forma tion of a special anti-pay cable com mittee, raising of $600,000 "wa chest," and spending thousands o dollars in national publications ad vertising.

NCTA asserted that WCBS-T failed to notify in advance an appro priate spokesman for the opposin side of the issue and subsequently re fused the cable TV industry an op portunity to respond.

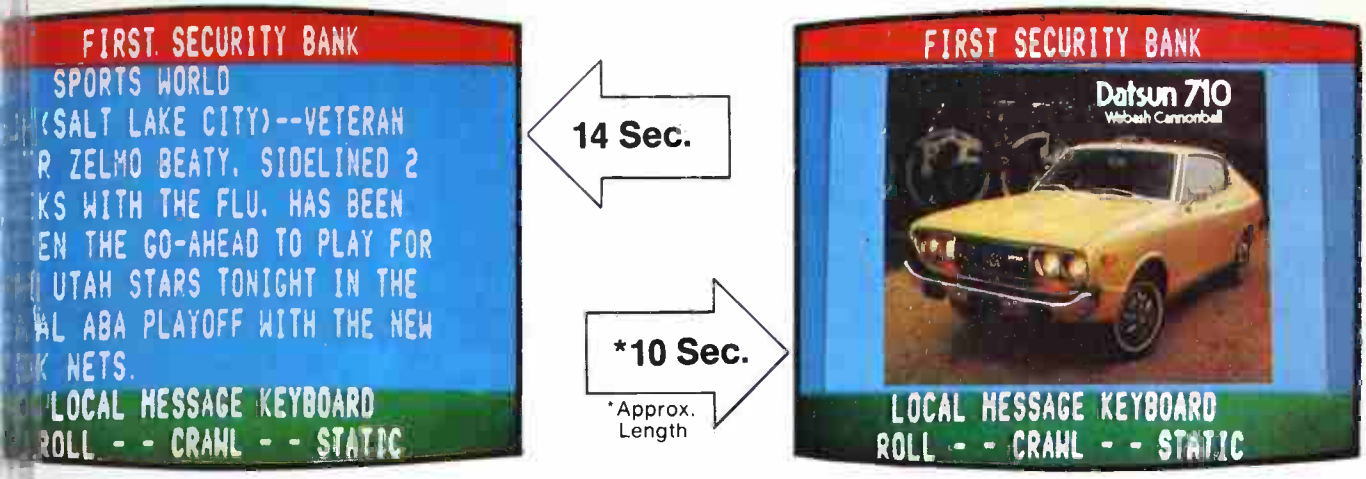
In the complaint, NCTA argue that while it did not wish to interfer with the ability of any organizatio to report the news, "to permit broad casters to cloak one-sided anti-pa cable television messages under th rubric of news would be a clear inv tation for the broadcast industry t run rampant on any issue involvin the broadcase television industry."

Meanwhile . . . NAB Fights "News Censorship" by FC

The National Assoc. of Broadcaste has filed a brief with the Supre Court to prevent the FCC from "ill gally and unconstitutionally tam pering with the content of radio an television news broadcasts." Th friend-of-the-court brief was askin the Court to affirm a finding by th Third Circuit Court of Appeals th news broadcasts of winning numbe in state-conducted lotteries are pr tected by the First Amendment, co trary to the FCC's present stand.

continued on page

MSI makes news with PAGE PRINT FORMAT!



Advertising with no news story losses.

Now on one channel. Offer your subscribers:

World News

Local News

Merchandising Displays

Local sponsors understand the value of this service.

Call: Bob Hall
Vice President Marketing
MSI TELEVISION
Salt Lake City, Utah
(801) 262-8475

MSI
TELEVISION
4788 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84107

A profitable partnership with Page Print

A subsidiary of Com Tel Inc.
A Utah Corporation

Circle 105 on Reader Service Card

NEWS

"Congress provided that the FC should be a regulator, not a censor editor . . ." NAB said in its filin "The First Amendment must co tinue to stand as an impenetrab barrier to the tentacles of gover ment censorship or control of t news."

AT&T Goes To Court On A FCC Decision Too

AT&T and the Bell Co. of Penns vania have filed a petition in t Third Circuit Court of Appeals f review of an FCC decision orderi AT&T to furnish MCI TeleComm nications Corp. and other specializ common carriers with interconne tion facilities for FCC authorized i terstate and foreign communicatio services. The FCC decision requir that interconnection facilities be fu nished on a non-discriminatory bas and that tariff schedules coverir these be filed with the Commissio Charges for the facilities are to b made only as set out in the filed ta iff schedules.

Bell contends that interconnecti facilities are entirely intrastate, th offerings are of a local nature a subject to State and local regulati only, and that the FCC has no juri diction over interconnection of sp cialized carriers or their custome with local distribution facilities over the covering tariffs.

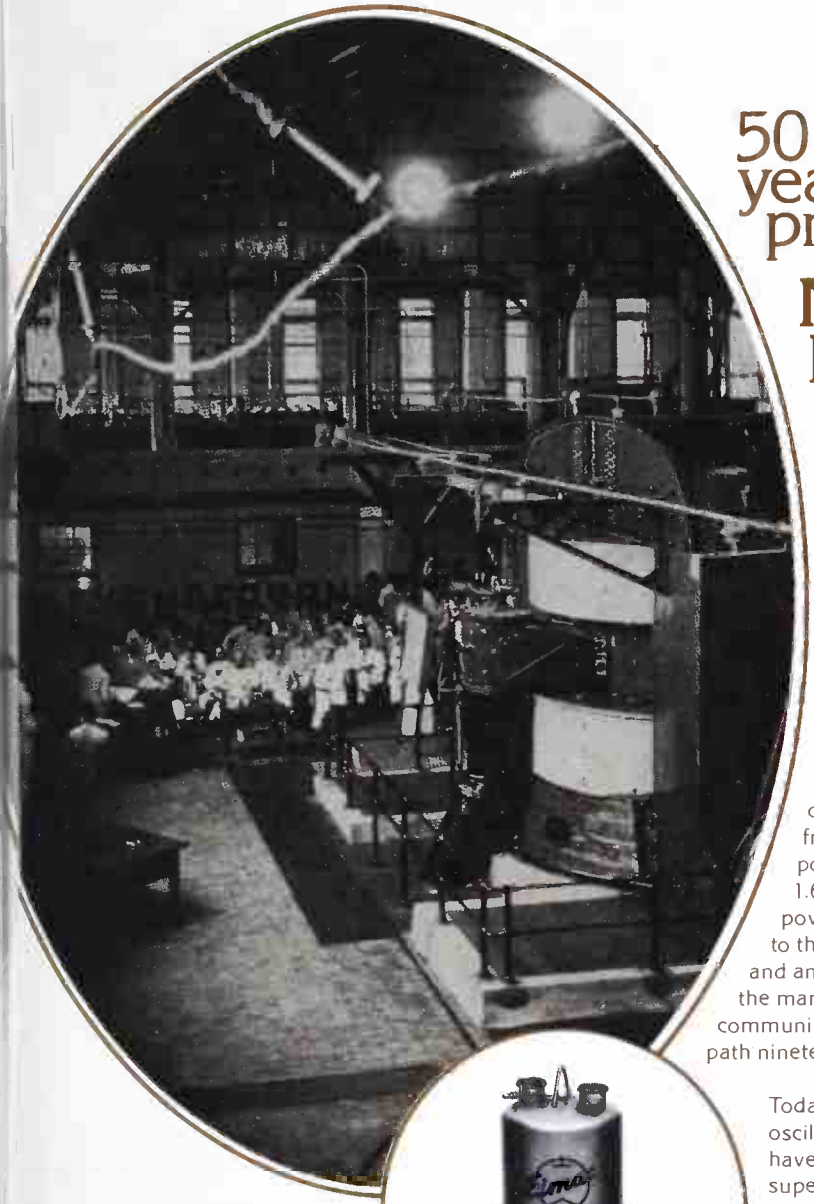
Almac Merging Into Laser Link

Preliminary agreements have be signed for Almac Electronics Co and its wholly owned subsidia Stanley M. Stroum Co., to mer into Laser Link Corp. Almac is e gaged in distributing industrial el tronic components in the Paci Northwest. Laser Link does develo mental work on communication vices for the cable TV industry, coding and decoding devices for in pay TV and communications vices for MDS.

Data Communications Networks In Europe—A Study

The Hoskyns Group Ltd. of Gr Britain and Network Analysis Co (NAC), Glen Cove, L.I., have ma an informal "partnership arran ment" for the study, design and ev uation of data communications n works in Europe. The Hosk Group is a system design and co

continued on page



50 years of progress

Now EIMAC leads in super power

1924 was an eventful year. Appleton and Barett measured the Heaviside layer. George Gershwin wrote **Rhapsody in Blue.** The Olympic games were held in Paris.

And on the far side of the world, the Director of Radio for the Dutch East Indies announced the opening of commercial wireless service from Java to Holland. The new super power station, PKX, was on the air with 1.6 megawatts on 15,600 meters. With a power input of slightly over 3.2 megawatts to the 236,080 kg (260 ton) oscillating arc and an antenna strung between mountains, the mammoth Malabar facility provided communication over a 12,000 km (7,500 mile) path nineteen hours out of the twenty four.

Today, the EIMAC X-2159 super power tetrode.

Today, fifty years later, the huge generators, oscillating arc and mountain-size antennas have returned to the jungle. Now, EIMAC super power tetrodes dominate the communication world, a single EIMAC X-2159 replacing the 260 ton arc transmitter of yesterday. Dependability, reliability and cost-effectiveness are dominant as EIMAC leads the field in super power communication. EIMAC has the answer **today** for your communication needs tomorrow.

For further information contact EIMAC, Division of Varian AG, Steinhauserstrasse, 6300 Zug, Switzerland. Or Varian Sales Offices in Amsterdam, Paris, Stuttgart, Torino, Solna, Sweden, or Hayes, England.

Eimac®
division
varian

Circle 107 on Reader Service Card

Automated ACR-25

When you're ready for real automation, you'll have to learn to stay out of the way.

The only manual function is loading the cassettes.

The rest is automatic.

When you're on the brink of automation, our Automated ACR-25 is the *only* sound choice in a cassette VTR. There are two reasons: it can be rolled by the computer on cue, and now it actually can be programmed by the computer.

All that's needed besides ACR-25 are two optional accessories: the Identification Data Accessory (IDA) and the Automation Data Accessory (ADA).

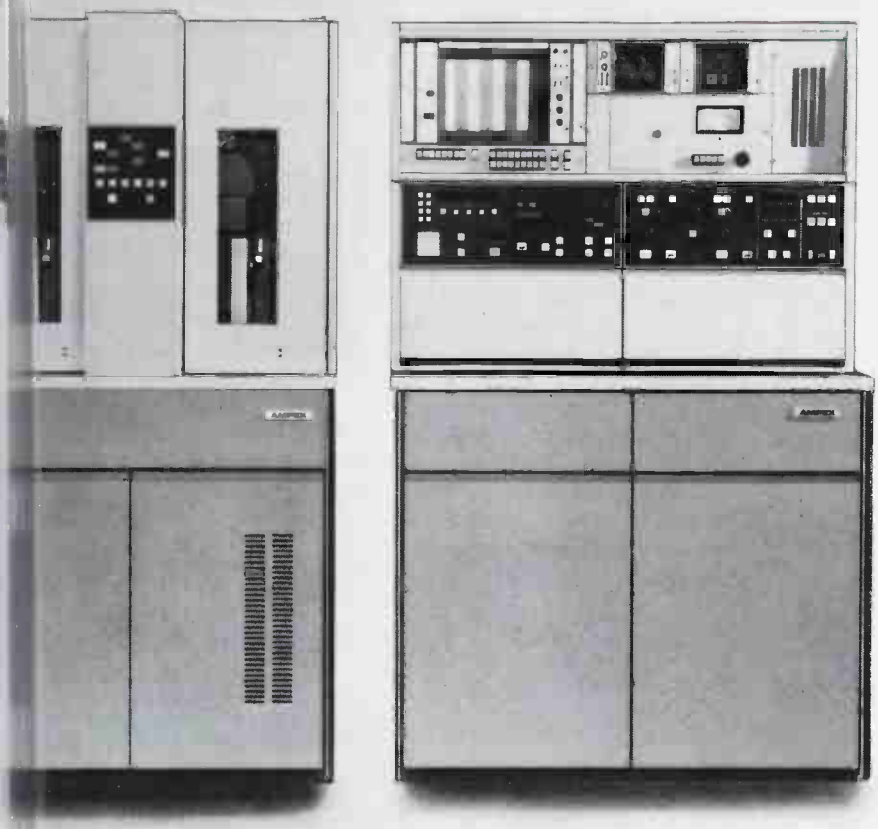
Here's how it works.

Loading. Your operator doesn't have to program the machine. Instead, he simply loads the empty bins of the carrousel in sequential or random fashion. As soon as he shuts the door and walks away, he is free for other, more creative duties.

Reading. Instantly, the IDA comes to life and "reads" each tape in each bin by examining the identification recorded on the Pre-Roll segment of the *cue* track. This is important because it means *there is no wear at all* on the video head.

Table of Contents. Next, ADA a Table of Contents, listing the and contents of each bin. It sto this in memory and then transm data to your computer.

Play List. Your computer make Play List from your program sc (up to 63 events) and then tel which spot or segment to run a time. ACR-25 then executes it ably with split-second timing.



Automated ACR-25

ig. Bins available for reload- ontified by load control lamps ight up after the tape is played. inder, a remoteable signal someone else when less than emain to be played.

a long and into the night, the *erator action necessary is to assettes as necessary.* After lading, the ADA automatically its Table of Contents, and omputer updates the Play List.

e Operation. Even if your er goes down, the ACR-25 s to operate because the Play red in ADA's memory.

Both the Play List and the Table of Contents are always available for immediate printout, should you desire to reprogram the ACR-25 manually.

Amazing? Yes — more so because it's a reality today.

Automated ACR-25 is the most complete broadcast/production unit ever conceived. No matter how you use it, it saves money, man power, and mistakes, making it the only logical choice as a short- and long-range VTR investment.

For complete details, contact your local Ampex Broadcast Video Sales Engineer, or write for full information.

AMPEX

Ampex Corporation
Audio-Video Systems Division
401 Broadway, Redwood City,
California 94063

Circle 108 on Reader Service Card

NEWS

puter consulting company. NAC specializes in conceptual planning and architecture of packet-switched and message—switched computer networks.

NAC is active in designing complete cable TV systems through a program involving computer logic. One of its recent contracts is for the design of a cable system for Fundy Cablevision in St. John, New Brunswick, Canada. Fundy Cablevision will start construction on a 300-strand-mile cable system that will ultimately offer service to at least 28,000 homes in the St. John area.

Cable TV Viability In Boston

A study of the viability of cable TV in Boston concluded that the main problem is a "participation gap." A system offering simply more channels and better reception would likely attract no more than 30 percent potential subscribers. Yet, until the rate of subscription approaches 50 percent, many of the high participation social services via cable will not be developed. "Boston's size coupled with its diversity of social and economic conditions suggest that virtually any ownership type, or mix of owners, would find a Boston cable system financially viable *if* that system of ownership is able to bridge the participation gap." The study is *Cable in Boston: A Basic Viability Report*, a product of Whitewood Stamps Inc., 61 Chapel St., Newton, MA 02158.

This publication represents both a study of Boston and an example of a new service offered by Whitewood Stamps. Basic Viability Reports are customized to locality and cost $500 plus $.05 per occupied housing unit in the area to be studied.

Broadcast of Telephone Interviews

The FCC has said that telephone interviews with community leaders—particularly those outside the city of license—are not per se unacceptable if the application makes it clear that it has consulted with a representative cross-section of community leaders. The FCC comment was in response to a request for clarification by Robert M. Light, president of the Southern California Broadcasters Assoc. The Commission emphasized the importance of formalizing the interview "by contemporaneous notes or subsequent follow-up letters," and said that the applicant must also be able to show that the interview re-

continued on page 18

ANTENNA MONITORING WITH A COMPLETE

FCC TYPE APPROVAL NUMBER 3-218

TRUE DIGITAL SYSTEM

The DAM-1 is a true digital antenna monitor designed specifically for measuring the parameters of broadcast frequency directional antenna systems. Digital data is not obtained by adding an A/D converter to the output of conventional analog circuitry; instead, the latest digital techniques and TTL components are applied to achieve a truly digital approach to phase and current ratio measurements. Data is displayed on front panel seven-segment digital readouts to minimize reading error. A simplified selection system reduces operation of the DAM-1 to a straight-forward procedure.

- A true digital antenna monitor specifically designed for broadcast directional antenna systems.
- Complies with FCC monitor and remote reading specifications. DAM-1 has received FCC Type Approved Number 3-218.

TWO WIRE TRANSMISSION REMOTE CONTROL UNITS DAML-1/DAMR-1

The DAML-1 and DAMR-1 provide for long distance remote control and readout of the DAM-1. Digital data is transmitted in both directions by integral FSK modems at 300 BPS.

HARDWIRE REMOTE CONTROL UNIT DAMH-1

The DAMH-1 provides for remote control and readout of the DAM-1 at distances to 1,000 feet.

TWELVE TOWER EXTENSION UNIT DAMX-1

The DAMX-1 permits the DAM-1 to be used for directional antenna systems with up to 12 towers.

TOROIDAL CURRENT TRANSFORMERS TCT

The TCT-1 and TCT-2 are precision toroidal current transformers to provide RF sampling voltages for the DAM-1 or other metering applications.

COMBINED DIGITAL TRANSMITTER REMOTE CONTROL AND MONITORING SYSTEM TMCS-1

The TMCS-1 provides full transmitter control and digital antenna monitoring. Includes integral FSK modems.

DELTA ELECTRONICS

5534 PORT ROYAL ROAD
SPRINGFIELD, VIRGINIA 22151
TELEPHONE: 703/321-9845
TWX: 710-831-0620

Circle 111 on Reader Service Card

sulted in "meaningful dialogue" with a representative cross—section of community leaders.

PG&E Agrees to Negotiate On Pole Rentals

Pacific Gas & Electric has announced that it is willing to negotiate the amount of future pole rentals with cable TV operators in California. PG&E stated that billings for January through June 1974 would be made at the old rate of $2.50 per pole, and indicated for the first time that cable companies are welcome to join Northern California Joint Pole Assoc. and thereby purchase an interest in PG&E poles.

Cable TV operators in California have had a long standing battle with PG&E, but the present fight began in December 1973, when PG&E announced that on January 1, 1974 pole rentals would be doubled from their current rate of $2.50 per pole per year to $5.00. The California Cable Television Assoc. (CCTA) responded by going to the FCC on the matter and by initiating an antitrust complaint against PG&E. PG&E's agreement to reconsider its actions and to negotiate is considered a major victory for CCTA.

Broadcasters Form Community Affairs Organization

The National Broadcast Assoc. for Community Affairs was recently established in a meeting held at the headquarters of the National Assoc. of Broadcasters. A wide cross-section of the commercial radio and television industry participated in the meeting, sponsored by the Washington Star Station Group.

Richard S. Stakes, executive vice president of the Washington Star Station Group, discussed with the participants the concept of "humanistic capitalism" which urges business and industry to assume greater responsibilities in their communities.

Elected president of the organization was Eddie L. Madison, Jr., manager of community services for the Washington Star Station Group.

For more information about the National Broadcast Assoc. for Community Affairs, contact Eddie L. Madison, Jr., or Fay West, Washington Star Station Group, 440 Jenifer St., N.W., Washington, D.C. 20015, or phone (202) 686-3138.

State-Wide Interconnection Cable Proposal

Pennsylvania may become the fir state to have statewide interconnec tion of cable TV systems. A propos for using the state's fire towers to in terconnect via microwave all cabl systems in the state is sponsored b the Pennsylvania Cable Televisio Assoc. (PCTA) and the state's De partment of Education. PCTA i said to have $5 million committed t the project.

At least four channels of the pro posed thirty in the system would b made available for leasing to th state Department of Education an local school districts. Cable opera tors could also use the fire tower in terconnection for their own regula business. The proposal includes pos sible inter-city use of two-way capa bilities.

Innovations By Kodak

New products and technology will b the key element in sustaining Eas

continued on page

"TV-newsfilm got the short end of the stick until we got into the act..."

An Open Letter to the TV News Industry from Ed DiGiulio, President of Cinema Products Corporation.

When the TV news market first exploded on the scene in the early 50's, manufacturers of professional motion picture equipment **could not, or would not,** respond to the special needs and requirements of the new medium. It's almost as if they wished it would just go away and disappear.

And so, for the past two decades, this extremely important and large segment of the market for professional film cameras was served almost exclusively by "**conversions**" and "**garage-shop**" specials — usually incorporating used components.

Certainly TV-newsfilm got the short end of the stick until we got into the act in 1972!

Our CP-16's are the first truly professional 16mm sound cameras designed ***specifically*** to meet the demanding requirements of TV-newsfilm operations. We ***pioneered*** the crystal drive system, the plug-in battery, the built-in Crystasound amplifier, the fast-acting plastic magazine, and a host of other innovative features.

Of course you can buy cheaper equipment than ours. But, when you budget for new equipment, ***keep in mind what it will cost you in the long run.***

Remember the ***quality*** built into our cameras, and the worldwide network of factory trained dealer/service organizations we have established for after-sales service.

Note that with every CP-16 you buy, you get a film clip and a test report. The ***film clip*** is a double-exposure steady test. The ***test report*** indicates that composite wow-and-flutter does not exceed .4% r.m.s.; frame line registration is accurate to within ±.002 inches; lens flange depth is accurate to within ±.0005 inches; and your camera, when pulling film, ***does not exceed*** 32 dB when measured 3 ft. from the front of an Angenieux 12-120mm zoom lens (on the weighted "A" scale).

That's what you deserve to know as a professional user. And that's what we give as the top professional supplier. ***No one else does!***

Remember. There are some ***1500*** CP-16's out in the field. This represents unprecedented user acceptance in little more than two years!

Key network freelancers such as **Ron Eveslage, Skip Brown, Bob Peterson, Patrick O'Dell, Larry Travis, Jim Klebau,** and many others, have all ***bought*** CP-16's and have already ***traded up*** to the newly introduced CP-16 ***reflex.***

Remember. These are cameramen whose livelihood depends on the equipment they *own*. If they can afford to pay the price for quality, *can you afford to do less?*

cinema products CORPORATION

technology in the Service Of Creativity

2037 Granville Avenue, Los Angeles, California 90025
Telephone (213) 478-0711 ■ Telex 69-1339 ■ Cable Cinedevco

Circle 113 on Reader Service Card

INTERPRETING THE FCC RULES & REGULATIONS

State Regulation of Cable TV

Part II: States with no CATV statutes; Short-term and Long-term trends

By Frederick W. Ford and Lee G. Lovett

Pittman, Lovett, Ford and Hennessey,
Washington, D.C.

Last month's article dealt with the current status of State CATV statutes. This month's article investigates the reasons underlying the failure of 40 states to enact CATV statutes. Additionally addressed is the apparent short- and long-term trends in State cable regulation with special emphasis upon attendant local and federal influences.

I. Why 40 states have no CATV statute

Virtually every state has given some consideration to CATV regulation. This does not necessarily mean that every state has come to an advanced stage of CATV regulation consideration. It does mean, however, that states may have *(a)* legislative bills in preparation, *(b)* state agency studies, completed or in preparation, addressing the role of the state in cable regulation, *(c)* attorneys general opinions in process, or *(d)* State executive department studies on cable.[1] Furthermore, a large number of other states have concluded that federal/local regulation is the most efficient vehicle by which to oversee the growth of the still-infant cable industry.

