

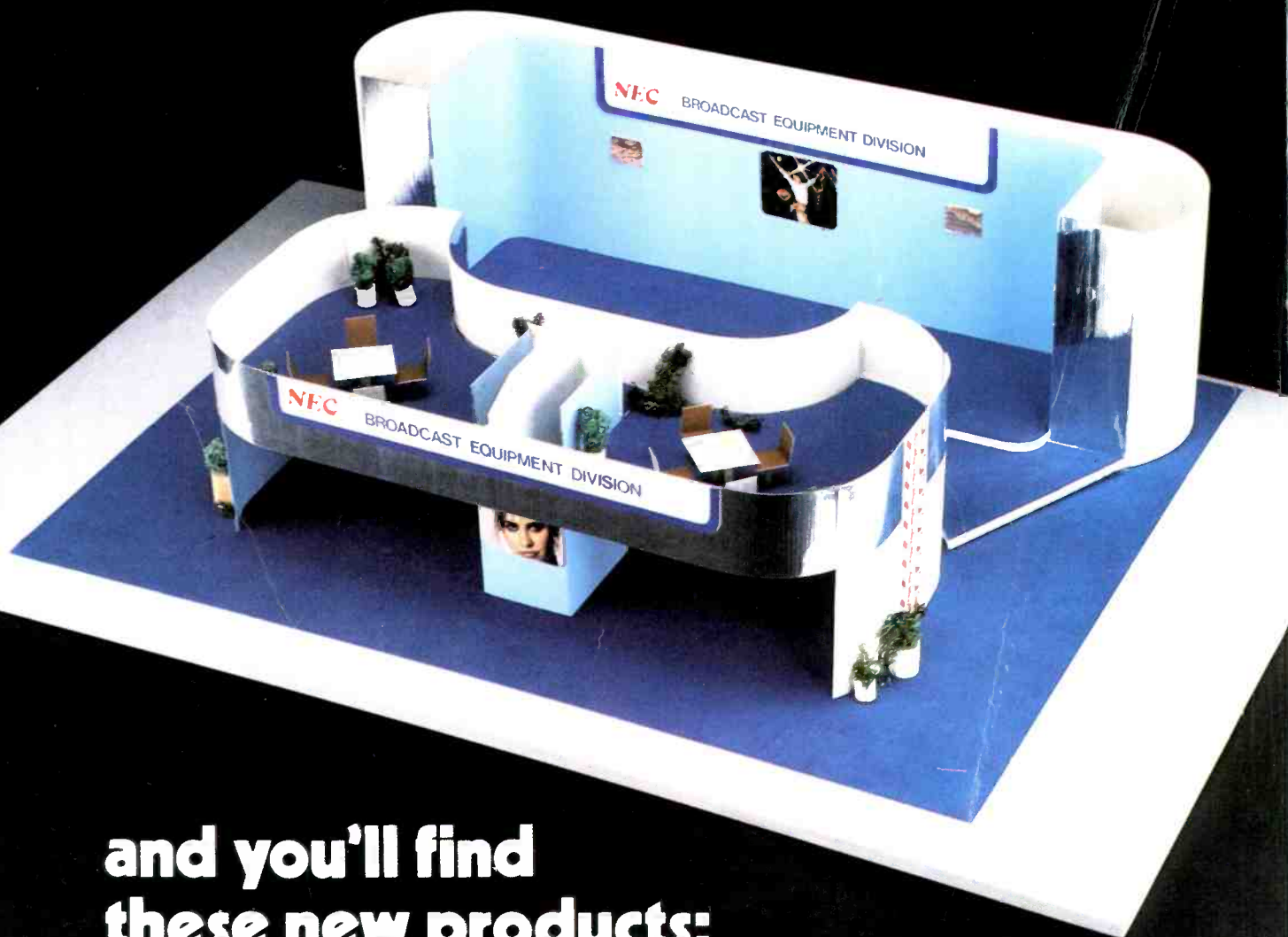
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March, 1980/\$3.00



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Toshiba has been an established leader in the design of broadcast systems around the world for the last 30 years. Over \$10 billion in consolidated sales in the last year supports hundreds of research scientists who are challenging the frontiers of science and technology to produce tomorrow's products today.

Toshiba's design engineers are establishing new standards in all parameters of color camera performance for an entirely new product family. The leader in the new Toshiba camera line will be the PK-40 microprocessor-controlled studio camera. On a comparative basis with any competitive camera products we know of, we believe the PK-40 to be substantially ahead of its time and superior in performance.

A visit to our NAB exhibit (Booth 1415) will prove the point. We invite you to use the PK-40 as a standard of measurement against which to judge all of the studio camera products displayed at this year's NAB. If your goal is to reproduce the highest quality images faithfully, and purchase the finest studio camera in the industry, Toshiba will be in your budget during the 80's.



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In Touch with Tomorrow

See Us At NAB

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BROADCAST[®] engineering

The journal of broadcast technology

March, 1980 □ Volume 22 □ No. 3

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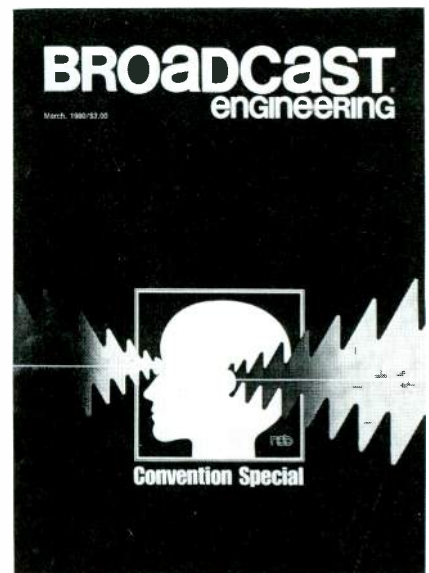
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NAB BROADCASTING '80
LAS VEGAS CONVENTION CENTER
APRIL 13-16, 1980

THE COVER

The cover is adapted from NAB's brochure promoting their 58th Annual Convention and International Exposition to be held in Las Vegas, April 13-16, 1980. The theme is "Sight & Sound: Broadcasting '80." Emphasis is on the new challenges in technology which broadcasters will face as they enter the decade of the '80s. The artwork was copied and reproduced here with the permission of NAB. Art was designed by Lynne Branthover, Watermark Design, Alexandria, VA.

NAB CONVENTION GUIDE

See page 40 for an introduction and overview of this year's big 58th Annual Convention in Las Vegas. Our extensive pre-NAB coverage of this event is indexed on the left of this page.

APRIL ISSUE

- Audio in TV and radio
- Digital standards update
- SMPTE/Toronto convention replay

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One-inch is the VTR format of the future. It's too important a step forward for a scaled-up 3/4" or a scaled-down 2" system. It deserves to be totally original, with every advance designed in. That's how we approached the new Hitachi HR-200, after almost 20 years of experience making quad machines. The result: a one-inch Type C VTR destined to establish new broadcast standards everywhere. In every department, the Hitachi HR-200 is miles ahead of the one-inch competition!

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Hitachi one-inch VTR's are loaded with features—many of them Hitachi exclusives. Like the brake release for easier threading. Both video and audio confidence. A "B-wrap" configuration, for reduced dropout. A *precision* moveable tape guide for easy loading, with an incredible 1-micron tolerance that's accurate for up to 2 million threadings! Plus a sloped design and easier-to-see top mounted drum for still easier threading.

Dazzling performance extras

Imagine shuttling a 1-hour tape end-to-end in just 80 seconds! It's possible, only on the Hitachi HR-200, because an internal air compressor injects a column of air into the tape guides to reduce friction and increase acceleration. The same air compressor provides air for the non-contact air drum, cushioning the tape when in the standby or fast shuttle modes. For fumble-free shuttling and jogging and fast editing, a single knob controls both. There is audio spot erase capability. And a Hall-Effect head on the third channel reads the time code more accurately, regardless of tape speed.

A microprocessor makes the built-in editor the most advanced you'll find today. And, just as important: it can be re-programmed to interface with editing systems of the future. Serial or parallel logic for remote control? Both have advantages, so Hitachi gives you both. Built-in cable compensation boosts the signal so you can use cable up to 300 feet.

Uniquely simple service

Serviceable components have been human-engineered for easy access and replacement. The PC modules are front-mounted and can be removed in an instant. The six heads come as a pre-aligned drum assembly that snaps out and snaps back in minutes.



HR-100 Portable Model

The HR-200 is available as a console, or for tabletop use or 19" rack mounting. Best of all, it costs no more than ordinary 1-inch VTR's!

Smallest Type C portable ever!

The HR-100 portable model has many of the HR-200 features, yet it's the smallest Type C portable in the world. And the most serviceable too, with plug-in PC modules. Die-cast uniblock construction makes the HR-100 durable yet extremely light. And like the HR-200, it has a non-dropout tape path. Plus an extended tape path for less edge wear, an auto back space assemble editor, and 3-way power with built-in battery pack, AC adapter or external DC.

Take a big one-inch step. See the New Hitachi 1" VTR's...today.

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Super Prism Performance

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To appreciate the FP-40's agility in action, you need only slip it onto your shoulder (left or right, thanks to Hitachi's exclusive flip-over viewfinder). It's light, balanced, comfortable, and *totally* self-contained, down to its integral DC power pack. No battery belts—no wires.

For the small station expanding its news and production capability, or the larger station growing with the times, the FP-40 is made to order. Options such as a 5" viewfinder, genlock, and remote operation panel let you easily convert it to studio use. You can tape in the field and broadcast that evening with the same camera.

With all this and more, we consider the FP-40 to be a newsworthy camera in more ways than one. Why not call your Hitachi dealer...today?

Hitachi FP-40...Tomorrow's technology today.

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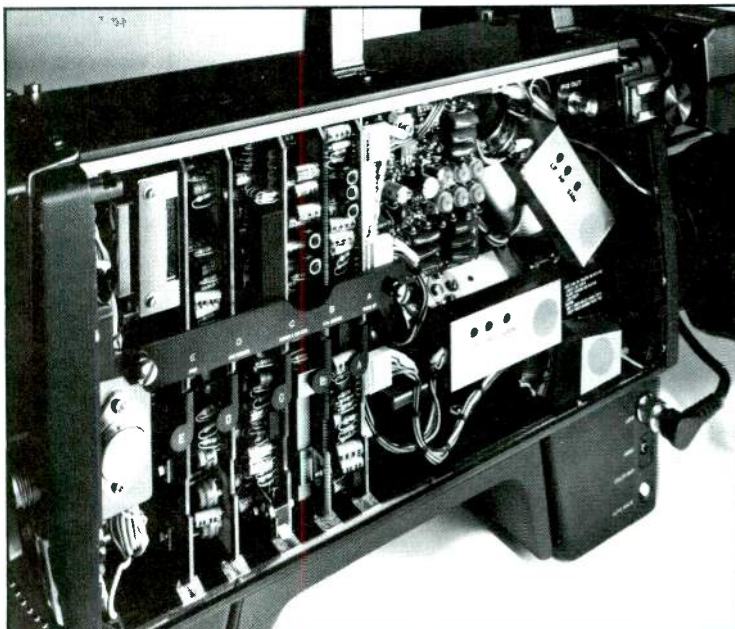
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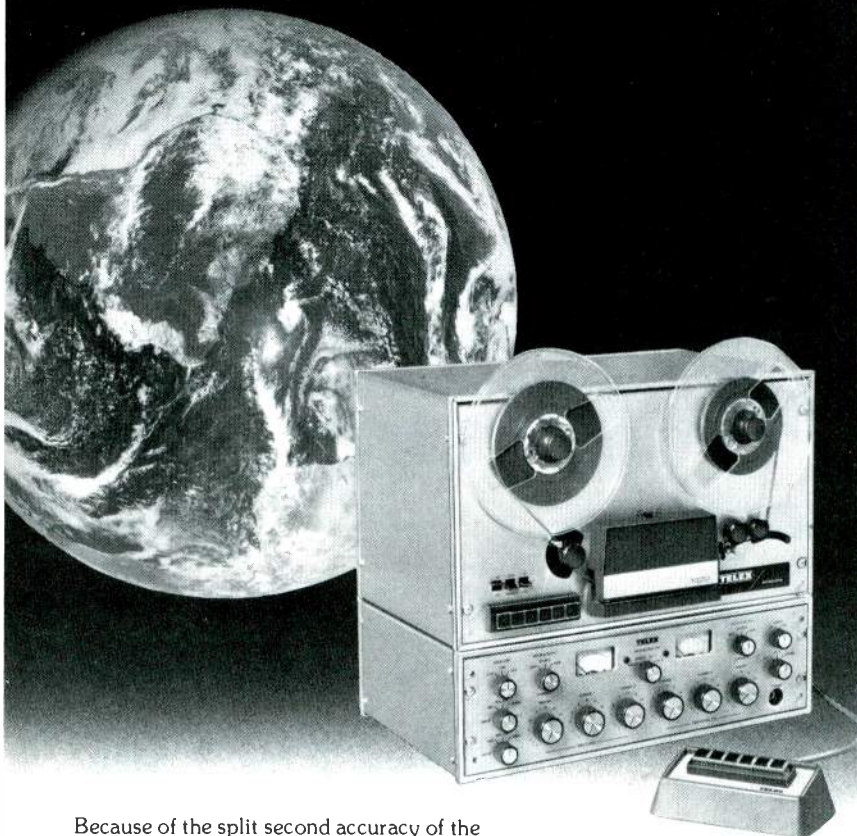


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8 Broadcast Engineering March 1980

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FCC update



March, 1980

AM and FM reorganization

In reorganizing the Broadcast Bureau, the FCC has abolished the Aural New and Changed Facilities Branch and the Aural Existing Facilities Branch and established AM and FM Branches. The AM Branch is responsible for all applications and matters pertaining to AM broadcast stations which were previously handled by both of the abolished branches. Similarly, the FM Branch is responsible for all applications and matters concerning FM broadcast stations that were previously handled by both of the abolished branches. Both new branches are located at 1919 M Street NW **Contacts: AM Branch—Room 354; Status Line: (202) 632-7010; FM Branch—Room 300; Status Line: (202) 632-7166.**

Whittaker to office of plans and policy

James M. Whittaker has been appointed assistant chief for management in the Office of Plans and Policy. In this position he will be responsible for directing the policy research program as well as the administration of the Plans and Policy office.

1981 budget to Congress

The FCC's Fiscal Year 1981 Budget Estimates to the Congress requests an appropriation of \$77,142,000, a net increase of \$950,000 over the Commission's FY 1980 appropriation (after taking into consideration the Commission's pending FY 1980 pay raise supplemental request).

The requested \$950k increase represents the additional amount required by the Commission to fully fund leased office space during FY 1981.

Programming for TV off-hours

The Commission has amended its TV transmitter operating rules to permit the broadcast of visual information programming—such as news, weather or sports, either

with background music or no audio—during early morning hours when television would otherwise be off the air.

The Commission said use of new rules permit use of a previously unavailable service in the graveyard hours and allows visual informational programming at a time when such programming is thin or nonexistent.

The Commission said it was proposing to restrict such presentations to normal dark or off-air hours starting with sign-off and continuing only to the next sign-on. All pertinent FCC regulations would apply during these hours, such as station identification, and advertising would be allowed. The Commission said, however, that it did not contemplate allowing licenses to count such presentations toward the total hours of informational programming on station reports or applications requiring such tallies.

Comments are due March 31 and replies April 30. BC DOCKET 80-10; FCC 80-22.

WARC Report submitted

The FCC Office of Science and Technology has formally reported that the 1979 World Administrative Radio Conference (WARC), held in Geneva, Switzerland, from September 24 to December 6, was a substantial success from the US point of view.

Among the major achievements of the conference, according to FCC chief scientist Stephen J. Lukasik's report, were:

- A 100kHz expansion of the AM broadcasting band, which in the present US spacing pattern would create 10 additional AM radio channels.
- Additional radio frequency spectrum for satellite broadcasting uses, which will provide separate bands for broadcasting to the public and for fixed international and domestic communications uses.

- More high frequency spectrum for amateur and maritime mobile uses and for international high frequency broadcasting.

Those and other actions of the conference will have no immediate effect on the US telecommunications system, the report said. The conference is a function of the International Telecommunication Union (ITU), an international organization predating the League of Nations. Conference actions have treaty status and as such must be ratified by the US Senate to take effect.

Final actions of the conference take effect in 1982, and most incorporate a timetable for phasing them into operation over a period of years. Further, most will require FCC rulemakings before they can take effect, since they involve reallocation of segments of the radio frequency spectrum. The actions listed as major achievements, for example, will require FCC reassignment of the uses now occupying the affected parts of the spectrum before the proposed expansions can take place.

9 kHz channel spacing for AM

In a closed meeting the Commission voted in December, to recommend that the US propose a reduction in channel spacing from 10kHz to 9kHz in the AM broadcast band.

If approved by the State Department, this proposal will be made to the other nations of the Western Hemisphere at the Region 2 Administrative Radio Conference in Buenos Aires, Argentina, in March.

FCC rules currently specify that AM broadcast stations operate on the 107 channels spaced at 10kHz intervals from 540kHz to 1600kHz. Approximately 2250 fulltime stations have been assigned to those channels. A reduction in channel spacing to 9kHz would increase the total number of channels from 107 to 119 and permit the authorization of an additional 200 to 1400 fulltime stations depending on the action of the Conference and assignments by the Commission.

The decision to recommend 9kHz channel spacing will be incorporated in a Commission Report on Region 2 proposals. A complete report on the Notice of Inquiry on 9kHz spacing (BC Docket No. 79-164, adopted June 21, 1979) will be released after the March session of the Region 2 Administrative Radio Conference.

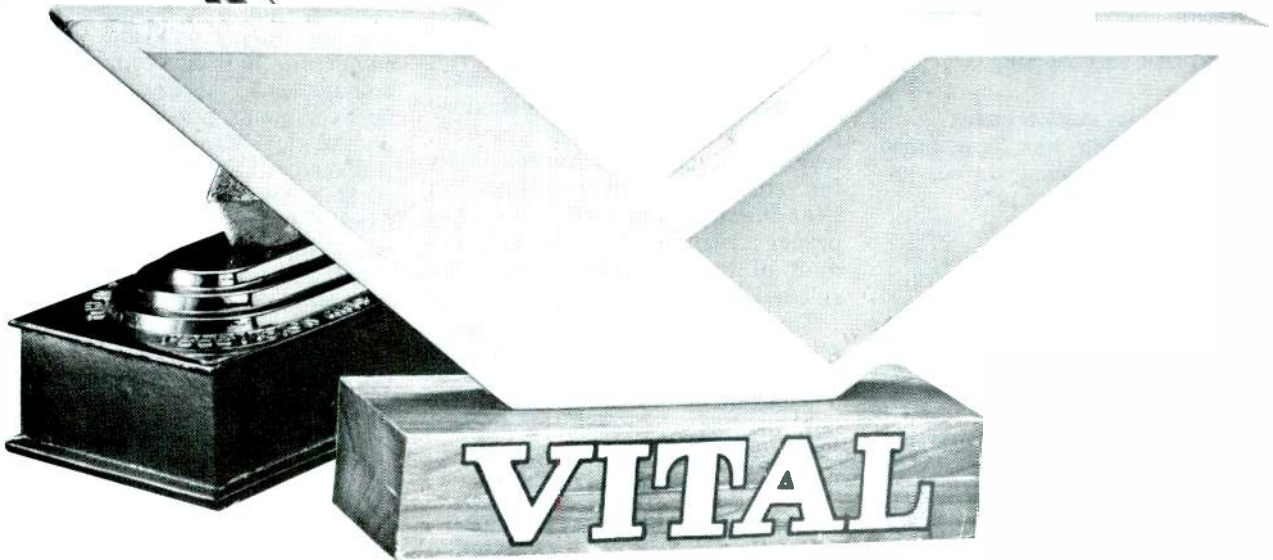
AM Broadcasting/Region

The Advisory Committee on AM Broadcasting for the Region 2 upcoming meeting has recently met



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(January 28, February 27) to discuss progress of its task forces. Comments from interested parties may be addressed to: Charles H. Breig, FCC Broadcast Bureau, Rm. 8002, 2020 M Street NW, Washington, DC 20554.

Radio deregulation

The Commission has extended from January 25 to March 25 the deadline for filing comments and from April 25 to June 25 the deadline for reply comments in its radio deregulation proceedings. The extensions were granted in order to permit interested parties sufficient time to study and to comment on new and additional materials being released. This inquiry and proposed rulemaking opens a wide-ranging re-examination of FCC radio regulations. BC DOCKET 79-518.

Broadcast station count

The Commission has announced the following broadcast station totals as of December 31, 1979:

AM Radio.....	4559
FM Radio.....	3155
FM Educational.....	1038
UHF-TV (Comm.).....	229
VHF-TV (Comm.).....	517
UHF-TV (Ed.).....	162
VHF-TV (Ed.).....	105

Children's TV programming

The FCC has asked for public comment on five options for increasing the diversity of children's television programming and also requested public comment and analysis of its Children's Television Task Force Report (presented to the FCC on October 30).

The options are:

- Repeal the 1974 Policy Statement and rely for children's programming on program sources other than advertiser-supported television.
- Maintain or modify the Policy Statement and modify the television license renewal form to obtain more comprehensive and precise information about licensee program practices for children.
- Adopt interim mandatory programming rules for amount, scheduling and type of programming for children.
- Adopt a TV license renewal processing guideline to determine if license renewal applications meet minimum guidelines for children's programming.
- Increase both the number of advertiser-supported television outlets in each market and the amount of for-pay video programming through cable, over-the-air sub-

scription TV and/or direct satellite-to-home broadcasting.

The Commission hopes to adopt one of these options at the close of this proceeding, except that if it chooses the mandatory programming rule option, it will issue a further notice of proposed rulemaking to outline the specific aspects of such a rule and allow for further comment on it.

Comments June 2, replies August 1. Docket 19142;

Children's TV Task Force

The FCC's Children's Television Task Force is relocating to the Policy and Rules Division of the Broadcast Bureau.

With the Commission's recent decision to adopt a Notice of Proposed Rulemaking on children's television, this proceeding has now concluded its policy development phase and enters the rulemaking phase. The Broadcast Bureau, which has principal responsibility for rulemaking proceedings on broadcast issues, will now take primary responsibility for the conduct of the children's television rulemaking.

The Task Force will become a part of the Policy and Rules Division, but will maintain its status as a separate entity under the direction of Susan Greene. The Task Force will report to Henry L. Baumann, chief of the division.

Reimbursement in rulemaking

The Commission has proposed a 1-year pilot program of reimbursement to individual consumers, groups and small businesses for expenses incurred in their participation in FCC rulemakings if funding for such a program is provided by Congress.

The Commission concluded that the high cost of effective participation in its proceedings limited and often prohibited contribution of information and opinions by the public. It found that an increase in public participation would assist the FCC in reaching sound decisions in the public interest.

It emphasized that reimbursement of expenses to encourage participation would be for the FCC's benefit in making its decisions, not for the benefit of any individual or group.

Reimbursable participation would include presenting evidence to the Commission and staff, the costs of research and analysis, fees for legal representation, experts and consultants, travel to Washington, DC, or elsewhere, as necessary, and similar expenses.

The program would be for one year, if Congress approved funding. The actual amount sought for reimbursement would be \$500,000.

The program would not create any new or additional right to participate in FCC proceedings. Comments April 7, replies May 23. GEN DOCKET 79-208, FCC 79-852.

Miscellaneous Action

The FCC has...

...declined to impose a general restriction on the pre-release of US programs over Canadian TV despite objections of US networks/affiliates.

...denied a Seattle TV station special relief from cable TV use of Canadian pre-released US programs to border audiences.

...found that a San Francisco Bay area newspaper publisher with 10% ownership (but no voting right or management role) in a radio station licensee would not be violating FCC multiple ownership rules.

...denied a Farinon Electric petition seeking to expand the secondary fixed point-to-point communications capability permitted in the 450-470MHz band.

...granted W.G.P.R., Inc. authority in Detroit to operate subscription TV (STV) over WGPR-TV. This is the first STV authorization made possible by the repeal of the "one-to-a-community" rule.

...granted seven applications for "mini-TV stations (TV stations utilizing videotaped programming) to serve remote Alaskan villages.

...denied a rulemaking petition seeking to require "occasional" TV networks (those presenting only occasional programs) to make their programs available to independent stations before offering them to network affiliates in the same market.

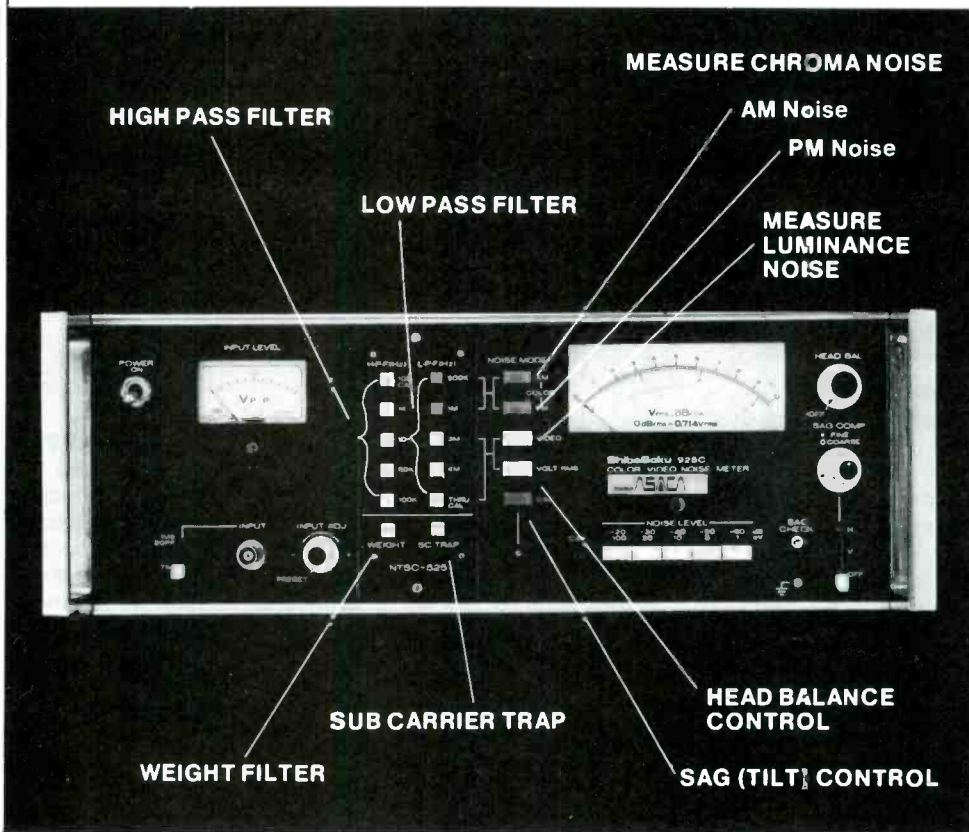
...denied a petition for a rulemaking to limit network programming to 56 min./hr. during prime time at least twice weekly to air local programs.

...modified its procedure for completing Item 6, Form 313 for remote pickup and low power auxiliary broadcast applicants.

...held a seminar on fiber optics for its staff and the public; Dr. Charles Kao, vp and chief scientist, ITT Electro-Optical Products Div., and a pioneer in optical fiber communications, conducted the seminar.

...sponsored a seminar for its staff and the public on biological effects of RF/microwave radiation; Dr. Robert Cleveland of Equitable Environmental Health made the presentation from research he's conducting under a NIOSH contract. □

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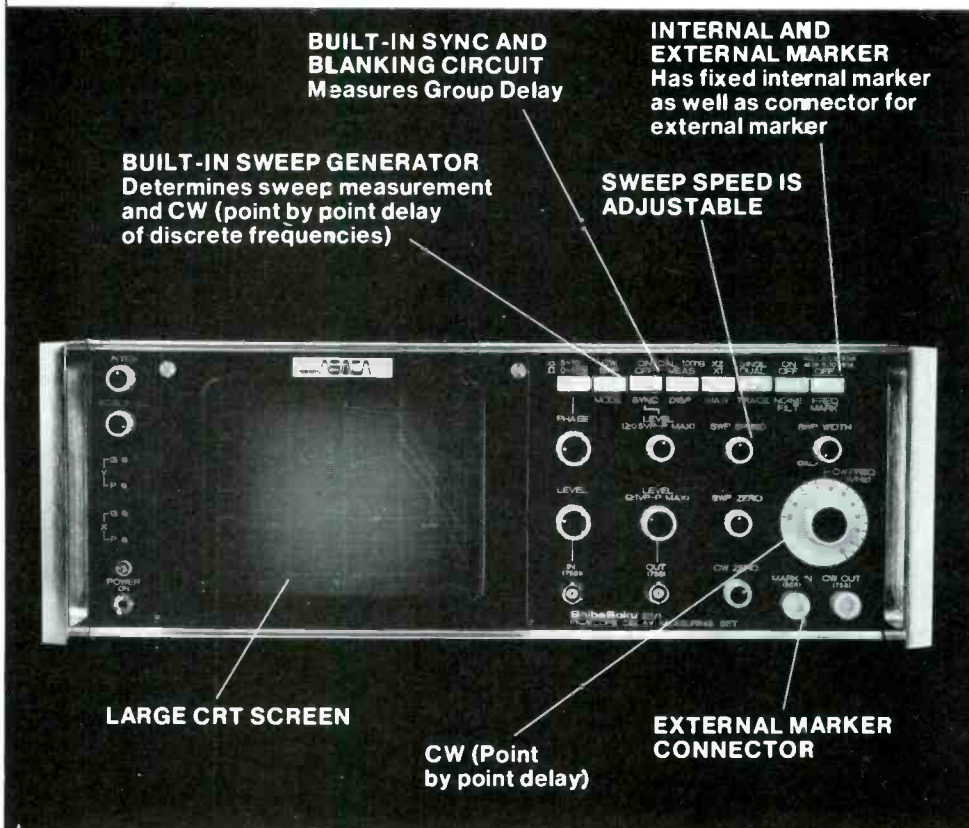
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SBE spring certification exams planned

The Society of Broadcast Engineers' spring 1980 certification exams will be given from May 19 through June 6. Applications must be received in the SBE national office by April 8. Persons interested should write to the SBE Secretary, P.O. Box 50844, Indianapolis, IN 46250, for an application and the certification booklet. The booklet includes sample exam questions, suggested reading material and a list of SBE chapters where the exam will be given.

Emmy Awards Committee

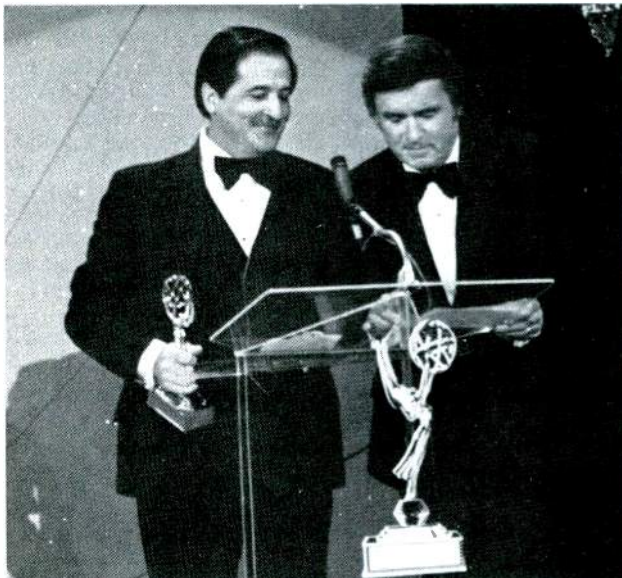
A new Emmy Awards show committee has been formed to oversee the content of the 1980 Emmy Awards program. Hank Rieger, president of the Academy of Television Arts and Sciences, has appointed Bob Sweeney of Sweeney/Feldman/Rosen Productions to serve as chairman for a second consecutive year.

The following Academy members have been selected to serve on the committee: Tony Barr, CBS TV City; Fred Berger, film editor; Bob Finkel, producer; Michael Gallant, ABC-TV; Romain Johnston, art director; Jeff Sagansky, Columbia Pictures TV; Joe Sands, Worldvision Enterprises; Larry Stewart, writer/director; and Sara Dempsey, NBC.

Vital wins Emmy for video technology

Vital Industries, and its late founder Nubar Donoyan, were honored by the Florida chapter of the National Academy of Television Arts and Sciences as recipients of the industry's highest award, the Emmy.

The award, presented December 2, 1979, in Miami, was given to Vital Industries for their invention of the Squeezoom, an electronic television device that allows unprecedented versatility in producing special effects.



Accepting the Emmy for Vital Industries is Mal Malgieri, company vice president. Mike Douglas, national television personality, presented the award.

ITA election results

ITA has announced the election of Henry Brief to the position of executive director. He succeeds Larry Finley, who organized ITA and served as executive director for nine years.

Brief was formerly executive director of the Recording Industry Association of America for 19 years.

Finley will continue to serve as ITA vice president of membership/events, and will remain on the board of directors.

Matsushita develops innovative video camera

Matsushita Electric Industrial has announced the development of the first solid-state color video camera featuring a single-chip, high sensitivity video sensor. The sensor eliminates the blooming phenomenon that is inherent in conventional solid-state cameras. Blooming occurs when intense light, such as flames or shining materials, cause white vertical streaks to appear in the picture.

The solid-state color camera uses photoconductive silicon plates to replace conventional image pick up tubes, making it as compact in size as a home movie camera. The camera incorporates a solid-state image sensor with approximately 210,000 picture elements. It requires a standard scene illumination of 500 lux with an F2 lens.

RCA and CBS announce licensing agreement

RCA and CBS have announced an agreement that RCA has licensed CBS to manufacture and distribute video discs worldwide using the RCA SelectaVision system.

John D. Backe, CBS president said, "CBS is committed to full participation in all the audio/visual technologies which hold great promise in the 1980s and thereafter. Edgar H. Griffiths, RCA chairman, said, "We regard this decision by CBS as a breakthrough in establishing a video disc system...that will set a standard of excellence for the electronics industry worldwide."

The RCA SelectaVision video disc represents 15 years of research and development, and was designed to provide a simple, reliable and inexpensive system for the home.

CBS's records division is the world's largest US-based producer, manufacturer and marketer of recorded music, known throughout the world for its discs, tapes, cassettes and cartridges on Columbia, Epic, Odyssey, Portrait, Columbine, Masterworks and associated labels.

Ampex introduces metal particle tape

Ampex has introduced its MPT metal particle audio cassette. MPT metal particle tape is compatible with the new generation of metal tape cassette decks and

STATE OF THE ART FOR THE 1980's!

Introducing the most advanced TV audio production console ever, the Neve Model 7056. Already chosen by a major U.S. TV network as their standard large audio console for the 1980's. And for good reasons! 36 channel positions with multiple mic/line inputs, 8 submasters, 16 masters, 4 band EQ, full stereo, but most of all because of the incomparable Central Assignment System controlled by an efficient software based microprocessor. Multiple assignment programs can be stored in solid state memory for instant recall between or during productions. If you're considering buying large audio consoles, don't buy yesterday's technology for tomorrow.

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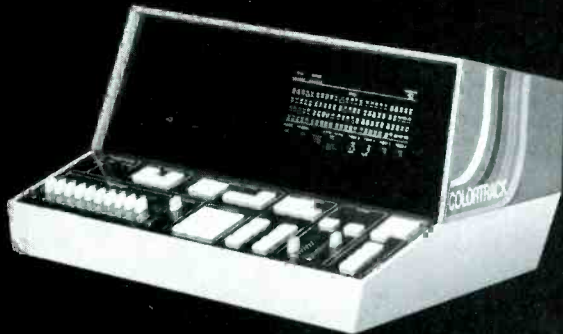
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provides a more than 100% increase in high frequency dynamic range over typical high bias audio cassettes. The tape also allows low distortion at elevated record levels. The new cassette offers dramatic improvements in saturated output at short wavelengths: about 5-6dB above the best available high-bias cassettes, and 11dB above standard gamma ferric oxide products.

The MPT audio cassettes are available in 60-minute lengths.

New video transmission system tested

A cooperative effort by RCA Americom and David Sarnoff Research Center engineers has resulted in the installation of a video transmission system for experimental testing, conveying two new video channels within the same frequency band formerly assigned to one. The experiment is being conducted on RCA's microwave link between New York City and its major satellite transmission facility in Vernon Valley, NJ.

Gerry Kaplan, an RCA Americom systems engineer and video expert, explained the existing frequency situation. Kaplan said, "The ever-dwindling availability of frequency allocations, especially in urban areas, has been aggravated by the increased use of satellites for distribution of TV signals. Frequencies are reserved for use by a communication common carrier upon application to the FCC after coordination with all other carriers. They permit video transmission originating from TV studios located in metropolitan centers to be conveyed via terrestrial radio to the earth station for transmission to a satellite."

John Christopher, RCA Americom vice president technical operations said, "The performance of the new system is comparable to that achieved with the prior transmission techniques. It yields high-quality television pictures that meet the stringent requirements of the cable TV industry.

The ability to convey two video channels in the frequency band that formerly carried a signal channel will allow RCA Americom to effectively double the capacity of its video terrestrial transmission facilities without a corresponding increase in required frequency allocations."

NASA studies predict growth in telecommunications

Demand for US telecommunications services is expected to grow fivefold by the turn of the century, according to recent NASA studies. An increasingly prominent role for space satellite video and data communications traffic is foreseen.

The studies were conducted for NASA Lewis Research Center by U.S. Telephone and Telegraph, New York, NY, a subsidiary of ITT, and by Western Union Corp., Upper Saddle River, NJ. The studies show that demand for conventional voice services, message-toll service and private-line traffic, will continue to predominate.

By the turn of this century, as much as one-fourth of all long-distance voice traffic may be carried by satellites, as well as half of all data and video traffic.

The studies were done in conjunction with NASA's recently announced communications satellite research and technology. Management of the work is assigned to the Lewis Research Center.

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Exclusive Spectra 80 two-level tape counters allow you to hold the program in memory and to time short inserts, edits or other segments within the program. And there's more! • Independent simultaneous search control of each VTR • Independent shift of source or edit cue points • Edit preview and return to cue • Cue and roll to take edit and many other features...all dedicated, one-button functions.

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Whittaker

Primary emphasis is on developing technology needed to open the 20/30GHz frequency band for commercial use during the next two decades in a cost-effective and spectrum-conserving manner. The band has not been used to date in the US.

The concluded studies show that by the early 1990s growing demand for long-distance telecommunications services will have saturated the nation's existing domestic satellite capacity in the bandwidths at 4-6GHz (C-band) and 11-14GHz (Ku-band). To accommodate this expected rapid growth in demand, more versatile satellites that have higher capacity and operate in the 20/30GHz band, as well as in currently used bands, will be required.

A major attraction of the 20/30GHz band, called Ka-band, is the broad frequency range allocated to communications satellite use—five times the band allocated at C-band or Ku-band.

Using the Ka-band, advanced technology satellite systems would have message capacities of 50 to 100 times those operating in the C-band.

The studies conclude that most data-services traffic will originate and end at terminals served by computers, with executive videoconferencing expected to become a partial substitute for business travel by the year 2000. By then, 90% of all telecommunications traffic will require real-time or instantaneous service. The remaining 10%, such as electronic mail delivery, will be non-real-time traffic.

Minimum performance requirements for magnetic recording and reproducing equipment

The IEC has issued a new international standard

laying down minimum performance requirements for magnetic recording and reproducing equipment.

The standard is one of a series being developed by the international body giving minimum performance requirements for individual types of high fidelity audio equipment and systems. Such international standards for record-playing equipment and cartridges and for amplifiers have already been released. Designated Publication 581-4, the latest in the series has been endorsed as an international agreement by the many member countries of the IEC involved in the manufacture of audio equipment and systems.

The standard comprises two sections. The first concerns minimum requirements for characteristics directly related to the reproducing quality of equipment and systems and the second, other characteristics and requirements.

For each characteristic specified, its correct method of measurement and minimum performance requirement is provided. Characteristics described include: weighted wow and flutter; overall weighted signal-to-noise ratio; separation between neighboring non-related tracks; reproduce effective frequency range; and overall effective frequency range. Other characteristics comprise the rated recording level, maximum start time to record/reproduce speed, interconnection (both mechanical and electrical), and characteristics of equipment to be specified in a manufacturer's manual or description leaflet and technical specifications. On this latter point, the manufacturer is now required to specify the reference tapes used for the overall measurement and the calibration tapes used for the reproduction measurement.

CHARACTER GENERATOR DISPLAY OF HEATHKIT® WEATHER COMPUTER

Live local weather information direct from the HEATH DIGITAL WEATHER COMPUTER and displayed on the BEI "MARQUEE" CG-800 character generator.

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Although it's a desk-top model, our 1600 Series audio console offers a brilliant array of features and capabilities for handling the most demanding program material.

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See us at Booth 1404

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National Association of Broadcasters

1771 N Street, NW
Washington, DC 20036



Information critical to copyright

NAB has asked the Copyright Office to amend its forms CS/SA-2 and CS/SA-3 to require cable TV systems to indicate if the radio stations they carry are distant or local.

This information could be gathered, the Association stated, if the cable systems telephone the radio station to ask the boundaries of the appropriate signal strength contour.

Direct to home policy

The Joint Board of Directors of NAB issued a statement saying that direct satellite to home broadcasting cannot be authorized by the FCC unless Congress first approves it and determines the terms and conditions under which it may be operational. The Board said that direct satellite to home broadcasting is inconsistent with the system of local TV and radio licensing and regulation which were provided by the 1934 Communications Act.

FM educational frequencies hurt reception

Saying that the FCC's educational FM frequency assignments have had a disastrous effect on Channel 6 TV reception, NAB has asked the FCC to expedite its pending proceeding aimed at preventing such interference. NAB also asked for an immediate freeze on all applications seeking increased power or antenna height of existing educational FM stations.

NAB opposes bill

A Michigan House of Representative subcommittee has been told by NAB that there is no need to pass legislation regulating TV advertising directed at children. NAB said its Television Code and federal regulations adequately cover such advertising.

The bill before the House Judiciary Subcommittee would prohibit advertisements for consumer items

that may be inappropriate for or potentially hazardous to children. It also would impose strict limits on the content of children's advertising—limits on what could be said, how much, and by whom.

National Radio Systems Committee

NAB and the Electronic Industries Association have formed the National Radio Systems Committee (NRSC) to investigate and recommend methods of improving the overall transmission and reception of AM and FM broadcasting services.

Committee chairman is Wallace E. Johnson and James D. Kearney is vice chairman. Committee members represent manufacturers of receivers, transmitters and broadcast components; broadcasters and associations.

The committee will identify equipment design and operating practices to assure the best possible AM and FM service quality. Its initial consideration will center on AM stereo and FM technical standards. The committee will meet April 15 during NAB's Las Vegas convention.

NAB, RTNDA sponsor training program

An advanced management training program for news directors will be sponsored by NAB and the Radio Television News Directors Association. It will be held June 22-28 at the University of Pennsylvania's Wharton School.

Radio and TV news directors will participate in a program designed to cover areas of people management, planning, organizational design, problem solving and executive self-management. Also in the curriculum will be discussions of budgeting and finance, labor relations and the law as it relates to broadcast news.

Registration information will be mailed shortly to all NAB and

RTNDA members. Inquiries can be directed to Ron Irion, director of broadcast management, National Association of Broadcasters, 1771 N Street, N.W., Washington, DC 20036.

NAB opposes loud commercials

NAB has told the FCC that since the broadcast industry and the government's interests regarding the control of loud commercials are in harmony, no further government involvement is warranted.

According to NAB, any practice that annoys the audience, promotes complaints or discourages listening is harmful to the station.

NAB said its Engineering Advisory Committee has established a Balanced Audio Levels subcommittee which is studying loudness variations in radio and television, and that work is being done at the CBS Technology Center in Stamford, CT on further refining the loudness meter and the loudness compensating amplifier.

Lowest unit charge ruling

The FCC has been asked by NAB to reconsider its ruling that the "lowest unit charge" provisions of Section 315 of the Communications Act are applicable to the Iowa political caucuses and any other caucus.

In its filing, NAB said the FCC action changes a substantive agency regulation despite the terms of the Communications Act and the legislative history of the Federal Election Campaign Act and that the changes were made without allowing for public comment. Congress has stipulated that the lowest unit charge applies to the 45 days preceding a primary or primary runoff election and the 60 days preceding a general or special election—not to political caucuses. The Commission based its decision on the concept that the charge should apply "where the general public at large could partic-



Ikegami's third microprocessor-controlled camera reduces registration set-up time and cost

The ideal camera for field broadcast television assignments must meet three major criteria. It must be air-ready moments after arrival at the camera site. It must deliver pictures of studio-quality color, crispness, and clarity. And it must be consistently reliable.