While a number of states continue to study cable regulation, CATV bills have been (1) defeated or (2) left to stagnate in committee, in a number of other states. In Maryland, for instance, a Senate Bill preempting control (by the state) over CATV franchising was recently defeated. Opponents of the measure contended that State pre-emption would eliminate "trafficking in small town franchises" by cable system operators of questionable qualification who hoped to sell franchises for large profits. Opponents of the Bill included the NCTA and numerous Maryland cities and counties which contended that State regulation of cable was merely an unnecessarily repetitive third tier of regulation. Despite the Bill's failure, a new Bill has been introduced to institute a "State CATV Study Group."

Maryland is not at all atypical of the scenario taking place in numerous other states. Arizona has recently reintroduced a CATV Bill (similar to one defeated last year) which contains no mention of State regulations and laws in the franchising process; th perogative is specifically reserved for cities a counties.

Other states, in order to avoid the vociferous opp sition of municipalities and cable system operator have steered clear of the state preemption-type b and (1) have proposed legislation vesting total fra chising power in the municipality (such as Ne Hampshire and Maine) or (2) have introduced legi lation proposing the creation of a "State Adviso Agency" or committee (similar to the present Mass chusetts statute).

Still other states, such as Arkansas, continue t study the cable issue, but publicly declare that there "no rush." Obviously, many states are waiting f some clear indication of a discernible trend in Sta cable regulation across the country.

II. Why state pre-emption is opposed

No matter what public (or other) posture a partic lar state takes in regard to State cable regulation, o ponents consistently attack proposed CATV regulat ry pre-emption by state legislatures for the same re sons:[2]

1) State "appellate" CATV regulation is mere an unwarranted duplication of the federal reg latory function, which results in proliferation government bureaucracy at the taxpayers' e pense.[3]
2) State cable regulation inexorably results in i consistencies between FCC standards and rul and State statutes. The most common conflic involve major differences as to:
   (a) establishment of a State agency to "a prove" (FCC-like) local franchising-crea ing interminable delays and reversal th

[1] Acknowledgement is made to "Descriptive and Legal Analysis of State Cable Legislation," an excellent paper by Thomas A. Muth, Asst. Professor of Telecommunication Policy, Michigan State University, presented to the National Convention of State Legislative Leaders on Cable Television, June 6-8, 1974.

[2] The Commission has recently addressed many of these points its *Clarifications of Rules and Notice of Proposed Rule-maki* 39 Fed. Reg. 14288 (April 22, 1974).

[3] As succinctly stated in the *Report of the FCC Cable Televis Advisory Committee on Federal/State-Local Regulatory Relati ships:*

". . . it is in the *national communications interest* that duplicat or conflicting regulation of cable be avoided and that its ove regulation will embrace *only* programs which involve *one* non-f eral regulatory jurisdiction or its equivalent; . . . a federal/'m *local level of government*' dualism represents the ideal allocatio regulatory authority." [Emphases supplied.]

germinate from State political ties;

(b) requirements for "extra" fee payments to the States which (in combination with fees to the local government) exceed the FCC "maximums";

(c) technical standards that far exceed FCC-recommended "minimums" and ignore the realities of technology;

(d) construction timetables too short to permit sound CATV practices or to recognize the technical differences between communities throughout the State;

(e) reduction of the *length* of franchises to half or to a third of FCC "maximums"[4]—thus making financing virtually unobtainable;

(f) restrictions on stock transfers that contradict local franchises and materially restrain CATV financing (e.g., the pledging of stock);

(g) subscriber-rate control terms that diffuse the power of the local government to respond to local needs;

(h) reduction of CATV fees to local governments in the manner that prohibits meaningful local supervision of CATV;

(i) rules re TV signal carriage, non-duplication, etc., that contradict FCC standards;

(j) required channel leasing (and rate controls) that conflict with FCC-avowed objectives; and

(k) control of local, CATV programming (direct or indirect) that could place the State in the business of "editorializing" (especially by an individual state appointed CATV "Czar").

Opponents say that, for the most part, State CATV ...tes *(1)* do nothing that has not been done by the ...—except to contradict or confuse federal stan..., *(2)* attempt to minimize the control of local ...rnments, *(3)* create CATV agencies that lack the ...det, staff and expertise to process either CATV ...hise hearings or FCC-like "approval" hearings, ...d *(4)* create new tiers of enigmatic roadblocks that ...la or estop CATV development in the near term.

...pparent Trends

...ver The Short Term

...State legislatures have been considering CATV ...il since the mid-1969s, yet only ten states have ...sd one. We foresee an apparent short-term trend ...rd legislative rejection of State CATV statutes. ...eoresee this for a variety of reasons:

1. State legislatures are more and more coming to the realization that the FCC (having totally preempted, and delegated back, CATV regulatory authority to state/local governments) may well take a hardline approach to the near future against three-tier regulation;[5]

continued on page 22

... proposed changes in FCC-permitted "maximum" as well as ...imum" franchise lengths, see *Clarifications, supra* (specifical... ocket No. 20021).

...rts recent *Clarifications*, the Commission stated: ..."t should be sufficient to caution all regulatory bodies involved ...nsidering involvement in cable television that we are concerned ...t duplicative overregulation of cable television." ... further that the Federal/State-Local Advisory Committee ...ority Report was adamantly in favor of two-tiered (not three-...d) legislation: ". . . the committee strongly favors a federal/...chising-authority dualism . . . the Committee concensus indi... that the franchising authority ideally will be 'the *most local* ... of government *capable* of issuing and enforcing a franchise'." ...phases supplied.]

2) there is no public need at this time (i.e., the federal "appellate-regulatory" and local "franchise-regulatory" rules appear sufficient to safeguard the public interest);
3) State legislatures' loyalties are to the State first and to the municipality second—thus, the danger of inadequately serving the local public interest;
4) State regulatory board members usually turn out to be "industry men"—thus, State efforts to regulate cable by a public utility commission-type arrangement may, in all candor, be less than ideally effective;
5) the spectre a State CATV "Czar" dictating program content, however unlikely the prospect, must be avoided at all costs; and finally,
6) the spirit of the Communications Act of 1934, as amended, mandating that *local* expression permeate all levels of communication, should now be applied to cable, eliminating, for all intents and purposes, State regulation.

B. *The Long-Term*

Although it seems clearly premature today, State regulation of cable may someday meet a *demonstrated regulatory need*. While there is no current public need to paraphrase FCC Rules and curtail local controls of CATV, once (1) cable is establis in major markets, (2) its societal role becomes m clear, and (3) the industry appears to warrant regu tion, then it is time to initiate consideration of St regulation.

Indeed, reasons ultimately prompting future ru latory need may be unforeseen, or even inconceivab today. By waiting until such exigencies arise, Sta legislators will insure adoption of legislation speci cally tailored to meet the problem at hand. Awkwa attempts to modify previously enacted statutes meet new problems is thus obviated.

Finally, the establishment of broad State regulati over public utilities during the 1930's emanated, to sure, from a very real (and overriding) public nee Yet, regulation was *not* imposed before the utiliti had developed firmly-fixed economic roots.

So too, opponents argue, State regulation of cab should be postponed until the CATV industry h firmly implanted its coaxial cable roots in the ec nomic soil of the American economy.

Proponents, of course, argue that State regulati is necessary *now* to safeguard the public from t inexperinece of local officials in cable franchise pr ceedings.[6]

Just which side will prevail will be seen during t next few years.

[6] An argument dismissed by the Federal/State-Local Majority R port as a "red herring."

E'RE INTO REFLEX NOW...

at means that *you're* in for the most outstanding 16mm
ews/documentary camera ever! Designed and built with
ie kind of innovative engineering and manufacturing
ce you've come to associate with Cinema Products.
he CP-16R reflex camera system is everything you would
rom Cinema Products. And more.
our new CP-16R *miniaturized* BNCR-type lens mount, for instance. It's the kind you get on professional 35mm motion picture studio cameras. With a positive locking ring to hold your lenses securely. And a locating pin to maintain proper lens orientation at all times. With our new reflex CP lens mount system your lenses are protected against any torque-related damage. A mere twist of the locking ring is all it takes to secure even those heavy zooms!

The new CP-16R reflex has really got it all together.

Its spinning mirror shutter, set at a 45° angle, stops automatically in a viewing position. A newly developed erect-image *orientable* viewfinder — designed and manufactured by Cinema Products — locates the eyepiece approximately 1" (25mm) behind the film plane! It is, of course, dioptrically adjustable, with right and left eye viewing. And its highly efficient light transmission system delivers an extremely bright image.

The CP-16R reflex incorporates all the basic features that have made the non-reflex CP-16 the most dependable, best-selling single/double system sound camera of its kind. In addition to crystal controlled sync speeds of 24 or 25 fps, the CP-16R also features variable speeds of 12, 16, 20, 28, 32 and 36 fps. Naturally, you get total System CP-16 compatibility. With the Crystasound recording system, power supplies and camera accessories interchangeable between the reflex and non-reflex models.

The ultra-silent CP-16R reflex. Lightweight. Rugged. Extremely versatile. Ideal for documentary filmmaking as well as TV-newsfilm.

eflex camera shown with Cinema Products'
able viewfinder, with eyepiece located approximately 1" (25mm)
e film plane; Angenieux 9.5-57mm zoom lens, with CP-mount;
4 lightweight 400 ft. (122m) magazine, made of glass-filled Lexan®

For further information, please write to:

cinema products CORPORATION
Technology In The Service Of Creativity
2037 Granville Avenue, Los Angeles, California 90025
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

Radio Must Have A "Personal" Voice— Automation is the Way For Many Stations

Success in radio today demands an individual station "image" carefully fashioned for the specific market, and for many stations, automation makes smooth projection of that image possible. Each station management must commit the time to decide whether or not automation is the way for them. Here are a few basic principles in the choice, as seen first by some of the top-flight program syndicators, and second, by seven stations that use automation successfully.

Automated equipment drew a lot of attention at NAB Convention as this photo of the Gates exhibit shows. Suppliers offering business automation software were also busy. The latter will be the focus of attention next issue.

Radio automation is getting both a "yes" and "no" from station managements on a larger and larger scale. The "yesses" are many and in most cases become extremely positive about results. The good results are often related to the fact that radio automation can now produce a smooth, seamless sound that is also a "personal" sound.

The "noes," though smaller in number, have a logic that station managements need to be aware of when facing the choice of automation. In an accompanying box we have summarized some of the arguments for and against considered by consultants who are interested in the final "sound" on the air, and only secondarily in how the station gets it there.

Those comments, and those of happy "automators" interviewed for this report, emphasize that before automation can be planned or even considered, the station management must know what they want to do with the automation. The station must commit the time, money and effort needed to analyze the market and develop ideas for satisfying the needs of listeners.

This means not only choosing a viable basic programming fare but also creating a station voi through the news, PSA's, local community servi material, ID's etc., that establishes the concern a personality of the station, one that listeners can d pend on and respond to.

How does automation support and facilitate the r quirements essential for successful radio? We c recap the well-known basic virtues of automation follows:

- It can make the switching fast, sure, errorless, for pleasing ease in the on-air sound.
- It allows creative personnel to work at the peak their form, free of the pressures of minute to minu program production.
- The total program package for a day or a week c be planned and fine-tuned, for a more "finishe product, consistently reflecting the station's top skil free of errors and fall-downs.
- A day or week of programming can go on the air planned without any operating attention once t source equipment is loaded, and the controller "p grammed."
- The top program quality can be maintained fr sign-on to sign-off, including periods when the opera ing personnel have been assigned to other jobs, have gone home for the day.
- Very short spots can be run back to back, difficu or impossible with manual switching.

How does automation help project a station's "personality?"

We have already noted the importance of the lo news, weather, PSA's, ID's etc., in this aspect of t station sound. Very careful consideration by the s tion management is required to develop this part the program in a way that will appeal to the statio specific audience, and project the image the mana ment wants. Community projects, local personal programs, contest, or other "feature" material w strong local identification can be added as seems

...r new items were shown at this year's NAB Convention. ...ol Design showed a cartridge drum that could be removed ...lading. Details next issue.

Another new item at NAB was the Schafer Audiofile. The drive system and heads move up and down while the cart remains fixed. Previous systems used a common drive system.

When Not To Automate

Readers have accused us in the past of always stressing the automation success stories. Why not tell us about automation failures they ask? Easier requested than done. People want to talk about what they think they're doing right at the present time—not about past mistakes or shortcomings. Actually the reason for a station dropping automation is fairly simple. Typically, it has been an FM station that decided to give up being a pleasant background music station and to compete, instead, for top ratings in the market.

When a station makes such a move it needs to promote. You don't usually promote automation. You promote the fact that you have just recruited the best known air personality in the area to move over to *your* station. Or you talk about transferring the top Cleveland man into Chicago—or vice versa. You don't rely on a single talent. You employ different guys and gals for different time slots. Now you could put all this expensive talent on automation, but why?

The minute you have a full, or nearly full, complement of talent devoted exclusively to a single station you might as well stay live. It takes time and effort to prerecord everything and to program the automation controller.

It is just such a situation that faced Jerry Norman who became general manager of the Rounsaville station WBJW (AM), Winter Park, Florida (Orange County) a year or so back. Norman wanted to achieve an alive personality sound. You can get an alive sound through automation, but Norman determined that the time to do so wasn't gaining him anything. It was taking just too much time preparing the MOR format material to be put on automation. If he wanted to change a musical selection or the intro to it he had to find that spot on a reel (maybe rewind it if it was on the opposite track) and substitute the new material. He could put the new selection on a cart but then he would have to tell the controller to skip over the selection on the tape and play the cart instead at that time. This required punching tape every day and to then verify that it was all correct. Such a possibility isn't difficult to do with today's gear, but Norman had three year old equipment. He determined that since he had to have somebody at the station 24 hours a day, he might as well be live.

Although some stations prerecord everything simply for a tighter sound, Norman is not sure something isn't lost. You lose some naturalism and the real mood of the moment if you record your comments without hearing the music, or if you're pretending its midnight when it's really ten in the morning. So Norman decided automation wasn't for WBJW. Nor did he give the subject further thought when he transferred to the Rounsaville station WFUN, in Miami.

There is no clear cut answer as to whether to automate or not. BM/E asked some of the program consultants how they advise their clients. Bonneville Broadcast Consultants have issued a position paper on the subject which starts out, "We have discussed this many times with no conclusion as to which is the better approach." "Success," says Bonneville, "is the result of the committment made by owners and management . . . Automation offers consistency, control and flexibility . . . at the same time, automation provides results which are only as good as the material reproduced. In our experience, most shortcomings in format execution via automation are because the time, effort, and money to do the job properly is not spent."

Bonneville says the key word is committment and the person making the decision to automate or to stay live may not be aware of the cost implication of "doing it right."

Jim Shulke, who advises more stations than most consultants and who has automation stations that are number one in their markets—major markets—says there may be no point in automating if there isn't the opportunity to share the same people with more than one station. That is, if an FM station is, say, a sister station to an established AM, then some of the people working for the AMer can be used to run an automated FM station. If the FM is physically separated from the AM and needs its own staff, it might be better off live.

Thomas Krikorian, Radio Programming Management, says that with the newer complex automation equipment, any format can be automated so it's the more subtle considerations that count.

sirable, but every item put on the air must be designed with the utmost care to add to the total effect desired.

Automation can handle this part of the package with ease, putting it together seamlessly with the rest of the programming. In what might be called "complete" automation (more on this below), the short local items are most often handled on single cart machines, put on the air at the right instant by the central control unit. Longer special feature items will ordinarily be on open-reel tape, again switched on the air by the control unit.

The plus value of automation for this material is that the handling of it can exhibit the same smooth, professional finish that applies to the major program items, whether those are supplied by a syndicator or developed by the station itself.

Automation: the various levels

Turning now to automation equipment complements, we recap our report from the recent NAB Convention in Houston: the station operator can go into automation at a wide range of levels. This starts with consoles that can preset ten stages of switching and carry them out in sequence as each program item is completed. (See the simplified unit by Engineer Prior Smith, described on another page in this issue.)

At a middle level, automation can consist in a series of carts with a sequencer that triggers one after the other, using the 25Hz tone; or it can take a great variety of other forms.

What is emerging as a kind of standard package fo "complete" radio program automation includes: central controller with memory; four or more open reel tape players for basic music; two or more multi cart players for commercials (Carousel or Instacar types); several single-play cart machines for locals news, etc.; interface with other audio sources, includ ing turntables, live studios, network, remotes.

The variations in this package will consist mainly in the number of audio sources that can be connected directly to the controller, and in the memory capacity of the controller. More memory means more walk-away time—and higher cost. Several available control units offer a standard memory capacity of around 200(events and 12 audio sources, which might allow a station to set up all program switching for anywhere from a full day to a week, depending on how "busy" the station programming is. Full-week pre-programming is, in fact, not too uncommon today.

All the larger systems offer additional memory or additional capacity for handling audio sources, as extra-cost options. On the technical side, in other words, radio automation now reaches from very inexpensive 10- or 20-step sequence switching to week-long, (or longer) totally automatic switching and call-up of program sources. Station management has to examine its options in the light of available money, personnel, already installed equipment, and decide just how much, or how little, automation makes sense for their operation.

Automation Helped Put Them Up Front: Seven Stations That Say "Yes"

Automation success stories are easy to find. The seven that follow provide some variations on the common themes set forth near the beginning of this report: automation can produce a smooth, closely-controlled, errorless "sound." If combined with a well-chosen program service, it can produce a highly professional, high-talent format that would be difficult or impossible for many stations to create on their own.

But most of these station stories also emphasize the fact stressed by the program suppliers in the foregoing, namely, that the station management has to commit a full measure of time, care, talent, to creating a station image that is "personal," well adapted to the particular market, marked by concern for the audience. Such an image is essential to success, particularly in highly competitive markets.

KBCM-FM, Sioux City, Iowa

This Class C FM station put into operation in March of this year a System Marketing Corporation DP-1, 2000-event "complete" automation system, including four reel-to-reel machines, three carousel units, several single-play cart machines, interface with talk studio. At the same time, the station inaugurated a syndicated program format, the "Big Country" series of Alto Fonius of California.

As Tom Hassenger, a partner in the management, explains, the choice was carefully made with the local competition in mind. No other station in town has a country-music format, nor does any other have the high-gloss finish of a good service plus automation the combination gave KBCM the chance to have the best sound in the market. Three local AM stations emphasize, respectively, news and top 40, rock music MOR. There is also a "religious" FM and an all-classical FM.

The first three months of the new "sound" have fully confirmed the management's wisdom. KBCM has been skirting with the number one spot in the market, and Hassenger believes that before the first year is over they will tie it down.

One of the things he likes about the program service, which comes with a complete voice track, is that he gets some really competent DJ's, and not the young type he had to hire, and frequently rehire, before. He has a word of caution, though: instead of the young DJ, he now needs some technical personnel able to "talk to the automation equipment." This is a more expensive type of personnel, but it tends to be a more stable type, and Hassenger says that overall personnel costs are substantially down.

KBCM emphasizes local news, which goes on every hour on the hour for five minutes. ABC news gets five minutes on the half-hour. Local news gets five minutes on the half-hour. Longer news programs are put in at 7 and 8 in the morning, at noon, and at 5 pm.

PSA's are produced in the station as are local commercials and community service programs. The station is on the air 24 hours a day, and this would sky

continued on page 2

Introducing the new "C." Our best AG-440 yet.

roducing the Ampex AG-440C. Latest model in an un-ken line of the world's most respected professional audio orders. From the company that produced the very first fessional audio tape recorder and has always been the adard of excellence against which all others are measured.

Ever since we produced our first AG-440 unit, delighted 's have been kind enough to share with us their ideas to e a great machine even better. It was user suggestions helped us design the AG-440B, and it was user sug-ions again that inspired the new AG-440C.

Users requested **improved tape handling,** so we installed phire tape guides for less skew, tighter phase stability, and nproved high frequency/high amplitude performance.

Users requested **easier editing,** so we redesigned the trans-to allow tape spilling without going through the tension .

Users requested **motion sensing,** to allow them freedom ush any transport command button at any time, without of breaking the tape or ping a gear. We installed extra circuits and controls ake this possible.

Users requested **automatic monitoring in Sel-Sync mode,** so we made the switchover from output to input channel automatic whenever the Sel-Sync command is "record."

Users requested **more linearity at the high end,** so we extended the high frequency response as far as we could. Now the AG-440C is the world's flattest machine — from 30 to 25,000 Hz.

Users requested **pushbutton record/playback selection** for each channel. The knobs are gone, the buttons are in their place. And you can read the indicators all the way across a studio.

Users requested **stationary capstan mode.** Now you can cue up for a fast start almost as well as with a disk turntable.

Users requested **detent channel setup** for quick, positive return to preset levels following calibration. We complied.

There are a lot more than the eight improvements we listed above, and a few of the new wrinkles came from our labs as the result of continuing research programs. The overall result is the very best professional tape recorder available for broadcast, production, mixdown, or general utility soundwork.

Learn all about the user-designed AG-440C. Send for our free brochure titled BY SPECIAL REQUEST. It'll make you want to join the worldwide club of satisfied Ampex user/designers. Write or call today.

AMPEX

Ampex Corporation
Audio-Video Systems Division
401 Broadway
Redwood City, CA 94063
(415) 367-2011

Circle 116 on Reader Service Card

rocket personnel costs without the automation. Altogether, KBCM is very well pleased with the new regime.

WASA—WHDG-FM, Havre de Grace, Maryland

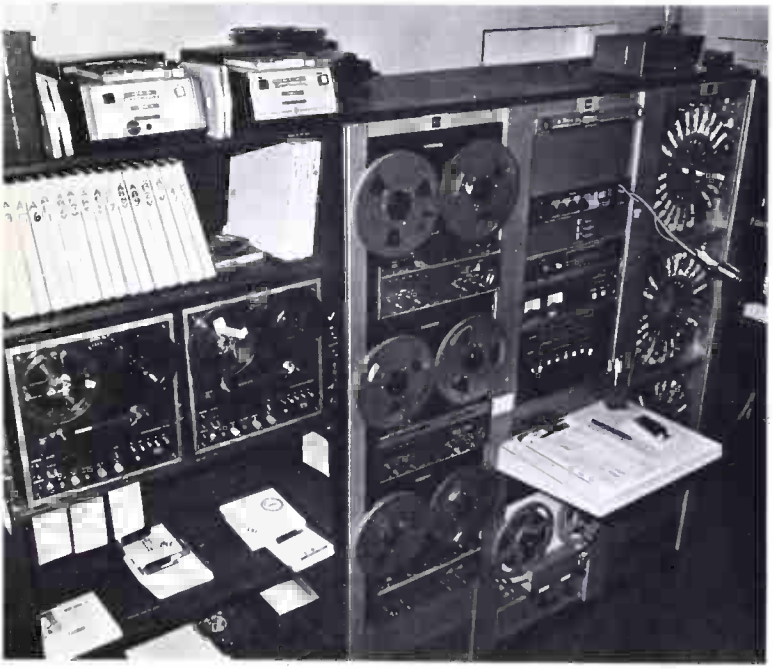
These related stations in this small town north-east of Baltimore have a very strong religious orientation. This is not as the voice of one church or denomination. The stations act as radio disseminators for nearly all the local churches, serving them impartially, and the strongly religious community has responded by giving the stations a large, loyal listening audience.