The Ikegami HK-357A meets those criteria in the field and is equally suitable as a studio camera. And it allows the camera crew to concentrate on creative aspects of their assignment instead of on time-consuming set-up and readjustment tasks.

Once on-site, the HK-357A requires hook-up to only three cables and power source. Then, a push of the microprocessor activate button automatically cycles it

through a check and recheck of all set-up and registration adjustments. This takes approximately 45 seconds per camera (up to six cameras can be handled). No external registration and chip charts are necessary because a test pattern projector (diascope) is built into the lens. Camera distance from the compact base station can be nearly a mile with triax, or 2,000 feet with TV-81 multi-core cable.

Because the HK-357A optimizes the capabilities of the newly developed Diode Gun Plumbicon®, the picture output is of very high resolution, low lag, low noise and wide dynamic range. Dynamic Beam Stretch to reduce comet tailing; Geometric Correction for near-perfect registration; auto iris and auto white balance — all contribute to the superior color picture program output of this camera.

The HK-357A is notably versatile too. It offers selectable contrast compression levels; built-in chroma keyer; gen-lock to Sync and SC or VBS/BBS; and several other features, including an unusually compact CCU, optional RCU, tiltable and rotatable 7-inch high-resolution electronic viewfinder.

The performance record of Ikegami cameras at the major networks in the United States and around the world attests to their consistent reliability and long, trouble-free service life.

If you are upgrading, a demonstration may well reveal that the other cameras you've considered may already be obsolete when compared against the HK-357A.

Ikegami HK-357A

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Broadcast Products Division, Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, N.J. 07607; (201) 368-9171. West Coast: 19164 Van Ness Ave., Torrance, CA 90501; (213) 328-2814; Southwest: 330 North Belt East, Suite 228, Houston, TX 77060; (713) 445-0100; Southeast: 522 So. Lee Street, Americus, GA 31709; (912) 924-0061.

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ipate in the candidate selection process"—a complete departure from stated policy.

Radio board urges study

The Radio Board of Directors for NAB reaffirmed its position that the FCC appoint a joint government/industry advisory committee to prepare in-depth studies of various methods of providing full-time service without significantly diminishing the service of other classes of stations.

The NAB Radio Board also urged that the United States and other nations defer resolution of the 9-kilohertz question until a full factual record including comprehensive engineering and economic studies has been compiled.

First Amendment Congress opens

The First Amendment Congress designed to emphasize the importance of the public's right to know and threats to that right will be held March 16-18 at Williamsburg, VA.

Herbert W. Hobler, chairman of NAB's First Amendment Committee and a member of the Congress' steering committee, noted that "this is the first time the entire media industry has joined forces to alert citizens of their rights under the First Amendment."

NAB asks court to rehear arguments

Saying that the case should be decided now, NAB asked the US Court of Appeals to rehear, either by a panel or the full court, NAB's arguments that the Memorandum of Understanding adopted by the FCC and the Equal Employment Opportunity Commission is illegal. Last December 17, a 3-judge panel dismissed the appeal as "unripe for judicial review."

Policy statement procedure suggested

Erwin G. Krasnow, NAB's senior vice president and general counsel, today suggested that policy statements be put in loose-leaf binders and placed in the FCC public reference room, library and field offices as a means of providing broadcasters access to policy statements. The FCC now announces policies in the form of public notices, declaratory rulings, reports and orders, and primers and does not provide licensees with copies.

Radiation standards need review

According to NAB, federal safety

and health standards should be based on sound research data, be implemented by agencies having jurisdiction in the area and not be more stringent than existing standards for covering electromagnetic radiation.

In its filing, NAB said that prior to implementation of procedural and practice standards by OSHA, the FCC should not implement such standards itself especially since the more expert agency has not chosen to do so.

NAB said the public interest would be served by the government's adoption of radiation regulations or policies based on a firm body of scientific evidence.

NAB said it is unaware of any sound basis for any change in the present American National Standards Institute standard of 10 mW/cm². It said this could be applied to the general public without disrupting the existing or foreseeable operations of the broadcast industry.

NAB asks for ban

NAB has asked FCC to abandon its mandatory horizontal and vertical TV blanking regulations and adopt recommendations made by NAB's subcommittee on TV blanking widths. The subcommittee proposed that the Commission continue its current policy of nonenforcement of its rules for a 5-year period during which the industry would recommend standards.

In its filing, NAB said present regulations prohibit the broadcasting of all programming material which does not conform to blanking standards despite its news, public interest or entertainment value. The Association said it questions the validity of such rules which deprive the public of programming on the basis of a technicality, adding that by enforcing them, the FCC would be in the undesirable role of a technical censor for the TV industry.

NAB asks for reversal

Saying that provision of the Administrative Procedure Act (APA) have been violated, NAB asked the US Court of Appeals to reverse the FCC's new policy for cable TV signal carriage waivers.

The Commission authorized Arlington Telecommunications Corporation (ARTEC) in Virginia to import Baltimore TV signals and shifted the burden of showing any potential damage to Washington, DC stations from the cable system to the

broadcasters. NAB asked the Commission to reconsider its decision, but it refused.

In its filing, NAB told the court that the FCC has changed the distant signal carriage rule in fundamental respects and "crossed the line between developing reasonable standards for waiver of an otherwise generally applicable rule and rewriting the rule itself." The Association stated that the APA and elementary fairness preclude this action.

NAB opposes reimbursement

According to NAB, the National Telecommunications and Information Administration does not have the authority to reimburse participants in its proceedings, and that if it wants to do so, it should seek congressional approval.

In its filing, NAB said NTIA is erroneously basing its authority on statutes that do not expressly authorize or provide appropriations for the agency, but merely permit it to expend funds for its necessary expenses as provided by law.

Committee acts on children's commercials

Guidelines concerning audio and video depictions of a balanced breakfast regimen in children's commercials and a new policy regarding sweepstakes commercials aimed at children have been clarified by the The Children's Advertising committee of the NAB television code board. The action, in the form of questions and answers was effective October 15, 1979, for new commercials and March 1, 1980, for all current commercials.

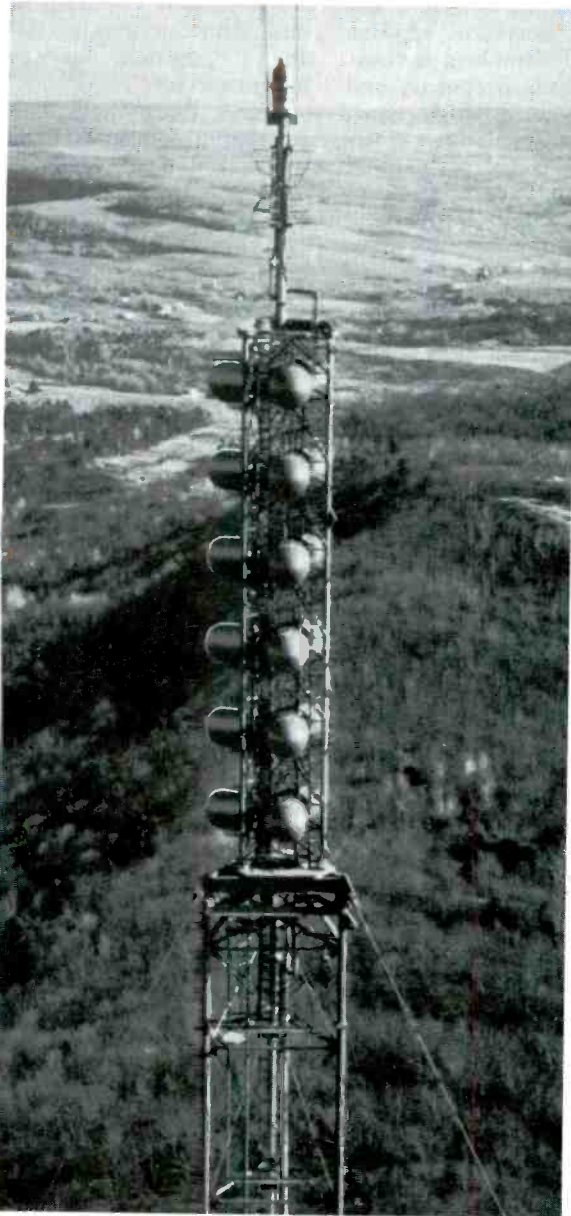
Government meddling danger cited

NAB chairman of the board Thomas E. Bolger warned that if the federal government ever sets rules for broadcast revenues "the media will be liable to total government control." Bolger cited several examples of potential government encroachment in broadcasters' financial affairs in an address to the Broadcast Financial Management Association.

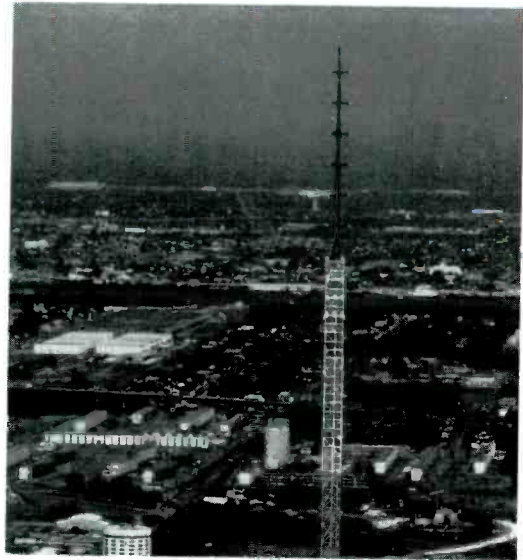
New representative

Mutual Broadcasting System will be represented by Martin Rubenstein, newly-appointed president and chief executive officer on the NAB's Radio Board of Directors. He replaces Dr. Bernard R. Schaafsma, vice president, communications and properties, Amway.

Harris' CP* antennas lead the way to vastly improved coverage and signal strength.



WAST-TV, Albany, New York, CBR directional antenna. No tower change required.



WWL-TV, New Orleans, Louisiana, CPV omnidirectional antenna. No tower change required.

With the Harris CPV antenna, there's no need to replace your present tower when switching to CP — because it has windloading specifications comparable to Batwing and traveling wave antennas. The Harris CBR (Cavity Backed Radiator) is designed for a wide variety of directional patterns. Both antennas allow multiple stations to operate from the same antenna.

Harris CP antennas deliver excellent circularity, low axial ratio and low VSWR. And each may be tailored to your specific coverage requirements.

Learn more about the Harris CP antennas. Contact Harris Corporation, Broadcast Products Division, P.O. Box 4290, Quincy, Illinois 62301, (217) 222-8200.

*Circular Polarization



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National Radio Broadcasters' Association

1705 De Sales Street, NW
Washington, DC 20036

NRBA tone for the 80s

The Board of Directors has reviewed the status of NRBA's programs and services and laid plans for expansion of service to the radio industry.

The Board noted that the times demand forceful forthright industry leadership and expressed determination to fashion NRBA into a more outspoken advocate for radio.

Several important decisions were reached by the Board:

- Opposed 9kHz channel spacing;
- Voted to establish a National Committee for Responsible Public Interest Groups;
- To petition the FCC to amend the rules which limit application of full-time service by a daytimer in a market which already has two or more full-time signals, though expansion to full-time service is technically feasible;
- Supported Arbitron's delisting of stations that air diary promotion announcements;
- Opposed Arbitron's issuing monthly audience survey reports;
- Expanded the number of NRBA Regions from 9 to 15, effective this summer, 1980;
- Elected Martin Rubenstein, President of Mutual Broadcasting, Director at Large.

"The Board, in response to our members and the radio industry at large, is determined to provide aggressive, outspoken leadership for the radio industry," NRBA President Sis Kaplan said. "The problems and opportunities facing radio in the coming years demand that boldness and innovative leadership be displayed," Kaplan added.

"Radio is one of the most powerful mediums and serves the public interest...to an even greater extent than any other. The public is aware of it and its time the Congress and regulatory agencies were made to realize it, too," explained Kaplan.

RE: Deregulation

The Board of Directors passed the following resolution on the FCC deregulation proposal:

Be it resolved:

that the National Radio Broadcasters Association reiterates its

long held and often states support for the deregulation of radio.

It is further resolved:

that the FCC Notice of Proposed Rulemaking (BC Docket No. 79-219), while a commendable gesture, is not true deregulation and NRBA cannot, therefore, approve The Proposed Rulemaking **in toto**. Many of the FCC proposals and options would, in NRBA's view, create more onerous over-regulation than now exists and would create an even greater lack of license stability than is provided under the present rules. Degradation of service to radio's listening public would inevitably follow.

NRBA will submit detailed comments on the Proposed Rulemaking including specific alternatives which will beneficially serve the interests of the radio industry and the American public.

But NRBA is not completely opposed to **all** of the current FCC proposals for the "deregulation" of radio. The facts are that NRBA views the FCC proposals as **re-regulation** and not deregulation and that the "preferred" options which are being highly touted could, if adopted as stated, create for radio licensees more confusion, less certainty, only slightly less paperwork, and...most important...would further weaken license stability.

In short, NRBA sees more negatives than positives, more danger than security in the "preferred" options being pushed by some interests.

RE: 9kHz

The Board of Directors adopted the following resolution against 9kHz.

"Be it resolved that the NRBA for valid technical reasons, flatly opposes the adoption of the 9kHz AM channel spacing proposal which will be considered at the Region 2 Administrative Radio Conference."

The Board believes that the adoption of 9kHz spacing on the AM band will result in a loss of signal quality and degradation of service to the public could prohibit the development of AM stereo and would forever limit AM from reach-

ing a parity with FM.

"It seems to us," said Sis Kaplan, NRBA President, "that the public and the radio industry are being asked to pay an exorbitant price for the dubious advantages claimed for 9kHz spacing.

"We will submit to the FCC detailed comments supported by technical information backing our position that adopting 9kHz spacing is unnecessary and would be unwise."

RE: Loud Commercials

The NRBA filed comments opposing any FCC regulations "Eliminating Objectionable Loudness of Commercial Announcements" (Docket 79-168), calling them "unnecessary and inappropriate."

NRBA questioned the need for regulating commercial audio levels; the question of loud commercials has been reviewed by the Commission a number of times over the past 17 years with no action ever taken because of fundamental problems in defining and measuring commercials that are "too loud." NRBA maintains that these same problems exist today and that regulating commercial audio levels is also unnecessary because marketplace competition can effectively resolve all problems.

NRBA comments noted that even if loudness could be defined objectively and measured accurately, to regulate audio levels the FCC would have to "determine what degree of loudness can be 'tolerated' by the public's sensitivities. It is frightening to imagine the Commission, acting as an arbiter of taste, attempting to divine some nationally acceptable standard of loudness where no such standard can be said to exist."

Deregulation Filing Extended

Pressure from the National Association for the Advancement of Colored People (NAACP) and other powerful interest groups has prompted the Federal Communications Commission to extend filing deadlines for the Proposed Rulemaking for radio deregulation January 25 to March 25.

Broadcasters are urged to use this extra time to prepare individual comments to offset the flux of opposition.

Time Limit Urged

The NRBA filed comments with the FCC supporting the National Citizens Committee for Broadcasting's (NCCB) petition that would require the FCC to take action on all petitions and applications within 180

Harris' TV transmitters lead the way to greatly enhanced reliability and performance.

For example, the TV-50H VHF 50-kilowatt High Band color TV transmitter combines a solid-state driver with a three-tube design for dependability and reduced tuning requirements.

In a 100 kW High Band configuration for CP* applications, it occupies the same space as most existing 50 kW transmitters. Therefore, converting to CP doesn't require an expensive new transmitter building or complicated RF switching.

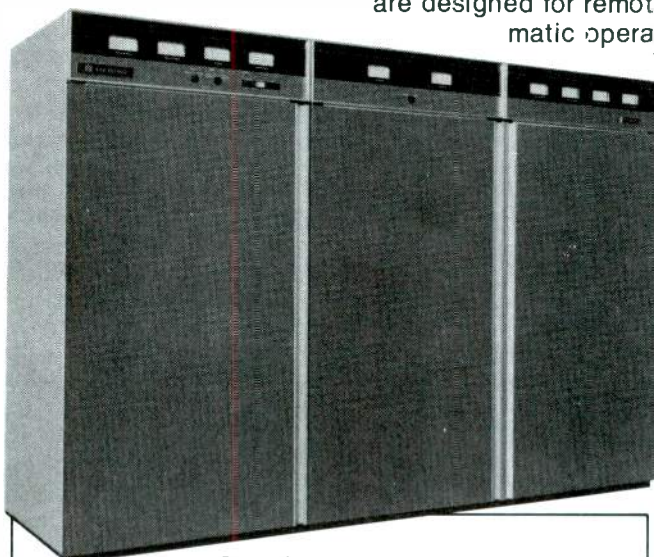
The Harris TV-50H uses a

Transversal Sideband filter which requires no tuning. All control circuits are solid-state. And all control meters and monitoring circuits are designed for remote control and automatic operation. What's more, the

TV-50H provides field-proven superb color performance.

Learn more about the complete line of innovative Harris TV broadcast transmitters which range in power from 1.3 kW to 220 kW. Contact Harris Corporation, Broadcast Products Division, P.O. Box 4290, Quincy, Illinois 62301, (217) 222-8200.

*Circular Polarization



For color performance, Harris TV transmitters are unsurpassed. For example...

VISUAL PERFORMANCE:

Visual Modulation Capability:1% of sync peak.
Differential Gain:0.5 dB or better.
Differential Phase: $\pm 1^\circ$ or better.
Signal-To-Noise Ratio:-55 dB or better (RMS) below sync level.



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COMMUNICATION AND
INFORMATION PROCESSING

CP* provides the best TV signal. Harris provides the best CP system.

Visit the Harris TV & Radio Equipment display at 1980 NAB, Las Vegas.

days of their filing.

The NRBA has long supported new rules or policies which expedite and improve the Commission's regulatory process. The suggested time limit in the Proposed Rulemaking would serve to benefit both the broadcaster and the American public.

However, the NCCB petition requires either grant or denial of all petitions within 180 days, which fails to take into account that in some **exceptional** cases failure by the Commission to act may be justifiable.

Therefore, the NRBA recommends the FCC have the option to defer action for an additional 180 day period **with the requirement that each petitioner whose action is deferred receive a clear explanation** of the reasons for the deferral. This requirements would, in effect, place the "burden of proof" on the Commission and the "status check" notices would help put an end to petitions being deferred indefinitely.

Field Strength Data

Seasonal conductivity changes have long been a problem for engineers monitoring field strengths. The FCC adopted some policy changes which allow measurements to fluctuate with seasonabl conductivity. The FCC action to adopt the "direct ratio" method of assigning monitoring point limits as well as the decision to curtail the practice of lowering limits based on "partial proofs."

Special thanks to Harv Rees of Carl T. Jones Associates for his assistance.

The 9kHz Costs

According to Sillman, Moffet and Kowalski, the engineering consulting firm commissioned by the FCC's 9kHz Task Force, AM broadcasters could pay an estimated \$15 million to make the 9kHz switch. Other estimates released by the consulting firm place the cost of converting directional antennas around \$10,000. A final report is expected to be released sometime in May.

Region 2 Delegation

Ray Livesay, president of the Daytime Broadcasters Association and NRBA Director at Large, was appointed Chairman of the "Channel Spacing and Bandwidth Task Force" in connection with the Region 2 Administrative Radio Conference meeting to be held in Buenos Aires,

March 10-29, 1980.

The appointment was made by Charles H. Breig chairman, Advisory Committee on "AM" Broadcasting Region 2. Others appointed on the committee from the advisory group were: Ralph E. Green, V.P. Engineering, CBS Radio; J.D. Kearney, Mgr. FCC/EIA Programs General Electric Co.; Harold Kassens, A.D. Ring Associates; and Oscar Leon Cuellar.

Fee refunds

Broadcasters will finally receive fee refunds due them by the FCC. Computer difficulties and miscellaneous red tape which slowed the refund program have now been overcome.

More than 2150 applicants have received more than \$1.5 million in fee refunds from the FCC. Estimated turnaround time is six to eight weeks upon making an initial request. Radio stations have until May to apply for a refund.

Price Controls

The Carter Administration's "voluntary" Price Control Guidelines for fiscal year 1980 follow basically the same structure as last year's. Many companies who complied with the proposals the first year will find time-consuming calculations to determine their compliance goals simplified.

NRBA legal counsel, explains that "price guidelines have been tightened, particularly use of the profit margin and gross margin exceptions. The Council on Wage and Price Stability obviously hopes that by permitting us of the same data base for a second year companies that complied last year will do so again."

FM Listenership Up

Fm listenership has increased 10% per year over the past four years, according to a CBS analysis of the RADAR 20 Spring/Fall '79.

FM is catching up with AM during the morning drive time increasing its share of audience by 46% over the past four years. However, evening listenership continues to be FM's forte.

Station Sales: Over \$1B

High inflation and interest rates failed to discourage investors last year: sales broke the \$1 billion dollar mark. Changing hands were 64 TV stations and 581 radio stations for settlements amounting to \$1,116,648,000.

Across the board broadcast properties, in general, increased in value. FM's growth, which has recently pushed listenership over 50%, made the biggest gains at the expense of AM.

Despite appearances that revenues are leveling off, AM is still a good investment. This is particularly true in light of the pending Class IV proposal to increase power and the advent of AM stereo which could serve to boost AM's value.

Regulatory Costs

Administration economists estimate regulatory agencies add at least ¾ of a point to the nation's inflation rate...This fiscal year's administrative costs alone exceed \$4.8 billion. Will business spin out before our congressional navigators place regulatory agencies back on their original courses?

President Carter, in an attempt to curb rising regulatory costs, has turned some of his anti-inflation guns on the "regulatory castles" by authorizing the Office of Management and Budget to review all new programs costing more than \$100 million.

NRBA Staff

The Board of Directors of NRBA has announced the appointment of John K. Christian to vice president, Membership Development. He was formerly president of Christian & Associates, a marketing consulting firm.

In a related action, Lisa Friede, NRBA Administrative Director, was promoted to Director of Operations.

Other staff changes include the appointment of Linda Busch, formerly with the University of Maryland's Public Liaison office, to Projects Manager.

Board Additions

Martin Rubenstein, President of the Mutual Broadcasting System, has been elected by the NRBA Board to serve a 2-year term as an NRBA Director at Large.

Ragan Henry, President of Broadcast Enterprises National, Inc. (BENI) and the National Association of Black-Owned Broadcasters (NABOB) has been elected an NRBA Director at Large. Henry owns WAOK-AM in Atlanta, WGIV-AM in Charlotte, WCIN-AM in Cincinnati, WTAN/WOKF in Clearwater, Florida, WOKV-FM in Hamilton, Ohio, WPDQ-AM in Jacksonville and WFYV-FM in Atlantic Beach, Florida.

Harris' 9100 Facilities Control System leads the way to lower operating expense.

From a complete automatic facilities control system to basic remote or local control, the Harris 9100 can be tailored to meet your specific requirements. This microcomputer controlled system provides complete facilities protection and maximizes equipment performance.

It's available to monitor and control multi-site AM, FM and/or TV operations. It continuously surveys your transmission system and

*Circular Polarization

your physical plant and makes minor adjustments within normal operating tolerances. It instantaneously responds to abnormal levels by making automatic corrections and sounding alarms.

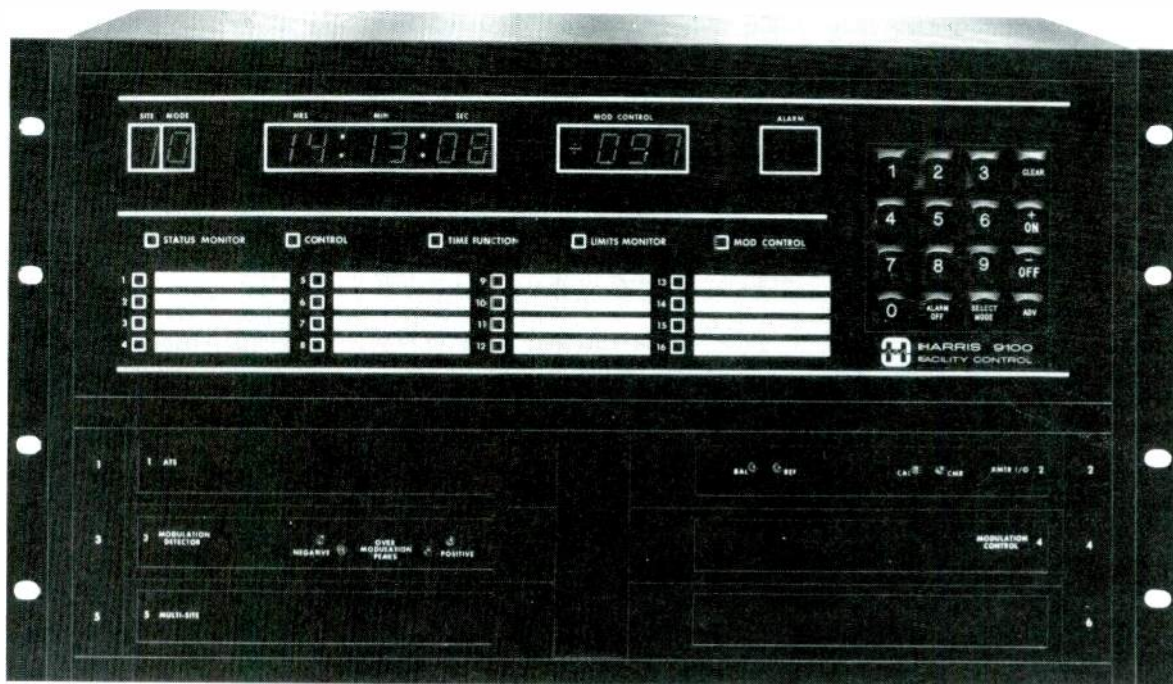
The system assures that your equipment operates at legal maximum power and modulation levels without violating FCC regulations. Also, there's no need for continuous monitoring by station personnel.

If you are going CP* or

maintaining horizontal polarization, the 9100 assures the maximum performance of your transmission system. Learn more about the Harris 9100. Contact Harris Corporation, Broadcast Products Division, P.O. Box 4290, Quincy, Illinois 62301, (217) 222-8200.



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CP* provides the best TV signal. Harris provides the best CP system.

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TELEVISION CAMERAMEN, INC.

P.O. Box 296, Sparkill, NY 10976



Take 1: Career Guidance—Get a Second Opinion

The bulk of mail that arrives in the office these days, precipitated by the current series of articles in **BE**, just serves to reinforce our thinking that far too many people get into the wrong career field or get into the right field the wrong way.

For example, one recent letter from a seemingly bright (and articulate) young lady just out of high school tells us that she would like very much to enter this area of TV operations as a camerawoman. Her experience consisted of the school TV workshop and some minimal training as a gofer at one of the local TV stations. It seems that she had read a book by some veteran of the industry explaining that "while an extra plus...a degree in electronics was not at all necessary in order to perform any...of the duties...in the area of TV operations..." Encouraged by this, the young lady had gone to see a personnel supervisor at a local commercial TV broadcast station. This interviewer proceeded to *set the record straight* by contradicting what the aforementioned book advised. The interviewer told the girl to get into a college, get her degree (EE, Mass-com, or whatever) and then come back... presumably for another interview.

Totally confused at this point by the conflicting advice, she wrote to us. What to do? How could she become a cameraperson and do all

the other related jobs that she had heard and read about? We told her what we had written in this column on various occasions. Degree or no degree...that was the question. We can understand what prompts the college advisor to suggest the degree program as the route to a position in the TV operations area...but why a personnel type in a third-rate market area suggests the same thing is beyond us.

A portion of our column that appeared in the July issue of **BE**, said: "...if an individual plans on getting his apprenticeship in the operations area and then going on to the Plans/Policy/Admin area, college training (with degree) is a club-house advantage... (however) you can become a good (or great) cameraman, tape-editor, lighting-director, TD, etc. without the two or four-year degree."

Is there a PRACTICAL need in the operations area for those subjects (we consider) ancillary to the specific industry-related courses, but are, nevertheless, required for graduation and a degree? We believe not. Of course, should your priorities demand that the inner yearning for culture and a well-rounded education be satisfied, the decision becomes a bit more complex.

Take 2: EJ/ENG as the British see it

Doug Neale (British Guild of TV Cameramen) while writing to Zerb, said: "...The operation of an ENG

camera will probably be more like news film camera operation than anything we do. The technique is different (than studio); we would have to sacrifice some of our smoothness and precision. A news editor (a journalist I mean)-the man you're shooting the film for, equivalent to a producer in television terms—wants pictures first and foremost. Smooth artistic camerawork comes second to being in the right place at the right time and preferably before everybody else!

"Now I'm saying that we couldn't cope with this, and eventually turn out better stuff than some of that badly framed, jerky news film you see, but it would require a change in our priorities. The news film cameraman already has his priorities clear.

"The engineering arguments are the ones I most often hear in favor of the TV cameraman. But really, anyone capable of understanding film emulsion can understand camera tubes and, after all, what will you need to know? The difference between line and frame faults, between sync and picture faults, between camera and VCR faults; the knowledge of which plug-in module to replace or whether to ask for a new camera or VCR machine will see most crews through virtually all on-location problems. The truth is there are as many TV cameramen who would find difficulty in this—especially in the non-training independent companies—as there are film men."

***NAB Product Directory listings start on page 62.**

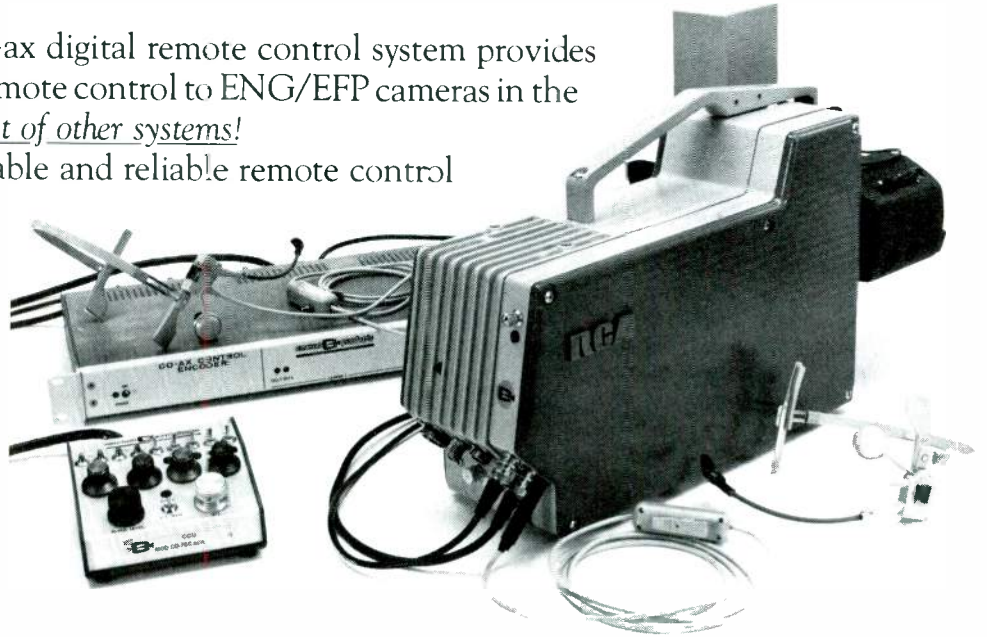
***Use Broadcast Engineering reader service cards
to receive more information
on products mentioned.**

CO-AX

DIGITAL REMOTE CONTROL

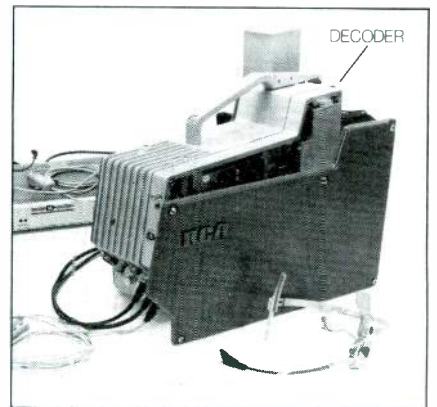
Our new and exciting co-ax digital remote control system provides dependable, studio-like remote control to ENG/EFP cameras in the field *at a fraction of the cost of other systems!*

It is the most affordable and reliable remote control system available on the market today. Easily interfacing with a full range of professional ENG/EFP video cameras currently in use, such as: Ikegami HL-77 and HL-79A, RCA TK-76B, NEC MNC-71 cameras, and many more.

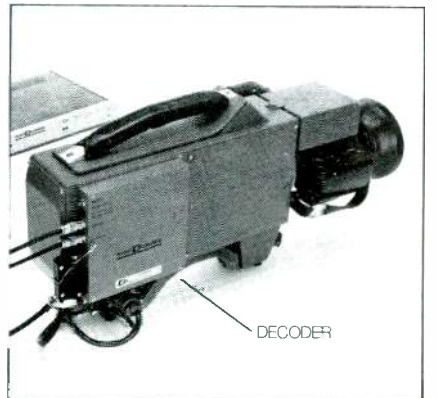


Outstanding Features:

- System consists of mini-CCU, analog-to-digital encoder, and digital-to-analog decoder.
- Permits control of all functions normally required in OB van, including genlock.
- Digital encoder (19" rack-mounted) designed to accommodate *two* mini-CCU's to control *two* cameras (each equipped with its own decoder).
- Lightweight, camera-mounted decoder features intercom capability.
- Digitally encoded control data relayed to camera-mounted decoder through a simple, lightweight and reliable coaxial cable.
- Eliminates the need for expensive, bulkier, multi-core or triax camera cable, and reduces to a minimum the risks normally associated with the use of such camera cables.
- Low-cost coaxial cable allows complete remote control and camera set-up functions from greater distances with greater safety and utmost reliability.
- System is ideal for all extended shooting situations such as sports events, live concerts, political rallies, etc.



RCA TK-76B shown with decoder neatly "sandwiched" between camera body and door.



Ikegami HL-77 shown with side-mounted decoder.

For full details, call toll-free: 800-421-7486.

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Radio/Television

Thomas Horesco has been named administrative chief radio and television engineer for the University of New Haven. The appointment was effective at the beginning of the fall semester.

J. E. Risk has been appointed vice president, engineering for KSDK, St. Louis, and affiliated Pulitzer Broadcast Stations. Risk had previously been director of engineering for KSD and KSD-TV.

Michael L. Douglass, former national sales manager for radio stations KPOL-AM and KZLA-FM, Los Angeles, has been named vice president and general manager of all-news WTOP-AM, Washington, DC.

Don Elliot Heald has announced his intention to retire in 1980 as vice president and general manager of WSB-TV, Atlanta. In June 1980, he will have completed 30 years with the company.

Agencies/Associations

Jerry Greenberg, vice president of advertising, public relations and promotion for Twentieth Century-Fox Television, has been appointed co-chairman of the EMMY Magazine advisory council.

Frank D. Murphy has been named vice president, client relations of Bonneville Broadcast Consultants. Prior to 1973 he served as on-air personality at several radio stations.

Manufacturers/Distributors

Nina Stern has been promoted to the position of public relations manager at James B. Lansing Sound. Prior to joining JBL, Stern held a variety of editorial and public relations positions.

Appointment of **Peggy Hughes-Whiting** as manager marketing services for RCA Broadcast Systems was announced by James A. Gimbel, marketing director. Previously, she was administrator, sales administration, for RCA Broadcast Systems.

Robert Mueller has been appointed to the position of manager of national market development of Sony Video Products. He was most recently the western regional manager for Sony.

Bob Lowig has been appointed head of the audio transformer sales department at Burns Audiotronics.

Swintek Enterprises has announced that **W. R. "Terry" Sheffield** is its new vice president of marketing. Previously he had been the district sales manager for Collins Broadcast Products, a division of Rockwell International.

O'Neal Sutton has been appointed engineer, furnish and installation manager for GTE Lenkurt. Sutton, current manager of IF&I Installations, assumed the post by Wayne Leonard, who announced his retirement after 34 years with General Telephone and Electronics.

Filmways Audio Services Group has announced the promotion of one staff member and the addition of two new people to its permanent staff. **John Phelan**, general manager, has been promoted to vice president/general manager. Joining the staff are **Ed Moskowitz** and **Cari Casteel-Richardson**. Moskowitz will take over as field operations manager. Casteel-Richardson will serve as manager of the company's wireless microphone and 2-way communications equipment rental division.

Times Fiber Communications has announced the appointment of **Dr. Douglas A. Pinnow** to the post of director of optical fiber research and development.

William Gautreau has been appointed director of manufacturing at Switchcraft. Gautreau joined the company as director of materials control in 1977 after 24 years with Raytheon.

Shelley Brown-Phelan has been appointed manufacturers representative for Filmways Audio Services. She will act as representative for HM Electronics.

Jerry T. Hudspeth has joined the corporate staff of Datatron as director of marketing. Hudspeth most recently served as manager of west coast operations with BTX.

David Riegler has been elected president and chairman of the board of directors of Omega Video.

Larry Seehorn, original developer of the EPIC computerized videotape editor has left Harris Video Systems to devote full attention to his own firm, Control Video Corporation.

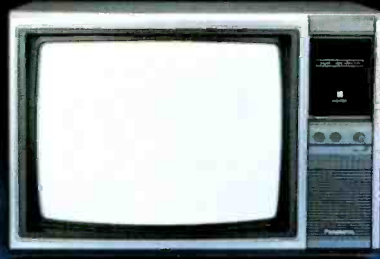
Panasonic introduces a whole new line of color monitors with one thing missing: A big price.

Paying less than you expect for something is always a surprise.

But getting everything you want is even better. That's why you'll want to take a close look at the only completely new line of color monitors in the video industry. From Panasonic. They range from 7" to 19"—all sizes measured diagonally. And prices start at only \$450*.

Every monitor is equipped with important features. Like the Quinatrix II™ in-line black matrix picture tube for a picture that's so lifelike, you'll feel you're a part of it. And the Panabrite® dial that lets you adjust contrast, color and brightness. The way you want them.

The 19" CT-1910M and the 13" CT-1310M monitors and the 13" CT-1310V monitor/receiver are equipped with ColorPilot™ which automatically adjusts



CT-1910M 19" monitor



CT-1310V 13" monitor/receiver



CT-1310M 13" monitor



CT-100M 10" monitor



CT-700M 7" AC/DC monitor

the color quality to preselected levels.

For an inexpensive way to monitor more than one program source at a time, use several compact 10" CT-100M's.

When you're moving from one place to another, there's a 7" portable: the CT-700M. It works on both AC and DC. In DC operation, it automatically adjusts to either a 12- or 24-volt power source. It also comes with a car adapter. And a front-mounted LED indicator lets you know if your battery source is running low.

Whatever your needs are, look to Panasonic. You'll like everything you see and you'll like the prices, too.

For more information, write: Panasonic Company, Video Systems Division, One Panasonic Way, Secaucus, N.J. 07094. In Canada, Panasonic Video Systems Department, Mississauga, Ontario.

*Panasonic recommended price, but actual price will be set by dealers.

Panasonic®
just slightly ahead of our time.

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The 3-tube Saticon* camera you wanted...

A/V executive "I want a camera that makes my department's tapes look good at a price that makes me look good. One that can adapt to our needs as we expand."

Purchasing agent "I'm naturally looking for maximum value in a video camera. One that delivers a lot of features for the money...from a manufacturer I can trust."

Field cameraman "A nice compact, lightweight, well-balanced camera. One that delivers clear shots even in near darkness. That's what I need."

Top management "Higher productivity, more effective training and selling, better communications... if a video camera can help deliver that, I'm for it."

Studio cameraman "We're ready for the high performance of a sophisticated Saticon camera. And I can certainly do without having to have a separate genlock unit."



*Registered trademark of Hitachi

You got!

"We can turn out needle-sharp pictures with the KY-2000U. And with options like JVC's remote control unit, it's adaptable to just about any field or studio situation."

"The KY-2000U meets all my criteria for performance and price. And I know I can trust JVC, with their reputation for quality."

"This neat little KY-2000U is less than 12 lbs. with 1.5" viewfinder. Handles nice and easy. And with 52 dB S/N and sensitivity doubling to 12dB, what more could I ask?"

"I can see how the KY-2000U can help me get more out of my people wherever communications is involved."

"What a relief! No more separate genlock. And the Saticon tubes really deliver high sensitivity and resolution, and low lag."



JVC's new KY-2000U 3-tube Saticon camera is a real rarity today: an engineering breakthrough that makes economic sense, too. It has all those features mentioned above. Plus horizontal and vertical contour correction, both standard. Built-in variable blanking circuit and VTR trigger mode select. Broadcast-standard Y.I.Q. encoder. C-mount lens versatility.

And something else just as important: JVC's reputation for superb quality.

For the name of your nearest dealer, call one of these numbers collect:
 East, 212-475-8300;
 Midwest, 312-364-9300;
 South, 713-741-3741;
 West, 213-537-6020.

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Mail to US JVC Corp.,
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 Maspeth, NY 11378. BE-3/80
 Send me more facts about your new
 KY-2000U video camera.

Name _____
 Title _____
 Company _____
 Address _____
 City, State, ZIP _____
 Phone _____
 Type of operation _____

Gary J. Worth has been named president and chief executive officer of Satellink of America, a new subsidiary formed by the Robert Wold Company. Prior to his appointment, Worth was with Mutual Broadcasting System.

W. Donovan Schutt has been named the new president of IGM. Prior to his appointment, Schutt was with Teletronix.

Loring S. Fisher has been named president of Lomar Associates. Prior to his appointment, Fisher was with Bonneville Broadcast Consultants.

John R. Barton has been appointed executive vice president of McMartin Industries. He will be responsible for management of international projects.

Mark Gander has been appointed applications engineer for James B. Lansing Sound. He will assist JBL professional sound contractors in products applications and will provide technical information on JBL professional products.

Mike D'Amore has joined Ampex as Midwest region sales manager. Prior to his appointment, D'Amore was with Hitachi.

Harold Rabinowitz has joined Sintronic as director of operations. He will be responsible for manufacturing and industrial engineering.

Bob Manahan has been named national sales manager

of Compact Video Systems. Prior to his appointment, Manahan was with Sony Corporation.

Telex Communications has announced the promotion of **Gregory C. Dzubay** to sales manager of its broadcast professional audio products group. Dzubay will be responsible for sales and marketing of the product line.

Audio-Technica U.S. has announced the promotion of three of its executives. **Fred W. Nichols**, was promoted to senior vice president; **Paul A. McGuire**, to vice president, sales; and **Dean R. Slagle** to vice president, operations.

William D. Higgins has joined the corporate staff of Datatron as director of engineering. He will be responsible for product development.

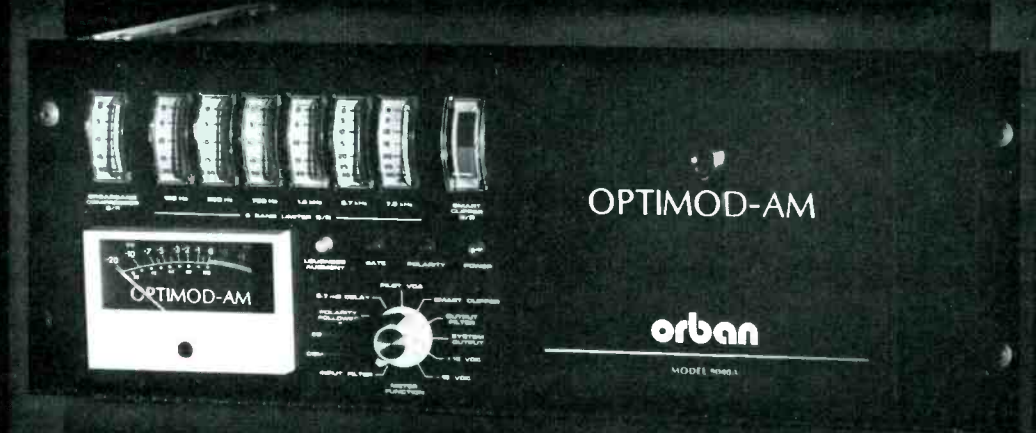
John R. Paulbick has joined Valtec as application engineer. He will be responsible for defining and coordinating the application of the turnkey fiberoptic telecommunications systems to customer requirements.

Don V. Larson has been appointed vice president and chief executive officer of Orange County Electronics International.

David F. Forward has been appointed to vice president of communications for the Applied Technology Group of Arvin Industries. He will be responsible for coordination of policies and direction of advertising, public relations and internal communications.