Mark Manucy, chief engineer, reports the installation of an RCA DAP-5000A automation system, which went on-line January 1st of this year. Some churches are on daily, with short services. In about a half dozen cases, there are permanent remote lines directly to the church, and the material can be recorded on the station's open-reel or cart equipment (depe ing on length) for later integration into the progra or can go on live. The ministers or an assistant in e church are taught to wait for a cue tone from the tomation system, provided over the talk-back circu A second cue tone gives a warning a minute bef time is up. Manucy plans to put a cue button in so churches so that the program producers can key t automation system to proceed to the next segment.

On Sunday, two or three full-length services a broadcast, the churches sharing the air on a rotati basis. The rest of the stations' programming include a number of elements, gospel music, some MOR, number of community service programs. WHDG h a country-music program after 9 pm.

Manucy programs a whole week on his 2000-even system. He says that the station could not recruit lo cally the personnel needed to do the complex pro gramming job smoothly and without error, on a man ual basis. He calls the automation essential to the op eration of the two stations. The management i pleased with the overall performance.

Close-up of the controller of the automation system at WHDG-FM.



Overall view of the RCA DAP-5000A automation system at WHDG-FM.

WEZO-FM, Rochester, N.Y.

This 50 Kw station has built a huge audience, larg enough to make them No. 2 last year in the top 5 markets and No. 7 in the whole country in radio. It i 100% automated and uses the Bonneville progra service of New York, with an "Easy Listening" for mat. From 6 am to midnight, their position in thei local market has consistently been No. 1.

The automation equipment is from CCA and Spar ta, with the recent addition of a Sparta control unit Revox open-reel machines. The equipment configura tion represents a shake-down extending over som time, with the final arrival at a set-up that meets th requirements of the station well.

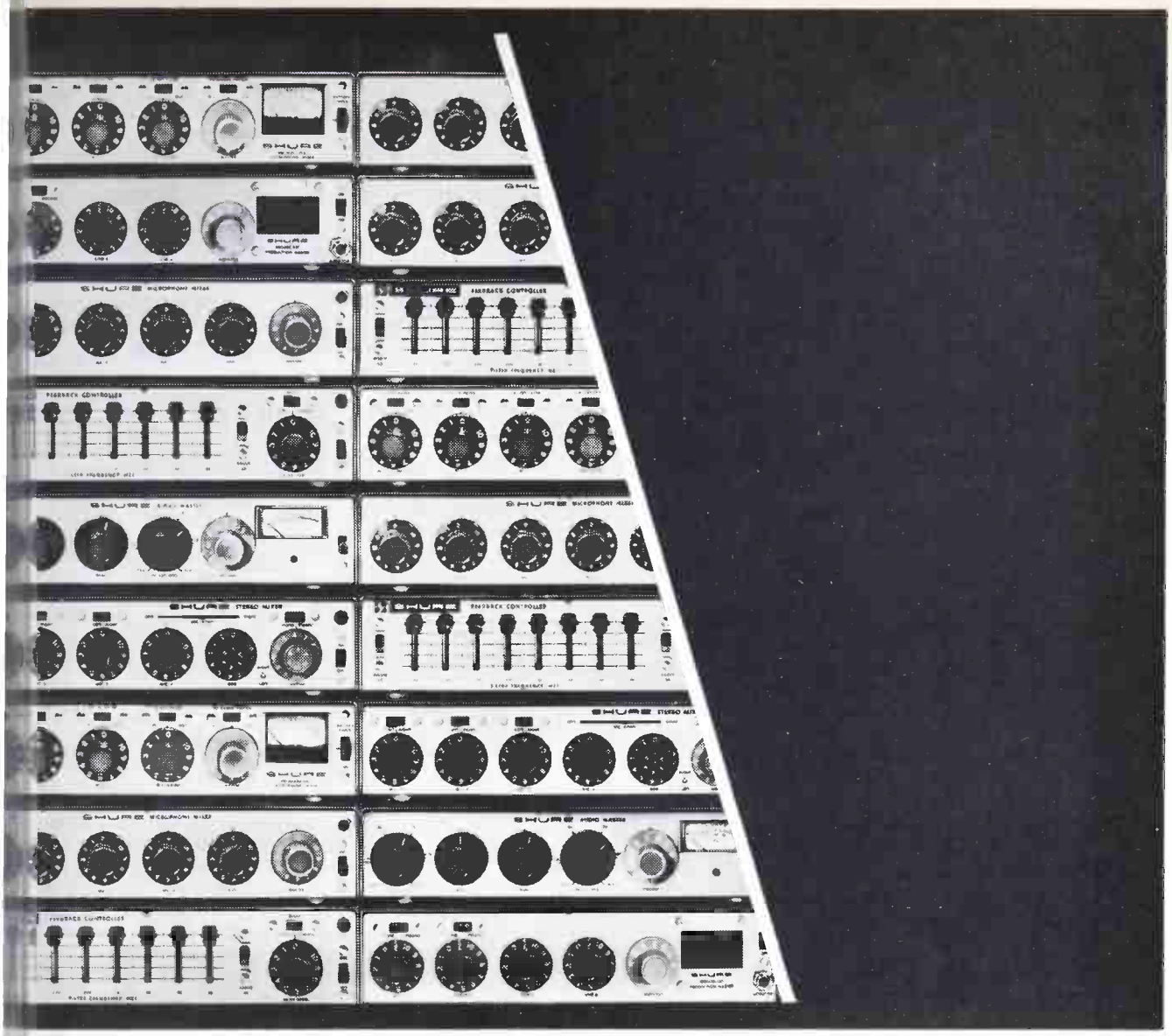
Bill Scarborough, general manager, gives som clues to the success story. He says that personnel ar just as important as equipment, even in an automate station, because radio must be "human," it must no *sound* automated in the old sense of that word. Th station's program direction must study the needs o the market and work constantly to meet those needs the ability to do this goes beyond head knowledge and involves feeling too. The music programmin must be included with other material in a complet package that projects warmth as well as professiona ism.

Loring Fisher, vice president of Bonneville, add this comment to illuminate further the station's story "Why so successful? Because they've done most o the things properly. They have an excellent progra structure, they have created an image for the radi station, they continue to promote it and continue t care about the day-to-day hour-by-hour details tha make the difference between winning and losing i any market situation, no matter how competitive i may be."

WBCS-FM, Milwaukee, Wisc.

This 50 Kw station is another success with the combi nation of a program service and automation. Whe the only station in town specializing in country musi switched to rock, the management of WBCS decide

continued on page 3



It's a mod. mod. modular world.

Simplify, simplify! Instead of paying more for bigger, bulkier audio control components, *pay less* for compact Shure modular components that — singly or in combination—handle critical functions flawlessly. Cases in point: (1) the *M67 and M68 Microphone Mixers,* the original high-performance, low-cost mixers; (2) the *M610 Feedback Controller,* the compact component that permits dramatically increased gain before feedback; (3) the *M63 Audio Master,* that gives almost unlimited response shaping characteristics; (4) the *M688 Stereo Mixer,* for stereo recording and multi-source audio-visual work; (5) the *M675 Broadcast Production Master,* that works with our M67 to create a complete production console (with cuing!) for a fraction of the cost of conventional consoles; and (6) the *SE30 Gated Compressor/Mixer,* (not shown above) with the memory circuit that eliminates "pumping." For more on how to "go modular," write for the Shure Total Communications Components Catalog No. AL280.

Shure Brothers Inc.
222 Hartrey Ave., Evanston, Ill. 60204
In Canada: A. C. Simmonds & Sons, Limited

SHURE®

Circle 117 on Reader Service Card

to go all-out for that slot. They installed an IGM 740 system, and subscribed to the Big Country series of Alto Fonic. After a couple of years of operation, WBCS has climbed several positions in the highly competitive local ratings (there are 17 other stations in town fighting for the audience). WBCS came up from near the bottom to No. 7 rapidly. The management is happy with that, and is also convinced that further advance will be marked up in time.

LeRoy Wolniakowski, vice president and technical director, praises the professionalism of the disc jockeys that come on the voice track with the program service. The station (like several others described here) makes its own news, weather, PSA's community service features, ID's, which are integrated into t format smoothly and easily through the automati system.

KIMM, Rapid City, S. Dakota

This is a 5 Kw sun-up to sunset AM station, a shows another variation on the automation stor James E. Taylor, owner and general manager, lik his SMC DP-1 system for the consistent sound gets, with his "contemporary music" format. KIM puts together the programming at home. Taylor sa he has been studying the various program service but has not reached a decision as to whether to switc

continued on page 3

How to Succeed with Automation: Advice from Drake-Chenault*

The taped formats as we provide them to you are complete—ready to run 24-hours a day. Executed properly they should make you fully competitive with the top stations in your area. We will also give you on-going help on coping with the many aspects of running a successful automated radio station, but there are some things you must do yourself.

Continuing creativity is essential! While a program service provides a music format, it is not an entire radio station. Great skill and care, along with a high degree of professionalism, are necessary from your entire staff if your radio station is to be successful. Your staff will be responsible for: *a.* running the format properly on the automation equipment, *b.* recording and producing commercials, *c.* news, *d.* weather, *e.* public service announcements, *f.* contests and promotions, *g.* developing a strong sales force, *h.* living up to your responsibilities as a broadcaster. Unless all of these things are handled properly, a station will not be fulfilling its potential with any format.

We have long recognized the differences between radio markets. Each market is special, with its own unusual competitive situation. For this reason, one of the most important features in any program service is flexibility.

While automated and so-called "live" stations have many things in common, there are some major differences in emphasis and philosophy. To the listener, of course, there should be little difference. In fact, it has been our experience that most people neither know nor care whether the station they listen to is automated or "live." The listener relates to radio, rather than the mechanics of getting it on the air. Either he likes what he hears or he doesn't and tunes out. Let us not forget that even the "live" radio station is often more than 90% records, recorded commercials and other elements which are not "live."

Both automated and "live" radio have their advantages and disadvantages. One of the things an atuomated station must sound is ALIVE. ALIVE-ness, immediacy, and a wide variety of human qualities, are what tell your audience that your station is people—people connected and concerned with your area.

The principal programming values in an automated station are what we call "The 3C's": Consistency, Cohesion and Concern. *Consistency* is a uniformity of general sound which makes a radio station distinctive. It is vital to success. Listeners must know what to expect from a station, and then must know that they will get it when they tune in. Our formats provide a smooth flow of varying tempos and styles throughout the day, but designed with certain consistent elements of style.

Other things on your station should happen consistently. Basic elements, such as weather, news and PSA's, should be done utilizing the same basic formats day after day. These elements should be designed for the best flow and maximum exposure of your call letters. Of course the most important element in consistency is a properly adjusted automation machine in top operating condition to provide a smooth flow of events day in and day out.

Cohesion relates to the air sound sticking together, making sense to the audience. There must be a feel to your radio station, a sense that everything that happens is one. The audience must not perceive any difference between the program supplied and everything else that happens on the air.

It is your basic station responsibility to rule on the appropriateness of commercial material. Commercial production should be of the highest quality and should, as much as possible, complement, rather than detract from, the overall sound of the format. News, weather, and PSA's should be delivered by the local staff in a style which is consistent with the high standards set by the programming.

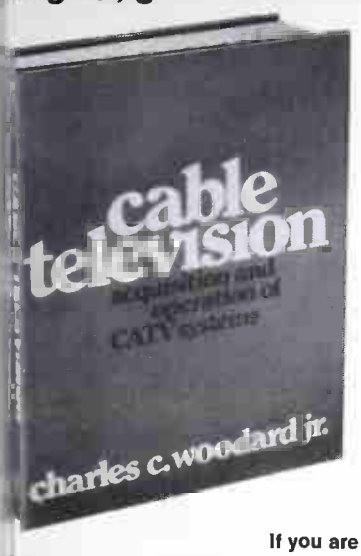
Concern, as expressed in the way the station serves the public, is what creates the personality of your station. "Live" stations relate to individual disc jockey personalities, difficult to control, often uneven in performance. An automated station must develop a station personality, through careful consideration and design of those things other than music which tell the audience what kind of people the station management is. No detail is too small, nothing should be overlooked.

Both the content and delivery of news, weather reports and PSA's go a long way towards telling your audience what your station is all about. Contests and promotions you run must also be selected and designed to create the favorable image

Radio is perhaps the most intimate of the mass media in that it is listened to in an informal way in almost every life situation. The radio listening audience is very sensitive to the image projected—the station management must plan it and work on it!

** Drake-Chenault, Canogo Park, Calif., provides programming to over 130 automation stations around the country. The information here was taken from promotional material provided to clients.*

senting a first-of-its-kind operations guide for cable television owners, nagers, government officials, attorneys, and investors.



Cable television today is undergoing a revolutionary transition from a small-town engineering business with little professional programming to a fully programmed, large-scale communications medium, which will soon be operating in every city across the country. Here is the only available, practical, down-to-earth workbook that deals with the entire range of problems encountered in acquiring and operating CATV systems.

CABLE TELEVISION

Acquisition and Operation of CATV Systems

By Charles C. Woodard, Jr.

288 pages, $27.50

If you are presently in CATV work, ide gives you a wealth of practical know-how, proven tech- and procedures, and hundreds of specific details for gearing eration to perform at maximum efficiency.

re not in CATV but are interested in it as an investment or possibility, the guide summarizes for you the entire field. It you how to evaluate CATV from an investment point of view w to judge the potential of an operation . . . how to determine markets . . . how to draw up contracts . . . and more. This will help you grasp the business realities not only of specific ons, but of the whole CATV industry.

ical working tool. The book is not concerned with the philo- l and political controversies and the social implications of rogramming that have surrounded CATV. Rather it deals with gures, and useful data that you can profitably put to work— n actual operations or in financial analyses.

you understand the necessary CATV technology. Because crucial management decisions are influenced or limited by y technology, the guide gives you sufficient knowledge to tand technical problems so that you can discuss construction erations plans with technical personnel—and then make ed decisions.

you sound advice for evaluating systems. It gives you specific ce on what to do and what not to do, including a simple, formula for determining the relative attractiveness of various ises—and detailed instructions on how to evaluate an existing for possible purchase. It even includes step-by-step pro- s for you and your lawyer to follow when purchasing a system.

you with programming. The guide covers different types of ms for production and cable-cast, including recommendations sonnel and equipment, and provides a careful explanation of ght law as it applies to CATV-produced or originated pro- , a subject of the greatest importance to CATV operators. the many CATV system personnel now engaged in originating ams, and for those who will soon be joining them, the guide es detailed discussions of the points to be covered in talent lm contracts, providing several recommended forms of pro- film, and talent contracts. For many managers these form acts alone will be worth the price of the guide.

s proven marketing methods. Because CATV requires unique ting approaches, the guide includes a detailed discussion of tested marketing techniques, supplemented with valuable sug- ns on the training and effective use of sales personnel.

Gives you valuable advice on operations. As CATV systems grow, effective operations become more crucial. In this area the guide devotes extensive coverage to the complex problems of running a CATV system, from the scheduling and supervision of installers to suggested procedures for disconnects and convertors recovery; installer work efficiency in large systems; plant maintenance and safety procedures; purchasing and control of materials and equipment; and many other vital operations areas.

Here is a sampling of the specific how-to-do-it information you'll find in this authoritative guide . . .

- **How to equip program operations**
- **How to handle program production**
- **How to schedule installation work to get maximum efficiency**
- **How to analyze franchises and systems for possible purchase**
- **What to cover in system purchase contracts**
- **How to issue and recover convertors to minimize losses**
- **How to set up computer billing and accounting**
- **How to enforce safety policies**
- **How to plan construction**
- **How to get additional revenue**

Whatever your involvement with CATV, the scope and usefulness of this practical, first-of-its-kind guide can't be adequately explained here. That's why we invite you to . . .

Examine this practical guide for 10 days– FREE

Look up the guide's coverage of areas you are having problems with, or want to know about.

At the end of 10 days, if you decide that the guide is the kind of reference you need, send in your *tax-deductible* remittance. If not, return it and owe nothing.

But mail the coupon today. It will give you a chance to personally examine—at no risk—the only comprehensive guide in the CATV industry.

TABLE OF CONTENTS

At your bookstore—or mail the coupon today for

10 DAYS' FREE EXAMINATION

McGraw-Hill Book Company
1221 Ave. of the Americas, New York, N.Y. 10020

Send me a copy of CABLE TELEVISION (07-071635-8) for 10 days on approval. At the end of that time, I will either remit $27.50, plus tax, postage, and handling, or return book without further obligation. (Remit in full with this coupon, plus tax, and McGraw-Hill pays postage and handling.)

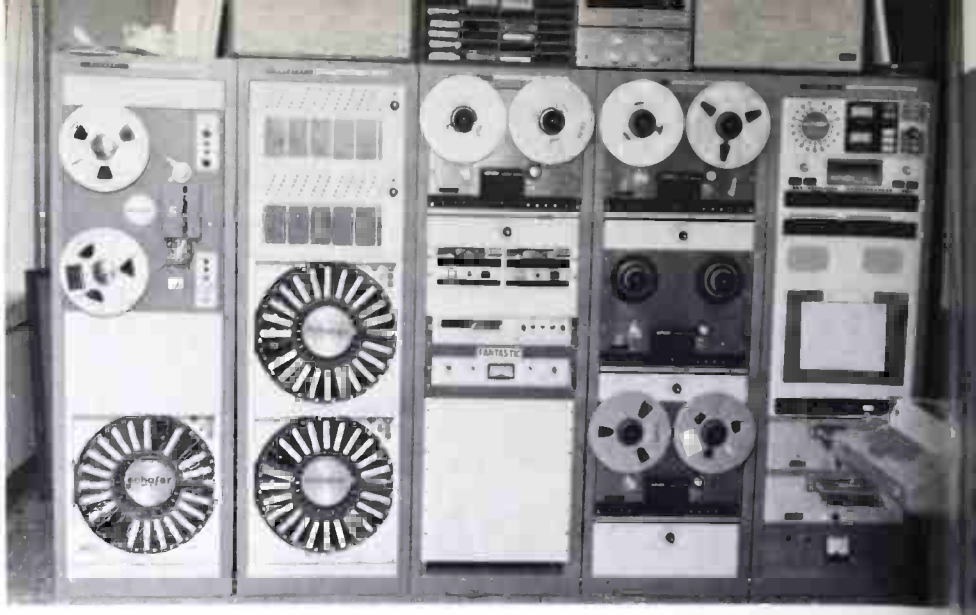
Name _____

Address _____

City _____ State _____ Zip _____

Offer good only in U.S., and subject to acceptance by McGraw-Hill.

23-A568-4000-3



WCSC-AM, a busy station, uses a Schafer 902 system.

over. If he does, his automation system will, of course, absorb the syndicated programming with a minimum of readjustment.

Taylor says that summer evenings, with sunset extending to 9 pm, had presented very difficult personnel problems until he installed the automation system. His key people wanted to go home no later than 6 pm. Hiring a whole shift for the 6 to 9 spot, for a few months a year, was obviously not practical.

Now the automation system carries the switching load through the day and right up to sign-off, whenever that may be. Operating personnel can go home at dinner time and stay. Taylor is far happier and so are his employees.

WKBN-FM, Youngstown, Ohio

This 50 Kw station goes back to 1947, a veteran in FM. (Sister station, WBKN-AM, went on the air in 1926.) Joseph D. Williamson, II, manager, installed a SMC DP-1 in the fall of 1973, with 3 Scully reel-to-reel machines and 6 carousels. The station uses the "Good Music" series of Stereo Radio Productions, New York program supplier. The management is another that works very hard on the station "image," with constant care and attention to the impact of the news, PSA's and other "local" items. The result has been to make WKBN-FM the No. 1 FM'er in the market.

The station also shows the value of automation in "spreading" personnel effectively over two or more station operations. Not only the two radio stations, but also the affiliated WKBN-TV make use of top skills of several of the same key personnel. Automation has proven to be extremely helpful in allowing these men and women to stretch over the three stations without undue strain.

WCSC, Charleston, S. Carolina

Here is a case in which an automation system worked so well in an FM operation that the management decided to automate their AM station too. WCSC, Inc., is a three-station operation: WCSC-AM, 5 Kw day and night; WCSC-FM, 75 kW; and WCSC-TV, Channel 5. The FM station was automated with an IGM Model 600 in the middle of 1970. The clear benefits, a tighter, better controlled sound and more efficient operation, persuaded the management to automate the AM operation as well.

Accordingly, a Schafer 902 went into WCSC-AM in the fall of 1972. At the same time the management inaugurated the Drake-Chenault Hit Parade program series on WCSC-AM. On weekends, the station uses the Drake-Chenault Classic Gold Weekender, an all-oldies series.

These program choices proved to be highly popular with the WCSC audience; listenership is up substantially since the programs started. General Manager Buddy Barton has helped enlarge the audience with a series of well-aimed promotions. For example, on weekends there is a Music Marathon Contest: listeners are invited to guess or count the number of songs played between Friday and Sunday. The closest answer wins $1000 or $1.00 per song, whichever is higher.

Like nearly all successfully automated stations using a program service, WCSC-AM puts heavy emphasis on local, national, and international news. The automation system allows the news coverage to be integrated smoothly with the syndicated programs. Automation also makes it possible for WCSC-AM to tap the time and skills of the large local news staff of WCSC-TV, without putting an undue extra burden on them. The UPI wire supplies most of the national and international coverage.

Chief Engineer R. A. Hughes is extremely pleased with the overall results. He told BM/E that the automation, plus the program service, allowed them to run a varied but smooth programming in a way that would be impossible without the automation. **BM/**

COMING NEXT ISSUE

More on automation. A chart of all radio automation hardware. A list of taped programs for automation. Progress toward automation—interfacing technical operationa and business automation.

Automation – The Trend to Simplicity

by William A. Earman

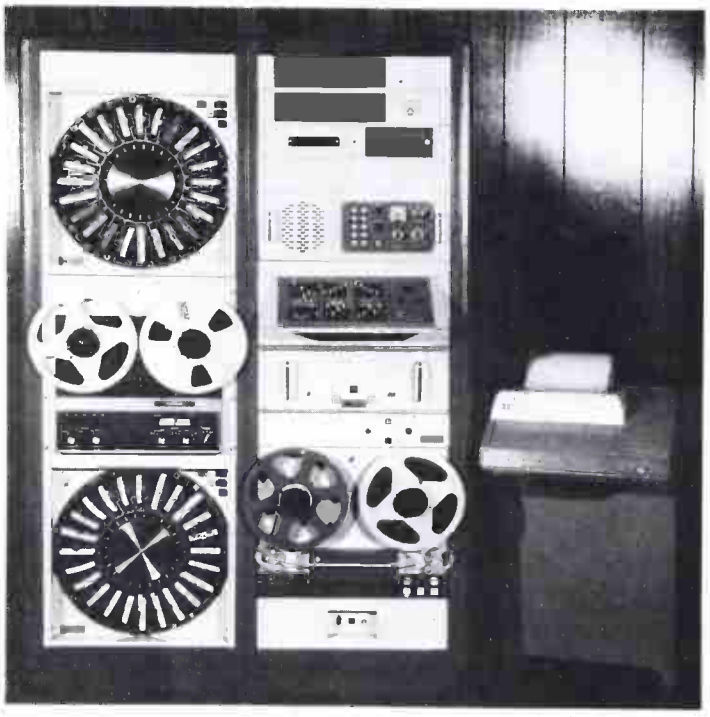
Some practical advice on selecting the right approach to automation and the right equipment

Automation should have two major attributes: it should be easy to service and it should be easy to operate. Put another way, automation equipment must be able to operate the format of a particular station and must also be serviceable by the station personnel. A key decision the buyer of automation equipment has to make is, "Who is going to run it on a day-to-day basis?" The answer to this question is not always the program director—in the smaller operations it is usually the traffic girl that will do the actual "Button Pushing."

How then does the station interested in automation make any sort of meaningful decision as to the type or size of the automation system needed. There are three kinds of automation systems on the market today: Complex format, Sequential format and Manual/Sequential. The distinctions follow.

Complex format. Such systems are generally run by a digital computer, with either a MOS or ferrite core

Mr. Earman is vice-president sales, Systems Marketing Corp.



Typical sequential automation system, the SMC SSP-3060, with logging equipment.

Automation in the Small Station

In many stations, the entire operation is centered on the manager/owner or on a single mainstay personality of that station. How can automation help that station or that person? From many talks with broadcasters, the answer seems to lie with the operation of the station, not with the automation equipment per se. Automation in a broadcast station is much like any other piece of equipment—the transmitter, the console, the turntable, etc.—it does what it was designed to do. Unfortunately the manager of the station often initially looks at the automation as a utopia to solve his production or personnel problems. He will find that while automation is indeed a valuable piece of equipment designed to assist in these areas, it is by no means a substitute for good people. The introduction of automation equipment into a broadcast facility in no way removes the responsibility of that broadcaster to do news and cover local activities.

Automation is an asset to the small station primarily in the area of better time utilization. It allows the production manager to prepare his show in advance then leave the station for a selling trip. The traffic girl (assuming she has a license) is the only one on duty. Automation allows the daytimer in the small market to program his station for the longer days without additional announcing help. Automation allows the small broadcaster to have one program director during the day who can do production, select music and handle the multitude of small details while the "Show Goes On."

Automation, may, in the small station, allow one to eventually reduce salaries to something below 53% of all station expenditures. It must be pointed out, however, that very few stations ever fire anybody when automation comes in—they simply do not hire as many and the normal attrition rate takes care of the problem. This factor is particularly important when keyed to the fact that the new Federal Minimum Wage Law is in effect now and that by the end of the timetable the lowest paid person in the station will be making $2.30 per hour.

In many smaller stations, the manager wants the final authority as to what music is played on his station. Automation is the ideal answer because all music must be either on reel-to-reel or cart and therefore must be selected by someone for dubbing and use on the air.

The key word for automation for the small broadcaster is "control"—control of the air sound, control of salary, control of production time, control of music, etc. The automation is just a tool for management—a tool that the manager will express his faith in just like the transmitter, a tool to be used to achieve more time in the day to do productive things.

emory. A longer memory means more scheduling ne. Computerized systems are generally used in for- its that require lots of events per hour and use a n-repetitive organization of the air sound.

quential format. Generally intended for simple sic formats. The music program supplier may sup- tapes in the proper sequence. Sequential automa- n systems are simpler to operate but are limited in pe as to the number of events and the number of dio sources that can be utilized.

ked Manual/Sequential. Best characterized as a -scheduling device that automatically does the log- g. The announcer usually has two buttons, one is on his mike and the other starts the next event. nual automation is used where the management ats absolute control over the program content ex- t for the air voice of the station's personality.

v to determine the right size

he general test for selecting an automation system he right size is to analyze the pace and commercial l of the station. Take the busiest hour of the bus- day at the station and watch the announcer. ry time he turns something on or off, that is an t. Turn on the mike, one event, etc. Do not count ng or things that occur off the air—just the on-off ats that affect the air sound. At the end of the r you will have between forty and one-hundred twenty events.

there are forty events or less, then the Sequential mation system may do for your format.

• If there are between forty and sixty events in the hour, then a Sequential automation will probably do your format but may require the addition of some type of format expander.

• If you have counted between sixty and eighty events per hour, then you will have to go to a complex format memory system and of course, any number over one hundred will require a digital memory system.

Serviceability and operability

Going back to the two key concepts of this article, *serviceability* and *operability,* can you test for them before you buy, or are they merely rhetoric? The answer is "yes" you can really evaluate equipment.

Regarding serviceability of automation equipment, ask these questions:

Is the proposed equipment laid out electronically in a logical fashion and is all cabling labeled as to source and destination?

Are there any test lights or built-in test circuits to help the station engineer in his analysis?

In the system, is there any reduncancy between units or parts of units, if so, what are they?

What spare parts are included?

What special test equipment is needed and is that included?

Are complete schematics and service books included with a trouble shooting chart?

Is there a manual override systemithat allows manual operation of the audio equipment while the program-

Close-up of the control panel of the digital programmer, DP-1.

A remote control panel for automation equipment.

Automation system with digital control, the SMC DP-1. Alternate configurations might use more reel-to-reel playbacks.

mer is being serviced?
Is there adequate RF shielding? (Specify in your contract that the equipment must work in your station in the face of possible local RF interference).
Who holds the warranty on the various pieces of equipment in your automation system and are those warranties delivered in writing for your file? (Very few if any automation companies make every piece of an automation system).
What training is given to your engineer in the service of the proposed system?
Do you replace an entire card or can you replace individual ICs and transistors?

How is field emergency service done?

It is more difficult to determine operability because it involves the abilities and aptitudes of the proposed operator. As a safe bet you should try to buy a system that the least experienced person on your Traffic/Scheduling/Production/News Staff can operate. Generally speaking, the fewer operational commands you have to remember for the system the easier it will be. Commands such as fade now, network join, start the deadroll tape, turn yourself off, turn yourself on, sequential this event, can be handled by any digital memory system. But you should seek the system with the fewest commands that will accomplish the job you want done. The same rule of thumb applies to the number of files in a computer—look for the lowest number for simplicity. Some possible files would be: master format file, commercial file, subrouting file, time file for a.m., time file for p.m., day file, music file, etc.

Every file is a separate part of the computer memory and must be coordinated with the master file to form the format of the station. Look for the simplest method of doing this for the most complicated format time you have now or can visualize for the future. Flexibility in your system should be considered—you may change your format next year or next month a your system should be able to go from a good mus format to a "voice-over" hard rock format with eas The computer does not care how fast it switches b the humans must be able to understand everythi about it if they are going to properly utilize its talent

Check all competition

In considering automation for your station, by means call every company you can think of that is the business and ask them to send a sales represent tive to visit. Keep notes on what the experts say a then invite the one back that interests you. Keep mind the future.

Expandability of your system should be easy— you find that you need more multiple cartridge ha dlers in the system, then you should be able to b that unit and make up the proper cables and plug it without major renovation to the master control c cuits.

In every automation system made today, the co trol device that sets the format feeds a separate aud switcher device that has "x" numbers of chann

For small automation systems the SMC 4CM-1 Formatter is adequate.

Thumbwheels set up the sequence of sources that will be automatically connected on the Smith automation unit. Light indicates which source is operating.

Silence-sensing, plus a stepping-relay system, will turn up to twenty program sources on and off in any order wanted

Radio station operators who don't want all-day, walk-away automation, but who could use a modestly priced, very simple system that will handle up to 20 program sources at a time (which could cover anywhere from 30 minutes to more than an hour at many stations), ought to take a look at an ingenious unit developed by Chief Engineer Pryer C. Smith at station KULY, Ulysses, Kansas. Mr. Smith has advised **BM/E** that his system is being patented and readied for marketing, with the price expected to be in the area of $2000.

The system is silence-triggered: when a program source comes to its end, an electronic silence-sensor waits a short period (adjustable from under one second to several seconds) and then activates a stepping relay that moves ahead one step to turn on the next program source.

The sequence is chosen by a series of thumbwheel switches on the front panel. Each switch can be set to key a program source, which can be anything available in the studio: discs, open-reel tape, carts, carousels, anything. Once the wheels are set, a start switch begins the sequence. Changes can be made at any time in advance of the sequence spot reached: indicator lights tell the operator what step the unit has reached.

At the end of a program segment, an announcer can "hold" the system by talking to fill the silence period, with the sequence recommencing when he stops talking long enough to trigger the silence-sensor.

Inquiries should go to Mr. Smith at Box 187, Ulysses, KS 67880.

it in. In planning for your station, make sure that audio switcher has a couple of audio input chan- spare from what you will actually use; thus, you e the backup for expansion or by moving a plug or , a backup for breakdown.

brief:

f your station is considering automation, talk to ple: talk to the engineers who are running systems, to the companies that make the equipment, talk he program directors that run the systems, talk to music companies that utilize the equipment for ir formats. **BM/E**

Local Mini Plus Main Headquarters Computer —A Sales Oriented Team

Business automation services have learned how to give maximum day-to-day support to broadcast sales and traffic departments. Jefferson Data Systems offers a good example of just how this is done. System uses a mini computer at the station for front-line support, linked to a large computer back at headquarters for mass-data back-up.

Mini-computer used "on location" in Jefferson Data's "System 80" is the Sycor 340B. Entire unit can be seen on table top, at lower right in photo. CRT display screen, on which entries can be read before insertion in memory, is at left end of upper panel. Cassett tape memories are inserted at right of upper panel. Keyboard includes alphanumeric keys plus function keys, and is entry not only to mini computer but to main computers, via telephone line.

In the early days of computerized data processing fo broadcasters, the systems often imposed new, ver rigid ways of doing things on operating personne One frequent complaint was that the computer wa running the sales department, and everyone agree that the computer was not a good salesman.

The better systems available today have buried tha complaint. Computer systems' designers are aiming t give sales departments flexible, responsive aid. User still have to learn some new practices when any com puterized data system is installed, but once the basi mechanics of using the system have been absorbe into the operations plan, the help the computer ca give the sales department is abundant and quickl adaptable to day-to-day, hour-to-hour needs.

Take a look at "System 80," data service sold t broadcasters around the country by Jefferson Dat Systems of Charlotte, N.C. The service grew out of computer system installed, beginning in 1969, in sta tions owned by Jefferson's parent company, Jefferso Pilot Broadcasting. WBT in Charlotte is the "home station; others are in Greensboro, N.C. and Rich mond, VA.

WTOP likes the "fine tuning" they get from Jefferson

Data service suppliers plan today to work with their clients over a period of time to adapt each system closely to the station's needs. An example is in progress at WTOP-TV, Post-Newsweek station in Washington, D.C. James Connor, operations manager, says he is happy with their Jefferson Data Systems installation and convinced it will meet all the station's needs, particularly since Jefferson is continuing to work with them in fine-tuning the system. "The top values in a data processing system can be fully captured only after some operating experience has taught a station precisely what to ask for," says Connor. "The supplier has to be ready to help the station adjust the system to get exact answers."

ing the company's experience to aid in system n, Jefferson Data has formulated a mini-main puter configuration that puts two minis in each sion station (one in radio stations), linked by hone lines to the main computers at headquarters arlotte.

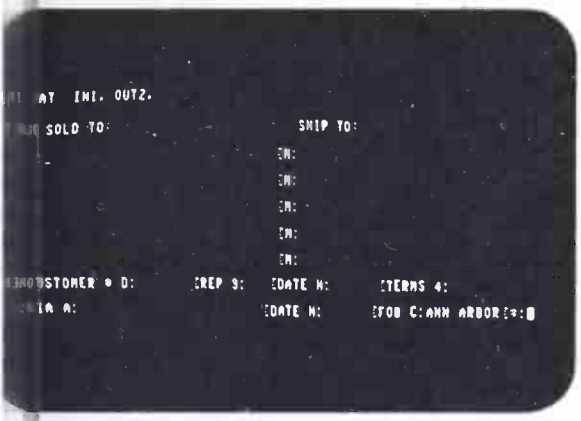
e minis are Sycor 340B's, which are compact, ontained units with enough memory and pro- g capabilities for at-hand preparation of sales, bility, program logs, and other materials quick- ded by the sales and traffic departments. Each has a keyboard, a CRT display to check entries, snap-in tape cassette memory system.

so at each location is a Sycor 3842 high-speed r, which can turn out up to 200 lines a minute, making any data needed by sales and traffic departments available in short order.

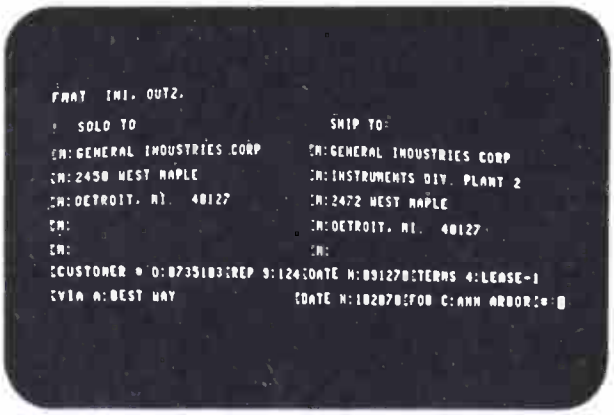
The mini computer is also the entry and read-out unit for the main computers in Charlotte, which are two Honeywell G-130's. The mini keyboard, on command, will send data to the main computer via telephone line; or the mini memory can forward material to Charlotte. The print-out will take data from Charlotte. Mini and main, that is, talk to each other freely.

And they can do it at night, when everybody has gone home. Large batches of data can be sent to and received from the large computers while the offices are closed, and long distance telephone rates are low.

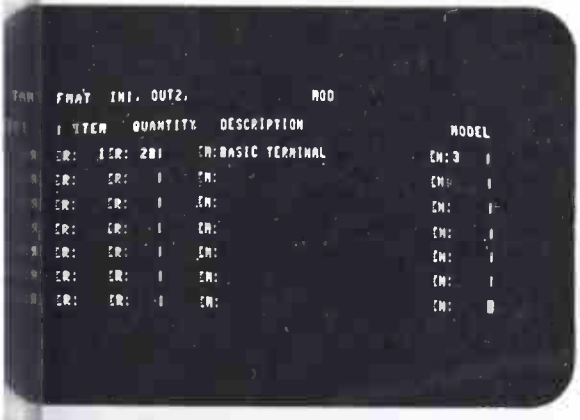
The Sycor tape-cassette memories hold 16,000 characters each; the keyboard has standard typewrit-



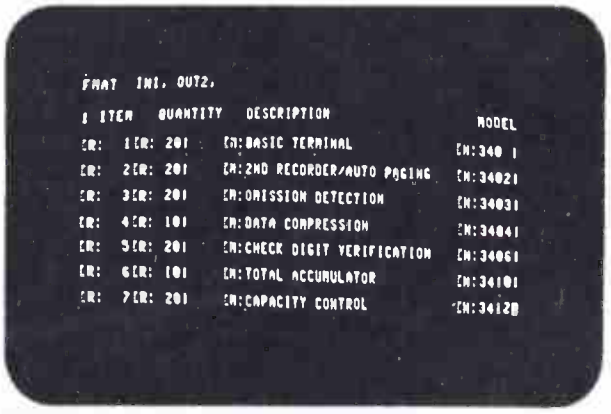
tep by step entry method cuts errors on Mini- uter: After the operator defines the input, and format devices to be used, the first f the format program is automatically read assette tape and displayed on the CRT. The r begins keying data, and as each er is entered it is checked for proper mode. the field is completed, the cursor tically moves to the first character position next field.



In this example the customer was automatically verified by the terminal, the Capacity Control Feature insured that the Rep field was completed to required capacity, and the Omission Detection Feature insured that the Terms field could not be omitted. The operator may make any necessary corrections simply by positioning the cursor and re-keying data. Then, by depressing one key, all the data is written onto tape.



xt page of the format program defines the Order. Note that an incorrect character was d into the Model field which the terminal has cepted. The error message, MOD, is ed, an error alarm sounds, and the keyboard



When seven items have been entered, the data is written onto tape, the data portion of the display is cleared, and the process is repeated, seven items at a time, until all items on the current order have been entered. The operator then depresses a key for page one of the format program, and continues with the next order.

er configuration, plus 10 numeric keys, plus function keys; the CRT display can show up to about 500 characters for checking each entry before it is out into memory. Programmed format control can be set up so that the operator is guided rough entry, line by line and field by field, and errors are quickly detected in the display.

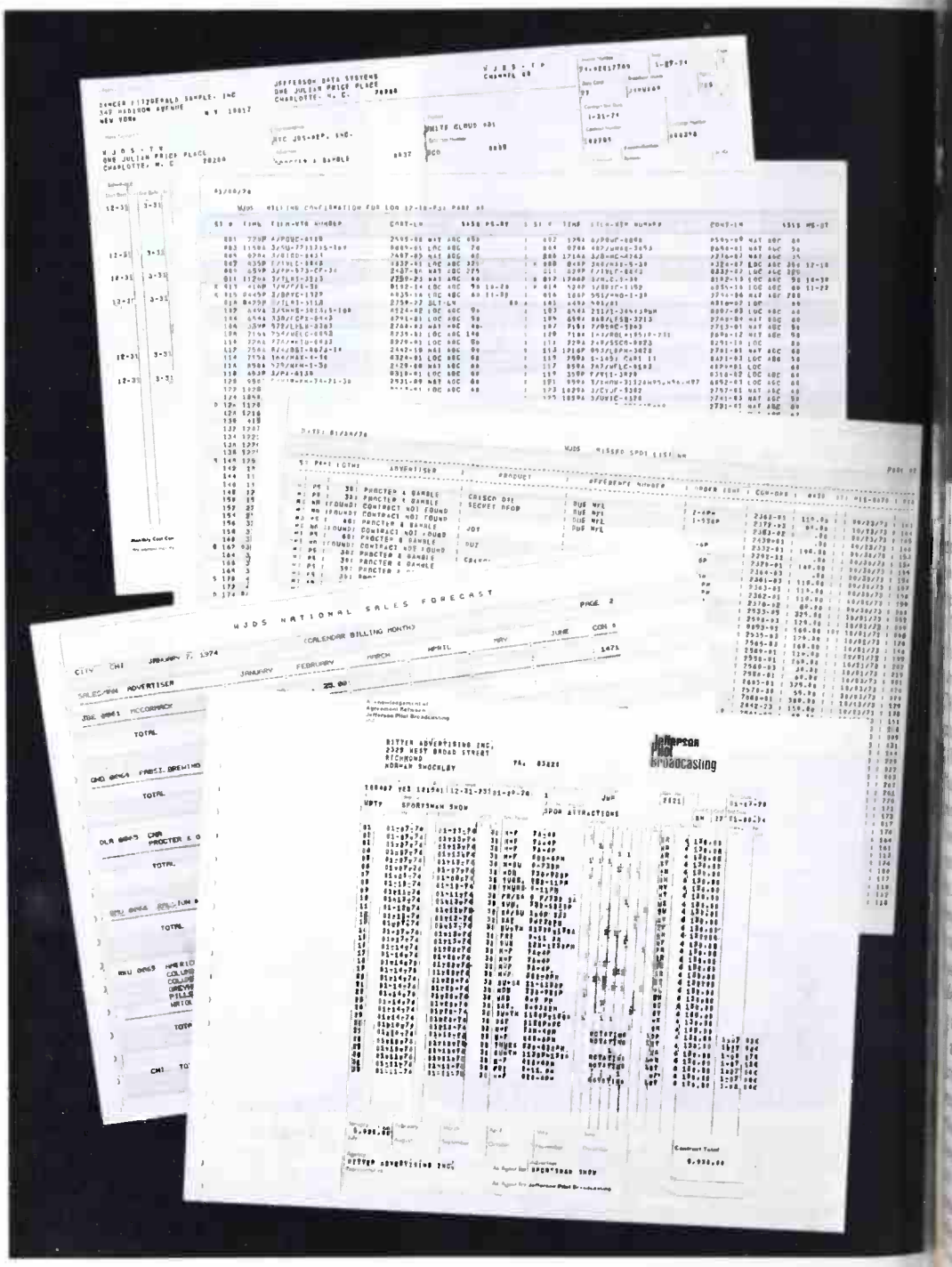
Planned for late 1974 is a "floppy disc" memory system for the Sycor unit; each disc will hold about five times the data on a tape cassette.

To make the plan of the system more specific, here are some main features of the sales and traffic data operations:

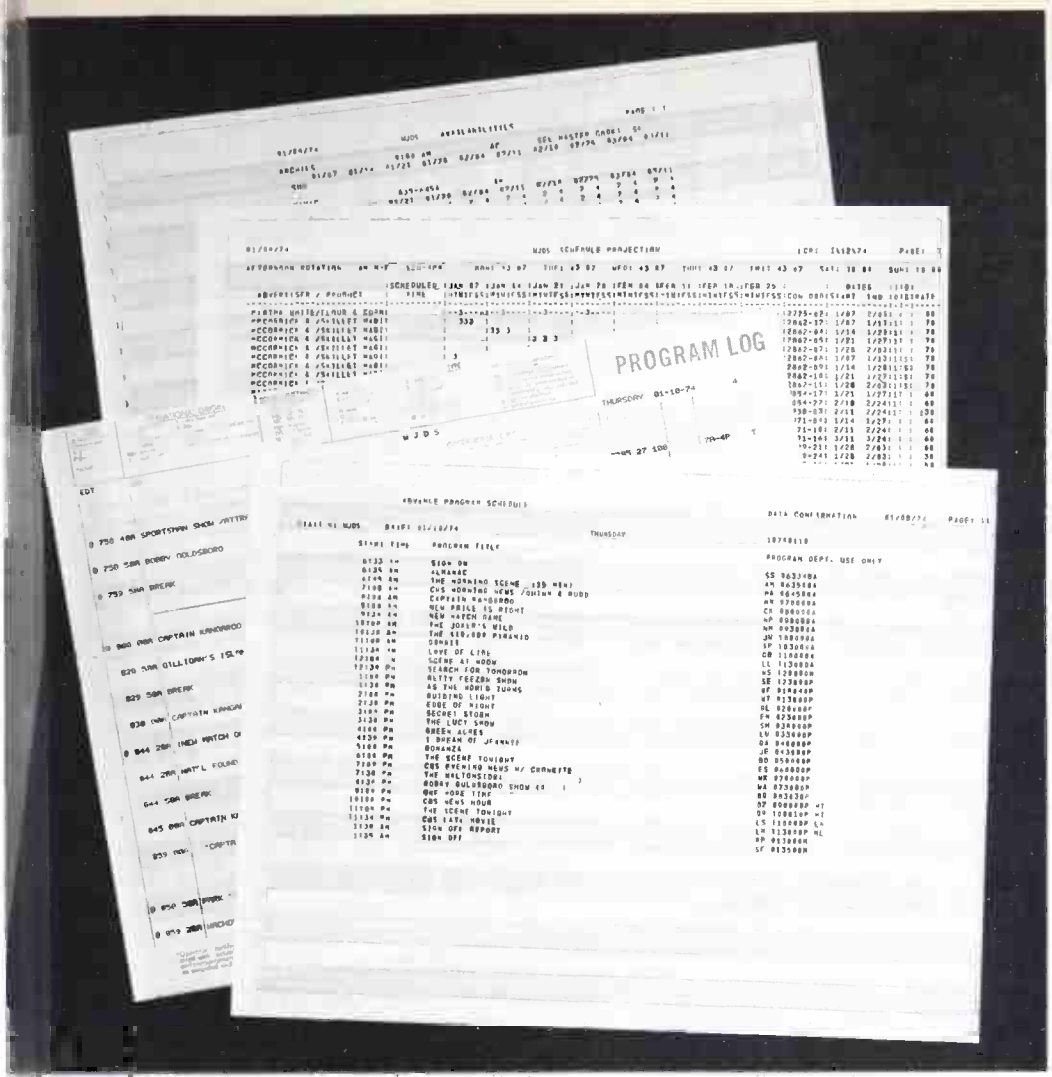
• The approach is to get the business "in the door" when it is available, allowing the mini computer to juggle the schedules only when the program log is generated, not weeks in advance when programmin has not been locked down. Large volumes of sales o ders can be booked quickly and efficiently, witho waiting for the distant computer to place or plot eac commercial days or weeks in advance.