OPTIMOD-AM

ROCK TO CLASSICAL...COAST TO COAST



Hundreds of stations worldwide—in every format—now process with OPTIMOD-AM. An integrated system design makes OPTIMOD-AM ideal for all formats: it guarantees uniform audio quality and uncanny definition on typical AM radios—regardless of uneven operator gain riding or inconsistent source material. And our system standout—the "Smart Clipper"—listens to clipping distortion like a human

ear to definitively solve the long-standing conflict between music loudness and voice distortion.

Regardless of format, you can adjust the field-proven, stereo-ready OPTIMOD-AM system to give you the sound you've always wanted.

Your Orban broadcast dealer has all the details. Call Toll Free (800) 227-4498. In California, (415) 957-1067 for the dealer nearest you.

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Orban Associates Inc., 645 Bryant Street, San Francisco, CA 94107

FULL RANGE PRODUCTION WITH THE AMPEX VPR-2:

Instead of a Different Machine for Every Trick, a Single VTR that Does Everything.



Compact VPR-2 (tabletop version) on TBC-2. Height: 25.5"; Width: 19.2"; Depth: 16"; Weight: 135 lbs.; Power: 5.5 A @ 115 VAC. TBC-2: Height: 11"; Width: 19"; Depth: 18"; Weight: 80 lbs.; Power: 2 A @ 115 VAC.

You can spend a lot of time and money recording on a videotape recorder, editing on an editor, and producing slow motion on an Instant Replay system. Or you can do it *all* on the Ampex VPR-2, far more easily and in far less time.

Straight Recording in Vibrant High Band Color.

There isn't a better recording combination in the world than the Ampex VPR-2 one-inch helical and Ampex professional recording tape. You get playback performance that stands up to a trained eye as well as the most exacting technical analysis. And you get unmatched ease of operation and serviceability because of the VPR-2's modularity. You'll also appreciate the way the VPR-2's compact packaging system provides a full line of configura-

tions from rack mount to console with full monitor bridge to suit your particular needs.

Built-in Editing for Unlimited Creativity.

Built-in editing with automatic search-to-cue simplifies and speeds ambitious production work. Tape time accuracy is maintained for frame-accurate entrance and exit edit points, even without the optional time code system. You can visually select edit points "on the fly" because you always see the picture off-tape from stop through fast forward and rewind. The remote control capability of the VPR-2 provides easy interface to external editing controllers. The creative possibilities are unlimited.

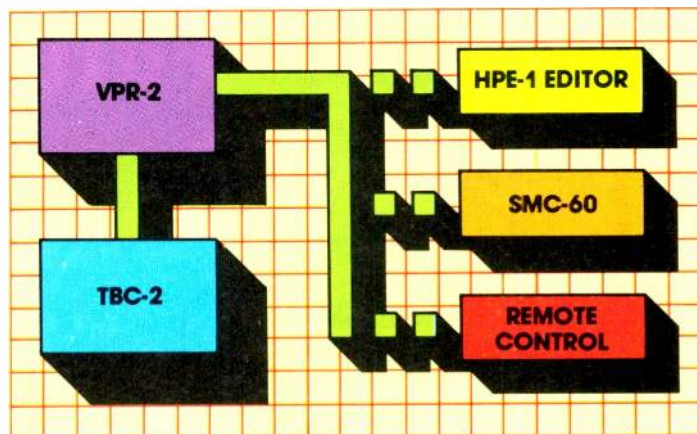
Sports Coverage From a Crawl to a Dash.

With the optional AST™ automatic tracking system, you're ready to produce all the effects of Instant Replay. There's even a slo-mo controller (SMC-60) accessory that gives you joystick command of the VPR-2 for a complete sports coverage system in one convenient package.

Automatic cueing keyed to the tape timer lets you set up for frame-accurate, "look again" in slow motion. And you can punch up slow motion at one-half or one-fifth real time for precise production matching. The Ampex TBC-2 digital time base corrector puts it all on the air, and even produces a picture in high speed shuttle for rapid cueing.

If the Specs Don't Convince You, A Demo Will.

The cost-effective VPR-2 is turning the impossible into the commonplace for users around the world. Because one machine does the work of three, the VPR-2 increases productivity and reduces operating costs. To find out why the VPR-2 is the world's most popular professional videotape recorder, contact your Ampex representative today.



AMPEX MAKES IT EXCITING

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

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March 1980 *Broadcast Engineering* 37

Wayne Barrington has been appointed sales representative for RCA Broadcast Systems. He will be responsible for the sale of RCA's line of radio and TV studio and transmitting equipment.

Otari Corporation has announced the appointment of **Tom Sharples** as special projects engineer. Prior to his appointment, Sharples managed Proper Sound.

Max E. Buck has joined Vitt Media International as executive vice president and director of TV network broadcast operations.

Ikegami Electronics has appointed **Rupert F. Goodspeed** to western regional manager and **O.G. Mills** to southeastern regional manager.

Sintronic has appointed **Joseph Novik** as national sales manager. Prior to joining Sintronic, Novik was with Ampro/Scully and Belar Electronics Laboratory.

The Telemet Division of Geotel has announced the appointment of **Robert G. Griffiths** to vice president of sales. Griffiths was formerly eastern area sales manager.

Perley E. Eppley, vice president, Gray Communications Consultants announced the appointment of **Mark Rogers** to the position of field systems engineer in the Atlanta Office.

Ed Sherry has joined US JVC as video product manager. He was previously Eastern regional broadcast manager for the Sony Video Products Company.

Charles R. Buzzard has been appointed western regional sales manager for Dynasciences, video products division. He will be based in Albuquerque, NM, and will be responsible for sales and administration of all territory and dealers west of the Mississippi River.

Ferdinand Boyce has been named marketing manager of E-V/Tapco. Boyce joined the company 10 months ago as national sales manager. Boyce has appointed Ric Chinn and Jeff Michka both long time employees of Tapco, as product managers.

The Varian Electron Device Group has named **Alexia Vanides** as its advertising manager. Vanides will plan, implement and control all media advertising and press relations for EDG.

Barry Goldman has been appointed vice president, sales and marketing, of Teac. Goldman will be responsible for the administration of the company's four franchises—General Audio, Audio Specialist, Multitrack and TASCAM (Professional Products Group.)

Bobby Lawrence and **Russell Miller** have been appointed field engineers for Convergence. The Field Engineering Department is responsible for sales and marketing support. **John G. Campbell**, vice president of marketing at Convergence announced the promotion of **Frank Logan** to communications manager. Logan has been with the company for two years and will be responsible for all internal and external communications.



**What's New
in Your
Future?**



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PORTABLE VIDEOTAPE RECORDING WITH THE AMPEX VPR-20:

Bringing Back Tape You're Sure You Can Use Calls for a Tough, "Smart" Portable Recorder.



Finally, you can videotape remotely without compromising the considerations that apply to studio work. Because Ampex engineers went far beyond the usual definitions of portable acquisition when they designed the VPR-20 one-inch helical.

Confidence Is Paramount.

On location, you have to know that you're capturing good material. So Ampex built a confidence feature into the VPR-20 that actually plays back the picture from the tape into the camera viewfinder during recording. When you see it in the viewfinder, you know it's on the tape. And you can have color playback in the field, thanks to the color stabilizer option, which mounts inside the VPR-20.

Production Flexibility for All Situations.

When the assignment is commercial production in the field, your VPR-20 can backspace itself for a flawless assemble edit. And color framing is standard. The advanced cueing system allows you to go back and look at the last shot, and either go on from there or retake the shot and eliminate unwanted material. Right in the field. As simple as pushing the appropriate button.

The Front End of a Special Effects Production.

Tapes recorded on a VPR-20 are fully compatible with every trick in the VPR-2 special effects book. Once you bring your material back to the studio, you can slow it down, speed it up or stop it on a selected frame with a VPR-2. And if you haven't seen the quality of VPR-2 special effects yet, you're in for a surprise.

If You Can Take It, Your VPR-20 Can, Too.

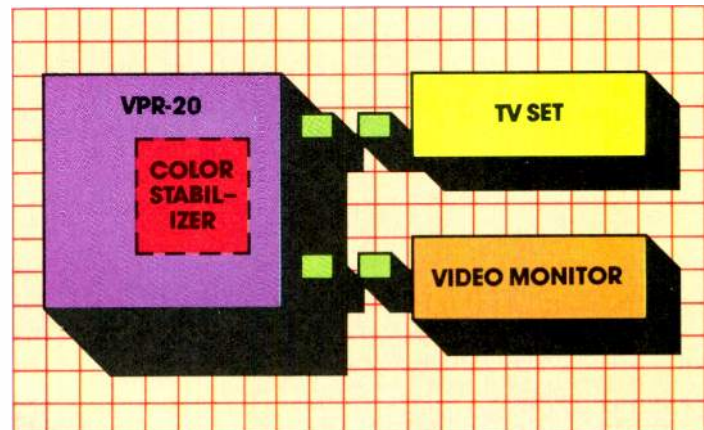
Environmentally, your VPR-20 can take nearly anything that your operator can. It shrugs off dust and sand in the air, tolerates a cloudburst, and stands up to heat and cold. Oblivious to the way it's held or positioned, the VPR-20 has an amazing resistance to the kind of gyroscopic conditions that go along with field recording. So you can take the VPR-20 for granted.

Enough Power to Finish What You Start.

The VPR-20 battery pack has more than enough capacity to record and rewind a full hour of tape. Then, when you're ready for more shooting, the quick-change battery pack gives you quick-change power. There's even a battery/charger system that brings you up to full power again in less than an hour. You'll really value the VPR-20's power-down memory. It keeps the tape timer operational during battery or power changes for up to two days if need be. This is portability with a punch.

If The Specs Don't Convince You, A Demo Will.

Somewhere within reach of your station, the tough, "smart" VPR-20 is turning the impossible into an everyday affair. Call us for the technical information, and then get your hands on a VPR-20. You won't want to let go.

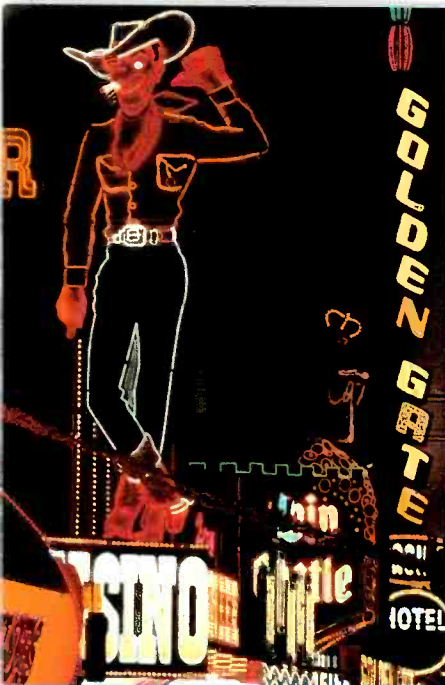


AMPEX MAKES IT EXCITING

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

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March 1980 *Broadcast Engineering* 39



SIGHT & SOUND

**NAB-Las Vegas '80:
The industry's top show**

April 13-16, 1980

Las Vegas Convention Center

Las Vegas, NV

by Bill Rhodes, editorial director, and John Wiliszowski, video editor

Gambling and spectacular entertainment are now synonymous with Las Vegas and Nevada, but just a century ago adventurous individuals plodded into the Nevada Territory searching for mineral wealth in the hostile terrain. To some the adventure brought crushing disappointment; others fulfilled their wildest dreams. Today, Las Vegas is one of the nation's fastest growing communities with an assessed value of more than \$1.8 billion.

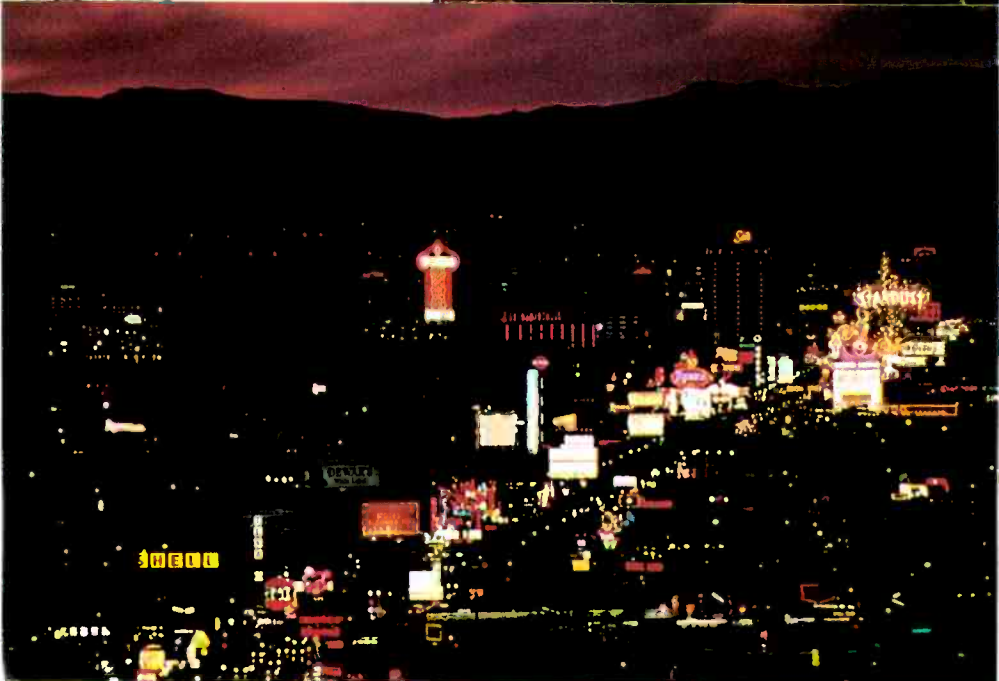
On April 12th, as in bygone days, scores of men and women will again descend on Nevada. This time the individuals will be broadcast engineers and executives searching for information and technology to make their stations number one in the markets they serve. The value of the city again will be raised substantially, if only temporarily, as hundreds of equipment manufacturers make the television and radio engineers' and executives' dreams come true.

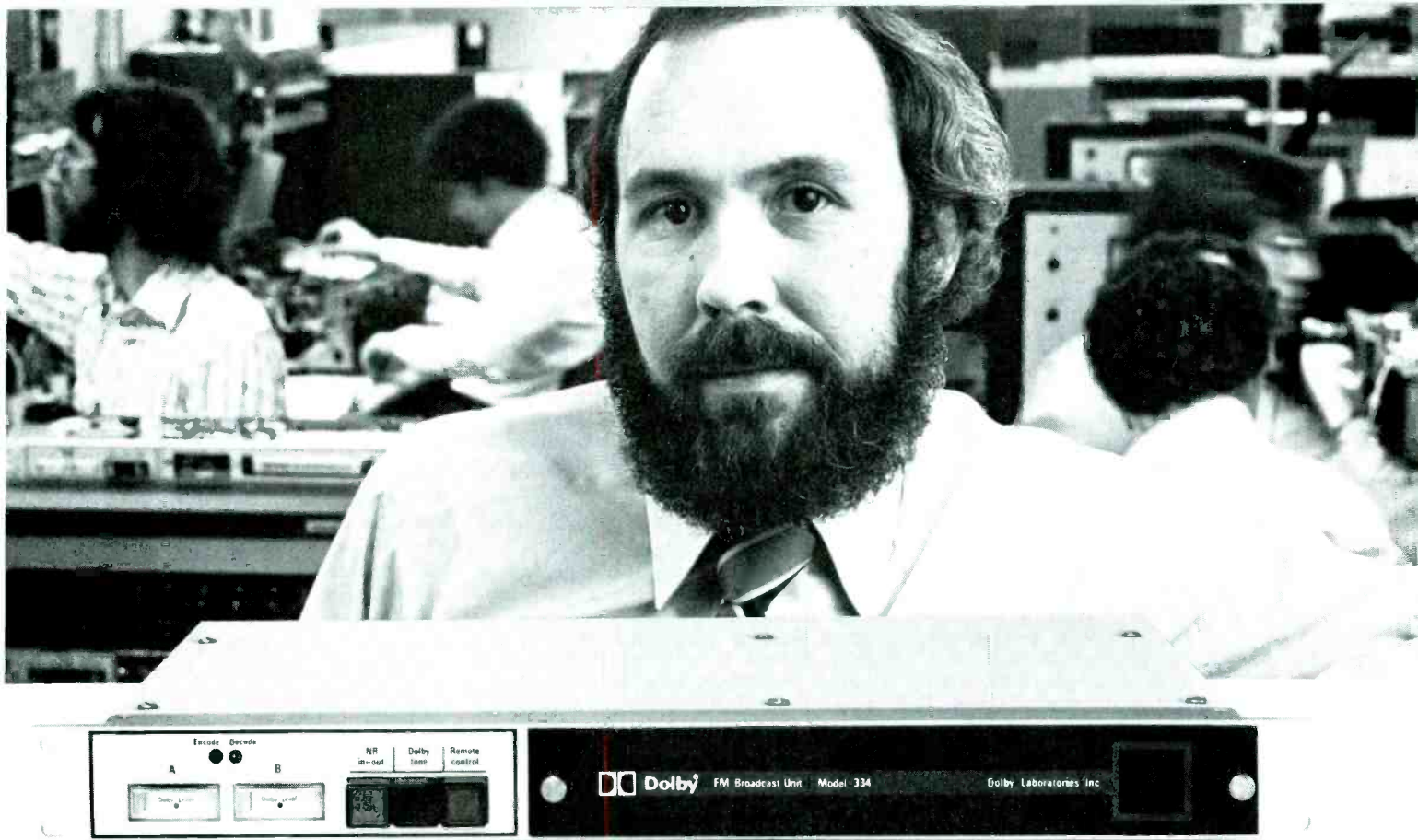
Throughout the decade of the '80s broadcast technology will undergo drastic and exciting changes. Satellites, the effect of the 9kHz channel spacing and digital video technology will affect broadcasting and the jobs of engineers and management. The National Association of Broadcasters' 58th Annual Convention, broadcasting's number one event, will again give the insight necessary to keep executives and engineering management abreast of the constant change. This year, the convention will offer sessions with emphasis in broadcast engineering, television and radio management.

Broadcast engineering

The technical sessions and workshops are offered in two categories: for radio, and for television. Here is just a sample of the lineup awaiting engineers at NAB '80.

Radio: The FCC began formal pro-





There's More To Dolby[®] FM Than Another "Black Box"

When you decide to broadcast Dolby FM, you get more than the proven technology of the Dolby Model 334 Broadcast Unit. You also get the personal assistance of Tim Prouty, Dolby FM Development Manager. The engineering, service, and marketing support of Dolby Laboratories. And the opportunity to take advantage of probably the best known single name in consumer, professional, and cinema audio.

Dolby FM provides the increased high frequency headroom that makes it possible to reduce limiting without sacrificing level. That can mean a higher quality signal for your sound-conscious listeners and clients. And a higher quality signal can lead to a unique marketplace position audibly above the competition, which can help increase your local sales.

If the prospect of a higher quality signal makes sense to you, call us at (415) 392-0300 to arrange for an on-air trial at no cost. That way you can see and hear for yourself what Dolby FM is really *all* about.

Learn more about Dolby FM at the NAB Convention: Silver State Room in the Las Vegas Convention Center, April 13-16.

DOLBY LABORATORIES, 731 Sansome Street, San Francisco CA 94111. Telephone (415) 392-0300. Telex 34409 • 346 Clapham Road, London SW9. Telephone 01-720 1111. Telex 919*09. Dolby and the double D symbol are trademarks of Dolby Laboratories. S80-2315



Circle (24) on Reply Card

ceedings into the development of standards for AM stereo broadcasting more than a year ago. Chairman Charles Ferris has promised a decision in the first quarter of 1980. By the time NAB '80 convenes, the industry should know the system selected and what

the commission will require for AM stereo. Controlling flutter, echo, reverberation, air conditioning noise and the techniques behind studio isolation, plus what should be done about audio processing will all be covered in the technical workshops for radio engineers only.

Television: Digital will no doubt dominate the equipment exhibits, and the SMPTE workshop will review the applications of digital technology to videotape machines, equipment interfacing, product techniques and audio equipment. A separate session will cover purchasing and maintaining digital equipment.

Satellite technology has not been ignored in the technical sessions for television engineers. The workshop *Earth Station Technology* will answer questions like: Will there be a receiving dish at every TV station?; What are the implications of a smaller diameter dish, interference from terrestrial microwave, sharing with other stations, and adjustable orientation for more than one satellite?

Television engineers can also look forward to sessions dealing with innovative approaches to ENG, TV ancillary signals (teletext captioning and more), test equipment overview for the '80s and receiver developments.

Scheduled as a general session for engineers in both radio and television is a workshop on the most basic technical concern in broadcasting: frequency coordination. The general session will explain how to coordinate the choice of frequencies for remote pickup, aural STL and TV microwave, how to organize a frequency coordination committee and get the cooperation from visiting networks and stations.

Registration with engineering emphasis includes two special luncheons. On Monday, the special luncheon guest will be Senator Barry Goldwater; on Tuesday, the engineering luncheon will honor the winners of the 1980 Engineering Achievement Award.

Television executives

The number of tough decisions for the television executive have escalated nearly as rapidly as inflation and competition. Television management, like engineering, also must face the challenges of the new decade. The broadcast markets have seen the emergence of satellites, cable and teletext all taking over the TV screen. This new technology is here to stay. How can a station handle the ever-increasing competition?

Promoting the station is fast becoming one of the greatest challenges of the new decade. The executive officer must make his or her station's name a household word around the market, but how? These and other provocative questions will be answered by industry experts at this year's NAB.

James D. Parker to receive NAB engineering award

James D. Parker, staff consultant, telecommunications, CBS Television Network Engineering and Development Department, will receive the National Association of Broadcasters' 1980 Engineering Achievement Award. The award will be presented at the NAB engineering conference luncheon on Tuesday, April 15.

Parker joined CBS in 1937 after completing 1½ years of graduate studies in communications engineering at the Massachusetts Institute of Technology where he was an electrical engineering undergraduate student.

Early in his career, he did pioneering design work in what at that time were considered to be complex 3-element directional antenna systems for AM stations. Some systems he designed were installed at WTOP, Washington, DC; WBT, Charlotte, NC; KSTP, St. Paul, MN, and KFAB, Lincoln, NE.

One of his major contributions to the industry is his key role in implementing the construction of the transportable tracking earth station used by the television networks in relaying, via satellite, the first live color pictures of the Apollo splash-downs.

Parker was a member of the US delegation during renegotiation of the North American Regional Broadcasting Agreement shortly after World War II, and at the Atlantic City Radio Conference in 1947. He is the CBS representative on the US CCIR National Committee and has served on several US delegations attending international meetings including the CCIR Special Joint Meeting preparatory to the 1971 World Administrative Radio Conference (WARC) for Space Telecommunications and the CCIR Special Preparatory Meeting for the 1979 WARC, and was a member of the North American National Broadcasters delegation at the recently concluded WARC-79. He also served as chairman of the FCC-sponsored industry TV Broadcasting Service Working Group that assisted in developing the US position for WARC-79.

He is a senior member of the Institute of Electrical and Electronic Engineers, a member of SMPTE, the American Institute of Aeronautics and Astronautics, and the Armed Forces Communications and Electronics Association, and an associate member of the Association of Federal Communications and Consulting Engineers.

Senator Goldwater to speak at NAB engineering conference

Senator Barry M. Goldwater (R-AZ), a member of the Senate Communications Subcommittee, will address the Monday (April 14) engineering luncheon during the National Association of Broadcasters 58th annual convention.

Goldwater began his political career in 1949 when he was elected to the Phoenix city council. In 1952 he was elected to his first US Senate term and was re-elected in 1958. He resigned his seat in 1964 to become the Republican Presidential nominee. He was again elected to the Senate in 1968.

The Senator is the owner and operator of amateur radio station K7UGA-K3UIG, a part of the Military Affiliate Radio System.

He is the author of numerous books including *The Conscience of a Conservative*, *Why Not Victory*, *Where I Stand*, *The Face of Arizona* and this year's *With No Apologies*.

Jack Anderson to address radio broadcasters

Investigative reporter Jack Anderson will address the Tuesday (April 15) radio luncheon during the National Association of Broadcasters 58th annual convention.

Anderson has been at the bottom of some of the biggest exposés to come out of Washington and during the Watergate era, he broke many of the major stories. He published the grand jury transcripts, which gave the first solid testimony of the Watergate case.

In 1972 he received the Pulitzer prize for proving that President Nixon and Secretary of State Kissinger had lied to the Congress and the public about the United States tilt toward Pakistan in the India-Pakistan conflict.

When Drew Pearson died in 1969, Anderson took over the *Washington Merry-Go-Round* column which appears daily in more than 970 newspapers.

**If you looked at
the lenses on all
the color cameras
advertised in this
magazine, or
displayed at NAB,
you might think
that **FUJINON** is
number one.**

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And you'd be right.

FUJINON's fast new lightweights are easier on your back.



New.
Improved high quality
lightweight 14 x 9.5 EFP
zoom with built-in
2X extender—F1.7
(9.5mm~133mm;
19mm~266mm)



New.
Lightweight 12 x 9 ENG
Zoom with built-in
2.2X extender—F1.7
(9mm~108mm;
19.8mm~237.6mm)



New.
Low cost lightweight
12 x 9 ENG Zoom—
F1.7 (9mm~108mm)

And your budget.

For the lighter side of the news and field promotions, Fujinon brings you three fast new lenses that perform better and weigh 20% less. Without costing more.

For proof, FUJINON cut the weight and the cost to create a new 12 x 9 ENG zoom. You get full features and F1.7 speed, but at a new low price. The other lightweight new 12 x 9 ENG zoom includes a built-in 2.2X extender for greater range and performance than 13X lenses. It's lighter and better than before, but at the same old price.

The same's true for FUJINON's new 14X EFP zoom. It still has a built-in 2X extender, but now it's faster (F1.7), wider (9.5mm) and lighter (20% less). Without increasing the price, FUJINON has created an EFP lens that delivers studio quality results. And you can take it anywhere.

All three new lenses offer such standard Fujinon advantages as:

- Adjustable back focus for faster lens changing
- Exclusive EBC coating for greater contrast, truer color, and sharper definition without flare and ghosting
- The most complete range of optional studio conversion accessories available

In 1980, FUJINON's best-selling ENG and EFP lenses are even better. And so are the prices.

FUJINON

FUJINON invented the ultra high resolution lens. Only FUJINON could make it better.



Now with a built-in 2X extender.

It reads 1300 tv lines to deliver 40% higher resolution. As a result, first generation tapes never looked better. A test pattern projector is built in. Microprocessor equipped cameras have never been easier or faster to set up.

Now, for greater versatility — with the same unmatched performance standards — FUJINON introduces the 14X E.H.R. lenses with built-in 2X extenders.

Consider the advantages and the possibilities:

- Two high performance, high resolution zoom ranges.
- Ultra high resolution performance in the studio and in the field.

- Better than 90% MTF in green, red and blue.

- Compact built-in 3-lamp diascopes for precise color temperature matching.

- Greater color convergence — taking lens moves with the zoom.
- Constant maximum aperture in all zoom and focus ranges.

Fcr 1-1/4" format: P14x16.5 E.H.R. F/2.1 (16.5mm ~ 231mm; 33mm ~ 462mm)

Fcr 1" format: R14x12.5 E.H.R. F/1.6 (12.5mm ~ 175mm; 25mm ~ 350mm)

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Visit FUJINON at NAB, Booth 1217

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Planning convention strategy

Other topics to be discussed for delegates registered with a television executive emphasis are: *Your Inalienable Rights and Theirs*, (how to accommodate political figures wanting time); *What's Going On In Washington?* (FCC rulings, cable issues and super stations); *That Does Not Compute*, (understand how to talk to the station's computer in the language you and it understand); plus *Cable TV Rules and Royalties*; *An Eye and Ear in Court*; and *Libel Insurance: How To Get It And How To Keep It*.

Other sessions scheduled for television executives will look at the FCC's report on children's TV; who will be buying TV time in the '80s; and the changing audience.

Radio executives

Radio broadcasting will reach a

This year's pre-coverage of the Las Vegas NAB '80 convention has been specially designed by **Broadcast Engineering** to be the most complete information package available.

The information has been grouped to avoid as much page fumbling and nerve frazzling as possible.

The foldout map includes floor plans for the Convention Center, an alphabetical listing of exhibitors, and a handy agenda chart. This will be helpful in scheduling sessions and workshops attendance and planning appointments.

To map out a plan of attack for exhibit booths, check the Product Directory on page 62, for equipment categories to be exhibited. Each category is followed by a list of exhibitors (and their booth numbers)

that are showing products in that category.

The next section, Exhibitor Booth Details on page 96, lists each exhibiting company alphabetically, followed by their booth number. Each company's established product line as well as new products are listed, and companies are assigned a reader service number for your convenience. If the company is advertising in this issue, that page number is also given for a more complete listing of their product line or emphasis at NAB.

After selecting the items of most interest, turn back to the foldout map, mark the companies, and take it to the convention center.

Since NAB plans are still being changed, extra copies of the issue and an updated map will be available at the convention.

"Back to Vegas...Bigger and Better Than Ever."

By Chris Payne, assistant to the vice president for engineering, NAB

In 1978, I authored a short piece for **Broadcast Engineering** on how engineers could convince management that a trip to Las Vegas for the NAB Convention was a necessary professional investment. I pointed out that while Las Vegas is a fun town it also is one of the best convention sites in the country. Since registration at that convention reached over 20,000 it seems superfluous to belabor the fact that the NAB meeting in Las Vegas is not a free vacation for engineers. You already know that the NAB Convention probably saves a radio or television station many times over what it costs to send an engineer.

The 58th Annual NAB Convention opens Sunday, April 13, and closes on Wednesday, April 16. The Las Vegas Convention Center houses over 150,000 square feet of electronic equipment—the biggest and best display of broadcast equipment in the world. There are literally acres of transmitters, video and audio recording equipment, satellite gear, and engineering and studio gadgets. If that is not enough, there will be manufacturer representatives ready to explain how to best use the equipment. In short, any licensee who seriously wants to meet the technological challenges of the '80s cannot fail to send at least one person from the engineering department to capitalize on this incredible showcase of technology and talent.

In case you have not already studied the NAB promotional material, let's sample some of the workshop sessions offered for engineers in addition to the equipment.

For radio: *Audio Processing for the '80s*—experts discuss the future of audio signal processing including loudness, presence, listener fatigue, receiver and transmitter compatibility, 9kHz channel spacing, AM stereo, FM composite processing; *Radio Facilities: Acoustical Treatment and Design*; *Telephone Talk Shows*—interfacing the dial telephone to your station, modifying standard telephone equipment, home brew hybrids, devices designed especially for broadcasters, conferencing; *Broadcast Systems Maintenance: Changing Relationships between Manufacturer and Broadcasters*; *AM Stereo Implementation*; *Audio Proofs and Test Equipment*; *AM Directional Antenna Systems: The Skelton Proof*.

For television: *Digital 1980s*—SMPTE workshop reviewing application of digital technology to videotape machines, equipment interfacing, production techniques; *Earth Station Technology*—a real mini-course; *Major*

Market ENG: Innovative Approaches; Test Equipment: Overview of the '80s; TV Receiver Developments; TV Ancillary Signals: Teletext, Captioning and More.

For radio and television, *Frequency Coordination*—how to coordinate choice of frequencies for remote pickup, aural STL and TV microwave, how to organize a frequency coordination committee, how to best share frequencies during the big news event.

Don't forget that those workshops are just a sample. There are many more. And don't forget the paper presentations. Every engineering conference includes several theses on the hottest broadcasting topics.

In case you are still worried about getting your station's money's worth, your registration fee includes two luncheons. On Monday, Senator Barry Goldwater, (R-AZ) will address the engineering luncheon and James D. Parker, the 1980 Engineering Achievement Award winner, will be recognized on Tuesday.

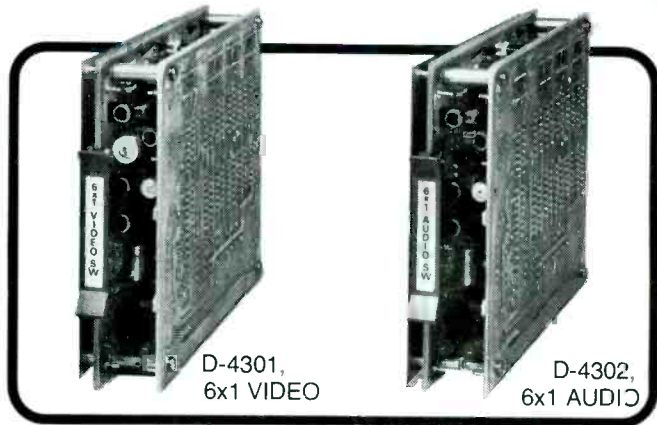
Not convinced to make the trip yet? What about The Second Annual Ham Radio Operators Reception? On Monday evening, NAB invites all licensed or formerly licensed amateur radio operators to cocktails and snacks. Bring a QSL and business card.

In addition to workshops, luncheons and receptions, a vital part of the NAB Convention is the opportunity to question Federal Communications Commissioners and staff—maybe about a tricky rule you are having trouble interpreting. It could save your station time and money. On Wednesday, the general session features remarks by Chairman Charles D. Ferris and a question and answer period with experts on broadcasting.

In case you want to mix some pleasure with the work, you can bring your spouse at no extra registration fee. NAB has scheduled a special program for spouses to include informational sessions, jogging, gambling tips, and tours. No one will be bored!

If you still have trouble convincing the general manager that he or she can't afford not to send an engineer to NAB's April 13-16 convention, point out that hotel room rates in Las Vegas begin at around \$30.00 and the NAB member pre-registration fee—including two working luncheons and a Wednesday entertainment closing lunch—is only \$115.00. Pre-registration ended March 1, but on-site registration is only \$25.00 more. Forms and additional information are available from NAB Station Services Department, 1771 N Street, NW, Washington, DC 20036.

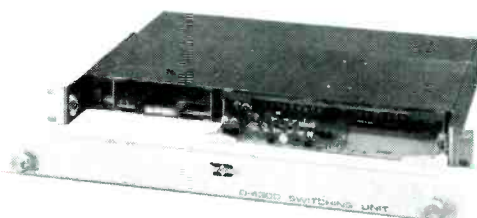
THE BETTER WAY



D-4301,
6x1 VIDEO

D-4302,
6x1 AUDIO

We make small routing switchers too!



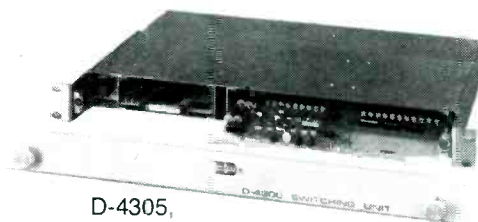
D-4307, 16x1
VIDEO-AUDIO

Datatek has now added the D-4300 series video and audio switching units to its line of routing switchers. With building blocks of 6x1, 16x1 and 20x1, these switching units may be used for:

- Input preselects to production switchers to expand their capacities
- Switching inputs to vectorscopes and monitors
- Adding preview busses to existing switchers
- VTR Input selection
- These units may also be stacked to make up small routing switchers at an economic price.



D-4304,
20x1 VIDEO

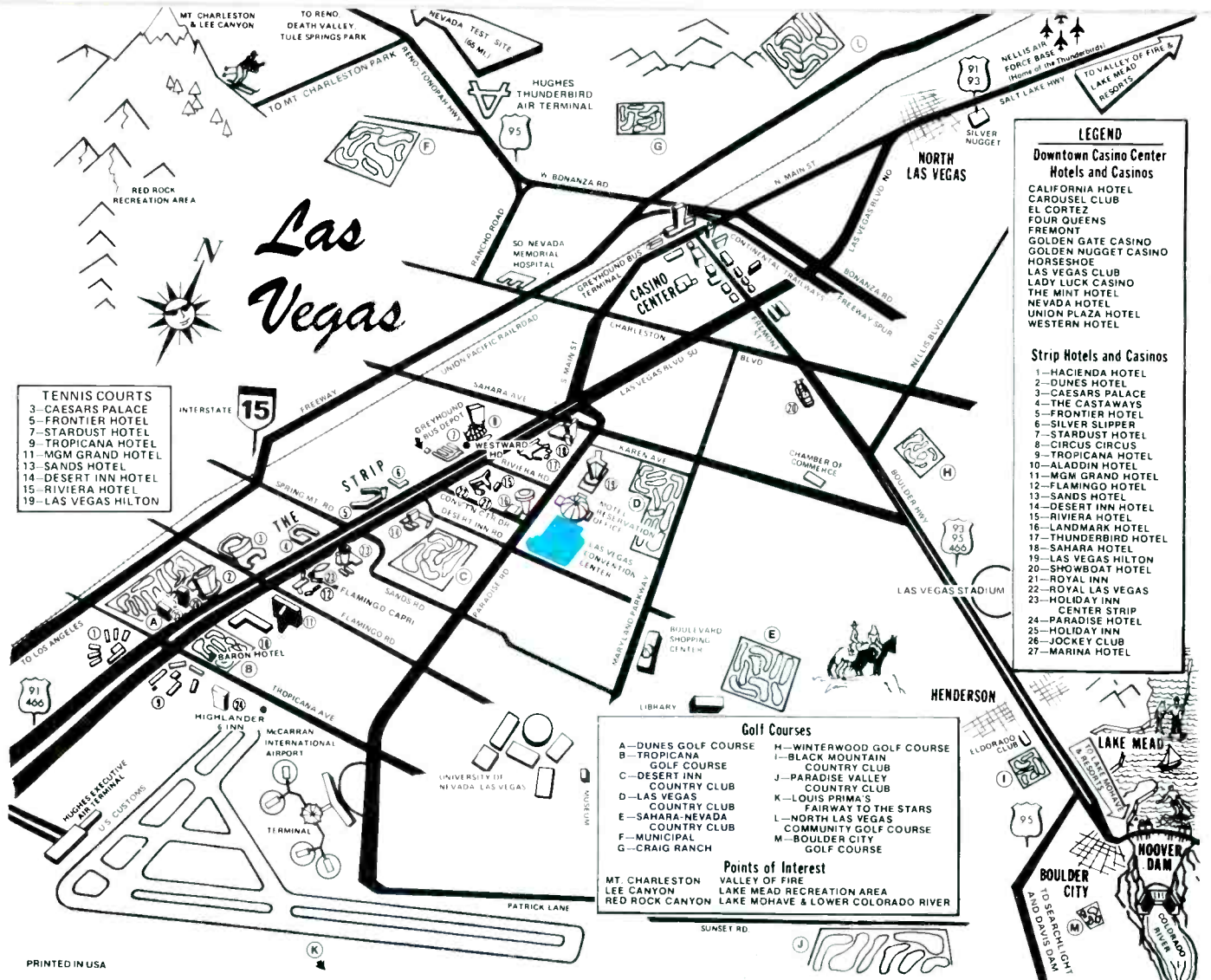


D-4305,
20x1 AUDIO

**For More Information,
Write or Call**



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new dimension in the decade of the '80s with AM stereo, FM quad, satellites and digital recording. NAB '80 will be there with information to assist the radio executive for the coming era. The lineup for the radio executives includes sessions and workshops covering station promotion, sales, and rules and regulations governing the radio broadcast industry.

Specific sessions are titled: *Should You Have an Electric Bookkeeper?*—designed for stations not currently using business automation in their operation; *Is Skywriting Better Than Matchbook Covers?*—a workshop on investing promotion dollars in medium and large markets; *Selling the New, Wonderful World of AM in the '80s*; *Operating a Radio Station Group for Fun and Profit - Not Necessarily in that Order*, plus many more.

This year there are special sessions and workshops for small market broadcasters including: *If Your Signal Doesn't Cover the 'Metro,' How Do You Compete with the 50kW's*; *Stretching, Saving, Bending, and Keeping Operating Bucks*, to name only a few.

Registration fee for attendees

with a radio executive emphasis includes a luncheon on Tuesday with Mutual's controversial commentator, Jack Anderson. He's also one of the nation's most widely syndicated columnists, and his hard-hitting brand of reporting has made his name a household word.

Special sessions

NAB has lined up the very best in entertainment for all convention delegates with Sunday's opening ceremonies beginning at 2:30. This gala event will open the doors on the broadcasting event of 1980.

Wednesday's general sessions include a special message from Charles Ferris, FCC chairman, as well as lively, give-and-take discussions chaired by some of the foremost experts within and outside the broadcasting industry.

Spouses

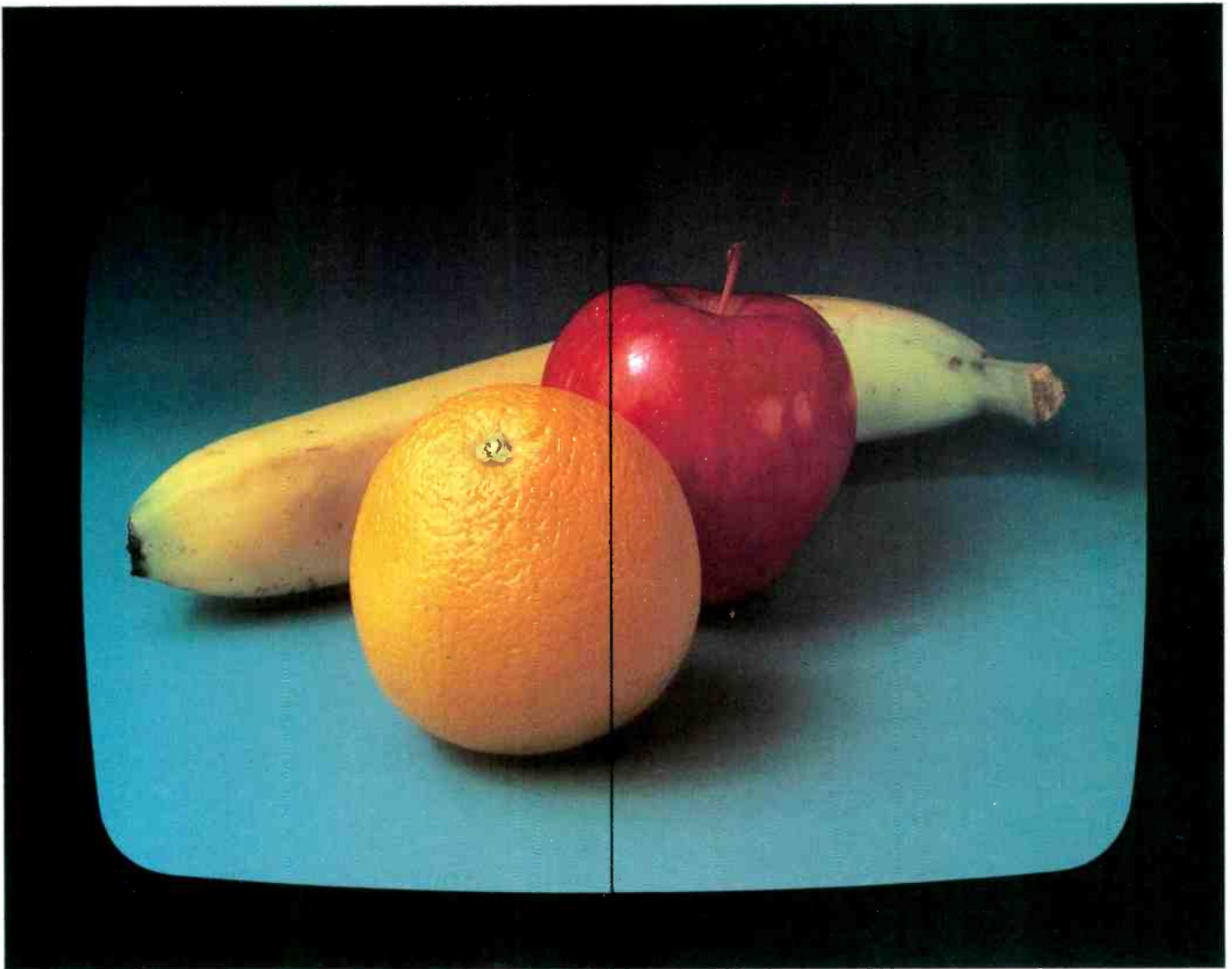
Spouses attending the convention are entitled to free spouse badges permitting them to attend general sessions, workshops and the hospitality suites. The only additional charges to spouses are luncheons (\$15 each).

The Gathering Place and a full

calendar of entertaining events are in store for attending spouses. The **Gathering Place** is a general meeting area staffed by hostesses from the Las Vegas Tourist Bureau. Spouses can relax there and get information on things to see and do in Las Vegas. It will be open Sunday from 10 AM to 5 PM, Monday and Tuesday from 9 AM to 5 PM and Wednesday from 9 AM to noon.