• To carry out this plan, programming changes ar treated as variations on a standard day's log, alread resident in the system; and commercials, as noted, ar never locked down until the day's final log is generat ed. All programs and their associated log formats a stored in the system and catalogued by a two-digi alpha code. It is easy to readjust an entire day's pro gram, if necessary, by entering new program cod and their associated start times.

• The usual spot scheduling requirements are easil met; for example, horizontal rotation of commercial



Some of reports produced on short order by mini-computer are (from bottom) confirmation of sales contract; national sales forecast, showing all order for six months out; a missed spot listing; a detailed billing confirmation, showing each spot with the time it ran; and, at top, the standard invoice.



Reports from mini-computer relating to scheduling are, from bottom, the advanced program schedule, listing of each program with scheduled time; the complete program log; a schedule projection showing every spot for ten weeks by advertiser, with all program parameters; and, at top, the availabilities report.

s a broadcast week, or fixed-day buys can be set a schedule-by-schedule basis at the discretion of ales department.

e billing procedures include a pre-run on invoices generates only out-of-balance invoices, so that rections can be made before the final standard invoices are produced. This eliminates hand- corrections on final bills.

e principal standard forms and reports, closely ed to sales, that have been found most useful by stations, include the following:

ract confirmations—printed every morning from keyed-in up to the close of business the day be- The entire contract is reprinted in amended form ever a change is made, eliminating the keeping nmerous amendment notices that must be added original.

forecasts—usually generated once a week, giv- detailed breakdown of all business on the books, contract by contract basis, for six months out. ent month will include actual to-date billing plus ast. Contract can be shown alphabetically by ad- ser, by salesman, with city totals for national ess. Salesman totals, plus national, regional and total can be shown. This shows the sales man- ent what it can expect to invoice, in a very com- ensive way.

name-address list—A complete list of advertisers can be had in a few minutes, on request.

Availabilities—Complete report on availabilities can be printed every morning, covering, say, ten weeks ahead and shown on a day-by-day, week-by-week basis. One feature that reflects the sales orientation of the software is the allowance in the availability report for oversell during periods of heavy selling. As already noted, sales do not wait on complete scheduling days or weeks ahead; commercials are not locked down that far. An oversell turns up as a minus number in the program slot involved—for example, a −4 in a certain program column indicates that it is oversold to the extent of four spots. The sales department can then decide how to handle the oversell, by preempting spots or by allowing the computer to juggle future programs. The availabilities report, thus, acts merely as a *model* based on data in hand at any given time, and it helps guide the sales department in making the decisions that will be reflected in the final program log, which is produced by simple corrections to the standard log (see below). Each day's availabilities report can be marked up in pencil; a fresh one reflecting all the day's changes will be printed early the next morning; or it can be run off later the same day if needed.

Schedule projection—This is produced daily and is the opposite of the availabilities report. It shows every

continued on page 64

Watch Out: Super VTR At Work

by Leo P. Demers, Jr.

A broadcast videotape operator sees some dangers in having a automatic VTR that "forgives" a basketful of tape faults and is "about as difficult to operate as a pinball machine." He recommends certain standards not be dropped.

I walked into the tape room, about to meet the AVR-1 for the first time. With all that I had heard about it, I felt the excitement a little boy feels when he first meets Santa Claus in a department store. The videotape operator's introduction went something like, "Well there she is! She's a honey . . . the best tape machine you'll ever operate. You don't have to do a thing; she does everything for you." I closed one eye in a squint of disbelief. "This machine will playba *anything*!," he said. It all sounded too good to be tru

Since the AVR-1 is about as difficult to operate a pinball machine, it would make a tape operator o of anyone who stood in front of it. But—and it's a b but—therein lies the problem. I read somewhere th you don't get something for nothing. This sudden i novation had to cost someone something, and what was costing became more apparent every day.

While using the AVR-1 and watching experienc operators use it, I began to see a steady deteriorati of videotape standards. All the usual problems e countered while recording, playing or editing vide tape were still there, but they were so well-hidden the AVR-1's ability to "play back anything," th didn't appear to be worth causing anyone conce Bad tape, drop-outs, bad edits, non-standard or l control track . . . no matter what the problem, th machine consistently put out a great picture. This w putting the videotape operators into a state of fal complacency.

The feeling became, "If the AVR-1 isn't concern about it, I'm not going to be." This attitude develo in your mind and is the prime factor that causes t videotape standards to drop. The AVR-1 will acce videotapes that have relaxed standards and still t results will remain excellent. This can result in a co plete lack of pride in one's work. Without pride in a complishment, motivation for good work habits b comes nil.

The problem really shows up when a tape is shipp to another station not so fortunate as to own an AV 1, and you get the tape back the next day accomp nied by a note containing not only various levels character assassination, while questioning your sani but also, and more seriously, doubting your ability judge a good tape from a bad one. If your videota facility is equipped with other quad machines in ad tion to the AVR-1, and you don't usually ship ta out of the house, the problem will cause more sub

WCVB-TV is well equipped with AVR-1s.

Mr. Demers is a VTR operator at WCVB-TV, B ton.

ptoms to show up eventually. Every so often you'll a tape for playback labeled "Play on an AVR-1 ." This is the record operator's method of ex- sing his opinion of the tapes technical standards. , the leader-end of the reel of tape is never clean it usually looks as though someone bit it off.

et's look at what might cause some of these symp- to appear. Sometimes while editing, you will age input sources and reels of tape without reset- tach-phase. The tach-phase is set at the begin- of the edit-session and then forgotten. The edits play back on an AVR-1; but if you monitor od Out, you'll usually find a less than acceptable If the edit doesn't lock on Demod Out, it won't on other broadcast tape machines. If you monitor AVR-1 output, the bad edit will look fine. So you check your edits, look at them on Demod o get a true indication.

e high speed shuttle will cause a few problems, *if et it*. It's a good practice never to leave a video- machine while it's in the rewind mode, especially VR-1. If you allow the full-speed rewind to con- to the end of the tape, a couple of things happen. tape reel will stop rewinding before the tape This causes a sizeable fold-over or bubble of which will usually put at least two lateral creas- the tape.

he operator should overlook this bubble of tape ave in on the reel, the next operator who plays pe will be in for a surprise. When the commer- r program is playing, the sudden excess of tape the fold-over will cause the tape machine to to a dead stop. It's a most disarming event when pens on the air and tends to bring the most sea- tape operator to his knees crying, "Why me?"

e other thing that happens is the shredding at d of the tape, which is literally whipped at high through the transport. A shredded, wrinkled nd deposits heavy amounts of oxide throughout ansport and will age a video head more than a few minutes each time it is allowed to whip through. Pieces of tape of all sizes fly off the end and usually find their way into the VTR's vacuum system. Consistent cleaning is most important. If your tape machine is equipped with an "end-of-tape sensor" you most likely will not encounter this problem.

I've heard a few operators say the AVR-1 doesn't require the transport cleaning attention that the other video tape machines require. This couldn't be further from the truth. A good rule is to clean all parts of the transport that come in contact with the front or back of the videotape. The transport areas most frequently overlooked while cleaning are: the control track head, the retractable vacuum guide, and the air guides located at the outer ends of the vacuum column. A heavy tar-like build-up fills these air outlets, defeating their purpose and reducing tape life. These air guide grooves and air pinholes must be given individual cleaning attention.

Some facilities equip their AVR's with the optional Trinitron color monitor. This compounds the problem of hiding reality from the tape operator. The Trinitron is, in my opinion, a very forgiving monitor. I remember trying to convince a station executive that some of the tapes in our library had been over-used and were unfit for broadcast. I was demonstrating a bad tape, (scratches, drop-outs, edge damage—you name it), on an AVR-1 equipped with a Trinitron monitor. I fell flat on my face.

So if you are one of those tape operators who were weaned on the original recorders that introduced videotape to television and first edited tape with a razor and microscope, don't rest on your laurels thinking that easier times have arrived or good operating practices will be going the way of the dinosaur. Remember, out in the real world everyone doesn't own an AVR-1.

Yep, she's truly a beautiful machine. But don't let her personality swoon you into dropping your standards. **BM/E**

Total Automation on the Way at WTCN

WTCN-TV will have a new look in both traffic and operations in coming months according to Hal Christiansen, Metromedia Comptroller. Metromedia installed the BCS traffic management system at WTCN in June with options for their other stations later.

WTCN also announced the installation of a CDL APC 610-200 switching system from Central Dynamics, Ltd., Montreal. The APC 610-200 is a fully automated operations control package driven by a Digital Equipment Corporation PDP-11 minicomputer—same type as that used in the BCS 1105 system.

According to Jack Finlayson, BCS Manager for Kaman, the two systems will be connected by a hard-wired communications link that will carry a spot from order confirmation through air—time—all by computer.

"Metromedia recognized the opportunity to complete the traffic-to-production link at WTCN and both Kaman and Central Dynamics agreed," Finlayson said. "since we use the same minicomputer as CDL, it's only a short step to pass BCS traffic data to CDL control software on a computer-to-computer hookup," he added.

Finlayson reflected further on the breakthrough, saying "When we first introduced automated traffic to the industry back in 1968, we envisioned a time when our BCS system would feed a production system. So, while automation was spreading to include virtually all facets of the broadcast business, we continued to focus our attention on serving the station itself. Now our improvements to station operations are paying off for the entire industry by smoothly taking order from confirmation through airtime to billing—all by computer."

Metromedia, headquartered in Los Angeles, has a total of six stations, all in the top twenty-five markets. Kaman Sciences Corp., vendor of the BCS traffic management service is located in Colorado Springs, Colorado.

Next Month in BM/E: Further details on progress toward total automation.

GREAT IDEA CONTEST

Although BM/E is swamped with enough entries to finish out the contest, we'll consider that Great Idea you've been thinking about sending in, if it gets here by July 31. The best entry, determined by reader votes, garners a Windjammer cruise for two in the Carribean—and that's a great idea!

Entry response to the BM/E Great Idea contest has been so overwhelming that we now must reluctantly set a cutoff date for new Great Ideas. In order to give all entrants an even chance to win, we will publish your Great Idea entry as space permits, but only if it is postmarked no later than July 31. To enter the contest, read the rules to determine your eligibility, and then fill out the entry form and attach it to your own Great Idea before submitting it.

Starting with this issue, we've made it easier to vote. A section of the Reader Service Card is now set aside for Great Idea contest balloting. You can either mark your votes on this card, or use the Great Idea vote ballot found on page 48.

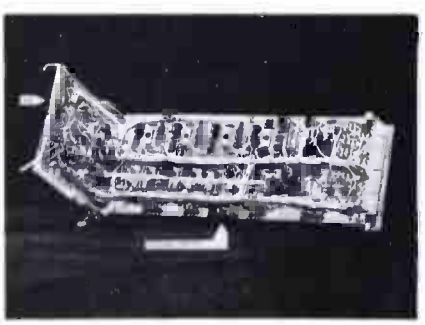
Comments written on the Reader Service Card in the past, indicate that many of our readers enjoy the contest. Needless to say, we're gratified by this postal feedback. But we're also a little puzzled. Some of you who have taken the time to write in response to the contest, forgot to vote! So, please vote. Since we will determine the contest winner from the number of votes received, these ballots are as important as the Great Idea entries themselves.

45. Contour Clipper Despikes the TK-44.

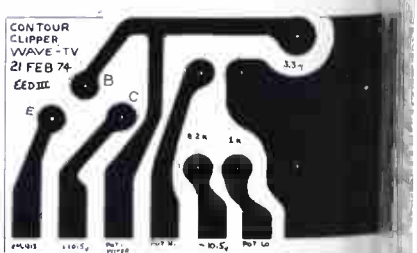
Elden D. DuRand III, Staff Engineer, WAVE-TV, Louisville, Ky.

Problem: To eliminate chroma spikes by clipping the video contour signal.

Some cameras, like the RCA-TK 44 series A and B, may exhibit excess contour enhancement when adjusted for optimum scene sharpness.



Contour enhancement circu generate spikes used to simulate fast transition between areas of d fering contrast. The effect usua appears as a white shadow arou areas of differing contrast on t monitor.



But when taping on overly c picture due to excess contour hancement, the contour signal ca es the modulator in the VTR to ov deviate. When played back, the t exhibits black streaking in ar where spikes caused excess modu tion.

Sometimes these spikes cannot seen too well on the scope w playing the tape back, even with scope brightness control turned

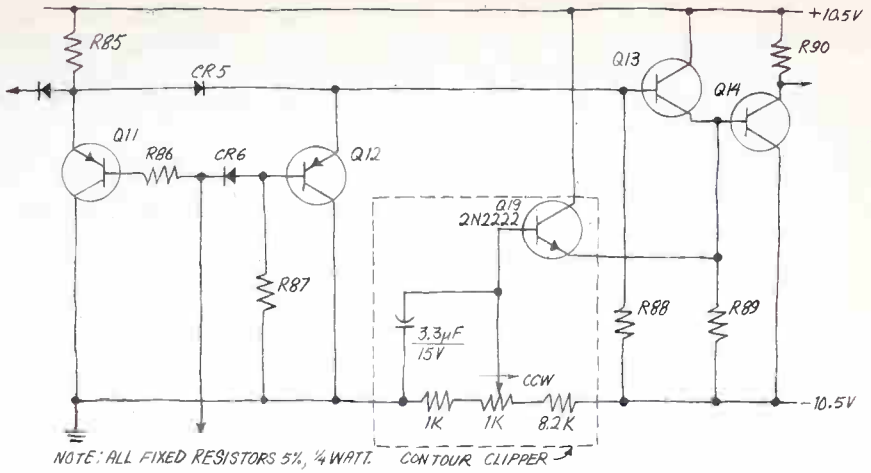
the way.

Solution: The contour clipper removes the top of the contour spikes, but leaves the crispness information in the video signal. An in-house designed circuit board, adapted from *TA Service Company's* design for this type of circuit, mounts all the components on the colorplexer module. The potentiometer, shown in the schematic, is situated in a previously unused hole found on the colorplexer front panel.

The additional components consist of a DC amplifier which uses module resistor R89 (the emitter load of Q19 in the colorplexer luminance board) as its load. This add-on amplifier, Q19, sets the cutoff point of the clipper, and causes it to clip the contour signal before the subcarrier is added.

The etched circuit board measures 2 in. × ¾-in. Use a 1/16-in. fiber washer as a spacer between the boards, or cement a piece of fish paper between the add-on board and the colorplexer module. Make sure when mounting the signal clipper to establish a good ground. Use a separate ground wire for best results.

The front panel hole in which the pot is mounted is located between two miniature toggle switches. The bottom edge of the hole is covered by the front panel. This is made of a thin aluminum plate which is cemented in place.



Excess crispness generated by a camera, over-deviates the VTR modulator. When the tape is played back, the distorted picture shows a black haze surrounding areas of high contrast in the recorded scene. Clipper, consisting of Q19 and associated parts, is built into an RCA TK-44 series B camera, and regulates the camera's contour signal amplitude.

16 Intro Timer For DJs.

Donald Hallikainen, Chief Engineer, KSLY-FM, San Luis Obisop, Calif.

Problem: To aid an inexperienced radio boardman maintain tight programming.

Part-time DJ-engineers for Top-40 stations are invariably kept busy. The idea is to keep the music moving but programming requires that the DJ is going to intro the next record, he has to do it at the instrumental beginning or fade of a record. It is possible to watch the sweep hand on the wall clock and note where the record started, and then quickly calculate when to finish talking. But the jock who also has to prepare the news, cue records, etc., is always a little slow and ultimately

Solution: A photo timer, set to the amount of intro time desired, is started simultaneously with the record. While the DJ is already airing a record, he sets the timer hands to the amount of time needed for the next record's intro. This has already been marked on the record by the music director.

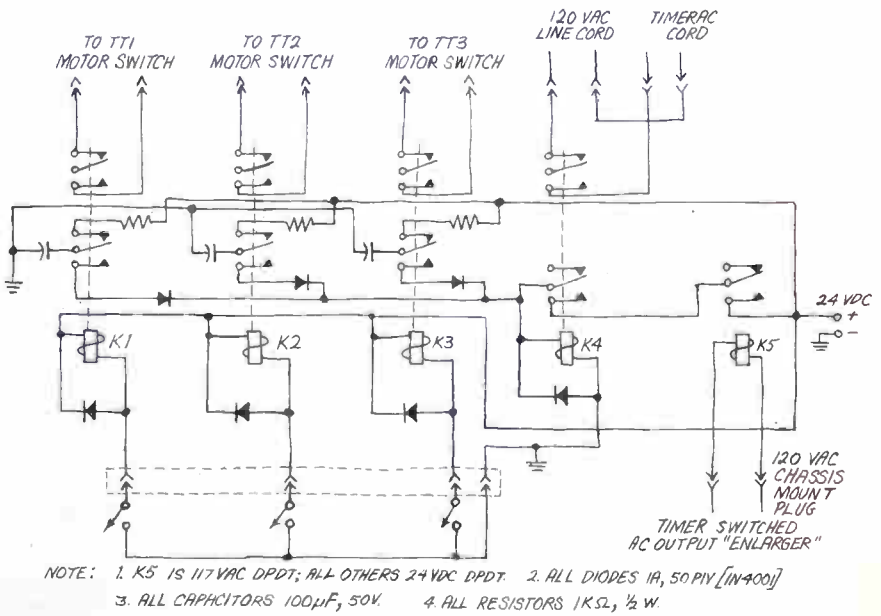
When the DJ starts his next turntable, the timer also starts. Opening his mike, the jock talks until the timer hits "zero."

The timer is activated when the turntable starts, rather than when the operator cues the table. This enables the DJ to set up for his next record while he has one on the air. The timer is marked with Power Input, Enlarger Output, and a Safelight Output (not used).

When the switch activating Turntable One (TT1) is closed, K1 is operated. This applies power to the motor of TT1. It also discharges electrolytic capacitor C1 via D1 through the coil of K4, and activates it momentarily. When K4 is activated, and the timer is properly set, line power is applied to the Enlarger Output socket. Relay K5 pulls in, and locks K4. The timer continues to operate until it reaches zero. Now K5 releases, as does K4.

While the record is being played on TT1, the timer can be reset to correspond to the intro time noted on the next record. When the next turntable starts, the process repeats itself. When a turntable is stopped, the corresponding capacitor is charged through the resistor, and is

Continued on page 46



When Cue/Program switch, labelled S1. S2 and S3 (built into the board fader pots) is closed, turntable TT1, TT2, or TT3 is activated. Simultaneously, 117 VAC is supplied to the timer which begins to count down to "zero." Prior to opening the fader, the DJ has set the timer's hand so it points to the exact number of seconds needed to lead into the next tune, the intro time having been previously logged on the disc label by the station's music director.

again ready for use.

The relay contacts used to start the turntables are connected across the switch on each turntable. The switch on the turntable now is used to cue a record.

The turntable start switches S1-S3 are the Audition/Program switches on the board. If desired, they can be connected in series with the pot contacts which open when the pot is in the Cue position, and close when the pot is turned up. To start a record, the DJ brings up the pot ahead of time, and then flips the switch to the Program position. He now knows exactly how much time he has. When the record is over, he pots down to the Cue position, and the record stops.

There is a possibility of spikes generated at the closing of some of the contacts entering into the program channel. If this is a problem, wire a capacitor across the contacts of the relays and switches, especially those switching AC. Also connect a capacitor across the switch inside the timer.

47. Motor-Driven Coupler Eliminates Limit Switches.

Manuel Taitz, Transmitter Supervisor, WSB-AM, Atlanta, Ga.

Problem: To protect remote-control, motor-driven transmitter RF output pots without resorting to limit switches.

Solution: When installing remote control on both the WE 407A and Continental 317B transmitters, I used the friction drive pulley and disc from the fine-tuning control of two scrapped TV tuners. The friction-drive pulleys are attached to the motor pulleys, and the driven discs to the pots. This permits the drive to slip without damage when the p reaches the end of its travel, yet pr vides local control of the pot by tu ing the drive by hand.

48. Makeshift $1 Windscreen Cuts the Pop.

Glen Kippel, Chief Enginee KAPX-FM, San Clemente, Calif.

Problem: To diminish wind noi in a microphone without the spec fied windscreen.

Recently our news director co ered a local news story, but was ha ing trouble with wind noise generat ed in the mike at this location, a sea side villa. A catalog windscreen, n then available to the director, woul have cost him $18.00.

Solution: The local toy store o fered an alternate windscreen cost ing far less than the catalog item and colored a lot jazzier too! Calle

Rules for BM/E's Great Idea Contest

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

2. **How to Enter:** Use the Official Entry Form on this page or simply send *BM/E* a description of your work. State the objective or problem and your solution. Include diagrams, drawings, or glossy photos, as appropriate. Material must be legible but need not be directly reproducible—although camera-reproducible material is preferred. Length can vary, but should not exceed 1000 words. *BM/E* reserves the right to edit material. Entry should include: Name, title, station affiliation, and the class of station—TV, FM, AM (Class I or II), or AM (Class III or IV). Indicate if idea is completely original with you.

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

4. **Voting.** Every reader of *BM/E* is entitled to rank the ideas published. This can be done on the ballot in the magazine or by letters or cards sent to the *BM/E* office. A reader can judge one or all ideas published. Readers must assign a point score to each idea on a scale of 0 to 10: e.g., if you think an idea is excellent, score it 10; if you think it is without merit, score it 0; if you like it but want to discriminate, pick the appropriate number between 1 and 9.

5. **Winners.** Relative ranking of each month's entries will be published after 60 days. Top-rated entries for various categories will be republished in December 1974 for a second and final round of scoring. Final winners will be picked in February 1975 and notified by mail. Winners will be published in the March 1975 issue of *BM/E*.

6. **Prizes and Awards.** Four top prizes will be awarded—each a six-day cruise for two on a Windjammer in the Caribbean.* Cruise awards will be one each in categories of TV, FM, AM (Class I and II), AM (Class III and IV). In addition, highest ranking entries will receive a *BM/E* Certificate of Merit award, one each for the following nine categories: TV, RF; TV, Video; TV, Audio; FM, RF; FM, Audio; Class I and II Radio, RF; Class I and II Radio, Audio; Class III and IV Radio, RF; Class III and IV Radio, Audio.

*Between months of May to November, choice of cruises: Bahamas, Virgin Islands, West Indies. Deck Cabin accommodations. Travel to and from port cities of Miami, San Juan, or Virgin Islands not included. Authors of top-ranked items will receive Windjammer Cruise information in November 1974.