Special entertainment and informative sessions for the spouses include tours of celebrity homes, the mountains, Hoover Dam, the desert and the strip. A short course on the biggest game in town, gambling, a tennis tournament and mini-programs with topics such as consumerism, self-improvement, the broadcasting business and financial matters will all be available to spouses attending the convention.

For NAB-Las Vegas '80 program details and registration forms, contact: Broadcasting '80, National Association of Broadcasters, 1771 N. Street NW, Washington, DC 20036, (202) 293-3570.



HBU Invites Comparison

Compare the Recortec High Band U-format recorder with other high band recorders. It's easy to see our HBU specifications match or exceed those for other broadcast quality one-inch or two-inch recorders. As a fair test, we invite split-screen comparison of picture quality because you'll have trouble telling the difference! The compact package and built-in editing capability of our Model HBU-2860 provides a convenient system for video production. At 25 pounds, our portable Model HBU-4400 is the lightest high band acquisition unit for your critical recording.

The HBU is a new format using standard U-format cassettes with proven interchangeability. Because the quality persists through multiple generations, it can always be dubbed to other formats.

Since we provide high band recording, lower equipment cost, lower media cost, better audio performance and cassette convenience, there

has to be a catch. The HBU-4400 portable acquisition unit has a maximum recording time of 10 minutes, while the HBU-2860 editing unit has a maximum time of 30 minutes. So, if you can trade off recording time per tape for **equal performance at a fraction of the price**, there's an HBU for you from Recortec.

Want to know more about how our apple compares with oranges and bananas? Please call Sid McCollum, our National Sales Manager.



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RECORTEC

475 Ellis Street, Mountain View, California 94043, Telephone: (415) 962-0220, TWX: 910-379-5022

When FM broadcasters looked for greater range and clarity... who got the signal?



That curlicue you see close up at the left is our new Super-Power FM Broadcast Antenna.

Four-hundred percent more powerful than old-time antennas, this copper-based innovation gives broadcasters a lot more range, precision and clarity for their antenna dollars. Good news in these days of inflation.

Helping broadcasters get on the air are many Phelps Dodge products. Including

building wire and power cable for electric power. Telephone cable for communications. Magnet wire for coils, relays and rotors. And copper castings and shapes for electronic components.

All in all, each year, we transform about a billion pounds of copper into innovative and useful products for the broadcasting industry and others. That's because people who depend on copper depend on us. *Phelps Dodge—the time-tested name in copper.*



Station KFIM tower, with a Phelps Dodge Super-Power FM Broadcast Antenna (shown close up below left), overlooking El Paso, Texas.

**phelps
dodge**

300 Park Avenue, New York, New York 10022

The copper people from Phelps Dodge

Circle (29) on Reply Card

Some NAB '80 Convention Highlights



Donald A. Thurston

Thurston to receive distinguished service award

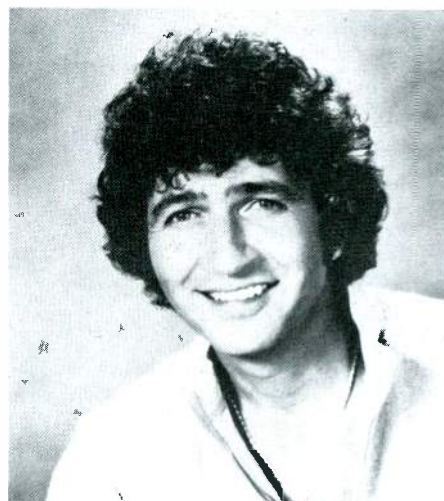
Donald A. Thurston, president of Berkshire Broadcasting Co. in North Adams, MA, has been named recipient of the National Association of Broadcasters' 1980 Distinguished Service Award—the industry's highest honor.

Presentation of the award will be made April 13 at the opening session of NAB's 58th annual convention in Las Vegas. The award, established in 1953, is presented to a broadcaster who has made "a significant and lasting contribution to the American system of broadcasting by virtue of a singular achievement or continuing service for or on behalf of the industry." The selection was made by NAB's 1980 Convention Committee during the Association's semi-annual Board of Directors meeting.

Thurston completed two one-year terms as chairman of the NAB 45-member Board of Directors in June, 1979. He now serves as immediate past chairman in an advisory position. A major accomplishment during Thurston's tenure was the founding of a Minority Broadcasters Investment Fund to aid minorities in purchasing broadcasting facilities. He is a member of the Board of Trustees which directs the Fund.

He began his broadcast career as an engineer in 1949 and has been in management since 1952. He acquired control of Berkshire Broadcasting in 1966 and operates three stations in western Massachusetts—WMNB AM/FM, North Adams, and WSBS, Great Barrington.

Thurston is a past president of the Massachusetts Broadcasters Association, a member of the All-



Mac Davis

Industry Radio Music License Committee, and has served the broadcast industry in a number of other positions. He has received several broadcasting awards, including the 1975 Abe Lincoln Merit Award from the Southern Baptist Radio Television Commission.

Active in local business and civic affairs, he is president of North Adams Futures, a real estate development company; a director and Trust Committee member of the Berkshire Bank & Trust Co., and chairman of the Administrative Board of the First United Methodist Church. He has served as president of the area Chamber of Commerce and the Industrial Development Corporation. □

Thurston, who was a member of the NAB Radio Board of Directors for four years, and its 1976-77 chairman, served two previous Board terms and was Radio Board vice chairman in 1968-1969.

Entertainers

Two of the nation's top entertainers—singer Mac Davis and comedian Bob Newhart—will perform at the NAB's 58th annual convention in Las Vegas. Davis will open Sunday's (April 13) general assembly and Newhart will appear at Wednesday's closing luncheon (April 16).

Davis, who has received the Country Music Academy's Entertainer of the Year award and the People's Choice Awards' Favorite Male Entertainer plus numerous gold records, began his career as a songwriter. His songs have been recorded by Kenny Rogers, Sammy Davis, Jr., Andy Williams, O.C. Smith, Lou Rawls, Dolly Parton and Elvis Presley.



Bob Newhart

From his success as a songwriter, he went on to develop a highly original performing style and soon his own recordings of his songs were eclipsing those of other artists. Million-sellers that he has written and recorded include "Baby Don't Get Hooked on Me," "Stop and Smell the Roses," "One Hell of a Woman," and the classic "I Believe in Music."

Davis made his motion picture debut playing the quarterback in "North Dallas Forty" and will soon be seen in "Cheaper to Keep Her." In addition to his acting and recording, he still is playing concerts and club dates and does two TV specials a year for NBC.

Bob Newhart launched his show business career while employed as an accountant and soon found himself performing before huge TV audiences. He developed his style in a series of club dates at San Francisco's hungry i, Mr. Kelly's in Chicago, the Crescendo in Hollywood and Harrah's in Lake Tahoe. His first album, "The Button Down Mind of Bob Newhart," was an immediate success with sales topping 1½ million and it set a record as the largest selling talk album in history.

His weekly TV series for the 1961-62 season won an Emmy for the year's "Outstanding program achievement in the field of humor," as well as the Peabody Award. He has been on a number of TV talk shows and often hosts "The Tonight Show." His film credits include "Hot Millions," "Catch-22" and "Cold Turkey." He returned to television in 1972 with Suzanne Pleshette in the highly successful series about a practicing psychologist. □

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Before you invest in a top of the line character generator you should know more than just what it can do. That's why the versatile new 3M D-8800 character generator could be just the one for you. You see, all instructions are in English, not in code. And we've put them on a convenient L.E.D. panel above the keyboard for less wasted eye motion. So even a beginner can soon be composing in all kinds of fonts and colors. See your 3M representative right away for the character generator any of your people can run, or call 612-736-1052 for more information. Unless of course, you'd rather exawkn.

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NAB-VEGAS '80

Product Directory

This special section provides a directory to the NAB-Vegas '80 Convention exhibitor products. Each exhibitor was asked to complete a comprehensive checklist of products to be shown. The following section is a compilation of the data provided. It shows major equipment headings followed by the exhibitor name and booth number.

This special section will aid you in finding the equipment you especially want to see at the show. But a

word of caution. AS **BE** goes to press, there are still changes being made daily in the exhibitor sign-ups, equipment being displayed, and booth assignments. So, while every attempt has been made for accuracy in this section, double check the final program at NAB to organize your show coverage.

For those not attending NAB-Vegas '80, the June issue of **BE** will provide a convention replay and will cover both sessions and new products.

A

Amplifiers, pre-amps, DAs

ADM Technology, 1404
AEG-Telefunken, 1403
American Data Corp., 803
Audio & Design Recording, 211
Belar Electronics Laboratory, 134
Blonder-Tongue, 1730
Broadcast Electronics, 304
CMC, 1622
Camera Mart, 1406
Candex Pacific, 1800
Cavox/Tape-Athon, 164
Central Dynamics, 1015
Compact Video Systems, 1525
Datatek, 1227
Farinon Video, 1303
Fernseh, 1208
Grass Valley, 1210
Industrial Sciences, 1402
International Microwave, 1633B
LPB, 402
Leitch Video, 1309
McMartin Industries, 300
Panasonic/Professional Audio, 600
PRO-tech Audio, 221
Ramko Research, 110
Rohde & Schwarz, 1110

Sescom, 905
Shintron, 1107
Sigma Electronics, 1602
Sound Genesis, 330-332
Telex Communications, 311
Thomson-CSF, 919
Townsend Associates, 1007
Ultra Audio Pixtec, 1817
United Research Lab, 405
Versa Count, 516
Vital Industries, 921
Video Aids Corp. of CO, 1018
Ward-Beck, 1219

Analyzers, audio & video

Amber Electro Design, 327
Belar Electronics Laboratory, 134
Potomac Instruments, 107
Rohde & Schwarz, 1110
Shure Brothers, 200
Sound Genesis, 330-332
Sound Technology, 1132

Animation (equip., facilities)

Convergence, 704
Eigen Video, 1215
Interand, 1045
Power-Optics, 925

Antenna systems & hardware

Andrew, 917
Blonder-Tongue Laboratories, 1730
Bogner Broadcast Equip., 1325
Cablewalk Systems, 1323
Comark Communications, 1315
Delta Electronics, 400
Electro Impulse, 931

LeBlanc & Royle Comm., 1319
Harris, 301
Marconi Electronics, 817
Microwave Assoc. Comm., 515
McMartin Industries, 300
NEC America, 1301
Nurad, 1400
Phelps Dodge Comm., 112
RCA Commercial Comm., 700
Rockwell Int'l., 100
Rohde & Schwarz, 1110
S.W.R., 1000

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Gardiner Communications, 1828
LeBlanc & Royle Comm., 1319
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Microdyne, 172
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NEC America, 1301
Rockwell Int'l., 100
Scientific-Atlanta, 1305
Tayburn Electronics, 1708

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Bird Electronic, 915
Comark Industries, 1315
Electro Impulse Lab, 931
PRO-tech Audio, 221
Rohde & Schwarz, 1110
Sescom, 905

ATS & equip.

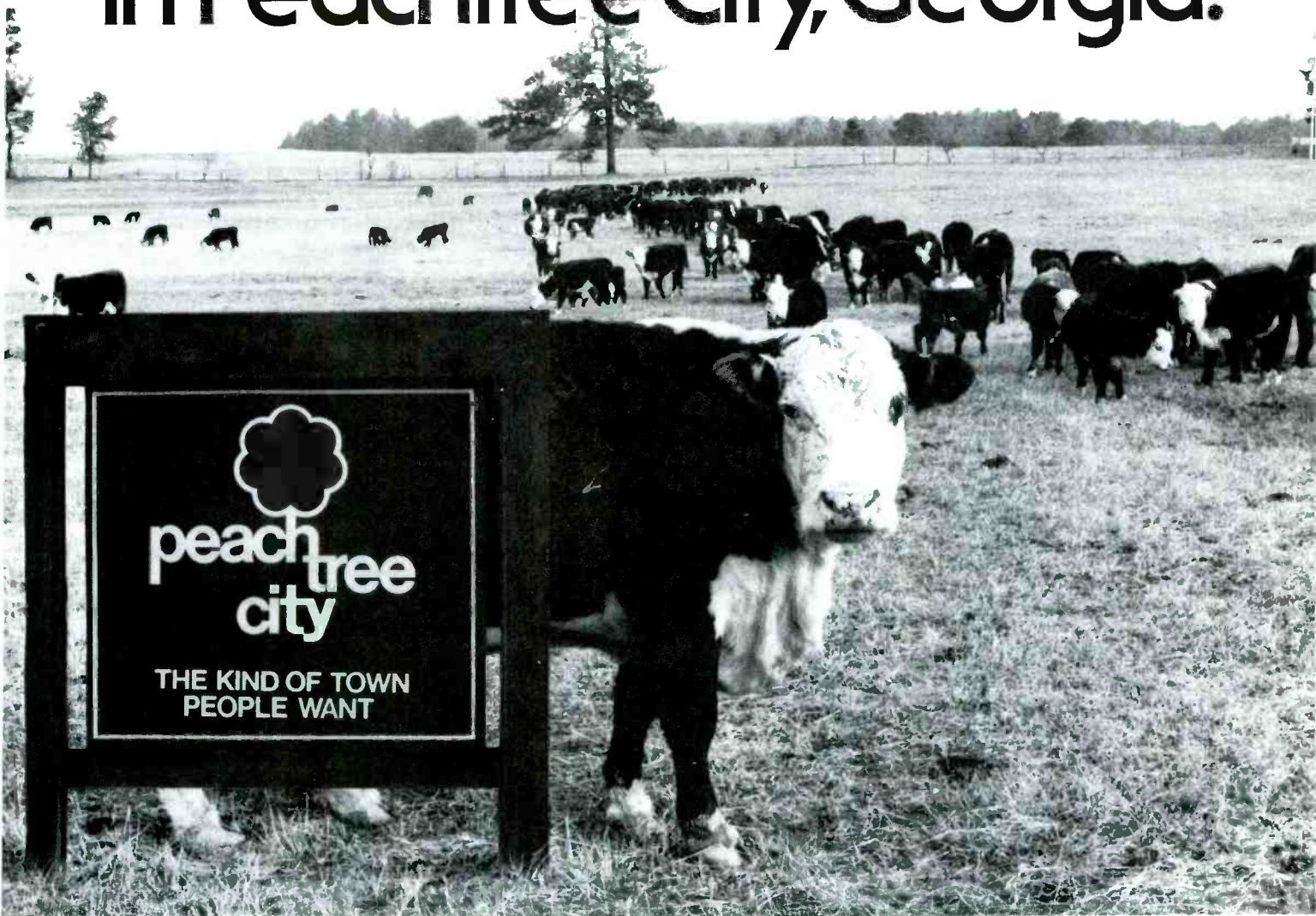
Delta Electronics, 400

Elcom Specialty Products, 506
Moseley Associates, 505
Potomac Instruments, 107
QEI, 417
Time and Frequency Tech., 111

Audio amplifiers & processors

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Richmond Sound Design, 1027
Sescom, 905
Shure Brothers, 200
Sony, 1211
Sound Genesis, 330
Studer Revox America, 602
Telex Communications, 311

Why a San Francisco station buys broadcast equipment in Peachtree City, Georgia.



As unlikely as it might seem, one of the country's largest distributors of quality broadcast equipment is headquartered in Peachtree City. It's BCA.

BCA supplies stations all across the country with the top brands, the professional guidance and the optimum value they simply can't find at home. We stock over 70 lines with emphasis on quality brands like Ampex, Auditronics, Moseley and Potomac. And our salesmen are all engineers. With the technical knowledge to analyze RF and Audio System needs in depth. And the practical

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BCA

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The Very Best FM Exciter Wilkinson Model FME10

POSITIVE PROOF!

- * Frequency response $\pm 1/4$ DB 15 HZ-350KHz.
- * FM Noise Level — 70 DB below 100% Mod.
- * Distortion — 0.3%
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- * Requires no oven and is not susceptible to rumble and microphonics.



FCC Type Accepted

- POWER SUPPLY INCLUDED.
- COMPLETELY METERED.
- REQUIRES 7" VERT. SPACE.
- ADJUSTMENT FREE.

The Very Best Stereo Generator Wilkinson Model SG1E

196 TRANSMITTERS USE IT!

POSITIVE PROOF!

- * 60 db separation 50 Hz-7500 Hz
- * 55 db separation 7500 Hz-10000 Hz
- * 50 db separation 10 KHz 15 KHz
- * FM Noise — 75 db Cross Talk — 60 db



COMES COMPLETE WITH POWER SUPPLY
REQUIRES ONLY 3 1/2" RACK SPACE
ONLY ONE FRONT PANEL ADJUSTMENT
REMOTE STEREO ON/OFF FUNCTION

NO ONE CAN MATCH THIS COMBINATION

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NAB-VEGAS '80 Product Directory

Thomson-CSF, 919
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Int'l. Tapetronics, 303
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Ampex, 702

BTX, 1501
Central Dynamics, 1015
Fernseh, 1208
Grass Valley, 1210
Image Video, 1822
Recortec, 1200
Videomedia, 1401
Vital Industries, 921
Vitex, 1120

Automation systems, business & logging

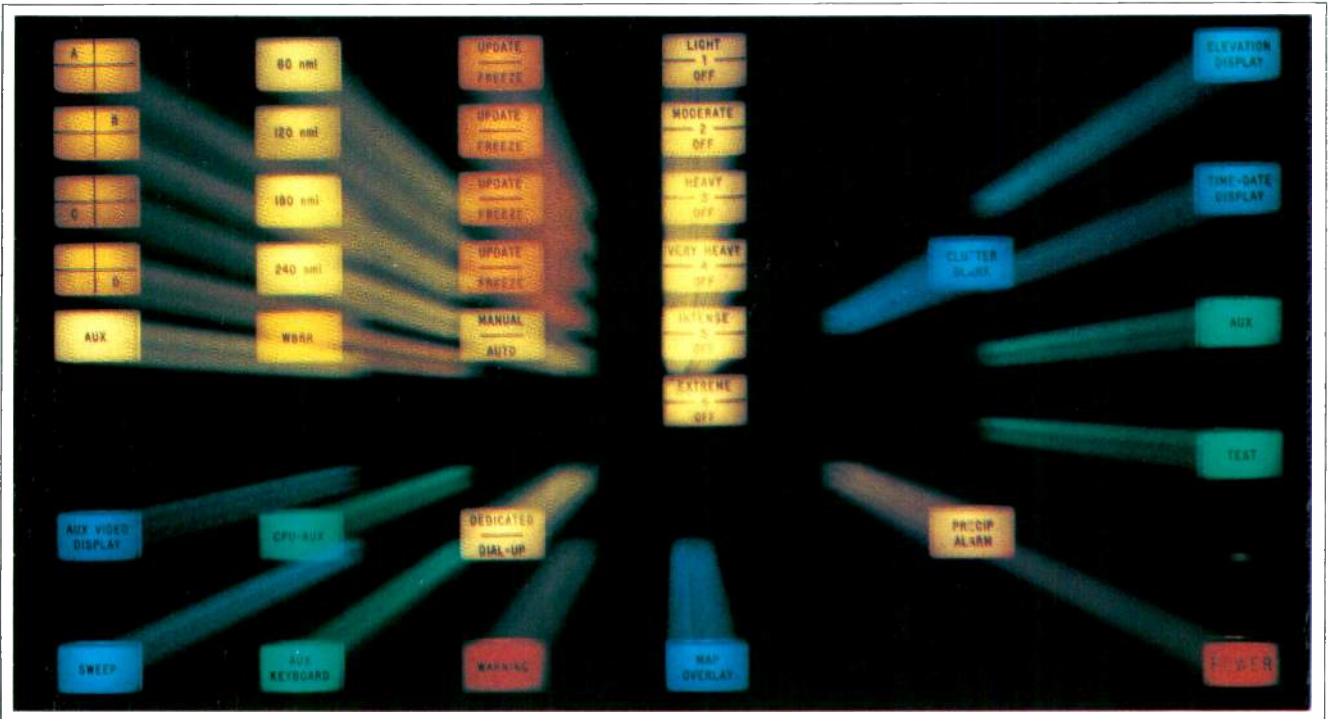
Automated Business Concepts, 152
Automation Electronics, 421
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Broadcast Electronics, 304
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Central Dynamics, 1015
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Computer Concepts, 168
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Jefferson Data Systems, 1511
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Marketron, 1914
Moseley Associates, 505
RCA Commercial Comm., 700
Station Business Systems, 509
Telex Communications, 311

**"When I speak out for the rights of
retarded people, I know what I'm talking
about, because I'm one of them."**



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The School of Visual Arts Public Advertising System

WEATHERMATION'S COLOR REMOTE RADAR



The most advanced system for Electronic Weather Gathering

Want to watch a storm brewing off the coast, keep tabs on the eye of a hurricane or show the folks down south how hard it's snowing up north? With WEATHERMATION's Color Remote Radar system national weather conditions are simply a telephone call away. Just dial up the location you want to see. Our system will instantaneously receive a radar image and display it on your TV screen. In bright, crisp color.

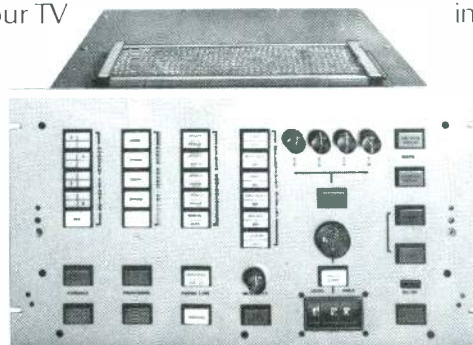
You can see rain, snow, hail and sleet. As it is occurring. And, our computer memory lets you store and recall weather conditions in as many as four locations at the same time.

WEATHERMATION's Color Remote Radar is packed

with other special features too. Like instantaneous ranging. Built-in map overlays. Freeze frame and blink capacity. And they're all standard equipment. Not costly extras.

Installation? It's quick and simple and doesn't require modems, custom computer lines or expensive transmission devices. A system installed in the morning can be working for you by the evening news.

Send for our free brochure. **And be sure to stop by booth 1625 at NAB.** We'll dial up your home town and show you WEATHERMATION in action. See for yourself why WEATHERMATION's Color Remote Radar is the most accurate and cost-effective system in the industry.



Weathermation

Weathermation Incorporated
190 North State Street, Chicago, IL 60601
(312) 263-6921

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**We have
a better mousetrap!**

EMCEE

To help trap your rising energy costs: Emcee's new 1000 watt UHF translator.

When we designed our new translator, our basic goal was greater operating efficiency. And keeping today's never-ending price hikes in mind, we also designed in a major bonus: this new equipment will help trap your energy costs!

Now that we've been field testing this equipment for over a year, we're pleased to report our goals have been achieved. Based on the results of our field testing, over the next ten years you can expect to save about \$25,000 in energy costs with Emcee's new translator — and that's at today's prices. In addition, our extended tube life will reduce your operating costs.

We built these important features into the new Emcee translator for increased reliability and ease of operation:

- A new solid state exciter and driver
- L.E.D. control ladder status panel
- Solid state digital control system
- Optional digital remote control and monitoring system.

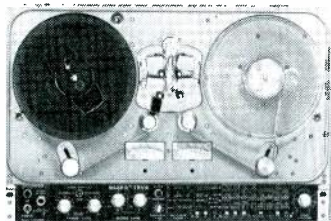
To find out how Emcee's better mousetrap can help increase efficiency while reducing energy costs at *your* station, see us at Booth #1017 at the N.A.B. Show. You can also check out our new UHF solid state 50 watt amplifier — another energy-saver from Emcee.



The translator people.

EMCEE BROADCAST PRODUCTS, P.O. Box 68, White Haven, Pennsylvania 18661 717 443-9575

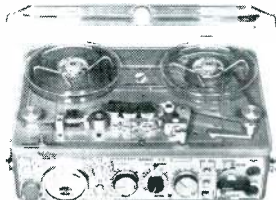
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NAGRA**World's Foremost
Broadcast Quality
Portable Tape Recorders****NEW Model TRVR**

The first truly modular, rack mountable, 12 hour Logging/Recorder. Expandable to 2-Channels plus time code. 4 speeds - 15/16, 1-7/8, 3 3/4 and 7 1/2 ips. Uses 1/4" tape.

Model 4.2

The classic recorder for the world of broadcasting, television and cinema. Mono: 15, 7 1/2, 3 3/4 ips. Pre-distortion, dis-connectable limiter and automatic level control.

**Model IV-S**

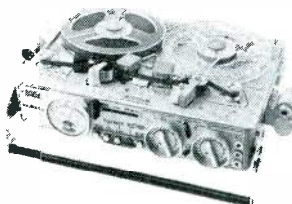
A mastering stereo recorder for the record industry, broadcasting and cinema. 15, 7 1/2, 3 3/4 ips. NAB and NagraMaster, controlled pre-accentuation, pre-distortion, limiter.

**Model E**

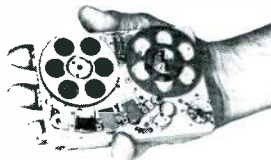
Extra sturdy, extra rugged for broadcast reporting and recording needs. Proven for efficient easy use, simple maintenance. Mono: 7 1/2 ips. Microphone input, dynamic and condenser; with generator for bias and pre-accentuation adjustment.

**Model IS**

An outstanding recording instrument, smaller and lighter than the Nagra 4.2, handy, compact, with 5" reels. Mono: 7 1/2 and 3 3/4 ips. 3 servo controlled motors; automatic level control also available.

**Model SN**

Miniature, pocket size portability with space age quality performance. Mono: 3 3/4 and 1-7/8 ips. Battery operated. Size: 5 3/4"W x 4"L x 1"D.



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NAB-VEGAS '80 Product Directory**B**

Comprehensive Video Supply, 1817
Alan Gordon Enterprises, 1317
O'Connor Engineering, 1122
Quick Set, 1012
Van Ladder, 1813

Camera lenses & accessories

Angenieux, 904
Camera Mart, 1406
Canon, 902
Cine 60, 1126
Cinema Products, 1417
Comprehensive Video Supply, 1817
Frezzolini Electronics, 1608
Fujinon Optical, 1217
Ikegami Electronics, 927
RCA Commercial Comm., 700
Tele-Cine, 1114
Tiffen, 1810

Camera pickup tubes

Amperex Electronic, 805
Camera Mart, 1406
Comprehensive Video Supply, 1817
EEV, 906
Hitachi Denshi America, 1115
Ikegami Electronics, 927

Camera stabilizing systems

Arriflex, 1835
Camera Mart, 1406
Cinema Products Corp., 1417
Van Ladder, 1813

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Ampex, 702
Asaca, 1421
Camera Mart, 1406
Cinema Products, 1417
Commercial Electronics, 1108
Fernseh, 1208
Film/Video Equip. Service, 1818
Hitachi Denshi America, 1115
Ikegami Electronic, 927
International Video, 1214
Marconi Electronics, 817
NEC America, 1301
Panasonic/Video Systems, 1521
Philips, 807
RCA, 700
Sharp Electronics, 1216
Sony, 1211
Thomson-CSF Laboratories, 919
Toshiba, 1415
US JVC, 1519

Cameras, film chain

Camera Mart, 1406
Cinema Products, 1417
Cohu/Electronics, 900
Fernseh, 1208
Ikegami Electronic, 927
Marconi Electronics, 817
Philips, 807
Thomson-CSF, 919
US JVC, 1519

Cameras, film cine

Camera Mart, 1406
Cinema Products, 1417
Fernseh, 1208
Frezzolini, 1608
Alan Gordon Enterprises, 1317
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Battery packs & chargers

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Camera Mart, 1406
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Perrott Engineering, 1023

Broadcast loggers

Broadcast Electronics, 304
IGM/Trillion, 103
Moseley Associates, 505
QSI Systems, Inc., 1603
Studer Revox America, 602
Telex Communications, 311
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AEG-Telefunken, 1403
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International Tapetronics, 303
Research Technology, 1112
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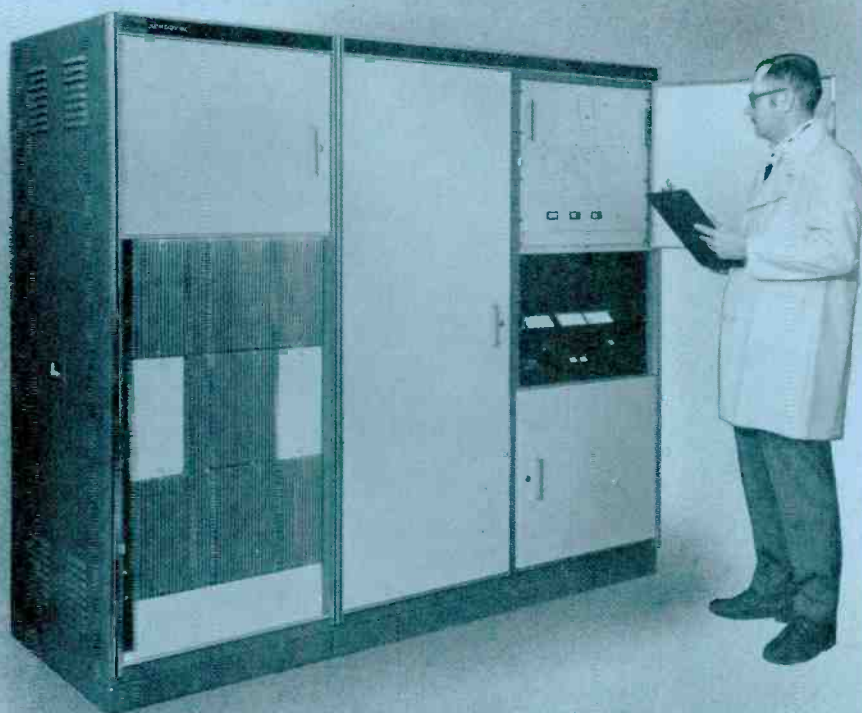
Cable (coaxial & audio)

Andrew, 917
Boston Ins. Wire & Cable, 1011
Cablewave Systems, 1323
Camera Mart, 1406
Comprehensive Video Supply, 1817
LeBlanc & Royle Comm., 1319
Trompeter Electronics, 1037

**Camera dollies, stands,
tripods, heads**

Arriflex, 1835
Camera Mart, 1406

A Single Tube 5 kW UHF TV Transmitter



Slashes Operating Costs While Increasing Transmitter Performance

The Acrodyne TT-3480U combines the latest in solid state and tetrode technology, to create a new generation of high power, high efficiency TV Transmitters.

This new IF Modulated, low level diplexed unit has many outstanding features for UHF broadcasters including:

- Up to 45% lower energy requirements than a klystron Transmitter
- All solid state high power hybrid-combined driver for the single output tube ... wideband, redundant, long term adjustment-free RF Amplifiers
- Identical front panel plug-in modules in the solid state driver
- Forced-air cooled operation
- Superior TV signal

The Acrodyne TT-3480U is truly a breakthrough in Transmitter performance, efficiency and operating cost. Contact us today for further information and complete data.

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What You Should Know About the New Generation Of UHF Tetrode TV Transmitters

by Nat Ostroff,
Vice President Engineering,
Acrodyne Industries

In this new era of "energy efficiency", the ceramic tetrode Transmitter deserves serious consideration. It reduces energy requirements drastically — up to 45% when compared with the klystron Transmitter.

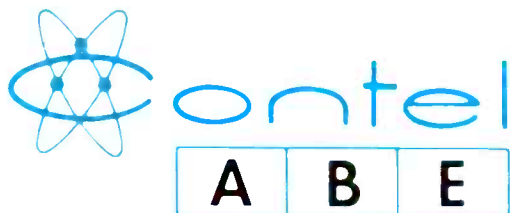
But this is not the only feature worth your consideration. The tetrode, in conjunction with solid state hybrid-combined RF amplifier circuitry, yields wideband operation and requires no tuning other than in the coaxial cavity output stage.

In addition, the high gain, high efficiency tetrode delivers a superior TV signal ... better than a klystron because of the tube's inherent linearity. The tetrode UHF TV Transmitter is forced-air cooled to eliminate liquid cooling requirements such as radiators, water pumps, flow meters, switches and the like.

And, not only does the tetrode Transmitter cost less to operate and maintain, but it is also lower in initial cost. It is, in fact, the most cost efficient TV Transmitter offered today.

Tetrode UHF TV Transmitters offer simplified maintenance, can be fully automatic and are adaptable for remote control.

At NAB 1978 Acrodyne introduced the first single tube UHF TV Transmitter, delivering 1000 Watts visual and 100 Watts aural output. In 1980 Acrodyne is delivering single tube UHF TV Transmitters providing 5000 Watts visual and 500 Watts aural output. Combined versions are available for 10,000 Watts visual and 1,000 Watts aural. It's a breakthrough in UHF TV transmission. You should be aware of it.



**Advanced Broadcast Equipment
at a price you can afford**



**CONTEL model CT101R-B
cartridge tape
recorder-reproducer**



**CONTEL model CT101P-B
cartridge tape
reproducer**

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- Exceeds NAB specifications
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- Optimum electromagnetic shielding
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NAB-VEGAS '80 Product Directory

Cameras, studio

Ampex, 702
Commercial Electronics, 1108
Fernseh, 1208
Harris, 301
Hitachi-Denshi America, 1115
Ikegami Electronic, 927
International Video, 1214
Marconi Electronics, 817
NEC America, 1301
Panasonic/Video Systems, 1521
Phillips, 807
RCA, 700
Sharp Electronics, 1216
Sony, 1211
Toshiba Int'l., 1415
US JVC, 1519

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Comprehensive Video Supply, 1817
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McMartin Industries, 300
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IGM/Trillium, 103
Industrial Sciences, 1402
Oak Communications, 1517
Rohde & Schwarz, 1110
Time and Frequency Tech., 111

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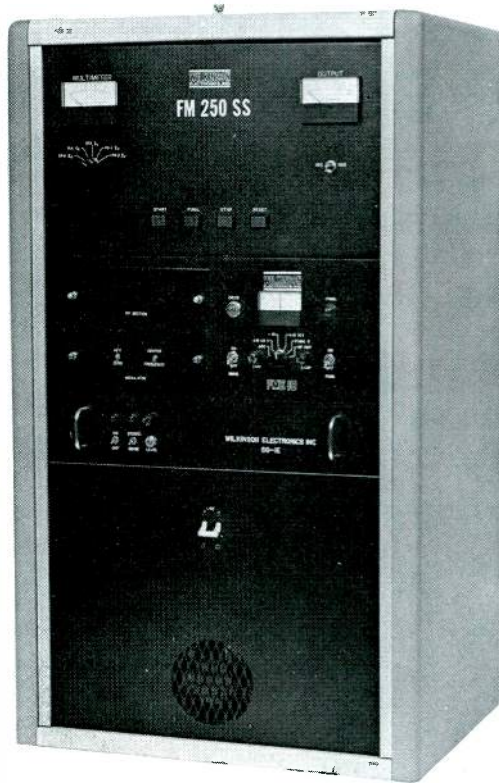
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NAB-VEGAS '80 Product Directory

Delay systems (audio & video)

Allen Avionics, 1633
 Broadcast Video Systems, 1631
 Camera Mart, 1406
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 Wang Voice Comm., 120

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 Ikegami Electronics, 927
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A. F. Associates, 1119
 Camera Mart, 1406
 Candex Pacific, 1800
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 Centro, 1832
 Comark Communications, 1315
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 United Research Lab., 405
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Edutron, 1714
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Exciters (AM, FM, SCA, stereo)

AEG-Telefunken, 1403
 Comark Communications, 1315
 Harris, 301
 Marconi Electronics, 817



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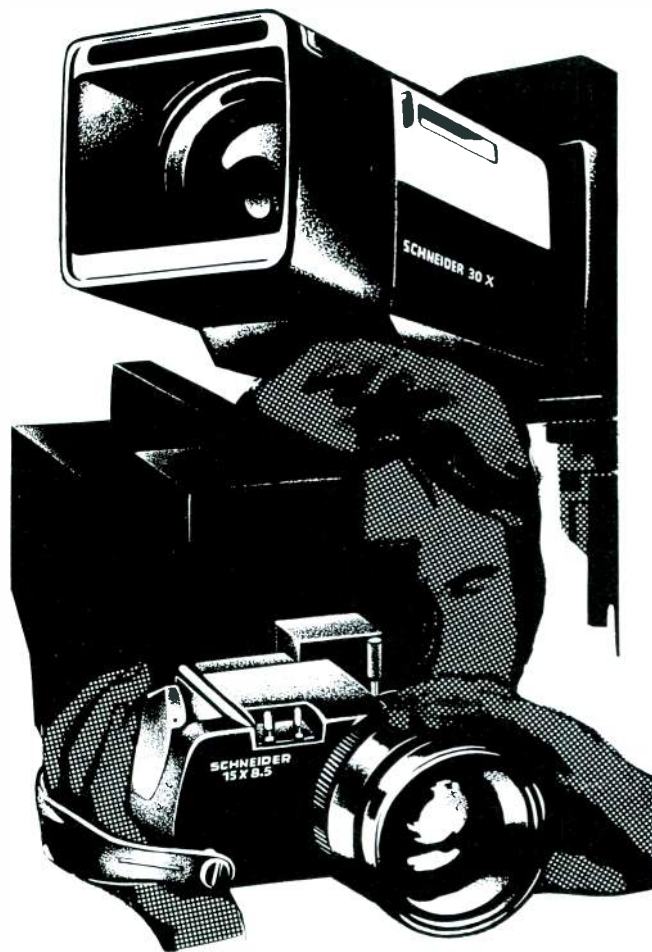
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	30x Tele/OB	2.1/33-1000

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	20x Standard	2 /17-340
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	15x Wide Angle	1.7/12.5-190
	30x Wide Angle	1.7/12.5-375
	30x Standard	1.7/16-480
	30x Tele/OB	1.7/26-800

ENG/EFP Lenses for cameras with 2/3" pick-up tubes	10x Standard	1.8/10-100
	15x Wide Angle	1.7/8.5-125
	with 2 x Flip-in RE	3.4/17-250

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	30x Standard	1.4/11-330
	30x Tele/OB	1.4/18.5-550



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NEC America, 1301
QEI, 417
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Sintronic, 126
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Adda, 1515
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Moseley Assoc., 505
McMartin Industries, 300
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Skotel, 1720
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Interand, 1045
Micro Consultants/Quantel, 1207
NEC America, 1301
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Broadcast Video Systems, 1631
Camera Mart, 1406
Central Dynamics, 1015
Convergence, 704
Dynair Electronics, 811
Fernseh, 1208
Grass Valley, 1210
Industrial Sciences, 1402
Jatex, 1724

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Lighting controls & accessories

AVAB America, 1600

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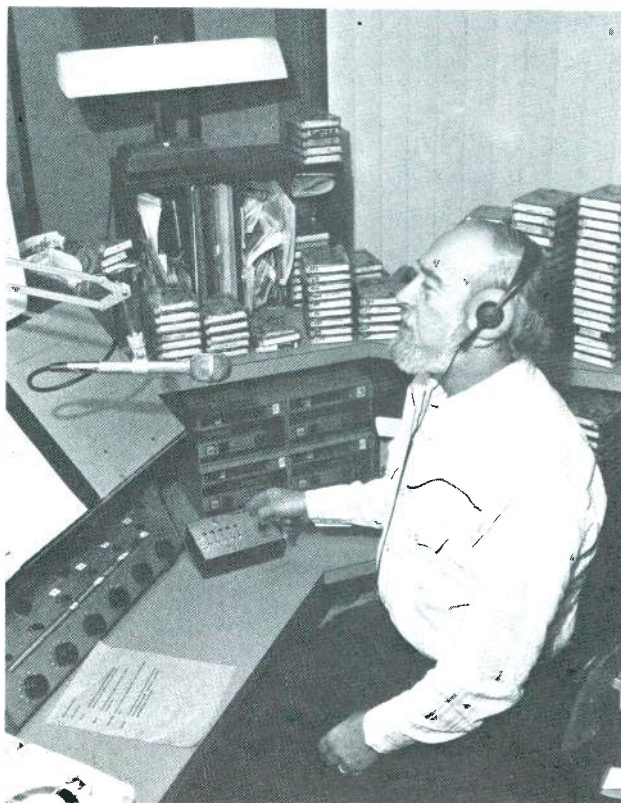


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Berkey Colortran, 1116
Camera Mart, 1406
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Ramko Research, 110
Sound Technology, 1132
Tentel, 1124
Video Aids Corp. of CO, 1018
Ward-Beck Systems, 1219

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Automated Music, 410

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Amber Electro Design, 327
Asaca, 1421
Broadcast Video Systems, 1631
CSI Electronics, 106
Camera Mart, 1406
Delta Electronics, 400
Electro & Optical Systems, 1620
Fidelipac, 204

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Potomac Instruments, 107
Power-Optics, 925
Sound Technology, 1132
Television Equip. Assoc., 1019
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Audio & Design Recording, 211
Dolby Laboratories, 206
Edutron, 1714
Fernseh, 1208
Micro Consultants/Quantel, 1009
NEC America, 1301
Philips, 807
Thomson-CSF, 919

P

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AEG-Telefunken, 1403
ADM Technology, 1404
Comark Communications, 1315
Comprehensive Video Supply, 1817
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Sound Genesis, 330
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Camera Mart, 1406
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EUROPE: Bill Kroon, Putten, The Netherlands, (03418) 3689 or Telex (844) 475-8989

FACTORY DIRECT INFORMATION:

David Franssens, Video Products Manager, or Gene Long, National Sales Manager, at 714-453-5410



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A KODAK COMPANY

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- High speed digital signal processing
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 - Precision servo systems
 - TV camera design
 - RF systems and/or antennas

- or if you are a BS/MSME with experience in any of these areas
- Precision tape recorder transport design
 - Precision servo systems
 - Precision film projector mechanisms
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we may have an excellent opportunity for you on the RCA team.

Send your resume and background information to John Hendrickson, RCA Broadcast Systems, Building 3-2, Camden, N.J. 08102.

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A Tradition On The Move!

Now you're telling us...

...why TV broadcasters continue to specify 2/3-inch Plumbicon* tubes in their ENG/EFP cameras.

Two years ago when competitive 2/3-inch camera tubes made their appearance, we said "...in the final analysis only you, the broadcaster, will be able to judge the *system* performance of these other 2/3-inch tubes by comparing their in-camera performance with that of Plumbicon-equipped cameras."

Today, after the broadcaster has had the opportunity to make this comparison of the in-camera performance of the Plumbicon versus the Saticon

(Registered trademark NHK/Japanese Broadcasting Corporation), TV professionals across the nation have made the Plumbicon the leader. To date we've delivered more than 8000 2/3-inch Plumbicon tubes in the U.S.A. and the pace is still picking up.

Here's what we've been hearing from broadcasters about the crucial factors that affect the "in-system performance" of ENG and EFP cameras... Sensitivity, Resolution and Burn-In:

SENSITIVITY: The ability to shoot and air pictures under the most severe and often uncontrollable lighting conditions is of first importance. When it comes to "get the footage now or forget it", the choice of a Plumbicon-equipped camera over a Saticon gives you that *extra measure* of sensitivity that allows you to get the job done.

RESOLUTION: If your business is demonstrating a camera on a still scene or a test pattern, then static resolution is important. If however, your business is making good video under all conditions, especially those difficult ENG and EFP action shots, then you're telling us that it's total resolution that counts. While the Saticon tube's static resolution has been compromised in order to improve its lag and burn-in weakness, we've listened to what you had to say and have actually increased the Plumbicon's static resolution performance while maintaining its superior dynamic resolution characteristics.

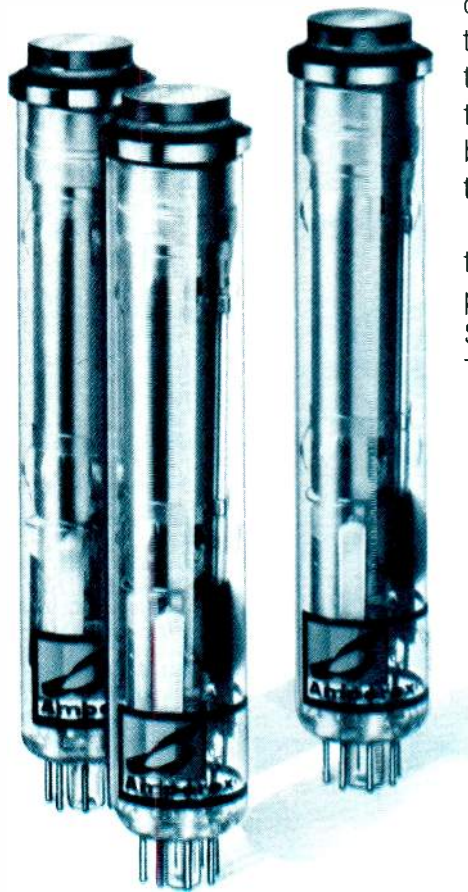
BURN-IN: In the fast-moving, uncontrolled environment of ENG and location shooting, you *are* going to face extreme and unexpected highlights. Under these conditions, you *cannot* afford to run the risk of increased production costs while you repair "burned" tubes or, even worse, having no choice but to air live shots not up to your broadcast standards. You *can* rely on the superior highlight-handling capabilities of the Plumbicon.

Plumbicon tubes exhibit very little perceptible burn-in, especially in highlights. The Saticon, on the other hand, has a noticeable characteristic of "hanging-up" on bright highlights and tends to exhibit picture-sticking after a camera has been focussed on a scene for any length of time.

After making the comparison, broadcasters like yourself have made their choice a Plumbicon-equipped camera with which they can be assured of getting quality video with that extra measure of protection in burn-in, and of performance in total resolution and sensitivity which only the Plumbicon can provide.

We reaffirm our long-standing commitment to staying abreast of the needs of the broadcast industry... and to continue to supply the finest camera tubes that can be made. Amperex is dedicated to product excellence.

For more information, contact: Amperex Electronic Corporation, Slatersville Division, Slatersville, Rhode Island 02876. Telephone: 401-762-3800.



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March 1980 **Broadcast Engineering** 85



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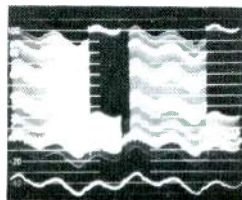
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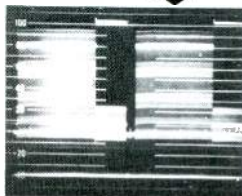
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- Betw. Remote Truck and Microwave
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- For VTR Units
- For Monitoring Lines



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NAB-VEGAS '80 Product Directory

R

Receivers (all types)

AEG-Telefunken, 1403
Delta Electronics, 400
Emergency Alert Receivers, 1807
Gardiner Comm., 1828
Microwave Assoc., Comm., 515
Moseley Assoc., 505
Nagra Magnetic Recorders, 510
Ramko Research, 110
Studer Revox, 602
Sharp Electronics, 1216
Time and Frequency Tech, 111

Recorder care products

Fidelipac, 204
Nortronic, 401
Sound Genesis, 303
Stanton Magnetics, 407
United Research Lab., 405

Recorders (audio, cartridge)

ABC-Broadcast Controls, 312
Ampro/Scully, 102
Audi-Cord, 319
Automated Music, 410
Broadcast Electronics, 304
Camera Mart, 1406
Consolidated Elect. Ind., 203
Harris, 301
IGM 103
International Tapetronics, 303
Ramko Research, 110
Sono-Mag, 309
Sound Genesis, 330
Studer Revox, 602
Taber Mfg. & Eng., 502
Telex Communications, 311
UMC Electronics, 108

Recorders (audio, reel & cassette)

AEG-Telefunken, 1403
Ampex, 702
Accurate Sound, 214
Ampro/Scully, 102
Automated Music, 410
Fernseh, 1208
Garner Industries, 1100
Alan Gordon Enterprises, 1317
International Tapetronics, 303
Nagra Magnetic Recorders, 510
Otari, 503
Ramko Research, 110
Sono-Mag, 309
Sony, 1211
Sound Genesis, 303
Telex Communications, 311
3M, 815
United Research Lab, 405

Recorders (videodiscs, slow motion, replay)

Ampex, 702
Arvin/Echo Science, 1001
Camera Mart, 1406

Eigen Video, 1215
Fernseh, 1208
US JVC 1519

Recorders (1" VTRs)

Ampex, 702
Cinema Products, 1417
Fernseh, 1208
Hitachi-Denshi America, 1115
International Video, 1214
Marconi, 817
NEC America, 1301
Phillips, 807
Sony, 1211
3M, 815

Recorders (high-band)

A. F. Associates, 1119
Ampex, 702
International Video, 1214
Merlin Engineering, 1221
Recortec, 1200
Sony, 1211

Recorders (videotape, videocassette)

Ampex, 702
Fernseh, 1208
International Video, 1214
Merlin Engineering, 1221
Panasonic/Video Systems, 1521
RCA Commercial Comm., 700
Recortec, 1200
Sony, 1211
US JVC, 1579

Remote control systems, links, STLs

AEG-Telefunken, 1403
Candex Pacific, 1800
Delta Electronics, 400
Fernseh, 1208
Jenel, 1606
IGM/Trillion, 103
Marti Electronics, 307
Micro Control, 310
Moseley Assoc., 505
Time and Frequency Tech., 111

Remote control systems, video

Ampex, 702
Candex Pacific, 1800
Di-Tech, 1408
Fernseh, 1208
Grass Valley Group, 1210
Image Video, 1822
Jenel, 1606
Moseley Assoc., 505
NEC America, 1301
Time and Frequency Tech., 111

S

Satellite communications

Gardiner Comm., 1828
Jenel, 1606

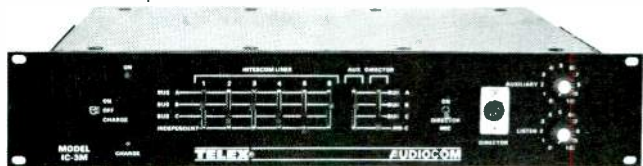
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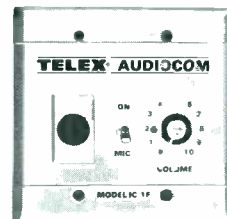
AUDIOCOM™ THE INTERCOM SYSTEM

A closed circuit headset intercom system for small, large, portable or fixed installations. AUDIOCOM, for concerts, stage productions, film or TV studios, sports stadium and race track, industrial, military or public safety applications.

AUDIOCOM, for short or long distance (over five miles), requires only simple wiring and readily interfaces with other sound systems including telephone circuits. Options include tone or light signaling, paging, program feed and rechargeable battery packs in case of power failure.



AUDIOCOM SWITCHBOARD, portable or rack mount, segregates six external intercom lines into three separate non-interfacing circuits; or stage, lighting and sound crews can communicate independently, jointly, or may be mixed. Contains 24 Vdc power supply with optional, rechargeable battery pack. Smaller power supplies also available.



AUDIOCOM INTERCOM STATIONS, belt pack or wall mount, can be "daisy-chained" by the dozens without degradation in signal quality or strength. Listening control and mike switch included. Unused inputs mute automatically to prevent system noise.



AUDIOCOM PAGING SPEAKERS, portable or wall mount, feature volume level switch. Also serves as a paging station.

AUDIOCOM ACCESSORIES. Noise cancelling boom mike headsets or hand mike, even for high noise environments. Interface unit adapts to 2, 3 or 4 wire systems with balanced or unbalanced circuitry.

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March 1980 *Broadcast Engineering* 87



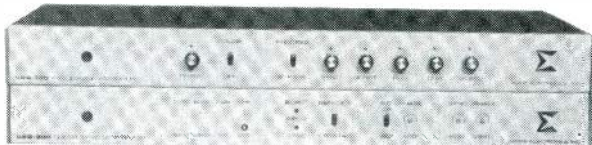
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NAB-VEGAS '80 Product Directory

LeBlanc & Royle Comm., 1319
McMartin Industries, 300
Microdyne, 172
Microwave Assoc. Comm., 515
Moseley Assoc., 505
Nagra Magnetic Recorders, 510
RCA American Comm., 700
Rockwell Int'l., 100
Western Union, 1401A

Screens (all types)

Camera Mart, 1406
Rosco Labs, 1024
Theatre Technique, 1816
Uni-Set, 1106

Sequence controller

ABC-Broadcast Controls, 312
Audi-cord, 319
BTX, 1501
Image Video, 1822

Sound systems

IGM/Trillion, 103
PRO-Tech Audio, 221
Shure Brothers, 200
Sound Genesis, 330
Telex Communications, 311
Ultra Audio Pixtec, 1819

Speakers & enclosures

ALC, 209
Automated Music, 410
Panasonic/Audio, 600
Ramko Research, 110
Rohde & Schwarz, 1110
Sharp Electronics, 1216
Sony, 1211

Speech compressors

ABC-Broadcast Controls, 312
Audio & Design Recording, 211
Elcom Specialty Products, 506
Lexicon, 329
Marti Electronics, 307
Sescom, 905
Sound Genesis, 330

Standards converter, video

Marconi, 817
Micro Consultants/Quantel, 1207
Rohde & Schwarz, 1110

STL equipment

AEG-Telefunken, 1403
Andrew, 917
International Microwave, 1633B
Marti Electronics, 307
Microwave Assoc. Comm., 515
Moseley Assoc., 505
Time & Frequency Tech., 111

Still store/framestore equipment

Adda, 1515
Ampex, 702
Arvin/Echo Science, 1001
Camera Mart, 1406
Colorado Video, 1031
Digital Video Systems, 1101
Eigen Video, 1215
Fernseh, 1208

Harris Video Systems, 301
Micro Consultants/Quantel, 1207
NEC America, 1301

Studio equipment, misc.

AEG-Telefunken, 1403
Automated Music, 410
Broadcast Electronics, 304
Central Dynamics, 1015
Comprehensive Video Supply, 1817
Fidelipac, 204
McMartin Industries, 300
Research Technology, 1112
Sescom, 905

Switchers, audio

American Data, 803
Broadcast Electronics 304
Camera Mart, 1406
Central Dynamics, 1015
Datatek, 1227
Di-Tech, 1408
Fernseh, 1208
Industrial Sciences, 1402
IGM/Trillion, 103
Image Video, 1822
NEC America, 1301
PRO-Tech Audio, 221
Ramko Research, 110
Utah Scientific, 1629

Switchers, routing

American Data, 803
Broadcast Video Systems, 1631
Camera Mart, 1406
Central Dynamics, 1015
Comark Communications, 1315
Datatek, 1227
Di-Tech, 1408
Dynair Electronics, 811
Fernseh, 1208
Grass Valley Group, 1210
Industrial Sciences, 1402
Image Video, 1822
NEC America, 1301
Ramko Research, 110
3M, 815
Vital Industries, 921
Vitex, 1120
Utah Scientific, 1629
Ward-Beck Systems, 1219

Switchers (video, production, editing)

American Data, 803
Ampex, 702
Beavertronics, 1041
Camera Mart, 1406
Central Dynamics, 1015
Convergence, 704
Crosspoint Latch, 1635
Fernseh, 1208
Grass Valley Group, 1210
Industrial Sciences, 1402
Image Video, 1822
NEC America, 1301
Panasonic/Video Systems, 1521
Phillips, 807
Ross Video, 1721
Shintron, 1108
3M, 815
Toshiba, 1415
Vital, 921



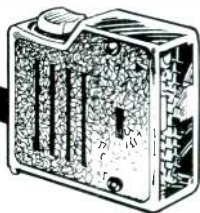
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The Convergence ECS-90 Editor shoots the competition down in flames. Our joystick, a product of American ingenuity, lets you fly circles around those inscrutable pushbutton editors. Our new Convergence Pulse Scan™

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NAB-VEGAS '80 Product Directory

T

TBCs time code equipment

Ampex, 702
Broadcast Video Systems, 1631
Convergence, 704
Datametrics, 1505
Digital Video Systems, 1101
Edutron, 1714
Harris Video Systems, 301
Hitachi-Denshi America, 1115
Merlin, 1221
Microtime, 1409
NEC America, 1301
Philips, 807
Sony, 1211

Tape erasers

Broadcast Electronics, 304
Comprehensive Video Supply, 1817
Fernseh, 1208
Fidelipac, 204
Garner Industries, 1100
International Tapetronics, 303
McMartin Industries, 300
Nortronics, 401
Sound Genesis, 330
Taber Mfg. & Eng., 502
UMC Electronics, 108
United Research Lab., 405

Tape evaluators/cleaners/gauges

Fidelipac, 204
Recortec, 1200
Sound Technology, 1132
Television Equipment Assoc., 1019
Tentel, 1124

Tape, magnetic recording (audio)

AGFA-Gevaert, 1223
Ampex, 702
Broadcast Cartridge Service, 325
Fidelipac, 204
Fuji, 1307
Maxell, 1827
Nagra Magnetic Recorders, 510
RKO Tape, 150
3M, 815
United Research Lab., 405

Tape, magnetic recording (video)

AGFA-Gevaert, 1223
Ampex, 702
Comprehensive Video Supply, 1817
Fuji, 1307
Maxell, 1827
RKO Tape, 150
3M, 815
The Video Tape, 1022

Teletext equipment

Antiope Videotex Systems, 1626A
Electro & Optical Systems, 1620
Industrial Sciences, 1402
Power-Optics, 925

Test Equip., monitors & meters (audio)

Amber Electro Design, 327
Belar Electronics Laboratory, 134

Electro & Optical Systems, 1620
Fidelipac, 204
N.T.I. America, 937
Rohde & Schwarz, 1110
Philips, 807
Potomac Instruments, 107
Sescom, 905
Sound Technology, 1132
Tentel, 1124
Time & Frequency Tech., 111
Ward-Beck Systems, 1219

Test equip., monitors & meters (video)

Asaca, 1421
Belar Electronics Laboratory, 134
Camera Mart, 1406
Electro & Optical Systems, 1620
Lenco, 1206
Philips, 807
Power-Optics, 925
Rohde & Schwarz, 1110
Time and Frequency Tech, 111
Ultra Audio Pixtec, 1819
World Video, 1029

Test equipment, RF

Bird Electronic, 915
Delta Electronics, 400
Electro Impulse, 931
Potomac Instruments, 107
Rohde & Schwarz, 1110
Sound Technology, 1132
T.V. Equip. Associates, 1019

Telemetry equip.

Microwave Assoc., 515
Moseley Assoc., 505
Tayburn Electronics, 1708
Time and Frequency Tech., 111

Test patterns, charts

Camera Mart, 1406
Comprehensive Video Supply, 1817
Porta-Pattern, 1410

Timers and clocks (program)

ABC-Broadcast Controls, 312
BTX, 1501
Beavertronics, 1041
Broadcast Electronics, 304
Comprehensive Video Supply, 1817
Datametrics, 1505
ESE, 1023B
Leitch Video, 1309
Ramko Research, 110
Sound Genesis, 330

Towers & tower equip.

Allied Tower, 109
Delta Electronics, 400
EG&G, 1710
Elcom Specialty Products, 506
Flash Technology, 1128
LeBlanc & Royle Comm., 1319
Lighting Elimination Assoc., 317
SIL, 1109
Stainless, 935
Unarco-Rohn, 1021
Utility Tower, 500
V&B Construction, 320
World Tower, 420

Transformers (all types)

Burns Audiotronics, 1906

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Frame Synchronizer

FS-16



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THE SIGHTS

Chroma Insert Keyer, Model 7010.

A unique comb filter minimizes noise and color-edge crawl from the key signal. It has "zero-H" delay with no installation and retiming problems because the delay is less than 25 nanoseconds. No separate insert keyer or separate RGB switcher is required. Each unit is equipped with remote control and 50 feet of cable.

Color Corrector, Model 5500A.

It is the ENG production tool for adjusting color variations after encoding, and enables a broadcaster to balance varying color values from a variety of program sources. Program materials from cameras, tapes, films or network feeds can be color-balanced to each other after tape playback or microwave receiver during live coverage. Available with an optional automatic sensor for telecine use.

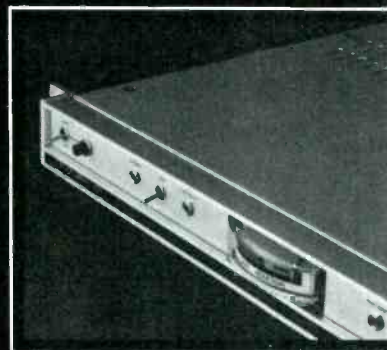
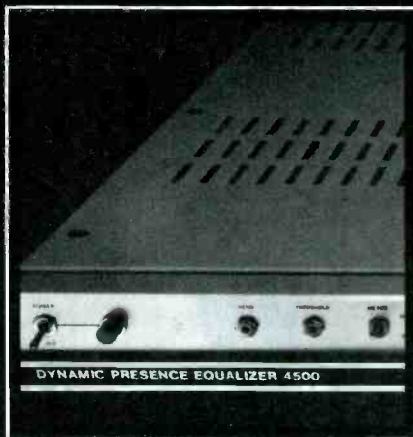


Dynamic Presence Equalizer, Model 4500.

Enhances broadcast signal presence automatically. Gives program material more punch and improves sound quality. Compensates for lack of presence caused by poor microphone placement, incorrect equalization, misaligned tape heads and unequalized telephone circuits.

FM VOLUMAX®

Automatic Peak Controller. Designed especially for the FM broadcaster. Allows maximum signal strength and prevents overmodulation caused by pre-emphasized signals. Full brilliance and dynamic range are maintained without distortion through multi-band processing. Available in monaural or stereo.



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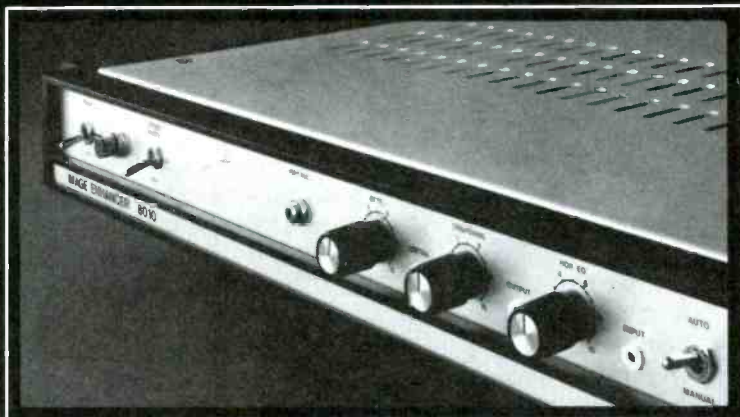
Sights and sounds. Thomson-CSF gives them substance. With proven broadcast products that enhance the image, correct the color, ride gain, equalize and distribute the signal. And much more. To put these quality products to work for you, contact your nearest Thomson-CSF distributor.

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Image Enhancer, Mark IV Series.

Improved signal-to-noise ratio means better enhancement. Both horizontal and vertical elements are enhanced to eliminate color softness. In-line, three-tube models are available for NTSC, PAL and PAL-M standards. The Model 8010, with automatic control, maintains picture sharpness and resolution of encoded video, without double enhancement when processing a previously enhanced signal.



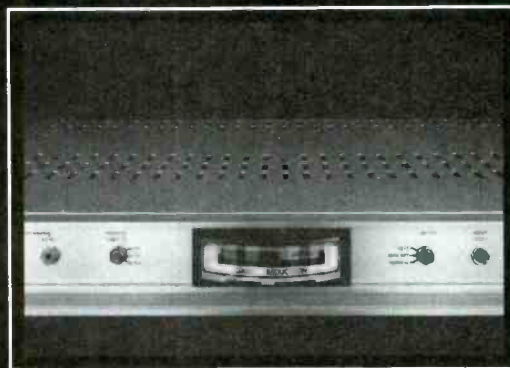
Audio Distribution Amplifier, Model 1602.

Designed for either stereo or monaural use, this model contains two distribution amplifiers, each with eight balanced outputs from one input, strappable to a 1 x 16 unit. Ideal for distributing program and monitor circuits to studios and control rooms. Features differential, balanced inputs, 40 dB gain, and high output isolation.



VOLUMAX® Automatic Peak Controller, Model 4300.

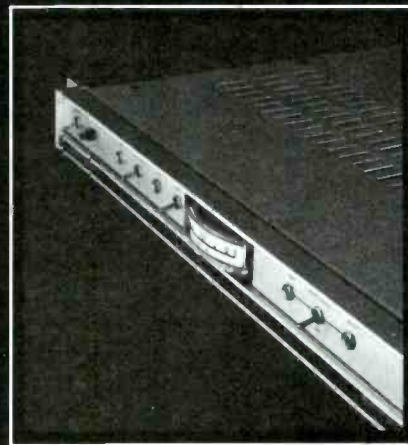
With patented control action, this AM limiter assures maximum utilization of each watt of carrier power without overmodulating the transmitter, and with minimal signal distortion. Automatic peak phasing insures negative asymmetry and is silently inverted for positive modulation to the maximum allowable limit of 125%.



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Rides gain automatically. Eliminates objectionable swish-up of compressor-type limiters. Features adjustable recovery time. And patented return-to-zero function with low distortion and superb frequency response. Ideal ahead-of-the-limiter for maximum program coverage. Available in mono or stereo.



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TWX (710) 474-3346

Circle (60) on Reply Card

NAB-Vegas '80 Exhibits Roundup

This special section alphabetically lists the NAB '80 exhibitors, previews products, and illustrates selected new products. Following each exhibitor listing is a number by which the reader service card may be used to provide exhibitor data. Also, if the exhibitor is advertising in this issue, the location of the ad is indicated for additional details about the firm's NAB '80 exhibit/products.

While this section will be a valuable aid in planning NAB '80 activities, caution should be exercised. The listing here is comprehensive as of press time, but changes are still occurring in exhibitor sign-up, products being shown, and booth assignments. Check the final program at NAB to complete your plans. Look for the BE wrap-up of NAB '80 in the June issue.

Exhibitors

ADM Technology [Booth 1404]

Products: Audio consoles—800 series, 1600 series, 2400 series, 3200 series, custom consoles; audio components—distribution amplifiers, prewired patchbays, associated components.

New: Stereo audio consoles ST 100, ST 160 and ST 200.

see ads on pages 21, 143

Circle (62) on Reply Card

AEG-Telefunken, Bayly Engineering Division [Booth 1403]

Products: SAM 82 portable audio mixer; 100% solid-state FM transmitters up to 3000W; mono stereo analog and digital program channels (Telco type STLs); custom audio filters.

New: Digital and analog stereo program channels (Telco type STLs); high-power AM and SW transmitters using Pantel modulation; solar energy systems for broadcast transmitters; a complete line of 2-way radio equipment (base, mobile and portable); complete electro-mechanical packaging system (PCB housings, racks, etc.).

Circle (212) on Reply Card

A. F. Associates [Booth 1119]

Products: Refurbished Ampex VR-1200 and VR-2000 TV systems.

New: Standards conversion services (NTSC, PAL, SECAM).

Circle (213) on Reply Card

ALC Averheimer Labs & Company [Booth 209]

Products: Announcer speaker model 10302; monitor speaker model 20306; monitor-II speaker model 20106; studio speaker model 21314; studio III speaker model 32114; audition speaker model 32322; SC-4 sound column model 40120; SC-54 sound column model 40704.

Circle (214) on Reply Card

Accurate Sound [Booth 214]

Products: Hands-on operated demonstrations on the 2400 high-speed tape duplicator, 2600 tape transport and other outboard single processing equipment.

New: All dc servo tape transport for recording and high-speed duplicating; Howe broadcast audio console.

Circle (215) on Reply Card

Achro-Video [Booth 1840]

Products: See at booth.

Circle (216) on Reply Card

Acrodyne [Booth 1105]

Products: 6kW VHF transmitter;

1kW, 100W UHF translators.

New: 5kW UHF TV transmitter featuring single tetrode tube stage and wideband solid-state driver.

see ad on page 69

Circle (217) on Reply Card

ADDA [Booth 1515]

Products: ESP systems with off-line computer interface library control; VW-1 and VW-2 digital frame synchronizers.

New: Low-cost production video compressor with a variable real time compression of 5:1 and programmable size/position selectors with freeze frame/field capability.

Circle (218) on Reply Card

Agfa-Gevaert [Booth 1223]

Products:* Quadruplex videotape; U-matic bulk tape; bulk cassette tape; 16 and 35mm magnetic film; mastering tape; duplicating tape.

Circle (219) on Reply Card

Allen Avionics [Booth 1633]

Products: Video and pulse delay lines; video filters; video equalizers.

New: VP2075, VS2075 video and pulse delay lines.

see ad on page 206

Circle (220) on Reply Card

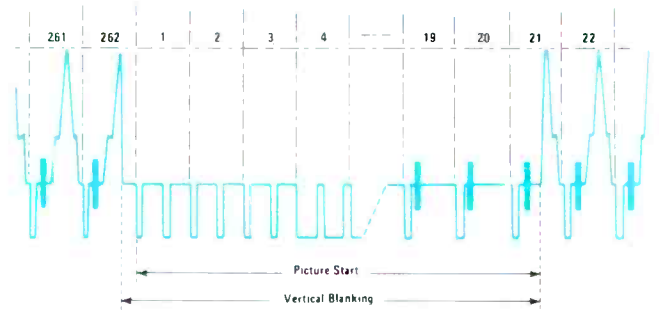
Allied Tower (Booth 109)

Products:* Fabricators and install-

*Typical products marketed. New products not announced by BE press time.

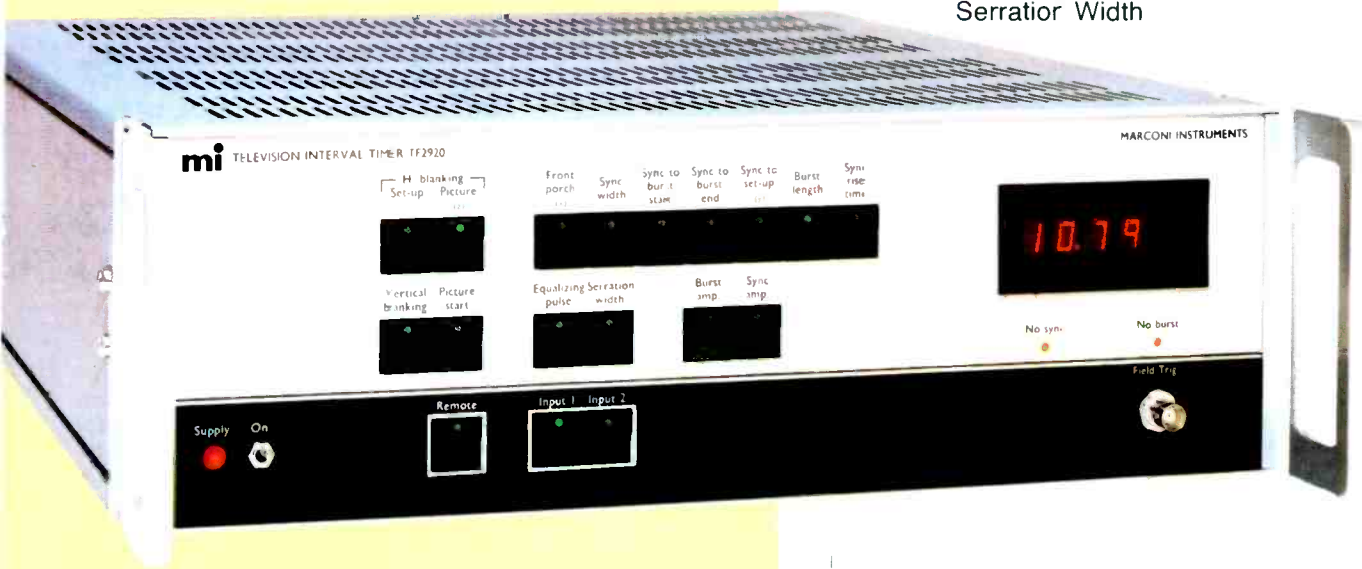
MARCONI has the proven answer to 'H' & 'V' Blanking Measurements

Marconi Television Interval Timer Model 2920 measures the following parameters



VERTICAL BLANKING MEASUREMENTS

- Total Vertical Blanking Interval
- Picture Start
- Equalizing Pulse Width
- Serrator Width



See How Easily Timing Measurements Can Now Be Made

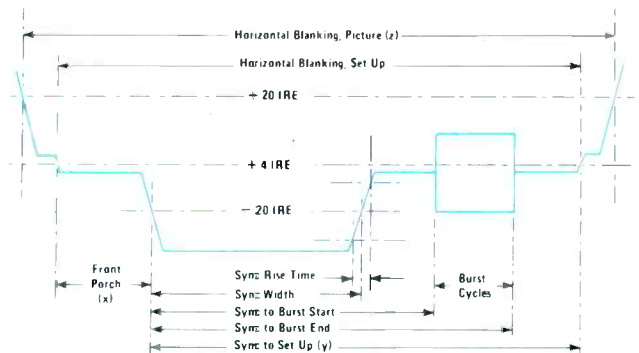
- Fast accurate measurements at the touch of a button
- Results from samples taken throughout active field
- Blanking at set-up (+4 IRE) and picture (+20 IRE) measured independently to 10 nsec. resolution
- Vertical Blanking resolved to 1/10 line
- Printout from BCD output on command
- All functions may be remotely controlled for simple system integration
- Manufactured in U.S.A., domestic price \$4950

At NAB Visit MARCONI Booth 817 Instrument Section

marconi instruments

100 STONEHURST COURT, NORTHVALE, NEW JERSEY 07647
TELEPHONE: (201) 767-7520 • TWX: 710-991-9752

Circle (61) on Reply Card



HORIZONTAL BLANKING MEASUREMENTS

- Set Up Blanking (+4 IRE)
- Picture Blanking (+20 IRE), (z)
- Front Porch, (x)
- Sync Width
- Sync to Burst Start
- Sync to Burst End
- Sync to Set-Up, (y)
- Burst Length in cycles
- Sync Rise Time

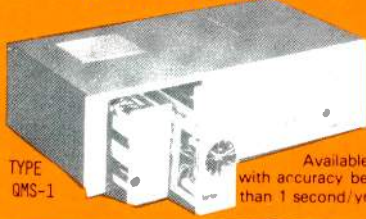
REFERENCE MEASUREMENTS

- Burst Amplitude in IRE
- Sync Amplitude in IRE



Beaveronics, Inc.
FAVAG

MASTER CLOCK SYSTEMS
MODULAR DESIGN FACILITATES
FUTURE EXPANSION



TYPE QMS-1

Available with accuracy better than 1 second/yr.



TYPE 2QMS-2

NUMEROUS SECONDARY CLOCKS ARE AVAILABLE INCLUDING THOSE WITH SILENT OIL-BATH MOVEMENTS



Table Top



Surface Mtg. Semi-flush



6 DIGIT DIGITAL DISPLAYS AVAILABLE

EXTRA-FLAT SECONDARY CLOCK
MINUTE-IMPULSED, FOR INDOOR USE
SINGLE FACE, FOR WALL MOUNTING

DECORATIVE SECONDARY-CLOCKS
SINGLE IMPULSED FOR SURFACE OR FLUSH MOUNTING AND INDOOR USE



FAVAG MASTER CLOCK SYSTEMS



Beaveronics, Inc.

Write or phone for details.

8 Haven Avenue
Port Washington, New York 11050
Tel: (516) 883-4414

Prices and Specifications Subject to Change Without Notice.

Circle (77) on Reply Card

ers of towers and buildings.
Circle (221) on Reply Card

Amber Electro Design (Booth 327)

Products: Model 4400A multipurpose audio test set.

New: Model 5500 audio analyzer; model 3500 distortion measurement set.

Featuring...high performance in a miniature low-cost package, the 3500 distortion measurement set offers automatic operation, with performance commensurate with



large lab instruments. The unit is small enough to fit in an attache case and sells for as low as half competitive instruments.

Circle (222) on Reply Card

AMCO Engineering (Booth 409)

Products: Selections of vertical and sloped consoles; desk top cabinets.

New: EMI cabinet and console system designed to meet new FCC requirements.

Circle (223) on Reply Card

American Data (Booth 803)

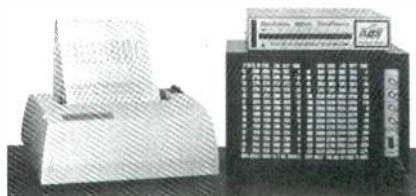
Products: Video production switchers; master controls; video and audio distribution systems; modular amplifiers; audio and video routing switchers.

New: 3100 series video production switcher; microprocessor-based automation systems for video production, master control, distribution, and machine control; 870 stand-alone downstream keyer.

Circle (224) on Reply Card

American Quotation Systems (Booth 144)

Products: Display of communications equipment and services that utilize



*Typical products marketed. New products not announced by BE press time.

the SCA subchannel of FM radio stations.

Featuring...the AQS datascreen.
Circle (225) on Reply Card

American Sign (Booth 1900)

Products: See at booth.

Circle (226) on Reply Card

Amperex (Booth 805)

Products: 30mm Plumbicon® TV camera tubes—55875 LRGB integral mesh, XQ1020 LRGB separate mesh, XQ1023R extended red, XQ1025 LR extended red with IR filter, XQ1025G high resolution green, XQ1410 LRGB high resolution with light bias, XQ1413R extended red, XQ1415R extended red with IR filter; 25mm 1-inch Plumbicon TV camera tubes—XQ1070 LRGB separate mesh, XQ1073R extended red, XQ1075R extended red with IR filter, XQ1080 RGB separate mesh with light bias and anti-comet tail, XQ1085R extended red; 18mm (3/4-inch) Plumbicon TV camera tubes—XQ1427 RGB separate mesh.

New: High range of Diode Gun low capacity Plumbicon camera tubes; XQ2070/XQ2073 1-inch Diode Gun Plumbicon TV camera tubes.

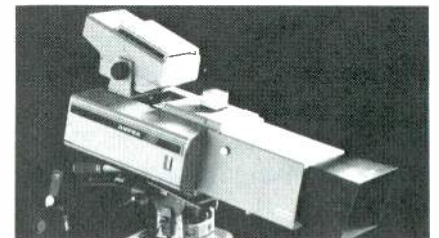
see ad on pages 84, 85

Circle (227) on Reply Card

Ampex (Booth 702)

Products: BCC-10 and BCC-14 color cameras; EC2; HPE-1; RES-2; SMC-60; AVR-2, AVR-3, VPR-2 and VPR-20 VTRs; ACR-25; ESS-2 digital recorder; TBC-2; MM-1200; MQS-100; Series 4000 switchers; ATR-100, ATR-124 and ATR-700 audio recorders.

Featuring...the BCC-10 studio color camera with digital remote control



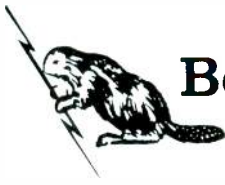
of all electronic functions. The 25mm camera, with automatics, has digital memory and digital controls that streamline operations while minimizing operator errors.

see ads on pages 37, 39

Circle (228) on Reply Card

Ampex Magnetic Tape Division (Booth 702)

Products: 175 quad tape; 196 heli-



Beaveronics, Inc.

STUDIO PRODUCTION VIDEO SWITCHING SYSTEMS

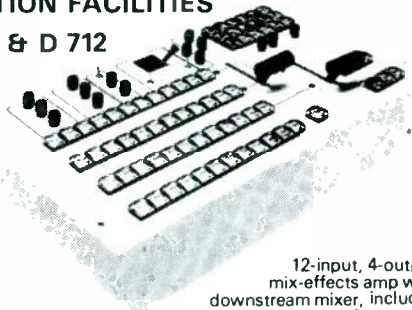
(Also available in PAL and PAL-M versions)

8 Haven Avenue
Port Washington, New York 11050
Tel: (516) 883-4414

FOR REMOTE & SMALL PRODUCTION FACILITIES

MODEL J & D 712

\$7,400.00



12-input, 4-output mix-effects amp with downstream mixer, includes downstream preset & program busses with cut bar, RGB chroma key

Standard Features

- 12 inputs including Black-burst and Color Background
- Built-in Black Burst Generator
- Built-in Colorizer
- Built-in RGB Chroma keyer
- Four Switching busses
- Downstream Preset and Program Busses with cut bar
- Rack-mounted electronics
- Adjustable Soft Wipe
- Adjustable Border edges
- Color Matte
- Vertical Interval switching thru-out
- Illuminated Momentary Contact push buttons
- Internal, external, Chroma-key, and matte inputs to keyer

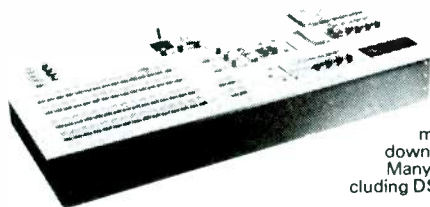
- Built-in pattern modulator with frequency and amplitude controls
- Full Tally
- Pattern symmetry control
- Illuminated Momentary contact push buttons for effects selection
- Normal/Reverse/Normal-reverse wipe transitions
- Pattern limit controls for presetting size of patterns or varying vertical and horizontal aspect ratio
- Loop-through inputs
- Input amplifiers with clamping
- Synchronous/Non-synchronous inhibit
- Modular construction with front access plug-in modules

Options:

Downstream Keyer

FOR MODERATE SIZE FACILITIES

MODEL B1-154



15-input, 4-bus mix/eff/key amp with downstream mix/key amp. Many optional features including DSK & quad-split, etc.

FOR SOPHISTICATED FACILITIES

MODEL B1-156

\$21,795.00



15-input, 6-bus with two full mix/eff/key systems & dir. pgm & pre busses; many options available, DSK, quad, etc.

MODELS 154 & 156

STANDARD FEATURES

- Switcher Models 154 and 156** are of the same basic design and utilize the same electronic sub assemblies. These switchers have the same standard basic features, differing only in the number of busses and in the number of mix/effects units. The basic standard features include 32-pattern mix/effects, color black and color matte background generator, and a mix/key unit in the case of the Model 154.
 - One (1) used in Model B1-154
 - Two (2) used in Model B1-156.
- Input Amplifiers**
 - loop through high impedance input • gain equalization for 1000' cable • 22° sub carrier phase control • clamped inputs (10% to 90% APL) • sync addition on non composite signals if desired.
- Tallies**
 - isolated dry contact relay closure on all inputs (2 amps at 50 v.)
- Mix-Effects Units (Includes Keying Function)**
 - Modulating sources may be either (1) sine wave, (2) square wave, (3) saw tooth, or (4) an external customer generated source.
 - **Mix Key and Wipe Key** available.
 - **Soft Wipe and Soft Key** available with adjustable variations.
 - **Push to Preview** obtained by depressing knob on clip potentiometers (provides for M/E monitor output).
 - **Wipe Mode**—3 interlocked buttons select "NOR", "REV" or "N/R".
 - **Hard Wipe, Soft Wipe or Border** can be selected with degree of softness made by "Edge" control adjustment.
 - **Border** may be **Colorized** by adjustment of "Hue" and "Luminance" control.
 - **Symmetry of Pattern** may be adjusted by "SYM" knob.
 - **Preset Wipe Limits** are set by potentiometers. "H" and "V" vertical preset limits activated by Pattern Limit button.
 - **Spotlight** alternate action push button produces a 6 db. level difference between "A"

- and "B" input channels in the "Wipe" mode. (Operates on all patterns.)
- **Pattern Assignment** is made by depressing "ASSIGN" button. Pattern select feature may be "locked" to pattern matrix by depressing the "ASSIGN" button a second time on the same pattern. Patterns assigned appear on LED display on M/E control panel.
- **Non-Synchronous Inputs.** An "NS" indicator is provided. Tearing is prevented by not allowing a non-synchronous signal to be switched except at extreme position of fader handle where a "cut" transition occurs.
- **Key Input Sources** may be either (1) "A" bus video for self keying, (2) preview Key bus, (3) chroma key, or (4) an external key source.
- **Key Invert** selector provided to accommodate either positive or negative video as a keying source.
- **Key Fill** may be either "A" video for self keying or a colorized matte.
- **Mix/Key** provided a lieu of second Mix/Effects system for Model B1-154 switching system. Provides for all mix and keying functions of mix/effects system (as previously described) except for the pattern effects.

OPTIONAL FEATURES

May be added at any time (required control panel wiring already installed)

- Chroma Keyer (C.K.)** \$950.00
 - Hue—selects hue of keying color • Gain—adjusts the amplitude • Clip—adjusts the clip level for keying • Camera (4 x 1) input switcher—selects RGB output of any one of 4 cameras to feed C.K.
- Down Stream Keyer (DSK)** \$1,975.00
 - Keys in titles, inserts, or fades to black with or without insert • Color matte background
 - Key sources: (1) Mix/Effect, (2) Chroma Key, (3) External • Push to Preview (Monitor)
- DSK Border** \$1,950.00
 - **Border**—black edge around insert • **Shadow**—black edge on right side and bottom of insert
- Quad Split** \$1,900.00
 - Provides four (4) variable size quadrants from ten possible sources with variable width border.
- Aux Busses—(Model 156 only)** \$2,100.00
 - Two remote outputs are available—remote control panel and amps required.

All Beaveronics Switching Equipment Carries a Two Year Warranty

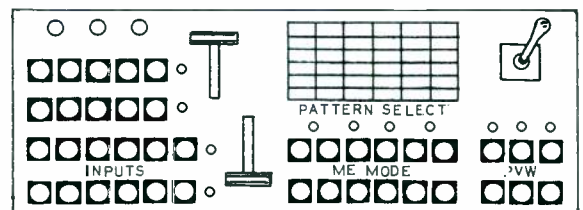
AVAILABLE FROM BEAVERONICS

ENG SWITCHER

- Master control switchers AFV with audio breakaway
 - Routing switchers with AFV
- CHECK BEAVERONICS FOR:
- Specialized custom switchers
 - Selected terminal equipment

FEATURES:

- BUILT IN COLOR BLK AND BKG
- SELF CONTAINED SYNC GEN
- INDEPENDENT COLOR BLK OUTPUTS TO CAMS
- SELF CONTAINED CASE



705 ENG EFP

Beaveronics, Inc.

8 Haven Avenue • Port Washington, New York, 11050 • Tel: (516) 883-4414

Prices and Specifications Subject to Change Without Notice.

Circle (63) on Reply Card

cal; VHS videocassettes; Beta videocassettes; ¾-inch U-matic; 456 Grand Master audiotape; 406/407 Mastering audiotape.

see ads on pages 73, 74
Circle (229) on Reply Card

Ampro/Scully (Booth 102)

Products: Ampro single- and 3-deck cartridge reproducers and recorders; ac and microtouch audio consoles; Scully 280 and 250/255 series tape reproducers and recorders.

New: Series 20 reel-to-reel recorder/reproducer series; series 8300 3-deck cartridge recorder/reproducer.

see ad on page 155
Circle (230) on Reply Card

Amtron (Booth 1830)

New: Digital video analyzer.
Circle (231) on Reply Card

Andrew (Booth 917)

Products: 10- and 12-meter earth

station antennas; UHF-TV transmitting antennas, heliack coaxial cables, STL microwave antenna systems.

Circle (232) on Reply Card

Angenieux (Booth 409)

Products: Lenses for 1-inch and 1¼-inch cameras including the 15x for studio and 12x for optical quality in the studio, the 42x for studio and van flexibility; high tolerance dioscope; the 15x lens system for ⅓-inch cameras; the 9.5-142mm, f/1.8 with front and rear accessories.

New: 4mm super wide angle adapter for the 15x ⅓-inch lens system; 25x lens for ⅓-inch cameras.

Circle (233) on Reply Card

Antiope Videotex Systems (Booth 1626A)

Products: Editing console; MUX (station equipment for transmission encoding and data insertion); terminals built with standard components.

New: Models showing Antiope new display graphic possibilities; decoder microcircuits; software for transmitting closed captions.

Featuring...the introduction of a multi-page decoder with 72-page memory capacity, as well as a soft alphabet enabling users to employ substantially improved graphics. A state-of-the-art multi-lingual captioning system which, among other uses, will provide subtitling for the hearing-impaired.

Circle (234) on Reply Card

Anton/Bauer (Booth 1617)

Products: Silver zinc and NiCad batteries and chargers with a large assortment of quick release mounting brackets.

New: Model TFC-L transformer-type charger for NiCad batteries and video belts.

Circle (235) on Reply Card

Anvil Cases (Booth 1626)

Products: EIA rack cases in three designs, light, heavy and extra-heavy-duty shock mount models; special design ENG, EFP and studio camera cases; professional 1-inch VTR cases; character generators, controllers cases; accessory, utility, monitor, tape cases.

Featuring...cases for video cameras that are manufactured to ATA specifications to ensure safe transport of electronic equipment. Exterior construction is of high impact ABS plastic laminated to top grade

*Typical products marketed. New products not announced by BE press time.

VACUUM CAPACITORS BY COMET

Comet Vacuum Capacitors measure up to the highest standards, are completely interchangeable and have been the choice of electronics professionals in 50 countries throughout the world for over a decade.