Entry Form for BM/E Great Idea Contest—1974

Mail to: *Editors, BM/E*
274 Madison Avenue
New York, New York 10016

Name _____ *Title* _____

Station Call Letters _____

Address _____

City _____

State _____ *Zip* _____

Licensee _____

Class of Station: TV ____ AM (Class I or II) ____
FM ____ AM (Class III or IV) ____

Title of Entry _____

Objective or Problem: *(in few words; use separate sheet for details)* _____

Solution: *(use separate sheet)*

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

Signed _____ *Date* _____

*If you feel credit for prior work or antecedents should be given to someone outside of the station, indicate to whom and when:

f Ball, this one-dollar child's toy spherical foam ball. A sharp e was used to cut a hole in it for microphone.

low-cost windscreen is the re- although it isn't known if the f Ball is as acoustically transpar- as the windscreens available n the mike manufacturers. But, pinch, it works.

Silent Sensor Monitors oming Phone Calls.

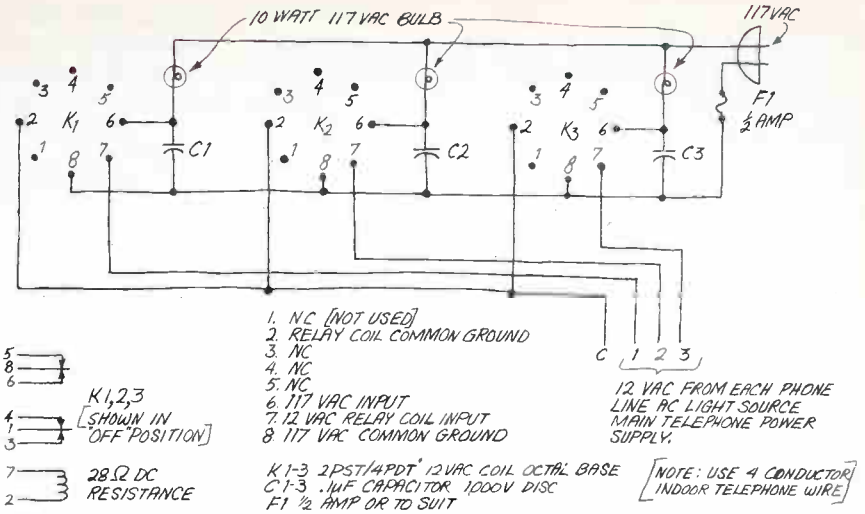
ey L. Wheatley, Engineer, DY-AM, Spartanburg, S.C.

oblem: To inaudibly alert con- room personnel to incoming tele- e calls during and after the sta- s business hours.

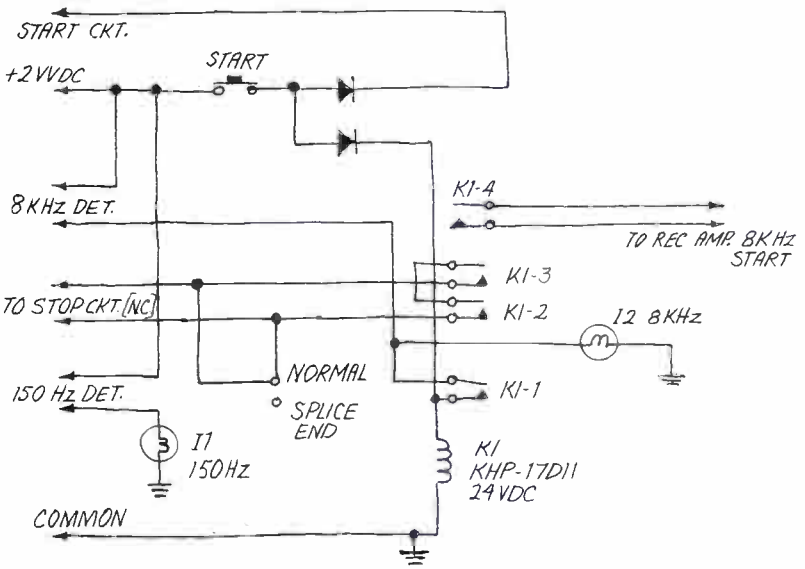
ontrol room operators were oc- nally missing incoming calls on r all of the three phone lines in ontrol room. The small lights id by the telephone company ot bright enough for quick visu- tification. And there is no room e phone to be located within a arm reach.

lution: A relay switch, wired to one of three common 117 VAC ulbs, draws power from the 12 supply used by the telephone many to energize their own tele- e lights. Plug-in type relays are ted in floating sockets outside ntrol room and above the ceil-

ree light bulbs were mounted panel to the right of the DJ's r of vision. Power for the bulbs s from the relay box. Each tele- e line is identified by a different bulb. The sensor unit could be ded to handle any number of by adding more relays and



Telephone line monitor silently senses incoming calls on any of the control room lines. Low-wattage lightbulbs (mounted just above the DJ's line of vision) glow when one of the relays, excited by the 12 VAC source used to activate the telephone company's original dim-lamp monitor, detects a call.



Continuously recorded 8 KHz cue tones picked off the cart tape are fed to relay K1 and monitor lamp I2. When the cue tone is disrupted by a splice in the tape, the relay drops out and I2 extinguishes.

Add-on Relay Finds t Splices.

L. Glaenzer, Chief Engineer, Y-AM/FM, St. Paul, Minn.

oblem: To build an inexpensive splice finder utilizing the exist- machine.

his unit cues carts to the splice to recording spots. It is built in ates cart recorder-reproducer. circuit utilizes the machine's 8 cue tone. The tone is keyed con- usly to hold the Stop circuit gh a relay K1 wired to the de- r contacts.

lution: When the Start button is ed, +24 VDC is steered via diodes D1 and D2 to the Start Circuit and to relay K1. When the playback head picks up the cue tone, the relay looks in through the 8 kHz detector contacts, relay contact K1-1, and the relay coil. Contacts K1-2 and K1-3 hold the Stop circuit closed. Contact K1-4 keys the 8 kHz oscillator in the record amplifier.

When the splice travels over the playback head, the cue tone drops out. Detector contacts open, causing K1 to drop out and stop the machine.

Switch S1 returns the deck to normal operation by completing the Stop circuit.

Lamps I1 and I2 were added to visually indicate 150 and 8000 Hz tones during normal operation. They are well worth the added effort, especially if carts are to be used in an automated system.

A very-well-made splice may pass over the heads undetected. This is caused by relay K1; the detector does drop out, but relay inertia prevents K1 from doing so. To insure proper operation of the splice finder, it is a very simple matter to place a small length of splicing tape on the oxide side of the tape.

The circuit also gives a good indication of pad and corner post problems. If the machine drops out as soon as the Start button is released, either the pad is worn or misaligned, or the post is not seated.

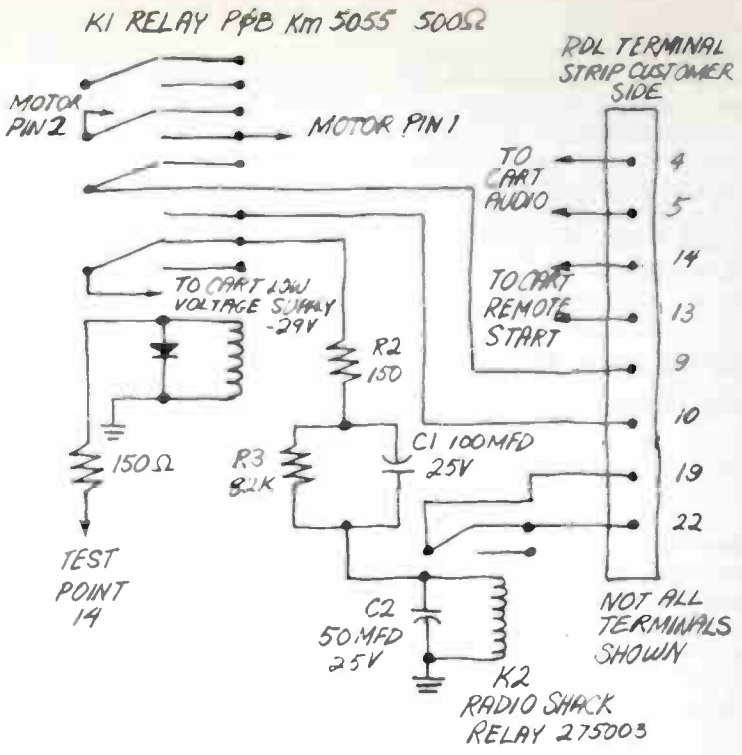
GREAT IDEAS

51. Improving the Sound of Stereo When Played Monophonically.

Mark J. Wharton, Chief of Radio Technical Operations, AFRTS, Los Angeles, Calif.

Problem: To improve the mono (sum) signal from a stereo cartridge when heard in a mono reproducer. Most stereo carts reproduce sound badly when both channels are heard on a mono FM receiver. This usually results when the two channels are inadvertently phase-shifted with respect to each other. This is caused by poor tape guidance or head misalignment. Since the left- and right-channel signals do not sum correctly at the transmitter, the result is a drastic loss of high frequencies in mono receivers.

Solution: One possible solution to this problem is to use a sum-difference matrix at the cart recorder and record the sum signal (L + R) on track 1 and the difference signal (L − R) on track 2. Upon playback, tracks 1 and 2 would be de-matrixed to form L and R signals. Theoretically, any degree of phase shift between tracks 1 and 2 will still produce a perfect mono signal. Phase errors will affect stereo separation, but this is minor compared to the huge frequency response errors the present recording scheme causes in mono receivers.



Clarifying Point

by Burt Fisher, Chief Engineer

The telephone answering device, Great Idea No. 25, April, BM/E, can be made compatible with the telephone company tariffs by the use of a telephone company interface RDL for playback and RDM for a play/record machine. The unit rents for about $4.00 a month, and is available from your local company.

An excellent manual describing i capabilities is available from Amer can Telephone & Telegraph, Supe visor-Information Distribution Cen ter, 195 Broadway, Room 208, Ne York, N.Y. for $1.50.

I have redesigned my device to op erate with the RDL, using essentia ly the same components. (See sch matic.) The sequence of operati for this unit starts as ringing voltag comes in to the RDL, it shorts pi 13 and 14, which starts the cart ma chine and energizes K1, which shor pins 9 & 10 and thus causes the lin to seize and be ready to receive th message.

When the cart recues, K2 receiv a voltage pulse which momentari opens contacts 19 & 22 and disco nects the phone line, and the unit ready to receive another call. Com ponents R2, R3, C1 and C2 ma have to be adjusted to provide for proper time realy activation of K depending on power supply voltage.

The contacts for the motor pi are for operating the motor only du ing actual usage, and this operati is optional. The circuit was co structed on PC board and mounte on insulated spacers within the m chine.

Editors Note: Commercial units f connecting Spotmaster cartrid machines to the phone line are ava able from Broadcast Electronics.

VOTE NOW

Rank each idea on a 0 to 10 scale on the form below, or write your ranking on the Reader Service Card in the back of the magazine in the space "Tell us what you like . . ."

Great Idea Contest
BM/E
274 Madison Avenue
New York, N.Y. 10016

Here's my ranking on a 0 to 10 scale of the July Great Ideas.

45. Contour clipper despikes the TK-44	[ ]
46. Intro timer for DJs	[ ]
47. Motor-driven coupler eliminates limit switchers	[ ]
48. Makeshift $1 windscreen cuts the pop	[ ]
49. Silent sensor monitors incoming phone calls	[ ]
50. Add-on relay finds cart splices	[ ]
51. Improving the sound of stereo when played mono.	[ ]

*Name*_____ *Title* _____

Station or Company _____

Enter Your Own Great Idea Now. You May Win a Windjammer Cruise. See Contest Rules.

WS Continued from page 18

Kodak Co.'s record growth in 0's, announced president Wal- Fallon. In remarks to the com- s 73rd annual meeting, he told rholders that Kodak currently everal new products and tech- ies in research or development. ong them are high quality paper copies; instant photogra- through self-developing film an be used with relatively inex- e cameras; and a new Ekta- e Super 8 movie film that eli- minates the need for color-balance filters. Others are available-light still-photography with experimental films and moderately priced cameras; and new X-ray products designed to reduce patient exposure to X-rays while maintaining optimum quality.

Results of Pay Cable Survey Released

Pay cable now has at least 60,000 subscribers in 10 states, according to a new NCTA survey of the 46 operating pay cable systems in the country. In total number of pay cable systems in operation, Pennsylvania ranks first with 20 and New York second with nine.

The survey reports that of the 43 respondents to the questionnaire, all offer between six to eight feature films a month, and about half of them additionally offer sporting events along with some hobby, travel and cultural programs. The remain-

continued on page 50

at Idea No. 29 erfluous Except for unction

ve sent a copy of this letter to ames McFarland, Engineer at V in Madison, Wisconsin, who tted Idea Number 29 (May advising him to examine his 100 to locate an obvious mal- on. His modification is not ry.

TCR-100 comes equipped he factory with an automatic system that is activated not the Reset-Reject mode, but nodes as well. When function- properly, the Reset-Reject mode will circumvent the m experienced at WMTV. peration of the TCR-100 in ode is as follows: A single ort Reject command is initiat- the operator and the machine es forward for 15 seconds g for the electronically record- M (start of message) tone. If ne is not located on the first he tape is automatically re- to the SOT (start of tape) re- foil and searches forward for ditional 15 seconds if neces- f no SOM is detected on this search cycle, the tape is auto- lly rewound and rejected at T. If necessary, the same op- can be initiated for the sec- ansport of the TCR-100/s two orts. A description of the oper- of the 15 second search modes n on pages 101, 109, and 111 A Instruction Book 32180.

pe this will clarify the opera- characteristics of the machine as ed and shipped from the facto- Mr. McFarland and those who have read suggestion r 29 of your May issue.

Hedlund, Leader onic Recording Equipment eering, RCA

ext mo. on why Mr. McF. is keeping

der reported that they are planning to add sports, educational, cultural and other programming in the future.

Anti Pay Cable Campaign Called Demagogery

Panelist in the Pay Cable session at the NCTA convention attacked broadcasters for the latter's claims that pay cable would deprive the public of programs they watch for free now. The terms "demagogery" and "red herring" were used to describe the issue of siphoning of programs. Ralph Baruch, president of Viacom International, said that if there *were* any siphoning problem, "it rests with the television network's time-worn practice of warehousing its films, thereby depriving the viewing public of that entertainment for three or four years."

Gerald Levin, president of Home Box Office, presented evidence of pay cable offering a valuable new service, rather than diverting anything from conventional TV. H mentioned specifically HBO's ca riage of boxing from Madis Square Garden. "We have helped r vive a sport which TV had gross exploited and then had gone off ar left for dead."

The panelists all acknowledg the need for more programming ar a more varied product. With th recognition, Motion Picture Associ tion president Jack Valenti attest that "no matter how much mon they spend or how many gods th evoke," pay cable opponents can keep it away from the public.

MDS and MATV Added to Pay Cable To Serve NY Viewers

By buying program service fro Home Box Office and using Micr band Corp.'s over-the-air MDS get the programs to apartme buildings in Queens, New Yor Orth-O-Vision, Inc., Queens NAT operator inaugurated in May a pa television service with a promisi economic look. Subscribers to Ort O-Vision's MATV service in tw large apartment complexes who pa an extra $7 a month for "pay telev sion" get another channel on the selector which carries Home-B Office's entire program series. Simon, president of Orth-O-Visio announced that more than 350 p sons had already signed up and we seeing the HBO programs with hig enthusiasm. He predicted that su cess in the venture would be high encouraging for big-city pay cabl His company has applied for a cab franchise in Queens, not now serv by cable.

FCC Chairman Wiley Resists Attacks on Commission

FCC chairman Richard Wiley co mended the leadership of the NCT as "honest, sincere and far-sighte while admonishing the industry a whole for "insinuation and innuen concerning the Commission's in pendence and integrity," and "looking for . . . regulatory secur blankets."

Calling on small and large syst operators to pull together and to s port their leadership, Wiley urge New Ethic for the industry. stressed quality service, volunt compliance with FCC rules, ces tion of unreasonable and unfair tacks on the Commission, keeping word, striving for a medium choice and diversity, and resis

continued on pag

BROADCAST EQUIPMENT

eo timer shows time to the hour, ute, second, 1/10th and 1/100th nd. Model VTG-55 operates ei- count up or count down, puts

ay on any video screen, pro- s a timing pulse when count- own reaches zero, has an auto re- e. FOR-A CORP. **300**

power tetrode operates to 300 Hz, 12 kW. Model TH-361 has ial metal/ceramic construction, ed air cooling, minimum gain of B. THOMPSON-CSF. **301**

tal isolators provide 2500 vdc tation, 500 volts microsecond mon mode transient immunity. oel 3082—4370 takes 1.6 ma pt, has current transfer ratio of 6 minimum, 600% typical. oel 5082—4371 takes 0.5 ma t, has current transfer ratio 40% minimum, 800% typical. E'LETT-PACKARD **302**

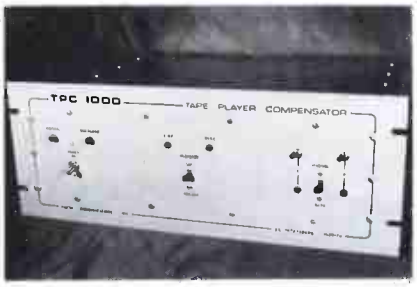
stereo head bracket for cart ers has adjustable head penetra- or side azimuth adjustment capa- for external adjustment in uiple deck units. Phase-Lok II, supplied with Spotmaster cart

shines, has microlever for azi- h setting with little interaction to r adjustments, full three-plane ing including zenith and head king. Earlier Spotmaster ma- es can be retrofitted. BROAD- T ELECTRONICS. **303**

ustable equalizer for individual

microphone channel use has three overlapping ranges: 50 Hz to 500 Hz, 300 Hz to 3 KHz, and 1.5 Kz to 15 KHz. Model 3000 provides 12 steps in each range from −12 dB to +15 dB. $325. MODULAR DEVICES, INC. **304**

Video tape skew corrector reduces distortion in video signal from



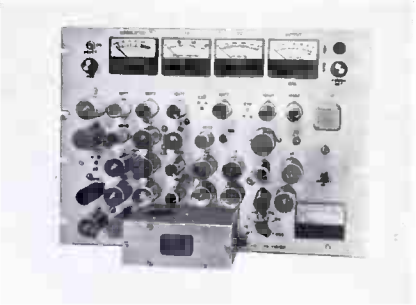
VTR's for cable systems. Model TPC Tape Player Com-pensator is aimed at skewing, pcture—flapping, and bending. DIGITAL COMMUNICATIONS, INC. **305**

In-line directional RF wattmeter is self-contained, requires no plug-ins. Model DW-1000 covers the range 2 MHz to 800 MHZ, and forward power from 1 watt to 1 kW. Accuracy is 5% of full scale. $425. ELECTRO-IMPULSE, INC. **306**

Two-camera portable color teleproduction system includes two FP-1500

single-tube color cameras. "HSPC" system also has electronics in two portable cases, including three 5″ video monitors, audio mixer with monitor amplifier/speaker, six-input vertical interval switcher/fader, RS-170 color sync generator, three headphones and all necessary cables. $15,280. HITACHI-SHIBADEN. **307**

Ten-watt FM transmitter designed specifically for educational use takes 13¾″ in standard rack. Model FM- lo has center frequency independent



of modulation, with vacuum crystal control to exceed FCC stability rules. All harmonics are at least 80 dB below fundamental. $1095. LPB, INC. **308**

Automatic gain control device is for AM, FM and TV broadcasting. Model 220 Audio Level Optimizer

provides selectable peak limiting and average compression. Compression can be held in absence of signal to prevent upsurge of background noise. $680. INOVONICS, INV. **309**

FM demodulators for CATV systems have crystal-controlled operation over the range 5 to 300 MHz. FRMX stereo model can be used for background music or monitoring local origination. Monaural model is for off-air music, CATV weather, news and for data, facsimile, etc. CATEL. **310**

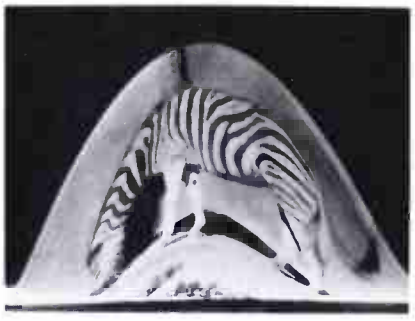
Modular digging systems are built on basic power vehicle. Modular-Matic

continued on page 52

PRODUCTS

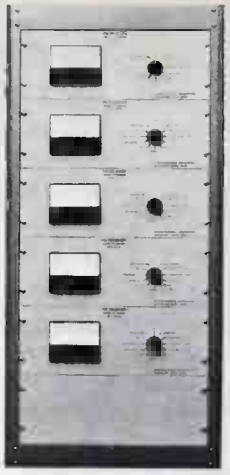
system can use attachments for several digging functions, plowing, backhoe, hydraulic boring, clean-up, others. DITCH WITCH (CHARLES MACHINE WORKS). **311**

Data camera can use a variety of 1″ vidicon and other tubes. Model 502 can operate from one frame/second to one thousand frames/second, has



externally controllable beam blanking, remote dynamic gain control, other functions for industrial and lab use, and television special effects. $3500. COLORADO VIDEO, INC. **312**

Microwave receiver allows delivery of distant TV signals to small communities by power-splitting Cars microwave systems. Model ICM-



1013-FM has Gunn diode invar c pacity local oscillator, noise figure 8 dB, options for dc power inpu audio or data subcarriers, remc down converter. COMMUNIC TIONS CARRIERS INC. 3

Unidirectional dynamic microphon has safety construction with flexib rubber housing. Model M412 is f PA, mobile communications (r motes), has acoustic design for clo talking, switch for voice on/off for relay actuation. $75 BEYE (REVOX CORP.). 3

Video monitor with pulse cross di

lay has 9″ screen. Model PC-9 has nderscan and acceptance of exter-al sync. $595. ULTRA AUDIO PIX-EC. **314**

utomatic digital multimeter has asic dc accuracy of .02%. Model 500A has 41/2 digits, dc ranges om 200 mv to 1200 volts, compara-e ac volts, dc and ac current rang-; and resistance ranges from 200 ms to 200 megohms full scale. 599. JOHN FLUKE MFG. CO., NC. **316**

arium titanate protective device can place fuses in many applications. he Posistor has nominal resistance of 10 ohms over wide normal current range, develops extremely high resistance from heat of current overload. Voltage maximum is 200 V, maximum peak current, 5 amps. MURATA CORP. OF AMERICA. **317**

Polypropylene dielectric capacitors are designed for pulse conditions of TV and ultrasonic circuit applications. PPD series covers .0018 to .47 μF at 200, 400, and 600 volts dc. PPDS series covers .001 to .1 μF at 600, 1000, and 1600 vdc. For both, dissipation factor at 1 KHz is 0.1% or less and insulation resistance greater than 10 gigohms. In quantity, 8 to 31 cents each. ELECTRO MOTIVE CORP. **318**

Coaxial attenuators are for pulse, UHF and microwave instruments assembled with Kings K-Loc and BNC connectors. K-Loc attenuators have values from 3 dB to 20 dB, VSWR 1.3 to 2 GHz, BNC attenuators cover same attenuation range, with VSWR of 1.65 at 8 GHz. KINGS ELECTRONICS CO. **319**