Comet Vacuum Capacitors are readily available for shipment anywhere in the United States. We maintain a large inventory of the more popular sizes of fixed and variable vacuum capacitors and for your special requirements, our unique component construction allows us to assemble and ship your special order more quickly than you would normally expect.

Every Comet carries the label "Made in Switzerland". We're proud of the precision and craftsmanship that represents; That's why we guarantee our products for a full year. That's why we manufacture our capacitors exclusively of copper and ceramic. That's why you can feel secure when you select Comet Vacuum Capacitors. Next time you need a dependable, precision-built vacuum capacitor...and you need it fast...ASK FOR COMET.



Comet also manufactures one of Europe's most widely used high voltage test units. It operates in continuous or pulsed modes and can be used to test vacuum capacitors or various other electronic components. This testing unit is powerful, portable, accurate and safe.

Manufactured by Comet-Berne

For additional information contact:

Inmark Corporation
38 Brushwood Road
Stamford, Ct. 06903
Tel. 203-322-5272

Circle (64) on Reply Card

INNER VIEW: A closer look at Conrac Monitors



Active Convergence: Registration made simple.

Conrac's Active Convergence System gives you complete control over color registration adjustments and greatly streamlines convergence checks.

It uses 36 independent controls to individually adjust nine separate areas on the CRT screen—including corners!

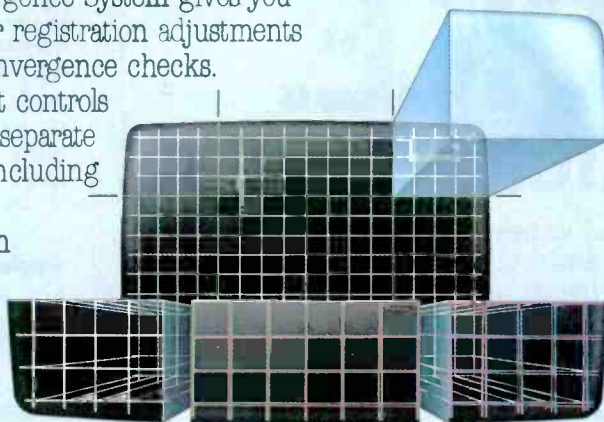
You spend less time on convergence checks—and the adjustments you make will be much more accurate.

Conrac's system uses 24 operational amplifiers to independently control red, green, and blue in each screen area. Vertical and horizontal waveforms are referenced for shaping the signals that excite the convergence yoke assembly. Dynamic blue lateral convergence is achieved with operational amplifiers.

Beam Current Feedback: The Ultimate in Black Level Stability.

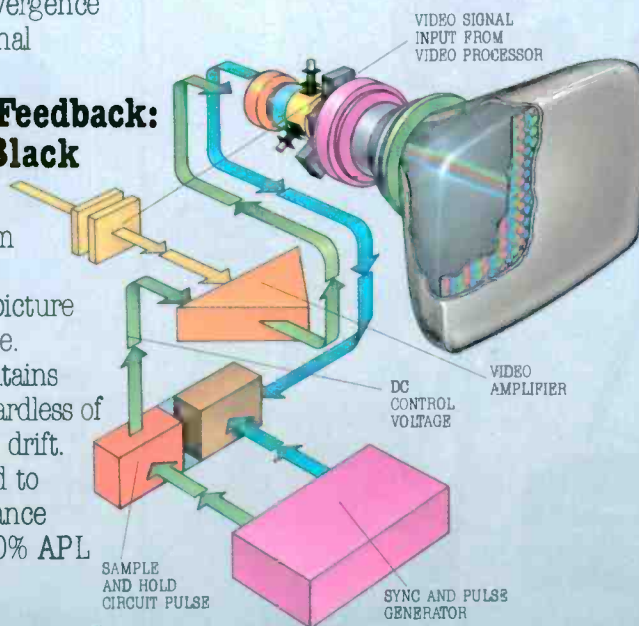
Conrac's unique Beam Current Feedback system maintains a more stable picture for a longer period of time.

It automatically maintains black level stability—regardless of CRT aging or component drift. In fact, black level is held to within 1% of peak luminance level between 10% and 90% APL (Average Picture Level).



Conrac's Active Convergence system lets you adjust color registration on nine separate areas of the CRT.

Conrac's exclusive Beam Current Feedback system automatically maintains black level stability.



Conrac's unique system uses a keyed back porch video amplifier and beam current sensing that occurs during the vertical interval.

The video signal is ac coupled to the video amplifier, thus eliminating the dc component and retaining the level between black and white. It is then amplified and applied to G1 of the CRT. The feedback loop is completed when a sample cathode current (gated by the brightness pulse) is applied to a sample and hold circuit.

If the cathode current changes for any reason, the video amplifier's dc level is automatically adjusted. Result: reference black level will remain constant.

Conrac Technology: 30 years of leadership.

Conrac's track record of technical innovation stretches back nearly three decades. And what we've learned since then goes into every monitor we make today. That's important to you. Because the more technology we pack into each monitor, the more performance you'll receive from it.

Active Convergence and Beam Current Feedback are just two ways Conrac technology can save you time and money.

For the complete inner view of Conrac technology, call or write us today: Conrac Division, Conrac Corporation, 600 North Rimsdale Ave., Covina, CA 91722, Telephone: (213) 966-3511, Telex: 67-0437

Quality you can take for granted.

Circle (65) on Reply Card

THE NETWORKS' CHOICE. (AND EVERYONE ELSE'S.)

At Camera Mart, we've been a leading equipment supplier to broadcasters and producers for years. We're no strangers to the 'instant' needs, unexpected calls, tough standards and difficult operating conditions that are often S.O.P. in this rough-and-tumble business. But you probably know that...at least, when it comes to film.

What you may *not* know is, for the past few years, we've been quietly doing the same in *video!* Testing and selecting the leading equipment for performance and reliability. And offering a wide selection of production and post-production components and packages—on rental, lease and purchase plans with our customary flexibility.

But don't take our word for it: talk to our customers. You'll see why so many people the industry depends on, depend on us.



Camera Mart

THE CAMERA MART, INC.

456 West 55th Street, New York 10019

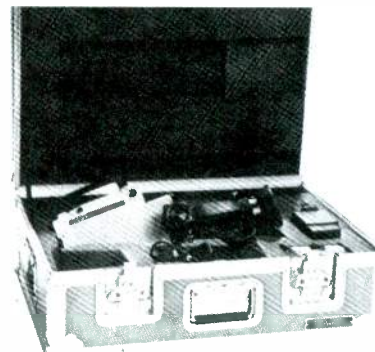
(212) 757-6977/Telex: 1-2078

Sales • Service • Rental



See Us At NAB Booth 1406

Circle (66) on Reply Card



plywood and finished with steel riveted aluminum edging and heavy-duty hardware. Interior design is such that high-density polyfoam is custom-sculptured to the exact contours and shape of the TV camera to be protected.

Circle (236) on Reply Card

Applied Technology (Booth 123)

New:* Processor and spectrum display pending readiness of products.

Circle (237) on Reply Card

Arriflex (Booth 1835)

Products: Sachtler video camera support system, fluidheads, and tripods.

New: Arriflex image stabilizer; Arriflex HMI lights.

Featuring...an optical system governed by a precise, battery powered gyroscope, the image stabilizer



makes steady shots possible anywhere cameras are subjected to unusual shock or vibrations, according to the manufacturer. The unit is completely self-contained and weighs less than 6 pounds.

see ad on pages 120, 121

Circle (238) on Reply Card

Arvin/Echo Science (Booth 1001)

Products:* Slow motion recorders/reproducers; electronic still frame-store; weather systems.

Circle (239) on Reply Card

*Typical products marketed. New products not announced by BE press time.

**At NAB 1980 see
WHAT'S NEW
FROM
UTAH
SCIENTIFIC**

Come visit us at Booth No. 1629 in Las Vegas where we'll be showing:

a full line of party-line (coax) control panels including new lever switch desktop and multiple-button models;

our unique test demonstration where you can measure audio and video performance after ten complete passes through the matrix;

new large-matrix components, including a 150-input switcher and three new alpha-numeric control panels that let you address each source by its familiar name with 1600 name/number combinations available;

our SM-100 status monitor that produces ten separate pages of system status information;

a new status display system that automatically mates the active source name into your monitor feeds.

**Booth No. 1629
SEE YOU THERE!**

**Before you buy
anyone's routing switcher**

**ASK THE
PEOPLE WHO
OWN THEM**

It's one thing to have the industry's best routing switcher specifications and widest variety of controls, but the "proof of the pudding" comes with user satisfaction—both with the product and the company that backs it.

That's why we freely distribute 100% (not 90% or 95%) user lists to our prospective customers.

Please use the coupon below to obtain our current users list. It includes many of the world's most prestigious broadcasters. It also includes many small, low-budget operations.

Talk to our users—any of them. Find out first hand why they bought Utah Scientific and how they feel about us.

US UTAH SCIENTIFIC, INC.

Please send me your users list and product literature on your routing switchers.

Name _____ Title _____

Company _____

Address _____

City _____ State _____

Zip _____

Please call me, I want to discuss switchers with you.

Telephone () _____

US UTAH SCIENTIFIC, INC.

2276 So. 2700 W. • Salt Lake City, UT • Phone 801-973-6840

TWX # 910-925-4037

Circle (67) on Reply Card

Watch what we can do for you now...

with our new models and our faster delivery.



As manufacturers of solid state video equipment, Electrohome has gained worldwide acceptance with reliable, high-performance 9", 11", 14", 17", 23" monochrome, 19" and 25" color monitors. Built to NTSC and PAL standards, these monitors are specifically designed for broadcast, educational, industrial, commercial, medical, security and data applications.

Now, we have added the new 2000 Series to our product range. Developed to meet high standards of the broadcast industry, the 2000 Series color monitor is modular for easy adaptability to RGB/NTSC/PAL encoded signals. Available in 19" case and rack and 25" case, the 2000 Series maintains Electrohome's high standard of engineering.

In addition to an expanded line, Electrohome has a new west coast distributor network to provide fast delivery. For complete information on all our video equipment, contact Electrohome Limited at one of these offices:

Electro-Visual Corporation of America

3617 West Macarthur Blvd., Suite 508, Santa Ana, Calif. 92704
(714) 545-6991

Electrohome (U.S.A.) Limited

182 Wales Ave., Tonawanda, N.Y. 14150
(716) 694-3332

Electrohome Limited

809 Wellington St. N., Kitchener, Ontario, Canada N2G 4J6
(519) 744-7111
Telex: 069-5449

ELECTROHOME

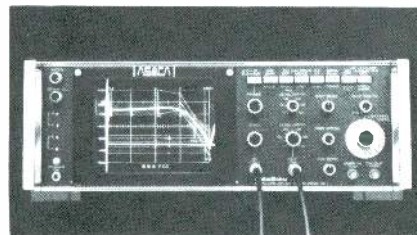
... an extra degree of excellence in video equipment for every application.

Circle (68) on Reply Card

Asaca (Booth 1421)

Products:* Portable color TV camera; color monitors; MPX sound generator; jitter meter; color camera registration meter; test signal generator; distortion meter; portable video switcher; digital pattern generator; envelope delay measuring set; video noise meter; NTSC video sweep generator.

Featuring...the envelope delay measuring set designed to perform



adjustments speedily to phase equalizer. The envelope delay and frequency response can be measured across a broad video frequency range and so the instrument can be used in a variety of applications such as the adjustments of filters.

see ad on page 213

Circle (240) on Reply Card

Audi-Cord (Booth 319)

Products: 20 models of the Modu-Cart 100 series.

New: "A" series dual transport record-reproducer; LAP (live assist programmer); "A" series introduced last year in part now available in 18 models.

see ad on page 126

Circle (241) on Reply Card

Audio & Design Recording (Booth 211)

Products: Compex limiter; vocal stresser; SCAMP (standardized audio modular package).

New: Broadcast limiter; Express limiter.

Featuring...the 600L broadcast limiter for use with AM and FM transmitters. The unit will provide extremely high slope ratio above the



limit threshold allowing closer operation to the transmitter maximum input. The modular system, with 19-inch rack mount housing, is compatible with the 600F bandwidth restricting filter module for use with

*Typical products marketed. New products not announced by BE press time.

Resident!

ATTORNEY GENERAL

72% of Precincts Reporting

SMITH*	43,987	76%
JONES	12,105	21%
BROWN	1,456	3%

* XXXX Projected Winner

PM HEADLINES

Corruption Probe
Stocks Soar
Debate Continues
Mining for Gold
Progress and Protests

BASKETBALL

Celtics	129	76ers	110
Bucks	111	Cavaliers	109
Pacers	115	Nets	114
Suns	97	Kings	95
Huggins	122	Bulls	111
Warriors	117	Clippers	92

PRELIMINARY

WINNERS SHARE:	\$1,000
2ND PLACE:	600
3RD PLACE:	400

ROUNDS

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

SKI REPORT

	TOTAL	NEW
ALTA	156"	14"
BRIAR HEAD	34"	0"
PARK CITY	110"	6"
SNOWBIRD	138"	14"
SUNDANCE	90"	2"



These raster displays show **some** of the resident capability of the self-contained, microcomputer based QUANTAFONT™ Q-VII.

The Q-VII also includes a 192 row resident memory, two roll and crawl modes, absolute centering, horizontal positioning, insert/delete and open/close editing... the list goes on. Options? Yes. The interna-

tional accents shown are a resident memory option. Other options such as mini-disc and digital cassette extended memories are available.

This is only part of the story of the total display capability available in the QUANTAFONT "Q" series Teleproduction Graphic Titlers. See the rest at NAB Booth 1117.

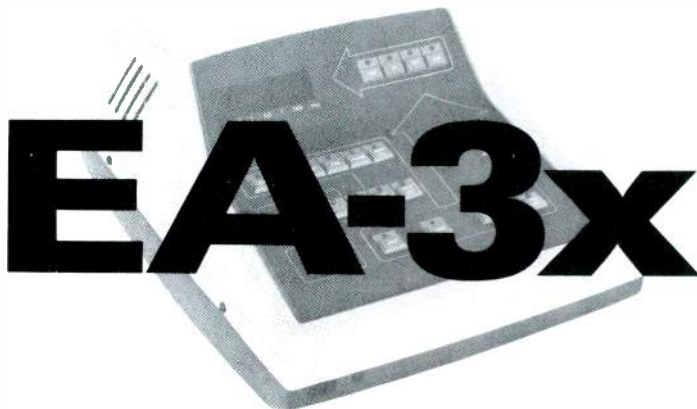


395 Ironwood Drive
Salt Lake City, Utah 84115
Phone: (801) 486-3833
TWX: 910-925-5684

Circle (69) on Reply Card

Here's \$3,990.50 worth of great news... from the originators of low cost, high performance microprocessor video editing systems.

Introducing the:



The EA-3x is not designed to be the least expensive editing system on the market. What it represents, however, is an extremely potent editing system that simply does it all. It works handily with all popular 1/2" and 3/4" VTRs: No modifications necessary.

One example of the advanced microprocessor technology developed by Cezar International, LTD., is Micro-loc.* Micro-loc* totally eliminates the need for SMPTE time code... actually it is an improvement. It doesn't require a \$2,000 SMPTE reader. It doesn't tie-up an audio channel. Micro-loc* format already is hard at work in over 150 editing systems.

Compare EA-3x Features

- | | |
|---|---|
| <input type="checkbox"/> Variable shuttle arm control of tape speeds | <input type="checkbox"/> Selects in or out points on-the-fly |
| <input type="checkbox"/> Edits may be rehearsed, performed and reviewed | <input type="checkbox"/> No CRT required. Display is totally self contained |
| <input type="checkbox"/> Interchangeable VTR formats | <input type="checkbox"/> Programmable pre- and post-rolls |
| <input type="checkbox"/> Independent control of audio and video channels | <input type="checkbox"/> Full VTR remote control |
| <input type="checkbox"/> High speed search to any specific frame on the tape (That's the potency of Micro-loc*) | <input type="checkbox"/> Auto tag with recall |
| <input checked="" type="checkbox"/> Cruise capability | <input type="checkbox"/> Control track (With or without Micro-loc*) plus optional SMPTE |
| <input checked="" type="checkbox"/> Pre-roll cue | <input checked="" type="checkbox"/> Optional "Perfect Pitch"... eliminates the Donald Duck effect |
| <input checked="" type="checkbox"/> Numeric trim of ins and outs | And a little built-in personalized feature we especially appreciate: |
| <input checked="" type="checkbox"/> Optional fade "up from/down to" black | <input checked="" type="checkbox"/> Numeric brightness control (DIM) of all lamps and displays. |

*See us at N.A.B. with Videomedia, Booth #1401

Afterthought: Actually, when you consider all the features of the EA-3x... at \$3,990.50, it may indeed be the least expensive editing system around. How about a demo? Contact us or the best distributor in your area. Chances are he's one of ours.

"The Originators"

*Micro-loc. Patent Pending,
Cezar International LTD.

Cezar International, LTD.

491 Macara Avenue, Sunnyvale, CA 94086 Tel: (408) 733-1436

Circle (70) on Reply Card

AM installations, and also additional units still under development.

Circle (242) on Reply Card

Auditronics (Booth 404)

Products: 110 series production and on air consoles.

New: 700 series, broadcast and recording consoles.

see ad on page 203

Circle (243) on Reply Card

Autogram (Booth 415)

Products: IC-10, AC-8, AC-6 audio consoles.

New: RS-512 random select controller.

Circle (244) on Reply Card

Automated-Broadcast Controls (Booth 312)

Products: 1600S jock assist stereo automation programmer, 2800APM, modular control system with logging, tone and generator controls; STA-MAX wideband modulation controller and Audio-mate microphone processor and complete line of broadcast audio consoles, with six to 20 mixers.

New: STA-MAX wideband modulation controller; Audio-mate microphone processor; 2400 RSK random selector for multiple cartridge player.

see ad on page 182

Circle (245) on Reply Card

Automated Business Concepts (Booth 152)

Products:* Computer-based broadcast management system including avails, order processing, traffic, scheduling, copy, logs, billing, accounts receivable, accounts payable, asset depreciation and general ledger as well as automation interface; systems for audience data, research and music scheduling.

Circle (246) on Reply Card

Automated Music (Booth 410)

Products: Music service with country sound and inspirational sound equipment sales.

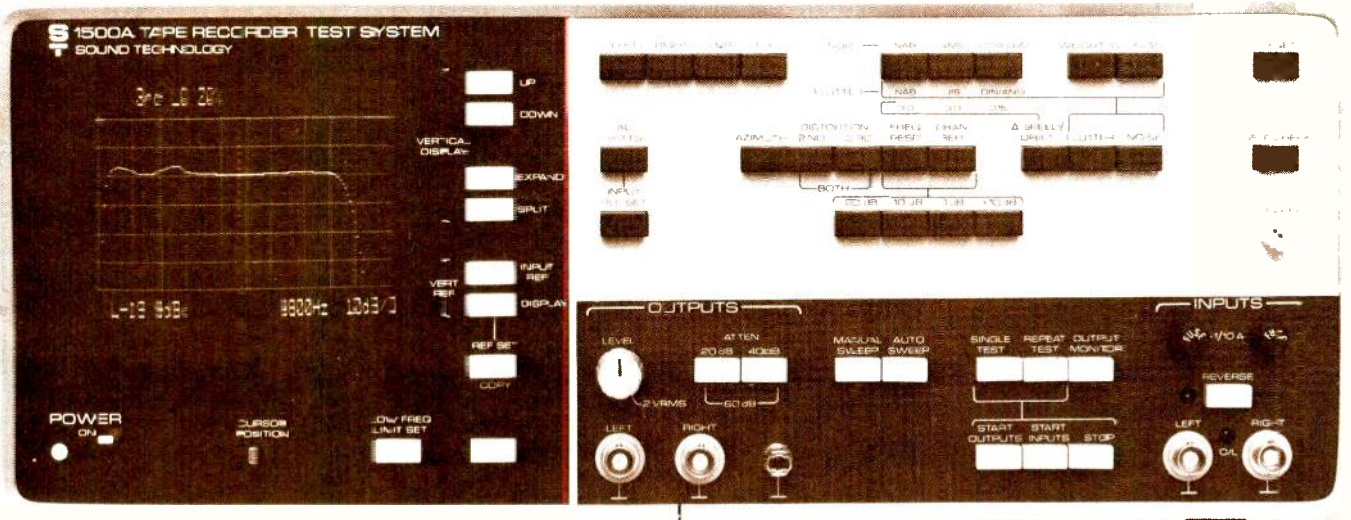
Circle (247) on Reply Card

Automation Electronics/Autotron Systems (Booth 421)

Products: Autotron Star system and Star Plus system; all financial systems, budget reporting, fixed asset depreciation, word processing, music library and logging features and background music billing.

New: Honeywell VIP 7200 CRT

*Typical products marketed. New products not announced by BE press time.



How to check your tape recorder in ten minutes

Graph-type display with digital readout

If you haven't actually measured the performance of your audio tape recorder lately, there's a better than 50-50 chance it's much poorer than you think. That's what considerable experience shows.

Checking ATR's is now simplicity itself. All you do is connect your recorder to the new Sound Tech computerized Tape Recorder Test System.

Just by pushing panel buttons you can measure:

- Frequency response
- Harmonic distortion
- Wow and flutter

- Noise
- Speed accuracy and drift
- Channel separation
- Head azimuth accuracy (position a head in 10 seconds)

Information-packed display

The display system in the New Model 1500A gives you all the information you want. Frequency response, distortion, noise, flutter, head azimuth, and channel separation are displayed as graphs with the scale values shown in numbers.

Then you have a positionable cursor (vertical dashed trace in photos). At whatever frequency, level, etc., you place it, the measured value will

be shown on the screen in numbers.

Just by pushing buttons you can fully test your recorder almost in seconds.

Call now

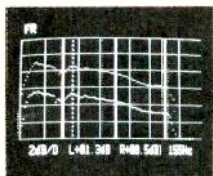
The Model 1500A is already used by manufacturers.

You love it.

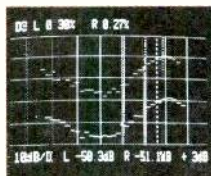
You will, too. You can clean up your audio a whole lot easier than you ever imagined.

So call Mike Hogue or Larry Maguire at Sound Tech now for our sales literature.

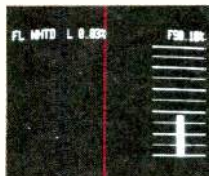
This new computerized test system is popular and you should get informed about it.



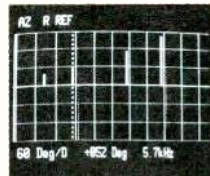
Two channel
frequency response



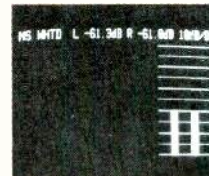
Third harmonic
distortion vs. level



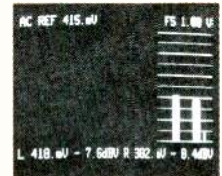
Flutter: 0.03% shown



Head azimuth
accuracy



Noise; two channels;
-61 dB shown



Voltage
(yes, it's a
voltmeter, too)

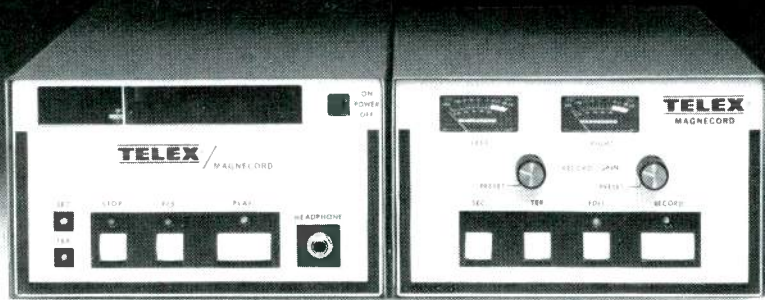
SOUND TECHNOLOGY
1400 DELL AVENUE
CAMPBELL, CALIFORNIA 95008
(408) 378-6540

In Toronto: The Pringle Group

BE SURE TO VISIT US AT NAB — BOOTH 1132

Circle (71) on Reply Card

D.C. Servo Drive Runs Smooth Steady Cool



Of course, it's Telex/Magnecord

Telex Magnecord broadcast cart machines run cool and steady. So cool no ventilation is required, so steady not even voltage or frequency fluctuations will alter their speed. Thanks to our dc servo flutter-filter drive. Completely immune to RFI and EMI, it meets or exceeds all NAB standards and is suited for local or remote/automated operation.

Standard features at no extra cost.

- An edit pushbutton to add stop cues in playback and omit stop cues in record
- LED indicators show end of tape, status and secondary/tertiary cue tones
- Front panel headphone jack
- VU meters for each channel

Convenient, Flexible

MC-Series is field convertible from mono to stereo, or play to record. Optional remote controls simply plug in.

Four broadcast cart machines to choose from in the Telex/Magnecord MC-Series - all made in U.S.A. and affordable. Write for detailed information.

Quality products for the audio professional



TELEX

9600 ALDRICH AVE. SO., MINNEAPOLIS, MN 55420 U.S.A.
Telephone: 612-884-4051, telex: 29-7053

EUROPE: 22, rue de la Légion-d'Honneur, 93200 St Denis, France, Téléphone: 820-98-46, telex: 63-0013
CANADA: Telak Electronics, Ltd., 100 Midwest Road, Scarborough, Ontario M1P3B1, Telephone: 416-752-8575

Circle (72) on Reply Card

terminal and an increased data space Megabyte disc drive.

Circle (248) on Reply Card

AVAB America (Booth 1600)

Products: Manual and computer lighting controllers; portable recording mixer; HS-1 intercom system.

New: Production sound mixer for use in motion picture and remote video recording industries; a new line of solid-state dimmers.

Circle (249) on Reply Card

Bankers Trust (Booth 1911)

Products: See at booth.

Circle (250) on Reply Card

Basys (Booth 1701)

Products: See at booth.

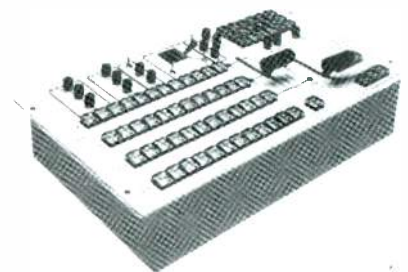
Circle (251) on Reply Card

Beaveronics (Booth 1041)

Products: J&D 712, BI-154 and BI-156 video production switchers; Favag QMS-1/MSR master clock and secondaries; A/V engineering video hum bucking coils.

New: 705E ENG switcher.

Featuring...the model 712 video production switcher, designed for professional use in broadcast studios,



teleproduction centers and CCTV applications. The 712 meets NTSC specifications and has been engineered for reliability and easier maintenance.

see ads on pages 98, 99

Circle (252) on Reply Card

Belar Electronics Laboratory (Booth 134)

Products:* AM, FM, TV frequency and modulation monitoring equipment and accessories including off-the-air amplifiers, remote meter panels, audio alarms; AM stereo system.

see ad on page 207

Circle (253) on Reply Card

*Typical products marketed. New products not announced by BE press time.

REMOVE ON PERF. LINE



Communications, Inc.

2115 AVENUE X • BROOKLYN, N. Y. 11235

Telex 235125

Cable Address: CECO TUBES

ONE Source for ALL your Electronic Needs

INDUSTRIAL TUBE TYPES MOST FREQUENTLY USED IN BROADCASTING
RADIO & TELEVISION

**WORLD'S LARGEST ESTABLISHED FRANCHISED SUPER
DISTRIBUTOR OF ELECTRONIC TUBES
FOR THE BROADCAST INDUSTRY.**

WE ARE NOW SUPPLYING OVER 5,000 SATISFIED STATIONS

TUBE TYPE	PRICE	TUBE TYPE	PRICE
3CX1000A7	299.00	QKK756A	695.00
3CX1500A7	280.00	802	30.00
3CX2500A3	241.50	805	44.00
3CX2500F3	255.00	807 (U.S. Major Mfg.)	8.50
3CX3000A1	290.00	810 (U.S. Major Mfg.)	44.00
3CX3000A7	374.00	813 (U.S. Major Mfg.)	35.00
3CX3000F1	329.00	828 (U.S. Major Mfg.)	75.00
3CX3000F7	355.00	833A (U.S. Major Mfg.)	99.00
3CX5000H3	685.00	845	46.00
3CX10000A3	792.00	866A (U.S. Major Mfg.)	9.75
3CX10000A7	875.00	872A (U.S. Major Mfg.)	14.00
3CX15000A7	995.00	892R	1300.00
3CX20000A7	1085.00	F1099	795.00
3CV30000H3	1197.00	4536	2130.00
3-400Z	78.50	5762	515.00
3-500Z	78.50	5879	2.50
4CX250B	34.00	5924A	540.00
4CX250BC	48.00	5933	12.00
4CX300A	135.00	6076	455.00
4CX300Y	170.00	6076A	430.00
4CX1000A	297.00	6146A	4.95
4CX1000K	360.00	6166A/7007	1650.00
4CX1500A	380.00	6161	285.00
4CX1500B	315.00	6181	2049.00
4CX3000A	572.00	6696A	1950.00
4CX5000A	660.00	6697A	2350.00
4CX10000D	749.00	7237A	475.00
4CX15000A	1025.00	7289	30.00
4CX35000C	3500.00	7459	540.00
4X150A	37.00	7527A	149.95
4X500A	185.00	8008	12.50
4-65A	45.00	8122	58.00
4-125A	55.00	8791/V1	239.00
4-250A	65.00	8792/V1	440.00
VA259B	380.00	8806	1499.00
4-400A	58.00	8807	1530.00
4-400C	67.50	8873	135.00
4-400AX	135.00	8874	135.00
4-500A	104.00	8875	135.00
4-1000A	260.00	8890	1499.00
5CX1500A	380.00	8891	2049.00
5-500A	159.00	8916	2049.00
575A	28.00		

Contact us on types not listed.

CAMERA TUBES

	RCA
BC4390B	1645.00
BC4592 Series	2035.00
BC4593	2230.00
BC4594 Series	2230.00
BC4809	499.00
BC4907	1380.00
BC4908	1655.00
BC4909	1655.00
BC4992 Series	2035.00
BC4993	2230.00
BC4994 Series	2230.00
BC8134	460.00
BC8480	1205.00
BC8507	160.00
BC8541	160.00

	TELTRON
8865/BC4592 Broadcast	1715.00
8865I/BC4592 Industrial	1315.00
4809/BC4809 Broadcast	125.00
8864/BC4892 Broadcast	1715.00
8864/BC4892 Industrial	1315.00

	PLUMBICON
8864/XQ1070	1550.00
8864I/XQ1071	1000.00

	SILICON
9901-3/4532H	285.00
9901A/4532A	390.00
9901B/4532B	700.00

EEV Types, Industrial types not listed, CCTV, Industrial and X-Ray Grade available upon request.

SAVE MORE Join our blanket order program. Check with us for latest competitive quantity prices.

**CALL
COLLECT
212-646-6300**



CALL AND COMPARE CECO'S LATEST PRICES - WE WILL NOT BE UNDERSOLD
PRICES SUBJECT TO CHANGE

OR TOLL FREE
800-221-0860

7 DAYS - 24 HOUR EMERGENCY PHONE SERVICE

RECEIVING TUBES FOR BROADCAST SYSTEMS
MAJOR BRANDS, FACTORY BOXED 75+% OFF LIST PRICE

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VISIT US AT THE N.A.B. SHOW BOOTH #1014

Solid State Replacements For Vacuum Tube Rectifiers

All solid-state replacements are the FINEST QUALITY made. Our tremendous buying power allows us to offer these at the LOWEST POSSIBLE PRICES!

TYPE	REPLACES TUBE TYPES	FULL WAVE OR		AVERAGE	PRICE EACH
		HALF WAVE	P.I.V.	DC CURRENT	
ASSR-1001	83, 5Z3, 80, 82, 83V	F.W.C.T.	1600	750 Ma.	\$ 4.75
ASSR-1002	OZ4, 5X4, 5Y4, 6AX5 5852, 5839	F.W.C.T.	1600	750 Ma.	3.50
ASSR-1003	5AV4, 5AW4, 5AZ4, 5T4, 5U4, 5V4, 5W4, 5Y4, 5Z4, 5AX4, 5AV4, 5931, 6004, 6087, 6106.	F.W.C.T.	1600	750 Ma.	3.50
ASSR-1004	5AU4, 5AW4, 5U4, 5W4, 5Y3	F.W.C.T.	1600	600 Ma.	3.50
ASSR-1005	3B24, 3B24W		20,000	.075 A.	25.00
ASSR-1006	5R4GY, 5R4W	F.W.C.T.	2800	500 Ma.	5.50
ASSR-1007	6AV4, 6AX4	F.W.C.T.	4500	.25 A.	5.25
ASSR-1008	6X4, 12X4, 6032	F.W.C.T.	1600	500 Ma.	4.25
ASSR-1009	6Z4, 84	F.W.C.T.	1500	.085 A.	4.25
ASSR-1010	575A	H.W.	15,000	1.5 A.	35.00
ASSR-1011	673	H.W.	15,000	1.75 A.	41.00
ASSR-1012	816, 836,	H.W.	7000	300 Ma.	8.50
ASSR-1013	866A, 866AX, 3B28	H.W.	10,000	500 Ma.	7.00
ASSR-1014	872A, 872AX, 4B32	H.W.	10,000	1.25 A.	25.50
ASSR-1015	8008, 8008XE	H.W.	10,000	1.25 A.	25.50

VIDICONS FOR CCTV



20PE11	\$34.50	7735A	26.50	8541B	43.00
20PE13A	34.50	7735B	45.00	8573	125.00
20PE14	38.00	8134	120.00	8758A	27.00
20PE19	26.50	8507	55.00	8823	26.00
20PE20	28.50	8507B	55.00	8844	24.00
7262A	26.50	8541	43.00	8929	26.00

CONTACT US ON YOUR OTHER CCTV CAMERA AND MONITOR TUBES

INTEGRATED CIRCUITS

WE SUPPLY A BROAD LINE OF LINEAR/DIGITAL/INTEGRATED CIRCUITS, OPERATIONS/DIFFERENTIAL AMPLIFIERS AND MEMORY NETWORKS



AIR SYSTEM SOCKETS

SK-300	\$378.00	SK-655	\$26.00
SK-300A	222.00	SK-660	30.00
SK-310	200.00	SK-660A	30.00
SK-400	137.00	SK-700	115.00
SK-410	20.00	SK-710	115.00
SK-500	137.00	SK-711A	115.00
SK-510	20.00	SK-712A	115.00
SK-600	27.00	SK-740	25.00
SK-600A	32.00	SK-760	25.00
SK-602	33.00	SK-761	25.00
SK-602A	34.00	SK-770	25.00
SK-607	32.00	SK-800B	115.00
SK-610	32.00	SK-810B	115.00
SK-610A	37.00	SK-820	186.00
SK-611	32.00	SK-830A	186.00
SK-612	45.00	SK-831	186.00
SK-620A	37.00	SK-840	186.00
SK-630A	37.00	SK-860	115.00
SK-640	22.00	SK-890B	138.00
SK-650	22.00	SK-900	162.00



CHIMNEYS

SK-306	\$14.00
SK-316	14.00
SK-406	20.00
SK-416	20.00
SK-426	22.00
SK-506	27.00
SK-516	27.00
SK-606	7.00
SK-626	6.00
SK-636B	22.00
SK-646	24.00
SK-656	24.00
SK-806	24.00
SK-816	16.00
SK-906	27.00
SK-1306	16.00
SK-1406	19.00
SK-1426	16.00
SK-1511	56.00
SK-2216	30.00



TOLL FREE
800-221-0860

CALL AND COMPARE CECO'S LATEST PRICES - WE WILL NOT BE UNDERSOLD
PRICES SUBJECT TO CHANGE 7 DAYS - 24 HOUR EMERGENCY PHONE SERVICE

OFF THE SHELF DELIVERY

Bell Helicopter (Booth 1901)

Products:* Helicopter for ENG operations.

Circle (254) on Reply Card

Berkey Colortran (Booth 1116)

Products: Fresnels; scoops; cyc strips; channel track lighting control.

New: Color track lighting control-microprocessor-based system.

see ad on page 16

Circle (255) on Reply Card

Beston Electronics (Booth 801)

Products: CG-410 character generator; 410B and 709A automatic light controllers for film.

New: CG-800 character generator; CG-850 video slate board; DP-1000 data-prompter.

see ad on page 120

Circle (256) on Reply Card

Bird Electronics (Booth 915)

Products: RF power measurement instruments; RF directional Thru-line wattmeters; 2W to 80kW air-cooled and self-contained heat exchanger loads; field replaceable water-cooled loads and air-cooled line terminations; digital calorimeter.

New: Multipurpose digital directional RF wattmeter model 4386 RF power analyst; 80kW self-cooled Moduload termination system; 80kW water-cooled Econoload line termination.

see ad on page 208

Circle (257) on Reply Card

Blonder-Tongue (Booth 1730)

New: Addressable decoders as part of BTVision STV systems; STV systems with BTVision encoder/decoder system; decoder and addressable decoder with computer-controlled turn-on/turn-off for up to one million addresses; interfaces for remote STV/TV controls, external speaker output, Hi-Fi speaker system and dual TV viewing.

Products:* Antenna systems and CATV systems.

Circle (258) on Reply Card

Bloomington Broadcasting (Booth 419)

Products: Complete business automation system featuring broadcast management and sales reports; fully automatic traffic scheduling system; accounting applications integrated with traffic function, including accounts receivable/payable, payroll, depreciation and general ledger; music system and automation interface.

Circle (259) on Reply Card

Bogner Broadcast Equipment (Booth 1325)

Products: TV transmitting antenna with up to 200kW input power.

New: FM transmitting antennas.

Circle (260) on Reply Card

Bonneville Broadcast Consultants (Booth 136)

Products:* Live and taped radio programming; computer-assisted music rotation.

Circle (261) on Reply Card

Bonneville Data Systems (Booth 321)

Products:* Computerized broadcast traffic/accounting system for radio and TV stations.

Circle (262) on Reply Card

Boston Insulated Wire & Cable (Booth 1011)

Products: TV cable assemblies and connectors.

Circle (263) on Reply Card

*Typical products marketed. New products not announced by BE press time.

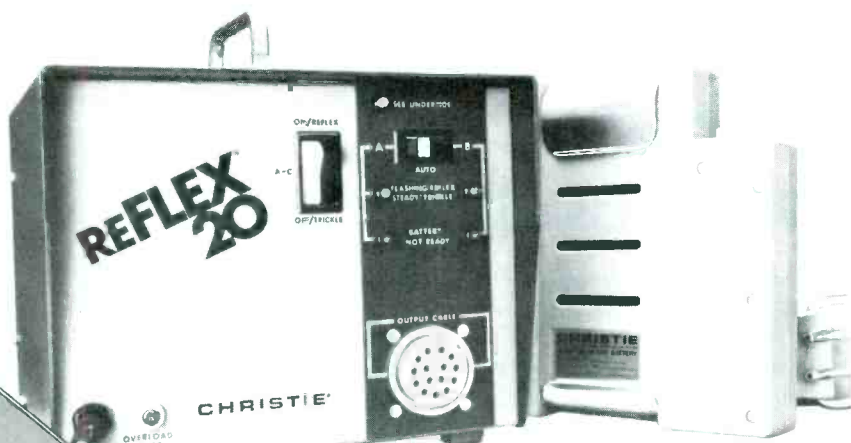
Broadcast media teams must be ready at a moment's notice. With Christie's integrated system; the REFLEX® 20 Charger and sempiternal ni-cad battery packs, there is virtually no wait. Recharge? The fastest in the industry. 12 to 20 minutes and you're completely charged.

Because of the revolutionary "burping" system the batteries remain cool, their cycle life is extended up to 10 times that of conventional ni-cads and 50 times that of other rechargeable batteries.

The Christie System . . . reliable, effective and 90-97% efficient.



50 years experience plus REFLEX® 20 makes you: CHRISTIE-READY.



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ELECTRIC CORP.

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LOS ANGELES, CALIFORNIA 90043
(213) 750-1151 TWX 910-321-3867
Write for valuable new information
or call toll free (800) 421-2058

Circle (74) on Reply Card

Broadcast Cartridge Service (Booth 325)

Products: Broadcast cartridges—Aristocart, Capitol/Audiopak and Fidelipac; cartridge accessories—storage systems, alignment tools and cartridge reloading service.

Circle (264) on Reply Card

Broadcast Electronics (Booth 304)

Products: Control 16 and Econo-Control 16 program automation systems; series 3000 tape cartridge machines (single deck); series 5300B tape cartridge systems (3-deck); series

5500 tape cartridge systems (5-deck); series 2100 tape cartridge machines (single deck); series 150, 250 and 350 audio control consoles and audio and studio accessories.

Circle (265) on Reply Card

Broadcast Music (Booth 148)

Products: See at booth.

Circle (266) on Reply Card

Broadcast Programming (Booth 316)

Products:* Programmed music plans for live or automated music stations.

Circle (267) on Reply Card

Broadcast Video Systems (Booth 1631)

Products: Electronic visuals EV4040/4020 waveform and vector monitors; BAL video delay lines; COX 203 encoder; BVS SA-100 safe area generator; Telcom SMPTE time code equipment.

New: BVS LS-300 variable line selector; COX 360 rotary effects generator; BAL video filters; COX 339 color balance corrector; BVS PW-200 pulse width measuring set.

Featuring...a new range of low-pass video filters that feature phase equalization, low insertion loss and better than 45dB rejection above the cutoff frequency, with fast roll off. Cutoff frequencies are available from 0.5MHz to 10MHz.

Circle (268) on Reply Card

BTX (Booth 1501)

Products: 4100 SMPTE time code generator; 4200 SMPTE time code digital display; 4300 SMPTE time code video display; 4500 SMPTE time code synchronizer; 4600 SMPTE tape controller.

New: SMPTE generators, readers, in video displays including vertical internal code.

see ad on page 168

Circle (269) on Reply Card

Burns Audiometrics (Booth 1906)

Products: M500, M69, M88, M130, M260, M111, M112 microphones; DT109, DT108 headphones.



New: MCE-5 electret microphone; condenser microphones.

Featuring...the MCE-5.

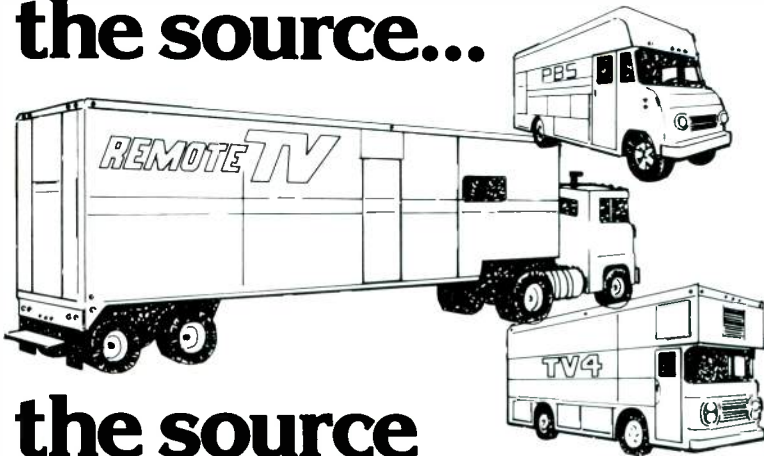
Circle (270) on Reply Card

CCA Electronics (Booth 501)

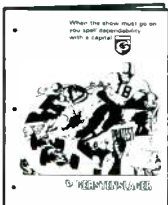
Products:* AM/FM transmitters and related accessories.

Circle (271) on Reply Card

When you cover the action from the source... the source for mobile studios should be Gerstenslager.



In a van or trailer, your most modern, best equipped studio could be your Gerstenslager. It all starts when you tell us what you need. The job to be done. Then we'll work with your engineers and principal equipment suppliers. Develop the plans. Detail placement of every piece of equipment, generators, wiring, climate control, consoles. Exactly as you want it. Then, build the unit from the frame up. A studio on wheels that is actually a dependable broadcasting station comparable to conventional studio systems.



How we do it with examples of work we have done for others is included in this brochure. It's yours for the asking. Write or call: (216) 262-2015.



The Gerstenslager Company, Wooster, Ohio 44691

Circle (75) on Reply Card

*Typical products marketed. New products not announced by BE press time.

WHY PAY MORE WHEN YOU GET NO MORE...