Power oscillators for microwave RF basic cavity from Model 126. The new 448 series covers frequency from 2 GHz to 8 GHz, with power up to 10 watts, on the customer's se-

continued on page 54

PRODUCTS

lected frequency. AILTECH. **320**

Log/linear sweep generator has frequency range of 0.03 Hz to 3 MHz. Model F37 provides maximum sweep width of 1000:1, has sine, square, triangle waves, variable-width pulses and adjustable dc waveforms. INTERSTATE ELECTRONICS CORP. **321**

Universal impedance bridge measures resistance, capacitance, inductance, conductance, Q, and dissipation factor. Model 610A is a five-digit mulling type instrument, accurate to 0.25% on R and G; and 1% on C and L, and to 5% on Q and D. $525. TUCKER ELECTRONICS. **322**

Remote control for Chromatech color keyer is available as option. Remote unit is dc operated and is mounted to 3½" square panel, or on a 1¾" standard rack panel. Complete keyer with remote control, $5795. AMERICAN ASTRIONICS. **323**

Crystal detectors for UHF and microwaves are mounted in coaxial housings. Model 305 is for 100 K to 2 GHz, is ±0.3 dB over ran ±.1 dB over any 100 MHz inc ment. Input for square-law operati is up to −15 dBm. Model 306 op ates from 10 MHz to 12.4 GHz, ±0.2 dB per octave and ±−.5 over range. SYSTRON-DONN CORP. 3

Temperature-sensitive resistor sen case temperature of high-pov semiconductors to provide overlo protection. Posistor Model PT 487A is fastened to case, has 5 ohm resistance at normal tempe ture, rises to 3000 ohms at 194° Maximum voltage rating is 12.5 v MURATA CORP. OF AMERICA. 3

Plastic buildings are designed to p tect equipment in remote locatic against moisture and dust. Plas dome structures are made of t one-piece molded shells of fib glass—reinforced plastic bonded

urethane core, with sandwich pa floor. Structure is sealed by uretha elastomer. Modules can be mu plied for various sizes. GRASIS FA RICATING CO. 3

Sealant remover is for clearing CATV cable sealant to Raych heat-shrinkable tubing. Remover l no flash or fire point. RAYCHI (ANIXTER-PRUZAN). 3

Tandem rotary attenuator for dc t GHz at 3-watt power level cover 109 dB in 1 dB steps. Unit has thi film substrate, coated with resist film. $190 and up. TELONIC A TAIR. 3

Sweep signal generator covers MHz to 2350 MHz. Model VS-9

has single-frequency and harmon type markers with crystal accurac

.005%. RF output is 0.7 volt rms to a 50-ohm load, with output attenuators reading to 1 dB, plus 0 – 3 dB vernier. $2695. TEXSCAN CORP. **330**

Power tetrode is for direct replacement of 4CX250B, or for new designs with improved high emission capability. Model 4CX250B/8957 has maximum plate dissipation of 250 watts. Anode is external, cooling forced air. About $40.00. EIMAC DIV. OF VARIAN. **329**

Digital voltmeter measures and stores peak readings of voltages from dc to 1 microsecond pulses. Model 810 Peaklok stores peak until reset, has 3-digit display, five ranges, 100 mV to 1000 volts. $1190. PIONEER-STANDARD ELECTRONICS, INC. **331**

Five-step attenuator for CATV and signal generator applications covers range to 250 MHz with 1 dB accuracy and is usable to 900 MHz. Model WM-542-A 75-ohm attenuator allows any combination of 3-6-10-20 dB, can be used with signals down to 1 microvolt. Connectors are BNC. $29.50. RCA **332**

Television modulator for MATV and other CCTV applications accepts separate video and audio inputs, provides standard TV signal on any specified VHF channel. Model TX-3A has vestigial sideband filter, simultaneous metering of aural and visual modulation, remote keying facility. $495. DYNAIR ELECTRONICS, INC. **333**

GREAT IDEAS begin on page 44.

NEWS Continued from page 50

the temptations of short-range advantages over the great long-range potential.

After urging the cable industry to come to maturity, Wiley noted that governmental agencies also go through stages of development. He then cited the numerous changes and developments that have come about within the FCC. Among these are the recent rulemakings and proposals relating to exclusivity, program origination, and late-night programming of otherwise unauthorized signals.

Additionally, Wiley reported the formation of several task forces and committees.

Emmy Awards to RCA and CVS For Technical Developments

At their 1974 get together in Hollywood, the National Academy of Television Arts and Sciences gave Emmy's for technical excellence to two producers of broadcast equipment (among scores of oth awards). RCA got one for t TCR-100 video tape cart syste which automates the programmi of short video spots. Consolidat Video Systems got one for their ti base corrector, one of the ma units in the current explosive dev opment in this field.

Andrew F. Inglis (left), vice president, R Commercial Communications Division, Neil Vander Dusen, vice president, R Broadcast Systems, smile as they exam Emmy given the company for TCR- video cart system.

PROGRAMMING

National Endowment For The Arts Funds Bicentennial Programs

The National Endowment for t Arts has funds available for broa casts relating to the country's Bice tennial celebration. Chairm Nancy Hanks has asked the natio Bicentennial Committee to consic ways that TV can be used for t celebrations, and said that fun would be available for films American authors, architecture, a cultures.

CBS Golf Coverage

Equipment used by CBS Network covering the Masters Golf Tourn ment, in April, may spark a new i proved broadcast of golf match Golf tournaments are generally co ered with 12 or 14 cameras. C used 22, with the extra cameras e abling CBS to cover the last seve holes from all angles. Included we two hand-held color cameras.

Kaiser Broadcasting Begins Syndication

Kaiser Broadcasting Company h begun syndicated programming w its network talk show, "The L

Gordon Program," having been purchased by WCIX-TV Miami. The weekly program, produced at Kaiser's WKBD-TV Detroit, already airs on Kaiser stations around the country, featuring discussions with national political, social, civic and entertainment personalities.

BRIEFS

Conrac Corp. received a $1 million contract to install a comprehensive sports information display system in The Coliseum, located midway between Cleveland and Akron, Ohio. The Telescreen will provide scoring, statistics, and giant full-color video pictures, including instant replay close-ups of the arena action and commercial advertising spots.

The first black-owned and operated TV station in the country, **WGPR-TV,** Detroit, Michigan, has placed an order for a $1.1 million RCA studio and transmitting system. . . . . The Columbia University Experimental Wireless Station club has received a large gift from the estate of Carmen Runyon, Jr., a radio pioneer. The bequest includes some of Runyon's hand-made equipment, as well as his books, tools and enough spare parts, vintage and contemporary, for two full radio stations.

Cramer Electronics' Video Division received a special Sony Outstanding Distributor of the Year Award. The presentation cited Cramer Video's "contributions to the closed circuit television industry." . . . . **Ampex Corp.** has been awarded a $1.65 million contract for TV broadcast and production equipment to two independent Canadian TV stations, CITV in Edmonton, Alberta, and its sister station CFAC in Calgary, Alberta.

Sparta Electronic Corp. is selling nearly a half-million dollars' worth of AM and FM equipment to Radio Cadena Nacional (RCN), headquartered in Medellin, Colombia. . . . . New Zealand's Central Office of Information has ordered a second Marconi Data terminal from **Marconi Communication Systems Ltd.,** a GEC-Marconi Electronics company, to link their London headquarters with New Zealand.

continued on page 58

NEWS

Two **RCA**-equipped mobile TV units valued at approximately $500,000 have been delivered to Algeria's national television network: **Radio Television Algerian (RTA).** .... Ampex Corp. has been awarded a contract for more than $400,000, to deliver videotape recording and editing equipment to **Yleis Radio** (Finnish television) in Helsinki, Finland.

TOCOM, Inc. has been awarded three new major contracts, expected to exceed $16 million, for its TOXOM II Computer Controlled Interactive Cable Communications System. New contracts are for systems in Flower Mound New Town near Dallas; Maumelle New Town near Little Rock, Arkansas; and Rossmoor Cocoanut Creek in Southeastern Florida. .... Announcement has been made of incorporation of **Television Research International.** TRI, under the guidance of Robert Cezar, has developed a simplified helical scan, video tape editing system which is presently being manufactured and marketed through distributors here and abroad.

Approximately $477,000 of **RCA** studio equipment will be installed to convert WSRE-TV, Pensacola, Fla. to full-color programming. WSRE-TV is the educational station for Pensacola Junior College. .... **Advanced Systems Inc.,** has a new video-assisted instruction course. The eight-unit course, "Data Processing Concepts," is an elementary introduction to computer systems. It can be purchased outright or be obtained as part of the company's 600-title subscription rental library.

Brand-Rex Co., a part of **Akzona Inc.,** has completed the acquisition of **Teltronics, Inc.,** a Lakeland, Florida-based manufacturer of electronic telecommunications equipment. No management changes are planned. .... A group of **FCC** personnel and members of the **Small Market Radio Committee** of the NAB made a second visit to radio stations in Fredericksburg and Orange, VA., in May. Inaugural tour was made last September. The visits are aimed at giving the Commission staff a first-hand look at small market stations' operations.

American Data Corp., an **Airpax Company,** has a contract for $153,700 from the greater Washing-

n Telecommunications Associa-
on, Inc. (WETA-TV), Washing-
n, D.C., for a 40 × 60 video/audio
ting system. . . . . **Becker Commu-
ations Associates** has advanced a
3 million loan committment to
nherst Cablevision, a Buffalo, NY
ea cable TV system. **Blackburn &
mpany,** media brokers, assisted in
curing the financing.

Dynasciences Video Products has
quired the manufacturing rights
d inventory for the entire product
e of **Alma Engineering, Inc.,** of
n Diego, CA. Alma's products in-
ded routing and production
itchers, and automatic programm-
ng equipment.

ComSonics, Inc., a research and
velopment and technical services
poration which provides technical
vices to the cable TV industry,
s relocated into an expanded facil-
at ComSonics Lane on Port Re-
blic Rd., Harrisonburg, VA. . . . .
ger J. Czerniak has formed **R.C.
des,** a new rep organization which
l cover audio retailers, electronic
tributors, mass merchandisers,
partment stores and audio visual
ms in the Upper Midwest area. Headquarters are at 10052 County Road 130, P.O. Box 160, Mable Grove, Minn.

Theta-Com has announced that the rated power output of its AML transmitter has been increased from one to two watts, maintaining the same level of signal quality as that specified heretofore. . . . . **Cable Market Specialists, Inc.,** (CMS) is a new national rep organization specializing in cable TV. Formed by Don Thomsen, formerly national marketing manager for Anizter-Pruzan CATV, the new rep company is headquartered at Kirkland, Washington (P.O. Box 613).

Garden Broadcasting Co. has announced that an agreement has been signed to assign its licensees of WEAT-AM & FM to **Curt Gowdy Enterprises.** The assignment of the two West Palm Beach, Fla. stations is subject to approval by the FCC. Agreed purchase price was one and a half million dollars. No change in the present operation is contemplated. . . . . **NEC America, Inc.** and **TeleMation, Inc.** jointly announced the sale of two NEC FS-10 Frame Syn-

continued on page 60

NEWS

chronizers to NBC, New York, NY and Burbank, California. The product is manufactured by Nippon Electric Co., Ltd., Tokyo, Japan, and marketed by their wholly-owned subsidiary, NEC American, Inc. TeleMation is NEC America's exclusive sales representative for the FS-10 Frame Synchronizer in the U.S. and Canada.

Telecommunications Industries Ltd., Los Angeles based manufacturer of television test charts, slides and films, has appointed J. A. Boden-Tebbutt & Associates, 31 Palace St., London SW15 5HW England, as exclusive marketing representatives for their products outside of North America. .... The 300th **Ampex** AVR-1 broadcast color videotape recorder has been placed in service at the Network Operations Center of the State University of New York in Albany. .... **Associated Sound Systems,** 5558 Cahuenga Blvd., North Hollywood California, 91601, is now providing an independent repair service on professional audio equipment. Company is the factory authorized service center for United Recording Electronics Industries (UREI) and Russco Electronics.

Broadcast Electronics Inc., has contracted to use the production facilities of Audio Interface Systems Inc., Birmingham, Alabama, jointly to produce Spotmaster electronic products.

PEOPLE

Benjamin B. Bauer, vp of CBS Laboratories acoustics and magnetics department has been elected a member to National Academy of Engineering. ... Newly formed Virginia chapter of Society of Cable Television Engineers has elected **Elliot Roscow,** Suburban Cablevision, Elkton, Md., as vice-chairman; and **Norbert "Buddy" Moore,** Rollins Cablevision, Wilmington, Del. as secretary-treasurer.

Hobart J. Paine, chief TV engineer in University of Arizona College of Medicine's multidiscipline labs, has been elected to seven-member board of directors of national Society of Broadcast Engineers. **Joseph Roizen,** president of Telegen, Inc. and video consultant, was awarded EMI Premium by Royal Television Society of Great Britain. Award was

r paper on Rank Cintel 9000 oadcast Video Tape Recorder, a gmented scan helical recorder for V program origination.

ilford C. Shurtleff. Radio common rriers are served under national count arrangement headed by **H. rlisle Dent.** . . . TelePrompTer, the tion's largest operator of cable evision systems, recently an- unced the election of Russel Karp, awyer and financial consultant, as esident and chief operating officer. **Reed R. Prior,** former dir. of engi- ering of Trimedia Stations, was cted president of Prior/Taylor rp., Bay City, Mich. Firm special- s in engineering maintenance and nsulting contracts for broadcast dia. . . . **R. Clifford Rogers** is stern U.S. sales manager for Ru- rt Neve Inc., firm designing and anufacturing audio control and tribution equipment.

Ellis Fertig has joined Tri-Tron- , Inc., to manage and develop new rofessional audio equipment sales partment." . . . **Robert E. Leach** s named dir. of engineering/oper- ons for Blonder-Tongue Broad- sting Co. . . . **Paul B. Spranger** was pointed vp-engineering, sound oducts division, Altec Corp. . . . **atthew W. Plonsky** is operations manager of Anixter-Pruzan's north- east district office. . . . **Leonard C. Gregory** has been appointed North- ern Florida district manager for TelePrompTer Corp.

Austin C. Schwager has become Anixter-Pruzan's sales representa- tive for Florida. . . . **R. Colin Parkhill** has been appointed RCA Broadcast Systems sales representative for Vir- ginia and District of Columbia. . . . **Wayne Goetz** is engineering supervi- sor for WOW-TV, Omaha, Nebras- ka.

Curtis M. Casey, chief engineer for KCEN-TV, Temple-Waco, Texas, died in a Temple hospital after a long illness.

Sansui Electronics Corp. has an- nounced a large number of promo- tions in its U.S. operations: **Bernard Bernstein** has become vp/sales, and **Vicky Fitapelli** assistant to vp/sales. **Y. Hori** continues as board director of company and becomes director of merchandise planning. **Norman Kaminsky** has joined as vp and con- troller. In New York office, **M. Sasao** has become sales administra- tor New York, and **T. Jubert** credit manager. **K. Nakatsuka** is general manager Los Angeles office; **Ken Hoshino,** sales manager Western

continued on page 62

NEWS

branch; and **David Maskell,** sales administrator Western branch.

Michael J. Sheets has been named to newly created post of senior vp/marketing, Warner Cable Corporation, and **Peter J. Alden** has been named to newly created post of vp-technical director. . . . **Herbert M. Jaffe** was appointed director of marketing of Atlas Sound, division of American Trading and Production Corporation.

National Cable Television Association has announced three new vice presidency appointments: **Donald M. Andersson,** vp of planning and statistical services; **Beverly Murphy,** vp of operator relations; and **Robert Stengel,** vp of public affairs. . . .

J. C. Niven has been appointed general manager of Amalgamated Wireless (Australasia) Limited, largest Australian communications and electronics corporation. . . . **S. W. Pai** has been named vp of CATV for AVA Electronics Corp.

Anaconda CATV has opened a new sales office in Arlington, Texas, located in the Anaconda Service Center, 1121 108th Street. **Al Laughlin** is sales representative for the territory including Texas, Oklahoma and Arkansas.

Martin Marietta Communications and Electronics has reorganized its regional sales offices and marketing personnel for telecommunications products. New marketing organization is under direction of **Harold W. Clark. O. E. Cummings** is deputy for military marketing and **J. Douglas Wells** heads commercial sales. **Ralph L. Parr** is managing paper marketing, and **George M. Dewire** is handling marketing for mobile telephone systems. Regional sales and service offices: Atlantic region: **Robert T. Ennis** and **Joseph J. Pomparelli;** Southeast: **F. Thomas Daly;** Midwest: **Riley H. Findley;** Rocky Mountain: **Russell R. Chapman;** Great Lakes: **David G. Welch;** West Coast: **Lowell A. Hardison;** East Coast Microwave: **Joseph J. Sedik;** Midwest Microwave:

Judge W. Otis Higgs of Memphis, Tennessee was elected to board of directors of Athena Communications Corp. . . . **Dave Button** has been elected president of New Mexico Broadcasters Association. **Button** is from Artesia where he manages radio stations KSVP, KSVP-FM Stereo and operates School of Broadcast Training.

Dr. Lawrence T. Frymire, New Jersey Public Broadcasting's executive director, has been appointed to

continued on page 66

NEW LIT

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

ur-page brochure describes application of Basic/Four **computer system** for accounting, billing, ordering d inventory. Basic/Four Corp. **200**

w technical bulletin gives description, applications, performances, aracteristics, installation tips on **und absorption foam.** Bulletin 7.1. Ferro Corp. **201**

ansmission delay measuring set ochure gives technical data and ecs on Model 462A Envelope elay Measuring Set. Bowmar Inument Div. **202**

w catalog describes applications d detailed specifications of comehensive line of **high-power RF urces.** It also describes a number options and accessory products. ltech. **203**

'th edition of **Lighting Handbook r Television, Theatre and Professnal Photography,** Handbook T-136C includes revised material sports and theatre lighting. GTE lvania. **204**

w selection/application guide for ATV/MATV coaxial cable catas full product line and gives techal reference data on **shielding thods and efficiency evaluation.** talog ED74-2. Belden **205**

Turning diodes are listed in new ochure, with specifications, applitions data, charts, and diagrams. nperex Electronic. **206**

74 edition of **"Tektronix Computt Products"** catalog is now availle. Tektronix. **207**

ircuit Design and Network Analy- is new four-page calculator apcation summary. Hewlett-Packrd. **208**

mpling lines for antenna monitor- sampling system are described in w technical bulletin no. 22. Cabwave Systems, Inc. **209**

w selection guide for **power tubes d cavities** in AM, FM, TV and anslator service gives pertinent options for over 50 tube and 30 be-cavity combinations. RCA **210**

b Books has announced several w titles: **Electronic Music Productn,** by Alan Douglas. April 1974. 9.95 hardbound (ISBN No. 0-306-4718-X); $3.95 paperback (ISBN No. 0-8306-3718-4).

ofessional Filmmaking, by Sam ving and B.W. (Ozzie) Abolin. April 1974. $9.95 hardbound (ISBN No. 0-8306-4710-4).

Professional Broadcast Writers Handbook, by Stanley Field, Deputy Chief, Broadcast/Pictorial Branch, U.S. Army Information Div., April 1974. $14.95 hardbound (ISBN No. 0-8306-3635-8).

FM Radio Station Operations Handbook, by Editors of BM/E Magazine. September 1973. $9.95 hardbound (ISBN No. 0-8306-3094-5).

CATV Operator's Handbook, collection of articles on cable system management, operation, program origination, engineering, and two-way cable systems, which have appeared in BM/E Magazine. August 1973. $9.95 hardbound (ISBN No. 0-8306-3073-2).

Write to: Tab Books, Blue Ridge Summit, PA 17214

"Safety is a Full-Time Job," is a new film on underground construction safety procedures. The color production is available in either 16mm on standard reels, or in Super 8mm cartridges. Contact either your nearest Ditch Witch dealer or Tom Tucker, Charles Machine Works, Inc., Box 66, Perry, Oklahoma 73077, (405) 336-4404.

continued from page 41

spot for ten weeks, day-by-day, by advertiser and with scheduling parameters. It allows the sales department to pre-empt clients when oversell makes it necessary: the business can be rescheduled and contracts amended.

Program format configuration—The program format can be reprinted quickly whenever changes are made in it, showing just how the program will lie in the log, and where commercial interruptions will be made.

Advance program schedules—Many stations find it convenient to have a simple list of all programs for several days with start times, before the final log is produced.

Rough log and final log—A rough log, reflecting all changes up to the close of business the day before, is produced every morning; it is in exactly the same form as the final log. Any changes made during the programmed day before air time, can be pencilled in on the rough log. The advantage of having the rough log in final "form" with all relevant information (spots with reference to contracts, scheduled times for each item, etc.), is that operating personnel can work from it just as from a final log. The final log then becomes a simple matter of making the last-minute changes in the rough log, which takes a few minutes on the mini computer (the rough log is already in the computer). The station can produce the final log whenever it is needed and all the information is in hand.

Some other reports of obvious utility which the system provides rapidly when called on are:

- Film/videotape inventory
- Missed spot listing
- Billing confirmation (collected automatically fro final log).
- Final invoices (conforming to TVB, AAAA sta dards).

Of course, the standard accounting reports are pr duced by the system—the area in which computeriz data processing has long established its tremendo value. A few of them particularly useful to broadc sales are:

- Sales commission report, showing exactly wh each salesman billed.
- A revenue-by-program report, how much busine each program has generated.
- Sales journal showing totals for each invoice by a vertiser.

Any other analyses of sales or traffic data that t management needs are obviously within the capaci of either the mini or the large computer to produce.

And this emphasizes our final point: Not or should the original design of a data system be built broadcast needs, but the service supplier should willing to work closely with the station's manageme over an extended period to fine-tune the system that particular station's way of doing things. (See a companying box on WTOP-TV.) The capacity such adaptability is inherent in any well-designed s tem. It has to be carefully put to work, based on t day-to-day experience of the user. BM

BM/E CLASSIFIED MARKETPLACE

CLASSIFIED ADVERTISING RATES

DISPLAY CLASSIFIED ADVERTISING: $32.50 per inch 1x; $30.00 per inch 6x; $27.50 per inch 12x. ALL OTHER CLASSIFIED ADVERTISING 35¢ per word; minimum $3.50. BLIND BOX NUMBER: $1.00 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

POSITIONS WANTED

MO, MONTANA, WYOMING is where I want to and live. Experienced D.J., first phone, good voice, ry, copy and production. Seek interviews or audi- after Apr. 20. Buchanon, 1322 N. Washington. C-2., Falls, Idaho 83301.

g engineer with eleven years experience in broad- bg desires position as Assistant Chief or Supervisor arge broadcast facility or production house. Would er broadcast sales or field service with good reputa- mpany. Resume on request. Reply to box 774-1, co Blue Ridge Summit, PA. 17214.

o/FM ENGINEER—desires part-time steady work YC area. Design, installation, maintenance. First , AB degree. 12.00/hr. Reply to Box 774-3, c/o Blue Ridge Summit, PA. 17214.

HELP WANTED

watt AM directional station, and a separately pro- med separately run stereo station in need of engineer g on maintenance. Small Eastern market. Salary Reply to Box 774-2, BM/E, Blue Ridge Summit, 7214.

EQUIPMENT WANTED

NEED USED 250, 500, 1KW, 5KW AM Transmit- 250, 1000 Watt FM transmitters. No junk. Guaran- adio Supply Corp., 1314 Iturbide St., Laredo, TX.

EQUIPMENT FOR SALE

LESTRATOR: Demonstrator like new- del 400, complete with external keyer, auto- ted push button control, twelve position mbol generator, spare glass and two pens. mplete price $13,600.00. Will send engineer install unit.

MPEX: Demonstrator VPR-5800C Color eo tape recorder in like new condition. Price 600.00

MPEX: New VR-7000, in sealed box. 1" VTR h two tracks of audio, audio and video met- , excellent buy Price $1,000.00

If interested call collect
CALHOUN COMPANY, INC.
Edward D. Matthews
phone: 404-659-0750

OSALE: 250 watt RCA AM transmitter, type BTA— , excellent condition. Available May 15. Price $2500. 46-7473. Also FOR SALE: 4 Gates Cartridge II car- play back machines and one Gates Cartridge Tape order/play back machine and approximately 250 dge tapes loaded at various lengths. Price $200 each e play backs and $250 for the recorder play back and h for the cartridges. Phone (314) 546-7473.

ADCAST AND RECORDING EQUIPMENT. Scul- I.F. International, Metrotech, Langevin, Electro- Q.R.K., Micro-Trak, MRL, Nortronics, McMartin, E.I., E.V., A.K.G., Stevenson, Gately, D.B.X., Ad- Altec, Fairchild, Audio Designs, 3M, Magnecord, Te- novonics, Nagra, Uher, Tape-Athon, Package Deals, llations, Service, Request Flyer. Weigand Audio, leburg, PA. 17842. (717) 837-1444.

state audio modules-console kits, power amplifier power supplies. Octal plug-ins—mic, eq, line, disc, play, tape record, amplifiers. Audio & tape bias oscil- . Over 50 audio products. Send for free catalog and ations. Opamp Labs, Inc., 172 So. Alta Vista Blvd., ngeles, Calif. 90036. (213) 934-3566.

M professional audio record/playback tape recorders. es 410, complete within console cabinets. Purchased February 1973. Record heads like new. $2900 each, Fresno, Cal. Phone KKNU (209) 485-7272.

EQUIPMENT FOR SALE (Cont'd)

SONY AV3400 Porta-Pac, with accessories $950. B & H 2920/IVC-800 1" color VTR with new head and reconditioning by IVC repair station. $1400. Sony IB-5 Scan converter for B & W. Can be used to duplicate and title video tape, broadcast ¼", ½", etc. VTR, CIRR to E/A or E/A to CIRR. $950. Gilchrist Communications Group—7385 W. Central, Wichita, KN. 67212. (316) 722-5983.

FIELD STRENGTH METER. 540 KHz to 5MHz. Ten microvolts to 10 volts per meter. New solid state design, long battery life. Stable accurate calibration. Free literature. Solar Electronics, 901 No. Highland Ave., Hollywood, Cal. 90038.

VIDEO TAPE RECORDER—Ampex 660-B, with editing. New Heads. Excellent condition. Broadcast Quality. $1200. Write: Berco, 12108 Suffolk, Gaithersburg, MD. 20760.

FERRITE BEADS 25¢ each, 3 beads insulated on two inch lead 80¢ each. Limited Supply. Assorted transformers, price list on request. SCS, Inc. 206 5th Street, Lynchburg, VA. 24504.

The complete and reliable source for new and used broadcast equipment. Request our free listings. Broadcast Equipment and Supply Co., Box 3141, Bristol, Tennessee 37620.

HELIAX-STYROFLEX. Large stock-bargain prices-tested and certified. Write for price and stock lists. Sierra Western Electric. Box 23872, Oakland, Calif. 94623. Telephone (415) 832-3527.

VIDEO TAPE. NEW in sealed boxes. 1" × 3000' Memorex Helical Type for Ampex or IVC. $25 each. 2" × 1200' helical for Ampex or Sony—$35 each. All tape on metal reels. Write: Berco, 12108 Suffolk, Gaithersburg, MD. 20760.

TWO 3M professional audio record/playback tape recorders. Series 410, complete within console cabinets. Purchased new February 1973. Record heads like new. $2900 each. f.o.b. Fresno, CAL. Phone KKNU (209) 485-7272.

FOR SALE: McMartin B-803 Dual Channel mono console. Less than 2 years old. Good Condition. Contact Tedd Tramaloni, WHRW-FM, SUNY at Binghamton, N.Y. 13901. Phone (607) 798-2137.

MICA AND VACUUM transmitting capacitors. Large stock; immediate delivery. Price lists on request. SURCOM ASSOCIATES. 1147 Venice Blvd., Los Angeles, Cal. 90015 (213) 382-6985.

CAPSTAN IDLERS for AMPEX 300, 350, 440. Series, self aligning with replaceable ball bearings, $22.50 net. VIF INTERNATIONAL, Box 1555, Mtn. View, Ca. 94040.

One stop for all your professional audio requirements. Bottom line oriented. F.T.C. Brewer, Box 8057. Pensacola, Fla. 32505.

4—650 ft. towers $6500.00 each. Many more. Ground wire 85cper xx. lb. Bill Angie, Box 55. Greenville, N.C. 27834. Tel. 919-752-3040.

TASCAM, AMPEX, SCULLY: Major Pro Audio Lines for broadcast and recording studios. Professional Audio Video Corp, 342 Main Street, Paterson, N.J. 07505. (201) 523-3333.

INSTRUCTIONS

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, 10601 Duncan, Manhattan Beach, Calif. 90266. 213-379-4461.

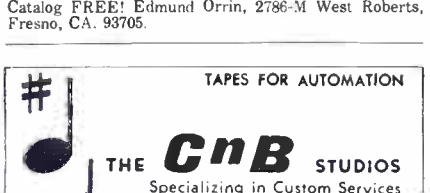
INSTRUCTIONS

In Chicago, OMEGA Services has the best price for a First Class License. Day or evening. Guaranteed results! OMEGA Serivces, 333 East Ontario. 312-649-0927.

FCC LICENSE. Our course teaches you electronics the right way, through understanding, at a price you can afford. Home study. Free catalog. Genn Tech., 5540 Hollywood, Blvd 9, Hollywood, CA. 90028.

PROGRAM SERVICES

Deejays! New Comedy! 11,000 classified one-line gags, $10. Catalog FREE! Edmund Orrin, 2786-M West Roberts, Fresno, CA. 93705.



"FREE" CATALOG . . . Everything for the deejay! Custom I.D.'s, Promos, Airchecks, Wild Tracks, Books, FCC Tests, Comedy, and more! Write: Command, Box 26348-A, San Francisco, CA. 94126.

PROFESSIONAL CARDS

McCLANATHAN & ASSOCIATES
Consulting Engineers
APPLICATIONS & FIELD ENGINEERING
TURNKEY INSTALLATIONS — RADIO & TV
Domestic and Foreign
P. O. Box 750
PORTLAND, OREGON 97207
Phone: 503/246-8080

COHEN & DIPPELL
CONSULTING ENGINEERS
Formerly GEO. C. DAVIS
527 Munsey Bldg.
(202) 783-0111
Washington, D. C. 20004
Member AFCCE

VIR JAMES
CONSULTING RADIO ENGINEERS
Applications and Field Engineering
Computerized Frequency Surveys
345 Colorado Blvd.—80206
(303) 333-5562
DENVER, COLORADO
Member AFCCE

RALPH E. EVANS ASSOCIATES
Consulting TeleCommunications Engineers
AM-FM-TV-CATV-ITFS
3500 North Sherman Boulevard
MILWAUKEE, WISCONSIN 53216
Phone: (414) 442-4210
Member AFCCE

NEWS Continued from page 62

Corporation for Public Broadcasting Task Force on Adult Education. . . . **Daniel W. Kops,** president of Kops-Monahan Communications, New Haven, was honored with Distinguished Service Award of Connecticut Broadcasters Association. . . . **J. Leonard Reinsch,** chairman of Cox Cable Communications, Inc., has been inducted into "CATV Pioneers," organization honoring persons who have participated in cable TV industry at least 10 years, "exerting significant, beneficial influence."

FINANCIAL

Scientific-Atlanta, Inc. reports increases of 34 per cent in sales and 42 per cent in net earnings for nine-month period ending March 31. For third quarter, sales were $6,666,000, up 24 percent, and net earnings of $244,000, up 33 per cent, from same period last year. Earnings for the quarter were 27 cents per share compared with 20 cents last year. . . . **Zenith Radio Corp.** showed sales up and earnings down for first quarter 1974. Sales were $246.5 million, up 11.4 per cent from $221.3 million for same period 1973. Earnings were $8 million, or $.43 per share, down from 1973 first quarter earnings of $16 million, or $.84 per share.

Fairchild Industries reported first quarter sales of $57,902,000 compared with $54,357,000 for same period last year. Earnings were down, with $1,518,000 or $.33 per share, compared with last year's first quarter $2,937,000 or $.64 per share. . . . Oak Industries, Inc. reported first quarter sales of $33,058,369, a 17 percent increase over sales of $28,263,274 in first quarter 1973. Net income was $1,460,466 or $.84 per share, a 39 percent increase over 1973 first quarter net income of 1,052,945, or $.59 per share.

CALL FOR HELP

Tell us where you found it. We'll include it in our September issue of The Source. Everybody knows RCA and Gates but where do you find S.O.S. Unlimited that sells color-coded mag tape among other things? If you've found obscure sources for unusual but useful products for broadcasting, tell us. We'll put it in the broadcasting industry's most complete and comprehensive guide yet. This September. BM/E—The Source.

SALES OFFICES

Broadband Information Services, Inc.
274 Madison Avenue
New York, New York 10016

EASTERN & MIDWESTERN STATES
274 Madison Avenue
New York, New York 10016
212-685-5320
Charles C. Horner

WESTERN STATES
1111 Hearst Building
San Francisco, California 94130
415-362-8547
William J. Healey

16400 Ventura Blvd.
Encino, California 91316
213-981-0611
Art Mandell

JAPAN
Nippon Keisoku Inc.
P.O. Box 410
Central Tokyo, Japan
Tokyo (03) 667-7681
Yoshi Yamamoto

ADVERTISERS' INDEX

BM/E-CM/E READER SERVICE CARD July 1974 Issue

Use this FREE postpaid Card for more information on the products described.

NAME _____

TITLE _____

STATION OR COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TEL. AREA CODE ( ) _____

Tell us what you like or dislike about the issue

_____

_____

_____

What articles would you like to see?

_____

_____

GREAT IDEA BALLOT *Rank all items of interest to you on a 0–10 scale*

No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
—	( )	—	( )	—	( )	—	( )	—	( )
—	( )	—	( )	—	( )	—	( )	—	( )

100–249: ADS 250–299: LITERATURE 300–399: EDITORIAL

100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139
140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179
180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199
200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219
220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259
260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279
280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319
320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339
340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359
360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379
380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399

Use until October 31, 1974

BM/E-CM/E READER SERVICE CARD July 1974 Issue

Use this FREE postpaid Card for more information on the products described.

NAME _____

TITLE _____

STATION OR COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TEL. AREA CODE ( ) _____

Tell us what you like or dislike about the issue

_____

_____

_____

What articles would you like to see?

_____

_____

GREAT IDEA BALLOT *Rank all items of interest to you on a 0–10 scale*

No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
—	( )	—	( )	—	( )	—	( )	—	( )
—	( )	—	( )	—	( )	—	( )	—	( )

100–249: ADS 250–299: LITERATURE 300–399: EDITORIAL

100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139
140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179
180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199
200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219
220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259
260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279
280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319
320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339
340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359
360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379
380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399

Use until October 31, 1974

COMPLIMENTARY SUBSCRIPTION QUALIFICATION CARD

1. I would like to receive BM/E ☐ Yes ☐ No
   I would like my copies to include CM/E ☐ Yes ☐ No

2. My company is: (Please check ALL items which pertain to your firm.)

- ☐ AM Station(s)
- ☐ FM Station(s)
- ☐ TV Station(s)
- ☐ Instructional TV or CCTV
- ☐ Campus Limited Radio
- ☐ CATV Facilities
- ☐ Telephone Company
- ☐ Program Sources
- ☐ Recording Studios
- ☐ Government
- ☐ Consultant
- ☐ Lawyer
- ☐ Distributor/Manufacturer dealer
- ☐ Other (please specify) .....

3. Are you responsible for more than one station or facility?
   ☐ Yes ☐ No

4. My primary area of responsibility is: (Please check one)

- ☐ Corporate Management
- ☐ Engineering & Engineering Management
- ☐ Operations Management
- ☐ Station, Production or Program Management
- ☐ Other (please describe) .....

5. Your signature .....

Title ..... Date .....

Name ..... Title .....

Station or Co. .....

Street .....

City ..... State ..... Zip .....

If this is an address change, affix label

Is this your business address? ☐ Yes ☐ No

If not, please give us your business address below so that we can avoid sending duplicate copies.

Name .....

Station or Co. .....

Street .....

City ..... State ..... Zip .....

FIRST CLASS
Permit No. 665
Duluth, Minnesota

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

BM/E-CM/E

BROADCAST MANAGEMENT ENGINEERING — CABLE MANAGEMENT ENGINEERING

Broadband Information Services, Inc.
P.O. BOX 6058
Duluth, Minnesota 55806

FIRST CLASS
Permit No. 665
Duluth, Minnesota

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

BM/E-CM/E

BROADCAST MANAGEMENT ENGINEERING — CABLE MANAGEMENT ENGINEERING

Broadband Information Services, Inc.
P.O. BOX 6058
Duluth, Minnesota 55806

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

FIRST CLASS
Permit No. 665
Duluth, Minnesota

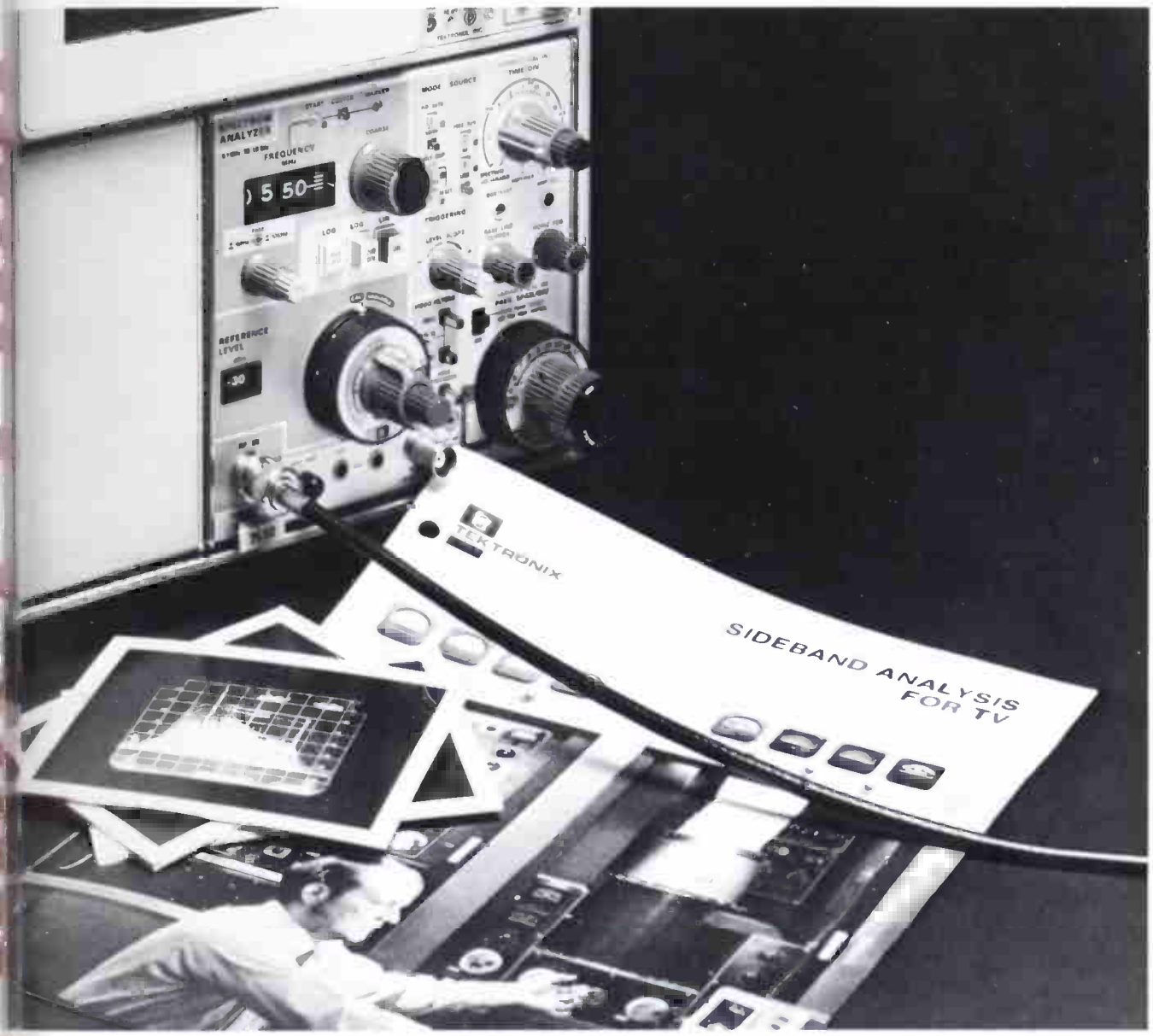
OSTAGE WILL BE PAID BY

BM/E
CM/E

BROADCAST MANAGEMENT ENGINEERING
CABLE MANAGEMENT ENGINEERING

Broadband Information Services, Inc.
P.O. BOX 6056
Duluth, Minnesota 55806

MUCH MORE THAN A SIDEBAND ANALYZER



Why limit your capability when selecting a sideband analyzer? With multipurpose Tektronix products you are not limited to just one channel, or to just one set of levels, or even to just Sideband Analysis. You can use standard Tektronix products to perform SA, with extensive benefits.

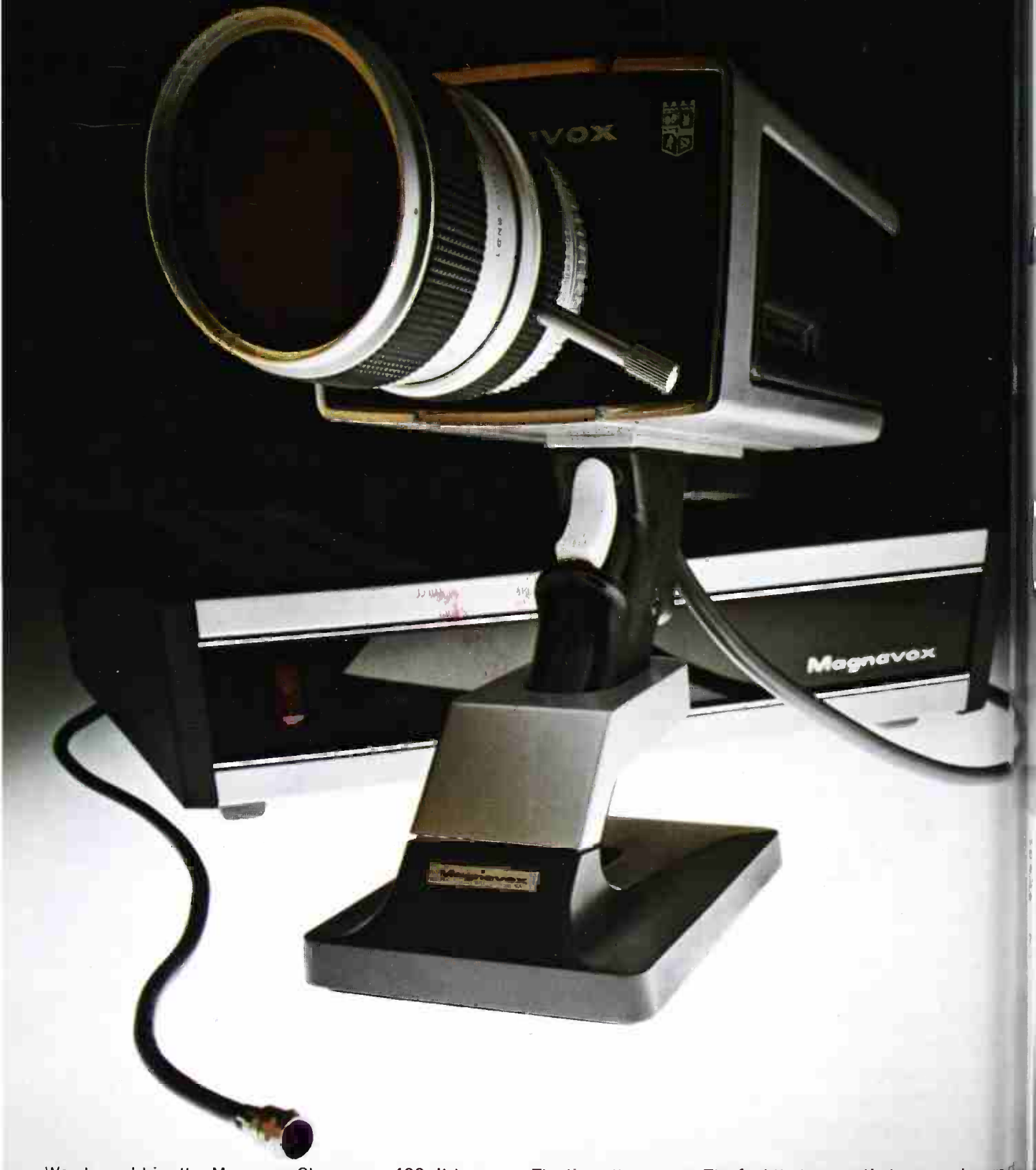
How about verifying transmission line, filter and antenna performance during icing conditions? Do it in-service with Technique #3. How about the lower −3.58 MHz notch, the lower −1.25 MHz roll off point, the upper 4.75 MHz roll off, or skirts 50 dB or more down? Technique #1 uses a Tektronix full-field noise source for determining frequency response without synchronization and at lower cost. Technique #2 uses multiburst for flatness adjustments. Proof-of-performance requirements are precisely met with Technique #4.

Where can you find these techniques? Ask your CE for "Sideband Analysis for TV," an application note he received recently or call your Tektronix Field Engineer. Tektronix, Inc., P.O. Box 500A, Beaverton, Oregon 97005.

TEKTRONIX®
committed to technical excellence

Circle 151 on Reader Service Card;
For demonstration Circle 152

A TV NEWS DIRECTOR TOLD US THIS COLOR CAMERA WILL SAVE HIM OVER $15,000* NEXT YEAR ON FILM CO



We showed him the Magnavox Chromavue 400. It has no operational camera controls. It weighs less than 7 pounds. It works indoors or outdoors. The viewfinder gives instant playback in black and white. Then we mentioned the price. $2,500.* To say the news director was enthusiastic is to understate it. He thought of his 16mm film cameras. The processing involved. The time, the money. The fact that magnetic tape can be era and used again. The quick editing, the Total Automatic Co Some quick arithmetic came up with some big savings. If su figures are swarming through your head right now, con Magnavox Video Systems for complete details. The Magna Company, 1700 Magnavox Way, Fort Wayne, Indiana 468

Magnavox Video Systems • 1700 Magnavox Way • Fort Wayne, Indiana 46804 • (219) 432-6511

*Details available on request. Suggested list price F.O.B. Greeneville, Tenn. optional with dealer.