SEE US AT
NAB
BOOTH NO. 1315

VALID REASONS WHY CCI SHOULD TURN-KEY YOUR NEXT INSTALLATION

- CCI Transmitters require less floor space than any other manufactured
- CCI provides the highest efficiency Transmitter System available
- CCI provides the most economical transmitter operation available
- CCI provides totally redundant Klystron Amplifier Sub-systems
- CCI provides totally redundant Protection Circuits
- CCI provides IF Modulation with Total Video Control
- Each Amplifier will operate as a stand-alone Emergency Multiplex System
- All transmitter cabinet electrical components are brought to terminal boards for ease of test and maintenance
- Each transmitter cabinet is physically and electrically identical allowing for much faster troubleshooting by means of comparison
- All components used are Standard commercially available
- A complete transmitter cabinet contains only 34 different components - any of which are available within a 24 hr. delivery period
- CCI outdoor heat exchanger systems eliminate "freeze-ups"
- CCI manufactures or oversees the fabrication of more critical system components than any other manufacturer of "turn-key" Transmitter Systems
- CCI services every product it supplies
- CCI supplies custom engineered Broadcast Television Transmitter Systems from Base Band Video Input to the Antenna Radiation Pattern of your choice
- CCI Transmitters are prewired for remote control operation
- CCI Transmitters are designed for "Hands-off" operation via computer control techniques
- CCI manufactures and supplies complete computerized Remote Control Systems

MANUFACTURING & TEST FACILITY



CTT-U-10 KW
CTT-U-30 KW
CTT-U-55 KW
CTT-U-110 KW

At CCI we are specialists in custom designing the total system to meet your short and long term requirements. Our experienced technical staff has been directly involved in the installation or modification of 200 stations. CCI offers a complete line of UHF transmitters from 10 KW to 200 KW which when complimented with an appropriate antenna, tower, and transmission line system comprise a total **turn key capability**. CCI also services **every product** it supplies.

Circle (76) on Reply Card

COMARK COMMUNICATIONS, Inc.



Southwick Industrial Park
Southwick, MA 01077
Phone (413) 569-5939
Int'l Telex 95-1012

CEI [Booth 1108]

Products: CEI 300 modular broadcast-quality color camera; 310 studio version.

New: 340 self-contained camera; 330 color camera.

see ad on pages 234, 235

Circle (272) on Reply /

CMC Technology [Booth 1622]

Products: Video head refurbishing service; video accessories—auto equalizer, velocity error corrector, DG channel amplifier.

Featuring...the VEC 1200 & 2000



velocity error corrector engineered to maximize performance of existing quadruplex VTRs. The unit applies velocity error correction to all active lines of a head pass and is compatible with VR1200 and VR2000 VTRs.

Circle (273) on Reply Card

CSI Electronics [Booth 106]

Products:* AM/FM broadcast equipment; modulation monitors; consoles; transmitters.

Circle (274) on Reply Card

Cablewave Systems [Booth 1323]

Products: Transmission line; elliptical waveguide systems; RF connectors; pressurization equipment; related products.

New: 4½ O.D. air dielectric, flexible transmission line for FM and TV.

see ad on page 133

Circle (275) on Reply Card

Cambridge Products [Booth 1614]

Products:* Communications connectors; BNC and coaxial connectors.

Circle (276) on Reply Card

California Microwave [Booth 156]

Products:* Satellite earth terminals for broadcasters; aperture terminal with 6-foot antenna, down converter, complete demod; 56k bit demod.

Circle (277) on Reply Card

The Camera Mart [Booth 1406]

Products: Ikegami, Hitachi, Sony, Panasonic, Microtime, Ultimatte, Sharp, Videotek, O'Connor, Ronford, Listec, Audio Ltd., Vega, Sennheiser, Cinema Products.

see ads on pages 102, 202

Circle (278) on Reply Card

Canadian General Electric [Booth 1419]

New: TTC-6000 F/L 6kW VHF transmitter; TTC-16000 F/H 16kW VHF transmitter.

Featuring...the model F series. These transmitters, ranging from 250W to 60kW in parallel configurations are conservatively designed, modern transmitters. The single-ended designs, such as the 30kW unit are all solid-state except for the visual and aural final amplifiers. The solid-state visual and aural IPAs require no tuning.

see ad on page 119

Circle (279) on Reply Card

Candex Pacific [Booth 1800]

Products: Custom engineering; computer programming and software services; technical consulting and new product development services.

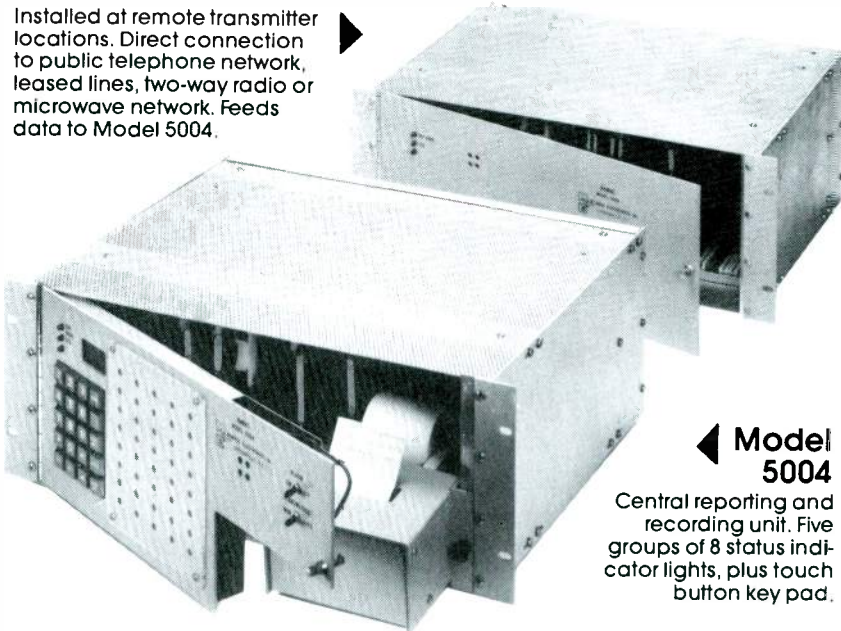
New: Remote controlled 4-color filter-changer accessory for standard studio lights that allows for random selection of any four filters or any desired combination for color effects; microcomputer encoder-

*Typical products marketed. New products not announced by BE press time.

Unattended Transmitter, Monitor, Alarm & Control

Model 5003

Installed at remote transmitter locations. Direct connection to public telephone network, leased lines, two-way radio or microwave network. Feeds data to Model 5004.



Model 5004

Central reporting and recording unit. Five groups of 8 status indicator lights, plus touch button key pad.

Remote Supervisory Model 5003

Capable of monitoring and controlling up to 5 transmitters at one remote site plus building status. It connects directly to dial-up public telephone, radio, or microwave. Stand by battery power supply is standard.

Central Model 5004

Displays the status of (8 to 48) remote contacts and has the hard copy data logger to provide the permanent record of time of day, date and status.

These two units can be equipped to provide building security with recordings to notify local security forces.

Send for full color, 4-page brochure.



MONROE ELECTRONICS, INC.

100 Housel Avenue, Lyndonville, NY 14098

Phone: (716) 765-2254

Circle (81) on Reply Card

With Maxell videocassettes, you get the result you want.

Because Maxell brings you as close to the original signal as any videotape can.

Here's why.

Only Maxell can give you the exceptional advantages of *Epitaxial*[™] oxide in both VHS and U-Matic formats. With low chroma noise, excellent frequency response and superb stability.

Maxell also makes sure you can get the full benefit of the tape, by putting it into precision-made cassettes for videotape that will stand up to repeated playback.

Stringent quality control assures you the same high performance, the same original-image quality, from one videocassette to another, at all times.

VHS or U-Matic,
Maxell shows you how
good videotape can be.

Maxell Corporation of America
60 Oxford Drive
Moonachie, New Jersey 07074



maxell
PROFESSIONAL
INDUSTRIAL
PRODUCTS

Circle (78) on Reply Card

decoder remote control units; video and audio distribution amplifiers; microprocessor-based memory lighting control system and lighting dimmer packs.

Circle (280) on Reply Card

Canon USA (Booth 902)

Products: PV25 x 20 lens for 1-inch Plumbicon format; P18x16 and P12 x18 with diascope for microprocessor cameras; J13x9 with built-in 2-time range extender for ENG.

New: 2 lenses for 2/3 format cameras; J20 x 8.5 with built-in range

extender for studio and ENG; J25 x 11 with built-in range extender for EFP 2/3 camera.

see ad on page 161

Circle (281) on Reply Card

Capitol Magnetic Products (Booth 504)

Products:* Audiopak A-2 broadcast cartridge; Audiopak AA-3 stereo-phased broadcast cartridge.

Circle (282) on Reply Card

Cavox/Tape-athon (Booth 164)

Products: Programmer IV music

center; 702 portable reel-to-reel; Messenger II message inserting system.

New: Model 750 (consists of two auto reversing cassette players that intermix tunes); model IN-303 (allows additions up to three for the 750); model AM 301 40W amplifier.

Circle (283) on Reply Card

CECO Communications (Booth 1014)

Products: RCA, Eimac, Amperex, General Electric, Sylvania and other name-brand tubes.

see ad on pages 109, 110

Circle (284) on Reply Card

Central Dynamics (Booth 1015)

Products:* CD 480 video production switchers; VS10 video production switcher; VS14 video production switcher; DK2160 downstream title keyer; EEG 1980—stand-alone extended effects generator; VG2210 digital sync decoder; VA 2034-6B video distributed amplifier; VA2035-3 equalizing video distribution amplifier; VA2051-0 pulse distribution amplifier; VA2035-200 dc coupled distribution amplifier; VTR 2045 video transmission distribution amplifier; AFM-10 audio mixer switcher; MC480 master control switcher; encoded and RGB chroma keyers.

New: MC990 master control switchers; APC 910 40-event memory system; CD480-4 production switcher; computer-assisted production accessory for the CD480 switcher family; EFG 1980-stand-alone extended effects generator.

see ad on page 151

Circle (285) on Reply Card

Centro (Booth 1832)

Products: Remote TV production vehicle design and construction technology; a graphic display of the company's facility and design capabilities.

New: Custom production vehicles.

Circle (286) on Reply Card

Century 21 Programming (Booth 313)

Products:* Programming for automated and assisted-live radio.

Circle (287) on Reply Card

Cetec Broadcast Group (Booth 305)

Products: System 7000 microprocessor-based program automation with Level II programming firmware; verified English Logging (VEL) auto-cue; Audiofile II-A multicart system; Centurion AM and FM audio con-

*Typical products marketed. New products not announced by BE press time.

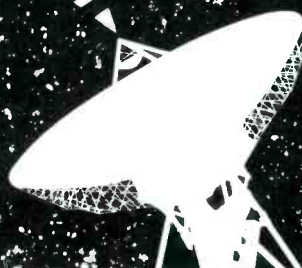
COMSEARCH

WE BRING YOUR FREQUENCY COORDINATION PROBLEMS BACK DOWN TO EARTH

Our frequency coordination services are out of this world, but your earth station siting problems don't have to be. For transmit/receive and receive-only installation for video data or other communications, we have the expertise to get your problems solved and your site coordinated.

omsearch, inc.

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(703) 356-9470



Let us put our experience in the cable, lodging, video network and data industries to work for you today and join our growing list of clients.

MCI TELECOMMUNICATIONS
STORER BROADCASTING
METROMEDIA, INC.
COX CABLE COMMUNICATIONS

MUTUAL BROADCASTING
TURNER COMMUNICATIONS
SPANISH INTERNATIONAL NETWORK
CHRISTIAN BROADCASTING NETWORK

For satellite earth station services call or write Harry L. Stemple, President at our new earth base.

See you at Booth #1604 NAB

Circle (79) on Reply Card

Take a cute little dish on a trip to the country.

Transportable satellite uplink service is a reality....and available now! Western Tele-Communications, Inc. (WTCI), a Denver based common carrier, is offering transportable uplink service and has been providing this service to the national television networks for news and sports coverage since August of 1978.

Uplink Capability

Two, high power amplifiers feeding the 4.5 meter dish can provide, simultaneously, two network quality television signals for delivery to a 10 meter receive station.

The transmitters can also be operated in a hot standby protection mode to provide one, protected uplink. Each uplink is equipped with two audio subcarrier modulators which can also be operated simultaneously, if required.

The station receivers can be operated simultaneously with the uplink to provide two full duplex television channels, if required.

Transportability

The station is constructed on a 40 foot trailer pulled by a diesel tractor and can be moved over 750 miles per day.

The unit is designed so that it can travel across country without wide load permits.

The station can be moved to very

The station is authorized for each use by the FCC on a per occasion basis. The FCC requests ten days notice on applications. Special news or other events can be processed sooner, if it is in the public interest.

Frequency coordination also must be accomplished on a per occasion basis and frequently requires blockage to solve potential terrestrial interference problems. We have successfully accomplished the necessary frequency coordination for the use of our transportable uplink on all projects, up to this point.



Our next stop...the Lake Placid Winter Olympics.

remote areas, practically anywhere in the United States in just a few days.

A diesel powered generator provides AC power to the station for operation in areas where no commercial power is available.

Service Availability

NOW! Call us at 303-771-8200. We are booking orders and providing uplink service at this time.

Rates and Charges

The uplink service is ideally suited to save the customer money on situations involving transmission from remote locations, where existing facilities are not currently available and construction would be required. The customer can also reduce his costs on intercity transmission of television signals by utilizing satellite services.

Send for a brochure or call



**WESTERN
TELE - COMMUNICATIONS, INC**

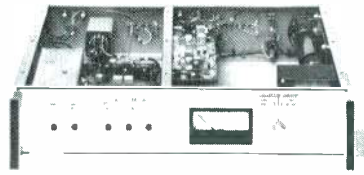
P.O. Box 22595 Wellshire Station □ Denver, CO 80222 □ (303) 771-8200

Circle (80) on Reply Card

soles; JSCP and JHCP FM/CP radio transmitting antennas with radomes; model 600B FM transmitter and model 625 FM transmitter; custom-built radio studio and remote broadcast control furniture; "The Spiral" circularly polarized VHF/UHF TV antenna; ring-panel CP/TV directional antenna.

New: Model 690PLL FM exciter; model 2000 audio console (5 mixer) and model 2000 (8 mixer).

Featuring...the 690PLL FM exciter with frequency stability at $\pm 300\text{Hz}$ with $\pm 100\text{Hz}$ typical. Noise and dis-



ortion levels are low and the unit accepts signals from monaural programming, composite stereo generators and SCA generators. It is compatible with, and will enhance any audio processing system.

see ad on page 152

Circle (288) on Reply Card

Cetec Vega (Booth 1023A)

Products: Model 77B transmitter; models 58, 63 diversity, and 66 receivers.

New: Models 80 and 81 Dynex handheld mic transmitters; model 77B Dynex transmitter; Dynex models 58, 63 Diversity and 66 Dynex receivers.

Circle (289) on Reply Card

Chase Media (Booth 119)

Products:* Traffic; logging and billing; music format control system.

Circle (290) on Reply Card

Christie Electric (Booth 1002)

Products:* Graphics and titling generating charger and NiCad battery; automatic sequencer for sequential charging of 1-8 reflex-20 batteries.

see ad on page 111

Circle (291) on Reply Card

Chyron (Booth 1407)

Products: Graphics and titling generators; election reporting system; cassette cleaner and evaluator for 3/4-inch VC.

see ad on pages 226, 227

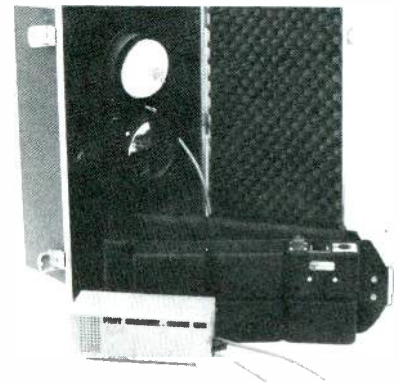
Circle (292) on Reply Card

Cine 60 (Booth 1126)

Products: Nickel-cadmium powerbelt and powerpak batteries, standard and fast charge types, for 4Ah to 14Ah and 7 to 30V; camera and VTR power cables; 12V and 30V Sun-Guns and Sun-Gun kits; quick-release camera Snaploks; shoulder pods; portable blower-cooled 850W and 1700W 115Vac quartz lights and lighting kits.

New: HMI lights; piggyback on-board NiCad fast charge battery systems for snap-on mounting; NiCad battery dememorizers for dememorizing NiCad batteries; replacement NiCad batteries; 20Ah NiCad battery packs.

Featuring...four Powerbelt versions



*Typical products marketed. New products not announced by BE press time.

viewdata

80

**First World Conference & Exhibition
on computerised TV based information
education and entertainment**

**26-28 March 1980, Wembley Conference Centre
London, England**

The Exhibition

All the major TV manufacturers will display the latest products based on the combined use of the video TV screen and the computer. The rapidly growing electronic publishing information provider industry will have a unique opportunity to demonstrate both the commercial and home use of these video based systems.

Organisations who have already booked exhibition space include:

- ABC Travel Guides ● CAP ● Decca ●
- D.M. England ● Eastern Counties Newspapers
- Fintel ● G.E.C. ● Granada TV Rental ● ITT ●
- Langtons Information Services ● Mullard ●
- Philips Industries ● Rediffusion ● Standard
- Telephone and Cables ● The Post Office

The International Conference

This will comprise multiple parallel streams of sessions which will include formal papers and informal discussion periods. Most of the speakers have now been invited but information providers may still submit papers for consideration on the following themes:

- Electronic publishing and the information industry ●
- Legal aspects of electronic publishing ● Viewdata and electronic mail ●
- In-house viewdata systems

Online Conferences Limited, Cleveland Road, Uxbridge, England UB8 2DD. Tel: Uxbridge (0695) 39262. Telex: 261173. Cables: Online Uxbridge

North American Coordinator: TMAC 680 BFAICH ST., SUITE 428, SAN FRANCISCO, CA 94109 (800) 277-5477 (415) 1-4-1200



CGE Model "F" VHF TV transmitter installation at Canadian Broadcasting Corporation (CBC) station in Fort McMurray, Alberta, includes two main/alternate configurations (4 transmitters) for both English and French transmissions.

Odds are, we'll be talking transmitters.

Have you heard about Canadian General Electric's remarkable new VHF TV transmitters, with solid state IPA's to the final visual/aural tubes and control logic with a unique manual bypass? Whether you have or not, we at CGE's Broadcast Equipment cordially invite you to join us at the 1980 NAB convention in Las Vegas. A lot of exciting things have been happening and we'd like to tell you about them.

For instance, General Electric is now representing us in the U.S. in the sales and service of our wide range of products. And Lew Page, GE's Manager of Broadcast Products, who is well-known in the broadcast industry, is looking forward to meeting with you at the convention to talk about our new VHF TV transmitters and our other outstanding products.

You can meet Lew Page and other Broadcast Equipment friends at Booth 1419. Plan to be there. Let's talk transmitters.

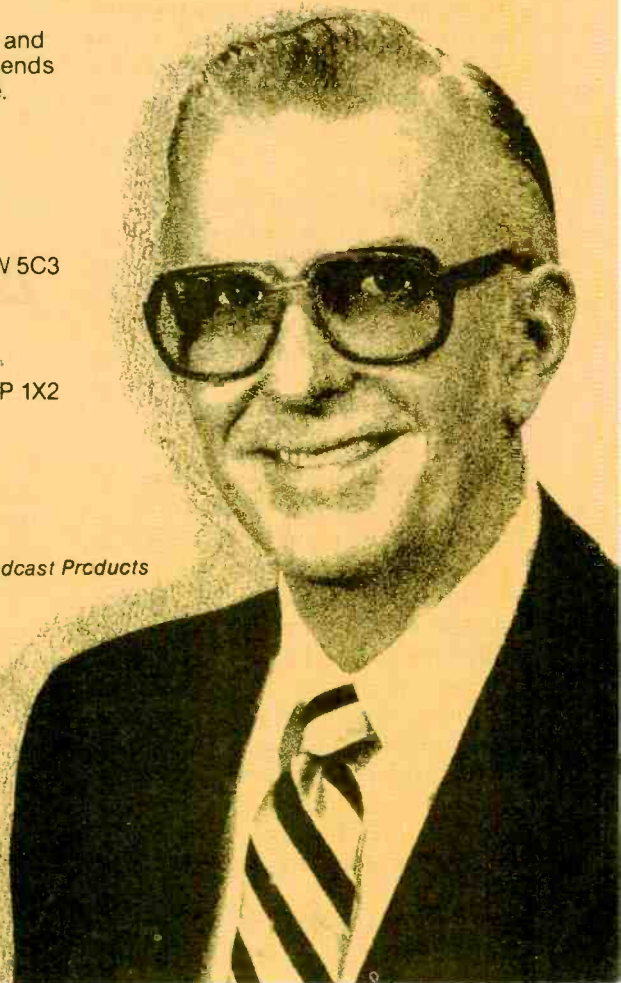
Canadian General Electric Company Limited
Broadcast Equipment
396 Attwell Drive
Rexdale, Ontario, Canada M9W 5C3
Telephone (416) 675-7500
Telex 06-989302

5000 Jean Talon West
Montreal, Quebec, Canada H4P 1X2
Telephone (514) 733-9911
Telex 055-66393

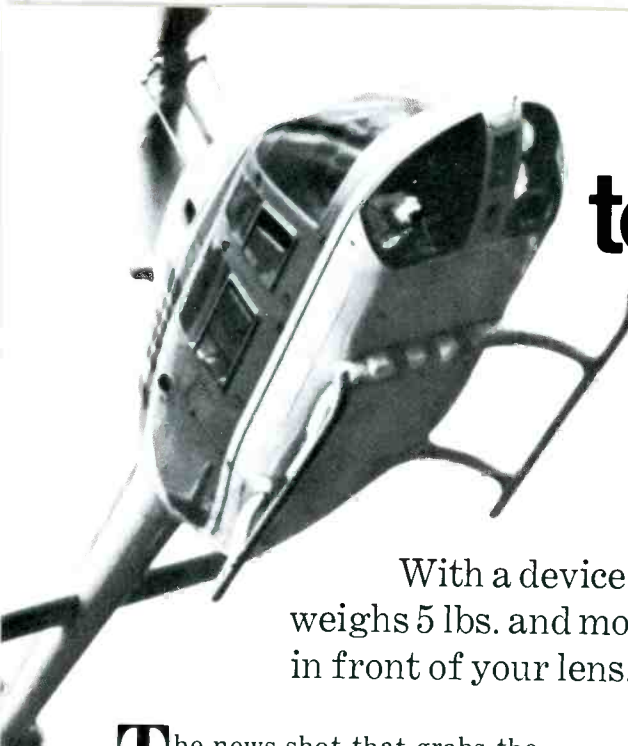
*Lew Page, Manager - Broadcast Products
General Electric Company
777 14th St. NW
Washington, D.C.
20005
Telephone (202) 637-4103
Circle (82) on Reply Card*



**Canadian
General Electric**



How to get steady telephoto shots of the news action from 300 feet up:



With a device that weighs 5 lbs. and mounts in front of your lens.

The news shot that grabs the viewer is a closeup. Of course. Like any other moving platform, though, the helicopter isn't steady enough for the camera to zoom in tight. Needless to say: at the long end of the lens, vibration is magnified.

You pay good money for that helicopter. You should get high-quality images.

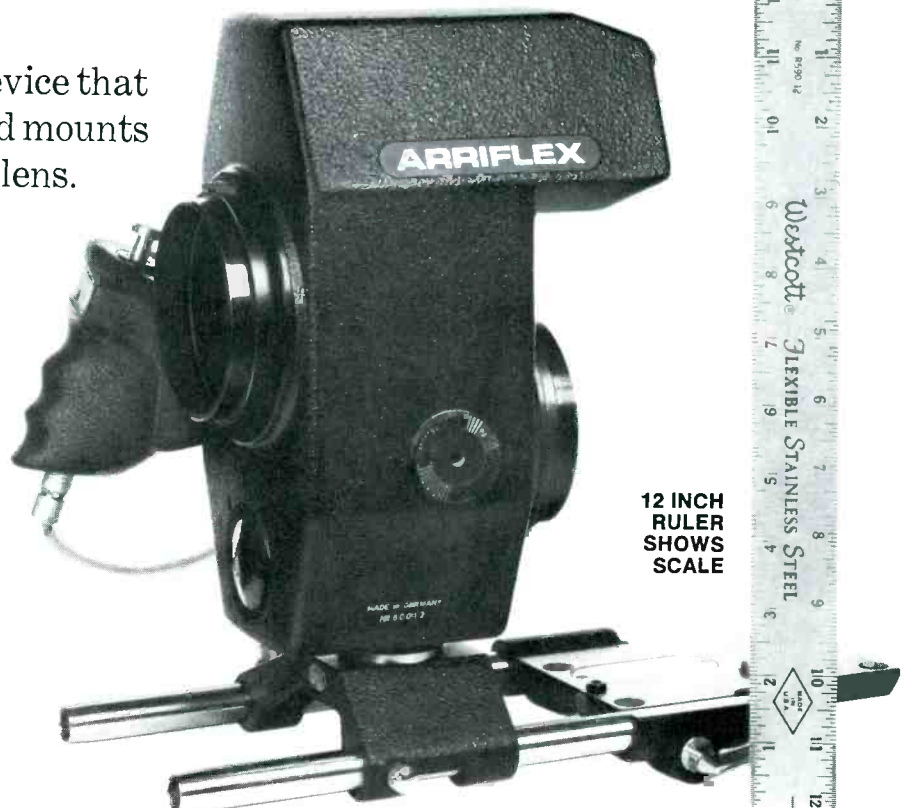
The police, the F.A.A. and the pilot all quite rightly want you to keep a safe distance from the action on the ground. *But you need close shots.* You're paying for the helicopter to make your news operation look good. Shaky pictures don't help.

Get 3 times closer.

Without stabilization, you can't go longer than about the 50mm focal length on your ENG camera. With the Image Stabilizer, depending on air turbulence, you can get smooth shots at 150mm or longer.

No special training needed. It's just another (astounding) accessory.

The Image Stabilizer comes with its own Support Plate and bracket. You mount your camera on the Plate and position the Stabilizer in front of your lens. Switch on the Stabilizer. Switch on the camera. Shoot. Any competent cameraman can use it. It works with any camera and with any prime lens longer than about 35mm. (With zoom lenses, the widest focal length varies slightly.)



The new Arriflex Image Stabilizer an important ENG/EFP accessory.

At focal lengths wider than 35mm, the Stabilizer vignettes. A small price to pay for getting *three times* closer. And if you need a panoramic shot, that's easy: Pull the helicopter back.

How it works:

The entering light rays are reflected off a front-surface mirror mounted on two gimbals powered by a battery-driven gyroscope. The mirror is effectively floating in space, as though on two trapezes — one oriented N-S, the other E-W. The image from this

mirror is reflected onto another (fixed) mirror and thence into the camera's lens.

Aerospace technology.

A gyro's directional stability makes it resist off-axis movement — such as panning the camera. If you insist, it tumbles in that direction. British Aerospace, the designers, have turned this tendency to advantage. A precession brake causes the gyro to *lean with* the panning motion, steadily. This is military aerospace technology, ingeniously adapted.



The British Aerospace Steadyscope uses the same stabilization method.

Above: surveillance from a NATO army helicopter.

British Aerospace is a company very much involved with high-precision technology. Military missile systems, orbital satellites...

One of their products is the Steadyscope. It uses the same gyro-stabilization as our Image Stabilizer, whose moving parts are also made by British Aerospace.

How well does it work?

In the November 16, 1978 issue of the British magazine *NEW SCIENTIST*, there's an article by Guy Parker on stabilized binoculars. Referring to the Steadyscope, Mr. Parker writes:

Anchored in space

"On pressing the uncage button there is an immediate transformation which is both psychological and optical. The impact is of course greater if one is being shaken in a helicopter, but even on land the image appears in an almost uncanny way to anchor itself in space, even if the instrument is deliberately jiggled about!"

Detail resolution

"An optical phenomenon now becomes apparent," writes Mr. Parker. "After the initial pleasure at the disappearance of jitter, the eye seems to demand needle-sharp resolution, now that the visibility of detail is determined mainly by the quality of the optical design. *There is no future for a stabilizer which does not give the highest resolution under all conditions of use.*"

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IMAGE STABILIZER SPECS:

Length (Image Stabilizer alone): 6 5/8 ins. Width: 4 11/16 ins. Height: 9 1/4 ins. Weight (Image Stabilizer alone): 5 lbs. Weight (on Support Plate with 9 1/2 inch rods and with cable-release handle): 7 lbs. 4 oz. Maximum panning speed: approx. 4 degrees/second. Maximum accelerative force: 6g. Equalizes vibration frequencies 1 Hz and higher. Camera lens focal lengths usable with ENG/EFP format: 35mm and longer.



Rear view of Image Stabilizer shows Support Plate with threaded camera mount. Custom brackets are available for various cameras. Stabilizer can be removed from camera in less than two minutes.

No light loss, no image degradation.

There are no lenses or prisms in the Stabilizer. Light rays pass through optical flats front and rear, and reflect off two front-surface mirrors. If you meter the light at the exit port, it measures the same as the light entering.

Doesn't perform miracles. Does work in a car, though, or any other moving base.

The Stabilizer is for making shaky shots smoother, *not* for simulating a rock-steady tripod. Its low mass is vital in the unwieldy g forces inside a helicopter. But that's useful in a car, too, or on horseback... You can get out of the car and continue shooting with a body-brace. And the Stabilizer is quiet enough to shoot sync sound out of doors.

Circle (83) on Reply Card

Elegant proof of low mass space-hardware sophistication: a gyroscope powered by one flashlight battery.



To improve a gyroscope's effectiveness, you can increase either its mass or its RPM. For military purposes, British Aerospace had to make it small, light and efficient.

High speed with low mass requires exact dynamic balance, of course. Eccentricity and bearing friction would impair accuracy and soak up power. One measure of the phenomenal precision of this device: The gyroscope — with its double gimbal and mirror — will run about four hours on a 1.5 volt D cell!

Low mass saves money.

A low mass device is likely to be compact. With this one, you can rent a 5 place helicopter at \$300 an hour, and get steady shots *from inside*. No need to hang out of the open door. And no need, either, for a 7 place helicopter at \$400 an hour, or more. The Image Stabilizer, incidentally, rents for about a tenth of that.



ARRI
ARRIFLEX CORPORATION

One Westchester Plaza, Elmsford, New York 10523. (914) 592-8510. And 600 N. Victory Blvd., Burbank, Calif. 91502. (213) 841-7070

In Canada: ARRI/NAGRA Inc., 6467 Northam, Mississauga, Ontario L4V 1J2. (416) 677-4033

IMAGING EQUIPMENT SINCE 1917

of the company's portable Sun-Gun kits; 12V models provide 80-minute 100W lighting time; 30V models, 40 minutes. Each kit is equipped complete with 6201A Sun-Gun head, bulb, 6202 swing-away dichroic filter, battery cable, slow charger, powerbelt and carrying case.

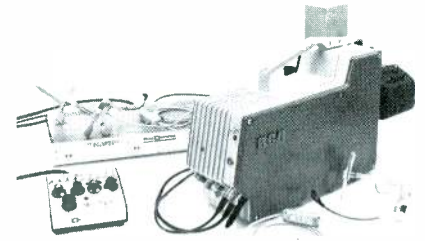
Circle (293) on Reply Card

Cinema Products (Booth 1417)

Products: ENG/EFP cameras from NEC; CP-16R reflex 16mm camera system and related accessories and lenses; Steadicam video/film cam-

era stabilizing systems; Universal model II.

New: CP co-ax digital remote control for Ikegami HL-77 and HL-79A cameras; CP co-ax digital remote control for RCA TK-76B cameras; HMI lights from Ryudensha; ENG/EFP cameras from NEC; U/F-16 upright/flatbed 16mm editing console; GSMO state-of-the-art 16mm cassette-load production camera; Bubbelite soft light for motion picture and TV field production; CP camraprompter camera prompting system.



Featuring...the new CP co-ax control system for TK-76B cameras consisting of a mini CCU, a digital encoder (standard 19-inch rack-mounted) and a camera-mounted decoder (with intercom capability). The system is also available for Ikegami HL-77 and HL-79A cameras and MNC-71 series cameras.

see ad on page 31

For information: Cinema Products, 2037 Granville Ave., Los Angeles, CA 90025.

Cohu (Booth 900)

Products: 1550 Telecine film chain in operating film island with M-3 multiplexer; model 7120 TV matting camera (operational); model DM-9 DM-14, DM-17 monochrome monitors (operational).

Featuring...the model 1550B, a professional quality broadcast color film camera featuring the model

A clear case of signals magic!

From the Wizard of VIZ

Model WR-515B \$275

New SIGNALYST™ Color Bar Generator

Does practically all that NTSC generators do plus a lot more, for a much lower price!

If you thought you had to get NTSC equipment, think again. The new VIZ SIGNALYST, Color Bar Generator, gives you every color TV test signal you need. Use it to service TV sets, video recorders, CATV, MATV, CCTV, etc. Dimensions less than 4 x 8 x 6 in. Fits in your service kit. A price you can easily afford.

Patterns supplied. Superpulse; regular color bars; color bars with luminance; color bars less burst; red, green or blue primary color rasters; color trio; gray quad; hatchdots; dots—all with progressive or interlaced scanning and 4.5 megahertz sound carrier.

Outputs. Video (pos. or neg. polarity) 0-1.7 volts into 75 ohm line. RF and IF continuously adjustable from snow-low 20 microvolts to 200,000 microvolts (enough to drive a whole hotel full of TV sets). All outputs crystal controlled.

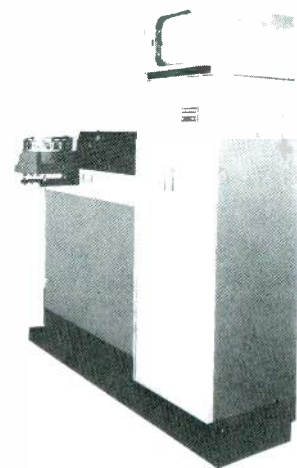
Scope triggers. Two separate 3.7 V peak-to-peak pulses for H&V trigger. Comes complete with 75 ohm output cable and 300 ohm snap-on head plus an excellent text on application.

See your local VIZ distributor.



VIZ Mfg. Co., 335 E. Price St., Philadelphia, PA 19144
Over 70 test instruments in the line

Circle (84) on Reply Card



8500 color encoder with image enhancer, automatic balance, automatic differential gamma balance and an optional color comp variable masking system.

see ad on page 192

Circle (295) on Reply Card

Colorado Video (Booth 1031)

Products:* Slow scan TV equipment; video framestore.

Circle (296) on Reply Card

*Typical products marketed. New products not announced by BE press time.

The links where quality is never missing.



Regardless of whether your programs originate from another city, a local sporting event, or an ENG assignment, your video transmission links have to maintain the same high quality standards. Day in and day out.

No manufacturer of video transmission equipment is more aware of that fact than Farinon Video. That's why we offer the finest lines of microwave radios, receivers, and related video transmission equipment available.

STL and Intercity Relay Links

- FV-F Series Heterodyne Microwave Radios provide almost transparent signal transmission in all available spectrum allocations worldwide.
- FV40 Transmission Equipment provides extreme flexibility for conditioning video and audio signals applied to any transmission medium.
- FV43 Audio Transmission Channel System allows simultaneous transmission of high fidelity mono or stereo sound with the video signal.

Remote Pick-Up Links

- FV-P Series Portable Microwave Radios offer frequency agility, fingertip tuning and rugged construction.

ENG Links

- FV-MP Series Miniature Portable Microwave Radios are extremely lightweight, compact, and completely self-contained.
- FV-MF Series Miniature Microwave Radio Transmitters provide a high degree of flexibility for airborne or vehicular installation.
- FV-CR Series Central Receivers feature synthesized channel selection, unsurpassed dynamic range, superior selectivity, and excellent inherent RFI protection.

To satisfy the particular requirements of your system, we also offer a variety of ancillary equipment, including low-noise preamplifiers, power amplifiers, and portable test units.

You can depend on Farinon Video for transmission links where quality is never missing. For more information, contact Farinon Video today.

Farinon

VIDEO
A Farinon Company

Main Office: 1680 Bayport Ave.,
San Carlos, CA 94070
Phone: (415) 595-3500; Telex: 34-8491

Canada: 657 Orly Ave., Dorval, PQ H9P 1G1
Phone: (514) 636-0974; Telex: 05-82-1893;
TWX: 610-422-4122

See our complete product line at the
NAB exposition in Las Vegas: Booth 1303

**Comark Communications
(Booth 1315)**

Products: UHF TV transmitters 55kW, 30kW; UHF TV excitors.

see ad on page 113

Circle (297) on Reply Card

Comark Industries (Booth 1315)

Products: Diplexers, filters, couplers, FM antennas, demodulators.

New: Coax switchers: 1-5/8, 3-1/8, 6-1/8; automatic switching systems.

Circle (298) on Reply Card

Compact Video Systems (Booth 1525)

Products: Mobile TV trucks and vans, including the Compact 20, 27 and 40; 55kW and 60kW sound proof generators.

New: Compact 42 portable uplink and ENG vans.

see ad on page 217

Circle (299) on Reply Card

**Comprehensive Video Supply
(Booth 1817)**

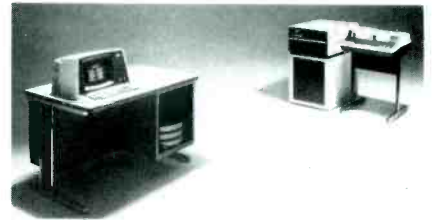
Products: Video supplies and accessories including video connectors, cables and adapters.

New: PAG safety engineered battery belts and portable lighting systems; compact broadcast quality belt-mounted mic mixer and Bilora small studio and ENG tripods and dollies featuring fluid effect pan and tilt heads.

Circle (300) on Reply Card

Computer Concepts (Booth 168)

Products: Broadcast system turnkey computer system with financial and



traffic software; word processor that assists in composition of ad copy, news reports and letters.

Circle (301) on Reply Card

Computer Image (Booth 1016)

Products:* Electronic animation; video production; computer-controlled two and three dimensional animation; syndication and promotional animation for radio and television.

Circle (302) on Reply Card

**Computer Management Systems
(Booth 128)**

Products: Broadcast management information system (BMIS) business system covering radio and TV sales, traffic, billing and accounting for stations and groups.

Circle (303) on Reply Card

Comrex (Booth 105)

Products: Low-frequency extenders; ENG cue system; pocket aural monitors; wireless microphone systems.

New: Studio/telephone integrator.

see ad on page 80

Circle (304) on Reply Card

Comsearch (Booth 1604)

Products: Satellite earth station placement; frequency coordination and RFI measurements; CARS band microwave frequency assignment; point-to-point microwave frequency coordination and computer systems software development.

see ad on page 116

Circle (305) on Reply Card

Concept Productions (Booth 326)

Products: Concept 1, contemporary MOR; Concept 2, adult rock; Con-

*Typical products marketed. New products not announced by BE press time.

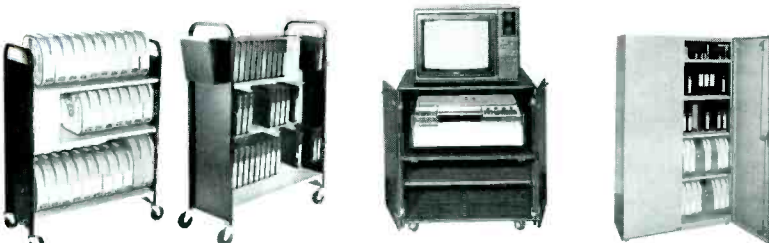
Winsted *The Matchmakers... for the customized approach to videoproduction centers.*

Winsted makes it easy to...

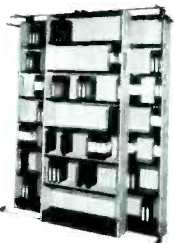


EDIT...

DUB IT...



MOVE IT... SHOW IT... FILE IT



STORE IT!

The secret of a smooth-running videoproduction center is to have everything you need where you want it, when you want it. And Winsted makes that happen with the industry's most complete line of editing and production consoles, dubbing units, tape and film trucks, conference room video units and space-saving filing and storage equipment for tape and film.

SEE US AT NAB BOOTH #1035

For your free catalog or further information on the entire Winsted line, phone Jerry Hoska or Greg Hedlund toll free...

1-800-328-2962 or write:

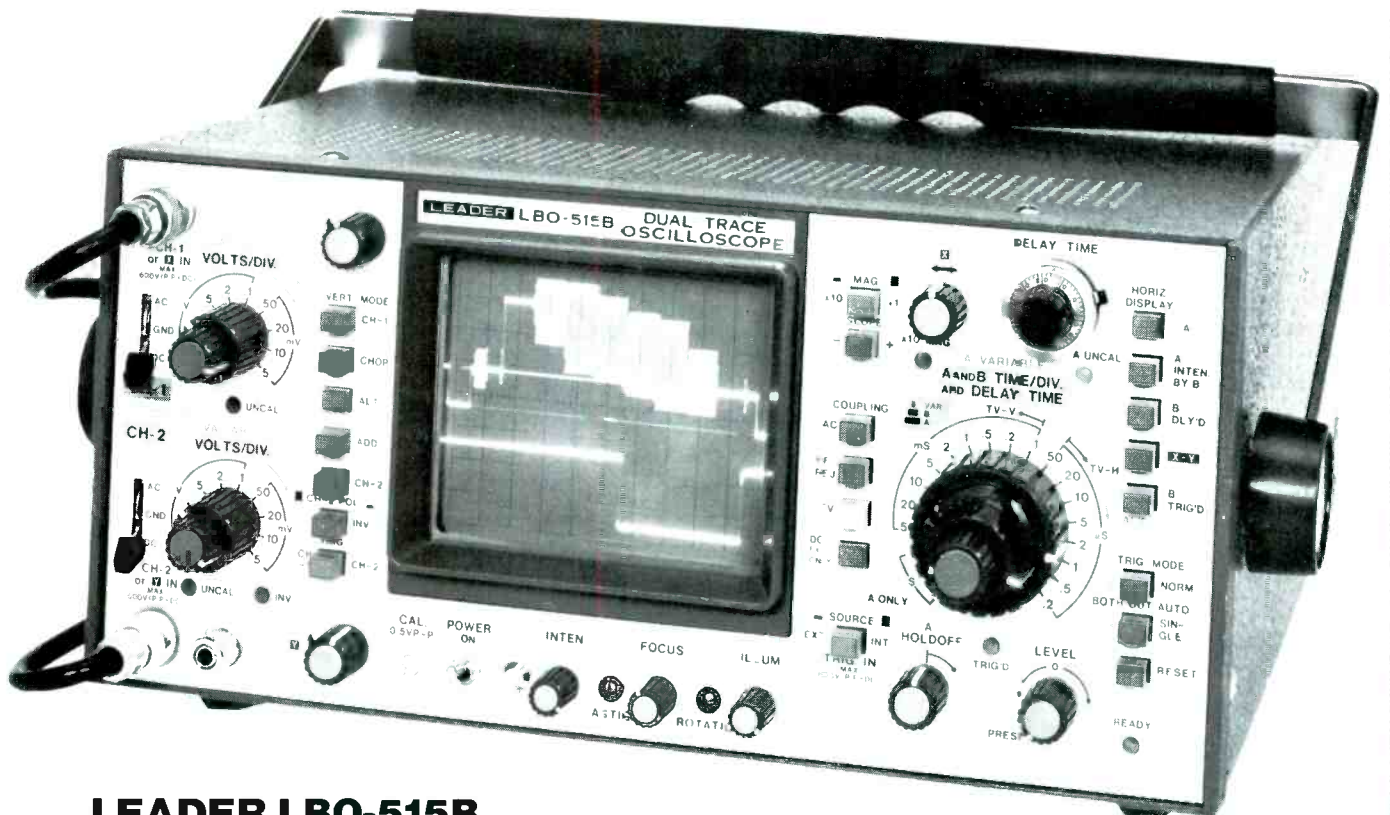
Winsted **THE WINSTED CORPORATION**
8127 Pleasant Ave. So. • Minneapolis, MN 55420 • 612/888-1957

Circle (86) on Reply Card

Could You Buy a Better Oscilloscope at Any Price?

WE AT QUALITY MEDIA CORPORATION ARE CONVINCED THAT THE LEADER LBO-515B IS UNSURPASSED AT ANY PRICE. TO PROVE OUR POINT, WE ARE WILLING TO MAKE THIS UNPRECEDENTED OFFER:

Quality Media will ship an LBO-515B Oscilloscope to any TV Chief Engineer in the continental U.S. for a 10-day Free Trial. If you are not convinced that this is an incredible value, you may return the scope, and owe nothing. Call us on our Toll-Free line today.



LEADER LBO-515B
30 MHz DUAL TRACE OSCILLOSCOPE
WITH VARIABLE DELAY
\$1,530.00

- High Brightness CRT
- Internal Calibration Voltage
- External/Internal Trigger
- Comprehensive Trigger Controls
- Calibrated Delayed Sweep
- Dual Probes Included

IMMEDIATE DELIVERY • TWO YEAR WARRANTY • MONEY-BACK GUARANTEE
IF YOU ARE NOT COMPLETELY SATISFIED



CALL TOLL FREE 1-800-241-7878
IN GEORGIA CALL COLLECT 404/324-1271

Quality Media Corporation

P.O. BOX 7008 • COLUMBUS, GA. 31908

cept 3, album rock; Concept 4, country.

New: Voice/Music synchronizer, microprocessor-based device used to verify that voice and music tapes are synchronized.

Circle (306) on Reply Card

Conrac (Booth 809)

Products: Model 6142 19-inch color master monitor with comb filter separator; model 5742 13-inch color monitor with comb filter for VTR mounting; model 5322 19-inch color monitor for broadcast and teleproduction; model DZB 15-inch b&w monitor for VTR mounting; QQA17 17-inch high resolution b&w monitor; SNA 9-, 14-, 17-, 23-inch b&w monitors.

see ad on page 101

Circle (307) on Reply Card

Consolidated Electronics (Booth 203)

Products:* Cuerac cart automation system; tape machines and accessories; computer-assisted program generator; software for music management; stereo cartridge record/replay machine; reel-to-reel stereo reproducers with 25Hz tone detec-

tor; computerized control logging package.

Circle (308) on Reply Card

Continental Electronics (Booth 101)

Products: 315F 5kW AM broadcast transmitter; 316F 10kW AM broadcast transmitter.

New: 317C-2 50kW AM broadcast transmitter.

see ad on page 200

Circle (309) on Reply Card

Control Video (Booth 1633-A)

New: Software based, microprocessor control unit that generates, reads and keys SMPTE and also controls two VTRs.

see ad on page 199

Circle (310) on Reply Card

Convergence (Booth 704)

Products: ECS-103A superstick cut-only cassette editing system; ECS-103B superstick multi-source editing system with switcher effects system and edit decision listing; ARC-100 animation remote control.

New: ECS-90 microprocessor-controlled editing system; ECS-103C superstick multi-source editing sys-

tem; interfaces for the ECS-100 editing systems to audiotape recorders and production switchers effects systems.

Featuring...the ECS-90 microprocessor-controlled editing system with



variable joystick control of tape speeds, preview, perform and replay of edits, interchangeable VTR formats, independent control of audio and video channels and many other features.

see ad on page 89

Circle (311) on Reply Card

Crosspoint Latch (Booth 1635)

Products: 6104A portable switching system; 6112 compact production switcher; 6114 compact self-contained production switcher; 6107

*Typical products marketed. New products not announced by BE press time.



AUDI-CORD: 5 YEARS OF VALUE AND SERVICE

"A" SERIES

An intermediate priced cartridge tape machine series with most of the quality and features found in units costing much more.

3 TRANSPORT REPRODUCER:



TWO TRANSPORT RECORD-REPRODUCER



THREE SELECTABLE RECORDING MODES — STANDARD DUAL REPLAY MODES:

- Dual Recordings
- Dubs — Copies
- Mixed Composites

TO OUR MANY CUSTOMERS WE SAY THANKS —

WE DEDICATE THESE NEW PRODUCTS AND IMPROVEMENTS TO YOU AS EVIDENCE OF OUR COMMITMENT TO SERVE YOUR NEEDS, DESERVE YOUR SUPPORT AND TO CONTINUE WITH TOP VALUE AT THE LOWEST POSSIBLE COST. WE INTEND TO DESERVE YOUR BUSINESS —

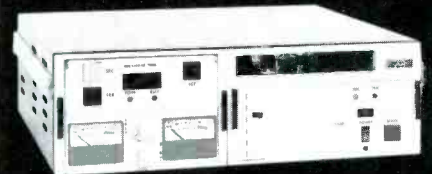
**NOW!!
TWO STAR
PERFORMANCE
CARTRIDGE
MACHINE PRODUCT
LINES TO FIT
BOTH YOUR NEEDS
AND YOUR BUDGET.**

- 28 Model variations
- Modular constructed for easy service.
- Interchangeable transports and other assemblies.
- 1 or 3 tone — mono or stereo.
- Replay reminder system.
- Full remote control — automation compatible.
- Meets the needs of the 1976 NAB standards.
- Latching connectors — slip/lift cover.

RAK CABINETS OPTIONAL FOR ALL MACHINES.

Modu-Cart 100 Series

RECORD-REPRODUCER



REPRODUCER



AT AUDI-CORD
VALUE IS NOT EXPENSIVE
NAB Booth #319

AUDI-CORD CORPORATION

1845 W. Hovey Ave., P.O. Box 611 Normal, Ill. 61761
(309) 452-9461

GIVE US A CALL AND TALK CARTRIDGE NEEDS

Circle (88) on Reply Card

Facts from Fluke on low-cost DMM's

Our new 4¹/₂-digit bench/portable: You've never seen anything like it.

Take a close look at the face of this instrument. Notice anything new? If you just realized you've never seen words on a low-cost DMM display before, you're on the right track.

This is the new 8050A from Fluke, the lowest priced 4¹/₂-digit multimeter available that uses microprocessor technology.

The legends on the LCD are clues to what makes the 8050A unique.

dB: You're right. The 8050A delivers direct readouts in dBm, referenced to any of 16 impedances. Use the "REF Z" button to scroll through the memory and locate the zero dBm reference you need,

then set it and forget it. No more tedious calculations or conversions.

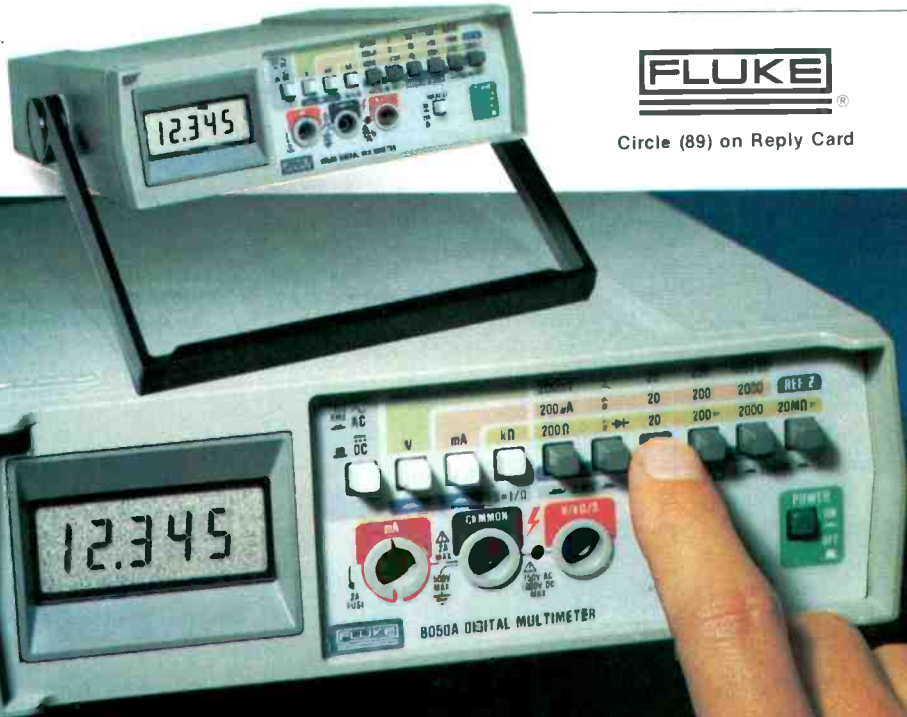
REL: For relative references in the dB mode or offset measurements in all other functions. Lets you store any input as a zero value against which all others are automatically displayed as the difference. Another timesaving convenience.

HV: Just a reminder when your input is over 40V, so you won't forget about safety while in the dB or relative modes.

Of course there's much more to the

8050A. True RMS measurements to 50 kHz. Conductance for measuring resistance to 100,000 Megohms and leakage in capacitors, pcb's, cables and insulators. Diode test, 0.03% basic dc accuracy and full input protection. Plus a large family of accessories. Just \$329 U.S.

For all the facts on the versatility and value of the new 8050A, call toll free 800-426-0361; use the coupon below; or contact your Fluke stocking distributor, sales office or representative.



Circle (89) on Reply Card

IN THE U.S. AND NON-EUROPEAN COUNTRIES:

John Fluke Mfg. Co., Inc.
P.O. Box 43210 MS-2H
Mountlake Terrace, WA 98043
(206) 774-2481
Telex: 32-0013

IN EUROPE:

Fluke (Holland) B. V.
P.O. Box 5053, 5004 EB
Tilburg, The Netherlands
(013) 673 973
Telex: 52237

3/80

- Please send 8050A specifications.
- Please send all the facts on Fluke low-cost DMM's.
- Please have a salesman call.

Name _____

Title _____

Mail Stop _____

Company _____

Address _____

City _____

State _____

Zip _____

Telephone () _____

Ext. _____

compact self-contained production switcher; 6006 sync generator.

New: 6124 12-input switcher; 6118 5-inputs switcher; 7200 auto drive automated controller.

see ad on page 197

Circle (312) on Reply Card

Custom Business System (Booth 115)

Products:* Radio broadcast business computer system for small to mid-size stations, to handle program log and all traffic functions, accounts receivable and sales projections general ledger and accounts payable.

Circle (313) on Reply Card

Bill Daniels (Booth 1717)

Products:* Directories; custom dealer catalogues.

Circle (314) on Reply Card

Data Communications (Booth 1033)

Products:* Broadcast system for TV and radio providing automation for sales, traffic, accounting, programming and operations; election reporting system.

Circle (315) on Reply Card

Datametrics (Booth 1505)

Products: SP-733 time code reader; SP-425-R/G time code reader/generator; SP-465 WWVB timing receiver.

New: SP-722-A time code reader/generator/character generator; SP-766 rack mount SMPTE generator; SP-705 battery-operated portable SMPTE generator; SP-780 rack mount SMPTE reader; SP-710 character generator.

see ad on page 166

Circle (316) on Reply Card

Datatek (Booth 1227)

Products: Video and audio routing switchers for small, medium and large systems.

see ad on page 47

Circle (317) on Reply Card

Datatron/Video Systems Division (Booth 1205)

Products: Tempo 76, a 3-VTR SMPTE/control track editing system; Datatron 2000, an 8-VTR super editor; various SMPTE code equipment including generators, readers, character inserters, jam-sync generators.

New: A completely new editing system targeted at users who need more capability than the Target 76 offers.

Circle (318) on Reply Card

D-B Electronics (Booth 132)

New: Two-deck cartridge tape machines, mono and stereo.

Circle (319) on Reply Card

Delta Electronics (Booth 400)

Products: AMC-1 amplitude modulation Controller and APC-1 power controller; TCA RF ammeters with easy-to-read scales, temperature stability and minimized modulation effect; digital antenna monitor and analog antenna monitors; DPM digital panel meter; TCT toroidal current transformers to replace sampling loops in directional systems; RG-3 receiver generator; coaxial transfer switches; remote control equipment; operating impedance bridges and meter jacks.

New: Automatic modulation controller for FM operation; FM power controller.

Circle (320) on Reply Card

*Typical products marketed. New products not announced by BE press time.

Join the Clean Air Patrol

Tired of the loudness war? Join the Clean Air Patrol and find out why more and more FM stations are turning to the clean, transparent sound of Orange County's CLX-S-FM Dynamic Range Processor—the complete FM processor which grabs your listeners and keeps them there! The CLX-S-FM contains multi-ratio compressors, fast peak limiters, and noise-reducing expander/gates along with an optional high-frequency limiter and low-pass filter. Use it with your existing stereo generator and save money as well. The CLX-S-FM—an elegant, efficient solution to the loudness war . . . from Orange County.



ORANGE COUNTY ELECTRONICS
INTERNATIONAL INC.

Exclusive Sales & Marketing:

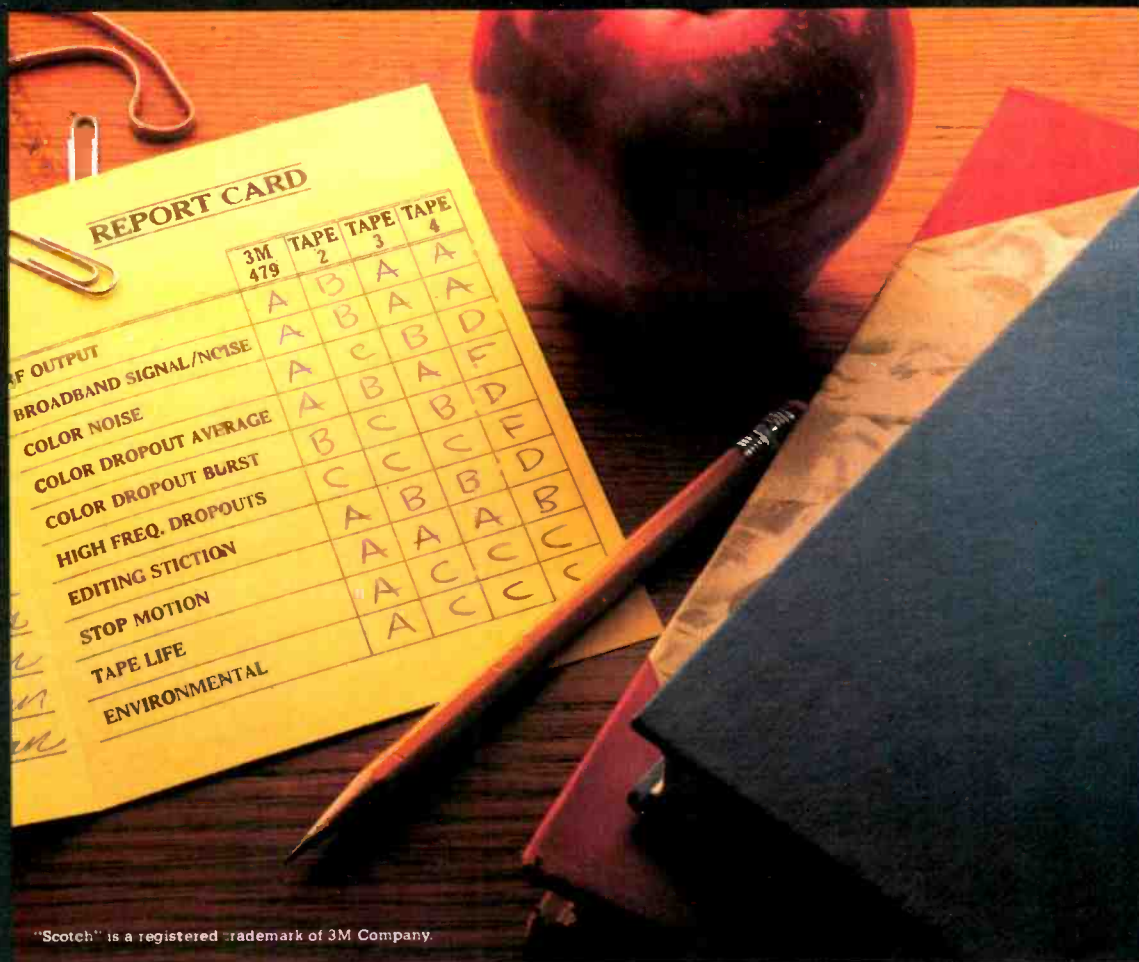
Parasound

680 Beach Street, San Francisco, Ca. 94109 (415) 673-4544

"Booth 208—NAB"

Dealer Inquiries Invited

Circle (90) on Reply Card



"Scotch" is a registered trademark of 3M Company.

IN A TEST OF ONE-INCH VIDEO TAPES, WE ACED OUT THE COMPETITION.

When we tested the top four brands under strict lab conditions, the overwhelming performance leader was Scotch 479 Master Broadcast Video Tape. In fact, we came out on top in all ten performance categories.

If that isn't reason enough to make us your choice, maybe this is. We're the only one-inch supplier that winds your tape onto a special cushioned flange reel to protect against shipping and handling damage. And we pack and ship our tape in a flame-retardant case to give you even more protection.

We're the people who pioneered the development of video tape 25 years ago. And according to the pros who know video tape best, we're still the best video tape. Give or take an inch.



SCOTCH 479

See us at NAB Booth #815

3M

DeWolfe Music Library (Booth 1618)

Products:* Production music and S/Fx libraries for use in TV and radio promos, logos, background with full copyright protection.

Circle (321) on Reply Card

Dictaphone (Booth 201)

Products: See at booth.

Circle (322) on Reply Card

Digital Video System (Booth 1101)

Products:* Digital video processors such as time base correctors, synchronizers, frame storage devices, special optical effects.

see ad on page 79

Circle (323) on Reply Card

Di-Tech (Booth 1408)

Products: Audio, video and pulse distribution amplifiers; audio/video routing switchers; video detectors; touch-tone control system; video DA with clamper and slope equalizer.

New: Pace 1000 computer controller.

Circle (324) on Reply Card

Dielectric Communications (Booth 1507)

Products: RF loads and wattmeters; broadcast rectangular waveguide; RF switches.

New: High-power directional elements, terminating wattmeters.

Circle (325) on Reply Card

Dolby Laboratories (Booth 206)

Products: 360 series free-standing A-type noise reduction units; 334 Dolby FM broadcast unit; M series multi-channel noise reduction unit for videotape post-production sweetening.

New: NRU-10, dual-channel A-type audio noise reduction unit for general videotape recorder use, dual channel A-type noise reduction for Sony and Ampex VTRs.

see ad on page 41

Circle (326) on Reply Card

Drake-Chenault (Booth 116)

Products:* Radio programming.

Circle (327) on Reply Card

Victor Duncan (Booth 1130)

Products: NEC, Fernseh, JVC, Comprehensive Video; Videotek.

Circle (328) on Reply Card

Dynacom International (Booth 1034)

Products: See at booth.

Circle (329) on Reply Card

Dynair Electronics (Booth 811)

Products: System 21 routing switcher; series 10 routing switcher; series 5900 video/pulse/audio distribution equipment.

New: Series 5300 precision video distribution equipment; series 1500 video equalizing and distribution equipment.

Circle (330) on Reply Card

Dynasciences (Booth 1103)

Products: 7400 production switchers; 7220 downstream keyer, series



*Typical products marketed. New products not announced by BE press time.

Most people think heart disease happens only in the elderly.

It happens in children as well. Things like rheumatic heart disease and congenital heart defects. Each year, nearly one million Americans of all ages die of heart disease and stroke. And 20,000 of them die from childhood heart diseases.

The American Heart Association is fighting to reduce early death and disability from heart disease and stroke with research, professional and public education, and community service programs.

But more needs to be done.

You can help us save young lives by sending your dollars today to your local Heart Association, listed in your telephone directory.



Put your money where your Heart is.



Marconi's total system capability...



starts with the Mark IX Camera



MR-2/MR-20
1" C Format
New! Half Speed
Capability Option

Features include:
AST, allows the MR-2 to
replay at any speed from
still frame to normal,
manual jogging,
shuttle speeds for ease
of editing ...

- Plus:**
- MTBC2 time base corrector
 - Video tape monitoring unit

At Marconi, we constantly strive to excel in bringing significant advances to the broadcast industry. That's why we introduced the MARK IX ... a second generation modular camera that can be tailored to your exact requirements. The unique design is centered around two camera heads and a common CCU. The heads offer both automatic and manual features and all the options are compatible and interchangeable. With the Mark IX you are assured of the highest quality... in the studio or the smallest van.

Whether your interest is 1 inch VTR's, cameras, transmitters, or digital standard converters ... call MARCONI ... our experience is available to you.

At NAB Visit MARCONI Booth 817

Marconi Electronics, Inc.

100 Stonehurst Court • Northvale, NJ 07647 • 201-767-7250

Circle (93) on Reply Card

80 VDA/ADA, 888/877/834 image enhancer; 6600 processing system.

New: Microprocessor-based editor featuring Memory Mate; multiple source editor-microprocessor-based; model 9048 microprocessor-based video graphics system.

see ad on pages 18, 19

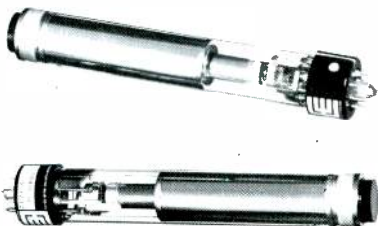
Circle (331) on Reply Card

EEV (Booth 906)

Products: Paglight 100 portable power kit; Ex-Press Limiter expander/compressor/limiter controlled by digital logic switching.

New: P8400 Leddicon series camera tubes.

Featuring...the P8400 Leddicon series with 30mm diameter lead oxide camera tubes of coaxial grid construction with internal light bias facilities and with the added feature



of a preset potentiometer built into the tube base to enable the light bias in each channel to be matched to minimize differential lag.

see ads on pages 237, 239, 241

Circle (332) on Reply Card

EG&G (Booth 1710)

Products:* High intensity obstruction lighting systems.

Circle (333) on Reply Card

EMS (Booth 1719)

Products: All Edit-Q series: 1101 TS-Q T-Bar throttle search module; 1001 RES-Q remote edit search and cue module; 2001 RES-Q 2-pack edit controllers; 4001 RES-Q/TS-Q 4-pack edit controllers.

New: RES-Q II single wire interface edit control system command center; AUD-Q audio time base corrector; EM-1 and EM-2 state-of-the-art proper field match for editing VTRs; BS-1 blanking and sync setup boards.

Circle (334) on Reply Card

ENG Corp. (Booth 1637)

Products: ENG vans and suburbans; EFP mini production vans and carts.

New: Portable microwave equipment racks for mobile units and helicopters.

Circle (335) on Reply Card

ESE (Booth 1023B)

Products: Digital clocks; timers, master clock systems; programmable timers; stopwatches; audio level indicators.

New: ES280 digital time code reader generator for audio use.

Circle (336) on Reply Card

Eastman Kodak, motion picture and audiovisual markets division (Booth 1118)

Products: Complete line of motion picture film for broadcast industry.

Circle (337) on Reply Card

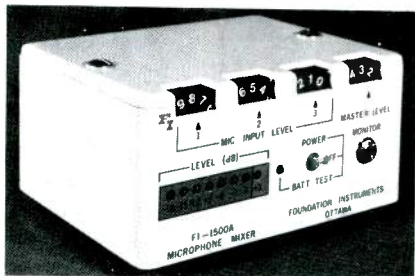
EDCO Products/PEP Division (Booth 416)

Products: Christie Reflex 20 NiCad battery/charger systems for ENG.

New: Dimmable HMI spotlight for location lighting and news studio operation; ENG battery/charger systems; Premium REFLEX 20 On-Board

*Typical products marketed. New products not announced by BE press time.

HOT New Products From Foundation Instruments



FI-1500A BROADCAST MIXER

- Compact, belt worn.
- Rugged die-cast aluminum box.
- 3 inputs.
- Selectable output level.
- 8 LED level meter.
- Phantom supply for shotgun mics.
- Low noise.
- Suggested price \$595.00.

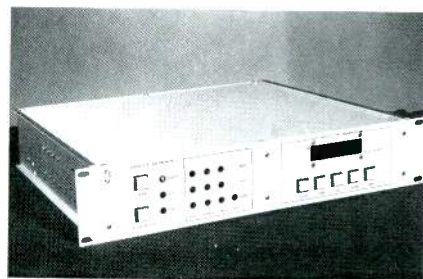
Circle (94) on Reply Card



FI-1300A TIME/DATE GENERATOR

- Plugs into R F module of Sony Betamax, VO-3800, etc.
- Inserts Hr., Min., Sec., Day., Mo., Yr.
- Crystal controlled accuracy.
- Self contained rechargeable batteries
- Rugged

Circle (95) on Reply Card



FI-2800R VTR SEQUENCER

- Operates three VTR's.
- Video sensing.
- Internal audio/video switching to output.
- Standby video input.
- Single pass or re-cycle mode.
- May be initiated from internal real-time clock.
- Lots of other features.

Circle (96) on Reply Card

Contact: Comprehensive Video Supply Corporation
800-526-0242, 201-767-7990



Foundation Electronic Instruments Inc.

1794 Courtwood Crescent

Ottawa, Ontario

K2C2B5

(613) 226-4000



TOTAL CAPABILITY

Cablewave offers the
Largest Selection of Coaxial
Cable FOR ALL your system
requirements

NEW! Antenna/Transmission Line Systems Catalog

Complete in every detail, total information needed to plan, specify and purchase a complete system or component, plus complete engineering data and more.



SEE US AT NAB—BOOTH 1323

Cablewave Systems

from smooth wall aluminum and corrugated copper coaxial cables in foam and air dielectric . . . to matching connectors for most standard interfaces . . . to hardware and installation accessories. All cables are jacketed for mechanical protection, and you can specify either standard or phase stabilized versions. There's a full line of field assembled matching connectors, or if you desire . . . Cablewave will provide the completed cable assembly manufactured to your specific requirements. Most of your system requirements will be available from stock . . . all are fully tested, conservatively rated and backed by our field service organization.

Whether you require a single component or a complete system, rely on the TOTAL CAPABILITY of Cablewave!

Cablewave Systems, Inc., 60 Dodge Ave., North Haven, Conn. 06473, Phone (203) 239-3311.

In Canada: LeBlanc & Royle Communications Towers Ltd., 514 Chartwell Rd., Oakville, Ontario, Canada L6J 5C5 Phone (416) 844-1242.

RF transmission lines with welded and corrugated conductors are also manufactured by our associated companies in West Germany and Brazil.

Kabel-und Metallwerke
Gutehoffnungshuette AG
Radio Frequency Systems Division
Kabelkamp 20
3000 Hannover
West Germany

KMP
Cabos Especiais e
Sistemas Ltda.
Caixa Postal 7 163
Sao Paulo SP, Brasil

Circle (97) on Reply Card



eliminates the source of EMI noise.

"Extreme corrosion of steel guys and electromagnetic interference, due to arcing, were two very severe problems when we purchased WYFR.

"We installed PHILLYSTRAN on all nine broadcast antennas at Hatherly Beach, eliminating the source of EMI noise.

"We were pleasantly surprised by the ease of re-guying and the way PHILLYSTRAN reduced the labor involved to make our non-metallic guying systems competitive — on an installed-cost comparison — to conventional metal guys."

*Art Thompson, Station Manager
WYFR, The International Voice
of Family Radio
Scituate, Mass.*

PHILLYSTRAN® Tower Guys are
• non-conducting • maintenance-free • easy-to-install

Please send

- "10 reasons why your best buy for tower guys is PHILLYSTRAN"
- "PHILLYSTRAN® offers the advantages of synthetic fibers...plus the strength of steel"

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____



PHILADELPHIA RESINS CORP.
20 Commerce Drive
Montgomeryville, PA 18936
(215) 855-8450
Telex 84-6342

BE

Circle (98) on Reply Card

camera and VTR batteries; SLA battery systems.

Circle (338) on Reply Card

Edital (Booth 223)

Products: See at booth.

Circle (339) on Reply Card

Edutron (Booth 1714)

Products: Ccd-1h and ccd-2h-1 video time base correctors.

New: Ccd2h-2, ccd2h-3 and ccd2h-4 video time base correctors.

Featuring...the ccd2h-4 with gen-lock/subcarrier input, comp sync input, steerable advance sync output, zero time system lock, gen-lock advance and delay, sync and timing pulse outputs, 10dB noise reduction vertical enhancement and adjustable blanking.

see ad on page 185

Circle (340) on Reply Card

Eigen Video (Booth 1215)

Products: Slow-motion disc recorder with high band color and TBC.

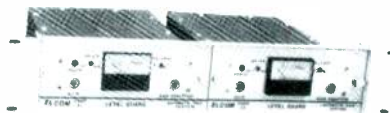
New: 600 slide random access controller for disc chassis.

Circle (341) on Reply Card

Elcom Specialty Products (Booth 506)

Products: Model AP-50 dual spectrum audio limiter; model MP-12 modulation processor; model WBL wide band composite limiter; solid-state tower light flasher and control.

New: Model AGC automatic gain control amplifier; Level Guard system that meets FCC rules for automatic transmitter system control.



Featuring...the Level Guard, which is capable of holding audio levels within several dB even though input levels may vary 20 or 30dB. Circuitry is provided for gain regulation by connection to the station modulation monitor.

Circle (342) on Reply Card

*Typical products marketed. New products not announced by BE press time.

Electro Controls (Booth 1411)

Products:* Television lighting and control.

Circle (343) on Reply Card

Electro Impulse (Booth 931)

Products: Loads; attenuators; calorimeters; baluns; power meters.

Circle (344) on Reply Card

Electro & Optical Systems (Booth 1620)

Products: Color monitors, color receiver monitors, multi-standard receiver monitors, demodulators from the Barco AVS division; SMPTE/EBU time code generators and readers; portable SMPTE/EBU time code generators and readers; peak program meters; monochrome video monitors.

New: SMPTE/EBU time code machine synchronizers; vertical interval/audio track/cue track SMPTE/EBU time code generators/readers; time code calculator; vectorscope and waveform monitors.

Circle (346) on Reply Card

Electrohome Limited (Booth 1003)

Products: Monochrome video monitors; color monitors RGB/NTSC/PAL SECAM convertibility.

New: EDP-56 monochrome data/graphics large screen projector monitor.

see ad on page 104

Circle (347) on Reply Card

Electro Voice (Booth 1032)

Products:* Broadcast microphones; audio monitors.

see ad on page 191

Circle (348) on Reply Card

EMCEE Broadcast Products (Booth 1017)

Products: TTV-5000 5000W VHF television transmitter; TTS-20 10W MDS transmitter; TSA-100A 100W MDS amplifier.

New: TU-1000DU 1000W UHF television translator; TV-100DV 100W VHF television translator; TU-1DU 1W UHF television translator.

see ad on pages 68, 67

Circle (349) on Reply Card

Emergency Alert Receivers (Booth 1807)

Products: See at booth.

Circle (350) on Reply Card

*For more information, use your reader service card.

10 to 30 MHz oscilloscopes with more performance and reliability than you ever thought possible.



It's easy to see why LEADER instruments are now specified more than ever. More performance and quality for less cost. Over 100 stocking distributors provide immediate delivery of LEADER oscilloscopes, frequency counters and function generators, plus top-quality professional audio and video instruments.

A full-range of reliable, medium bandwidth oscilloscopes.

LEADER's oscilloscope line includes 11 models, single and dual trace versions, for bench or field use. All models offer comprehensive triggering controls, TTL compatible Z-axis modulation, front panel trace alignment control and convenient, color-keyed front panel layout. Probes are furnished with every oscilloscope and options include probe pouches, carrying cases, front panel covers and rack mounting adapters.

30 MHz delayed sweep - \$1,530.

LBO-515B is a compact, precision oscilloscope at a moderate price. Using a PDA 4-inch CRT with parallax-free internal graticule, it features 5 mV sensitivity and delayed sweep for viewing and measuring complex waveforms. Also has 120 ns signal delay, trigger hold-off and x-y operation at full sensitivity.

30 MHz with signal delay - \$1,100.

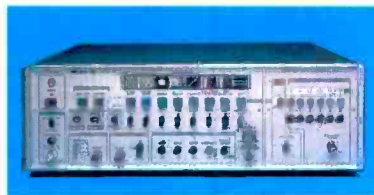
LBO-520 combines a 11.7 ns rise time with 5 mV sensitivity and 120 ns signal

The surprising leader.

delay lines. Has single shot triggering, X10 sweep magnifier and bright, sharp PDA CRT. Triggers to 50 MHz.

20 MHz dual and single trace - \$835., \$610.

LBO-508A and LBO-507A give you versatility at low cost. Rise time is 17.5 ns with 1 MΩ (35 pFd) input impedance. Automatic or external triggering, X5 sweep magnifier, 10 mV/cm sensitivity and add/subtract modes.



This LCG-400 NTSC Video Generator with Multiburst, black burst and gen-lock is the newest of Leader's video and audio instruments.

10 MHz with 1 mV sensitivity - \$645.

LBO-514 has both vertical and horizontal X5 magnifiers. Sensitivity is from 1 mV/cm to 10 V/cm. Sweep speeds from 0.2 s/cm to 0.1 μs/cm. Auto or normal triggering. Z-axis modulation. (Single trace version, LBO-513, \$495.)

20 MHz battery/ac portable - \$950.

LBO-308S provides lab performance and high reliability in field service applications. Sensitivity is 2 mV with a complete set of triggering controls and 18 sweep ranges to 0.1 μs/div. with X5 magnifier. Compact, lightweight with 3-inch rectangular, internal graticule CRT. (Optional 2 hour internal battery pack is recharged during ac operation, \$75.00.)

Two-year warranty. Evaluation units.

A history of high reliability permits LEADER to provide a generous 2-year warranty... backed by factory service depots on the East and West Coasts. A free, trial use of LEADER instruments

is available to all qualified companies.

Call toll-free (800) 645-5104 to request:

- an evaluation unit
- our 40-page catalog
- the name of your nearest "Select" distributor
- additional information

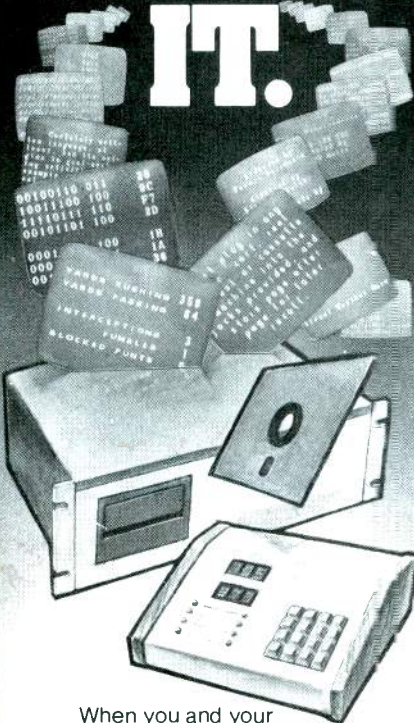
Circle (99) for Product Literature
Circle (646) for Product Demonstration

When Quality Counts



380 Oser Avenue
Hauppauge, N.Y. 11787 (516) 231-6900
Regional Offices:
Chicago, Los Angeles, Dallas.

You can take this memory and STUFF IT.



When you and your character generator have a lot to say... long credit rolls... sports stats... lectures... titling for the hearing-impaired... the Knox KD128 disc memory system can hold 350 pages of it.

And it's programmable. With a single keyboard, you can create your copy and write a program — onto the same disc — that will completely cue the playback. Roll or crawl non-sequential pages.



Have random pages recalled and displayed for a preset amount of time. All day, if you want.

Build a few pauses into the program if you need to get into it in real time.

You should see what you can do with it.

Call your Knox rep and you can.



A DIVISION OF COMPUTER OPERATIONS, INC.
9700-B George Palmer Highway, Lanham, MD 20801
301-459-2106

Circle (100) on Reply Card

Enterprise Electronics (Booth 1820)

Products: Color weather radar equipment.

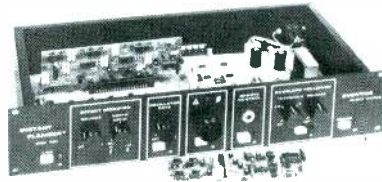
Circle (351) on Reply Card

Eventide Cockworks (Booths 308 & 511)

Products: BD955 broadcast delay line; RD770 Monsterrat mono/stereo matrix unit; HR949 Harmonizer audio special effects unit.

New: A device which turns the Apple home computer into a third-octave real-time audio spectrum analyzer.

Featuring...The BPC101 plug-in



phaser card, which is interchangeable with the SDC-1 flanger card. The BPC101 uses electronic phase-shift networks to generate cancellations in the audio signal.

Circle (352) on Reply Card

Farinon Video (Booth 1303)

Products: FVMP mini portable microwave; STL/TSL microwave; 2GHz central receiver.

New: FV2.5 central receiver; FV7 central receiver.

see ad on page 123

Circle (353) on Reply Card

Faroudja Labs (Booth 1712)

Products: Comb filters for precise chroma and luminance separation for many models of Barco and Conrac monitors.

New: Record booster and playback booster-enhancer and noise reducer.

Featuring...Playback booster enhancer and noise reducer optimized for ¾-inch playback operations. Using 1 ¾-inch rack height, it provides significant luminance and chroma ringing reduction up to 6dB of chroma noise reduction and H & V enhancement.

Circle (354) on Reply Card

Farrtronics (Booth 1902)

Products: See at booth.

Circle (355) on Reply Card

Fernseh Incorporated, the Video Corporation of Bell & Howell and

Robert Bosch (Booth 1208)

Products: BCN 50 VTRs; FDL-60 digital telecine; BCN-100 automatic 1-inch multicassette VTR; Composer I character generator; KCK studio cameras; Mach One VTR editing system; TVS-TAS 1000 switcher; TCS-1 machine control and broadcast automation; Bosch Fernseh Broadcast monitors; TCF-3000 film chain telecine; TDF-2 noise filter.

New: TCS-1 machine control and station automation; digital VTRs; fiber optics.

Featuring...TCS-1 machine control system, which controls up to 100 VTRs/film chains and control of each VTR/film chain can be delegated to any one of eight studio control panels or machine control multiplexers.

see ad on page 221

Circle (356) on Reply Card

Fiberbilt Photo Products (Booth 1733)

Products: See at booth.

Circle (357) on Reply Card

Fidelipac (Booth 204)

Products: Audio cartridges; carts and accessory equipment; cartridge labels; wow and flutter meter; audiotape—certified for use in cartridges; on-air and recording warning lights; cartridge storage racks; cartridge splicing tape and blocks; Blank-It hand-held video and audio-tape eraser.

Featuring...the Blank-IT eraser designed to allow immediate reuse of



tape without worry of previous program residue or other unwanted program material.

see ad on page 78

Circle (358) on Reply Card

Film/Video Equipment (Booth 1818)

Products: MNC-71-CP broadcast video camera; universal tripods; portable lights.

New: 25AH Schneider battery system in 12, 14, 30V; solar charger for Schneider battery systems.

*Typical products marketed. New products not announced by BE press time.

Get the most from your AM signal...



The new MAP II Multiband Audio Processor combines the latest advances in audio technology for optimum modulation of your AM/AM-Stereo program. Yet it costs much less than similar systems.

Discriminate Compression and Equalization

Only MAP II offers you 8-band compression. Input level is held constant by a slow, gain-riding A.G.C. Each band has its own compression and equalization controls, so you can tailor your sound while maintaining a high program density. Sound remains smooth, even with considerable compression, because each compressor

changes gain in response to inputs to both its own and adjacent bands.

Inaudible Phase Optimization

Program phase is silently "rotated"—rather than instantaneously switched—to maintain maximum positive modulation.

Absolute Peak Control

MAP II's unique integrated peak controller combines a hard clipper with a low-distortion peak limiter. An adjustable

control loop gives you control over clipping depth which then remains constant regardless of program content. For stations with remote transmitters, the integrated peak controller can be unplugged and installed at the transmitter site.

Convenient Operation & Maintenance

MAP II has several features to make your audio processing

convenient and precise. For precise control over frequency range, selectable low- and high-pass filters let you choose between three cut-off frequencies at each end. Front-panel meters monitor compression, A.G.C. gain, clipping depth and peak limiting. A "proof" mode defeats all processing at the touch of a button, leaving the signal path intact. There's even a built-in pink noise source for convenient system set-up and maintenance. Circuit boards unplug from the front and contain no "black boxes" or selected components.

Write or call today for technical and cost information on the MAP II. Your program—and your budget—will thank you. MAP II—\$1670.

for less.

See us at the NAB—Booth 214

Inovonics Inc.

503-B Vandell Way
Campbell, CA 95008

Telephone
(408) 374-8300



Circle (101) on Reply Card

PROVEN PRODUCTS



PROGRAM LOGGER

1977 SMPTE, Los Angeles

Extends the cost savings and convenience of your program automation system to your program log, and works with most automation systems.



DIGITAL TELEMETRY ADAPTERS

1978 NAB Las Vegas

Conversion kits for analog remote controls, offering foolproof meter readings and one man meter calibration.



TELEVISION AUDIO SYSTEM

1979 NAB, Dallas

Uncompromising fidelity, in rack-mount modules with easy-to-use audio-follow-video as a *standard* feature; an expandable system that can grow with your needs.



INTRODUCING

1980

An automatic transmitter logging and control system that can do things *your way*.

See us at
NAB Booth 514



Hallikainen & Friends

101 Suburban Road
San Luis Obispo, CA 93401
(805) 541-0200

Circle (102) on Reply Card



Featuring...Schneider battery belts with sealed lead-acid batteries said to overcome the problems of other battery systems. The belts are constructed of crack-resistant Naugahyde built-in meters and circuit breakers.

see ad on page 190

Circle (359) on Reply Card

Imero Fiorentino Associates

Products: Serving as production, design and/or lighting consultants for the camera demonstration exhibits of: CEI, Harris, Hitachi, IVC, Panasonic, Philips, RCA, Sony, Thompson CSF, Toshiba, Vital.

Circle (360) on Reply Card

Flash Technology (Booth 1128)

Products:* High intensity tower lighting.

Circle (361) on Reply Card

For-A (Booth 1826)

Products: See at booth.

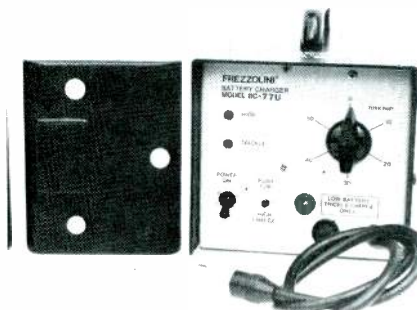
Circle (362) on Reply Card

Frezzolini Electronics (Booth 1608)

Products: Frezzi-Lites; Frezzi-Flex model FR-16 motion picture 16mm single/double system sound camera; chargers for Frezzi battery packs; associated equipment as manufactured for both OEM and for replacement service.

New: On-Board Production models; Frezzi-Lites production models; International ac-line-isolated battery chargers.

Featuring...Frezzi-Fast (right) ac-line-isolated chargers, capable of fully recharging On-Board Frezzi



*Typical products marketed. New products not announced by BE press time.

(left) battery packs in less than one hour.

see ad on page 206

Circle (363) on Reply Card

Fuji Magnetic Tape (Booth 1307)

Products: H701E—2-inch mastering/duplicating videotape; H621—1-inch professional Beridox videotape; complete line of Fuji Beridox U-matic tapes.

see ad on page 169

Circle (364) on Reply Card

Fujinon Optical (Booth 1217)

Products: Full line of BCTV lenses for 1-inch and 1 1/4-inch tubes including the high resolution P14X16.5 and a R14X12.5 with built-in extenders; ENG/EFP lenses for 2/3-inch color camera including the A12X9, A14X10, A17X9, A22X12.5 for studio and low light application; complete line of ENG accessories.

New: A12X9 ERM now with 2.2X extender and 20% lighter weight than the previous model; A14X9.5 ERM now with wider angle, faster lens speed F 1.7 and also 20% lighter weight than previous models; B10X11 low-cost lens with lens speed F1.6 and B12X9 low-cost lens.

Featuring...High resolution P14X16.5 and R14X12.5 with built-in extenders; A17X9 ERM with Tele converter and wide angle converter; A22X12.5 ERM with built-in 2X extender.

see ads on pages 43, 44, 45

Circle (365) on Reply Card

Gardner Communications (Booth 1828)

Products: GCC SR4000 and SR5000 satellite receivers; GCC low noise amplifiers; GCC channelcue—programmable switcher.

New: GCC 12-foot and 5.6-meter satellite receiver antennas.

Circle (366) on Reply Card

Garner Industries (Booth 1100)

Products: High-speed 1/4-inch tape reel-to-reel tape duplicator; high-speed conveyor, endless belt; tape eraser for audiotape and video cassettes.

Circle (367) on Reply Card

General Electric (Booth 1104)

Products: 6kW low band and 16kW high band transmitters.

Featuring...the 16kW high channel unit that has only two tubes, one visual and one aural. The IPA for the visual is completely solid-state with a peak power output capacity of 1000W. These amplifiers are

WHY JBL FLATTENS THE COMPETITION.

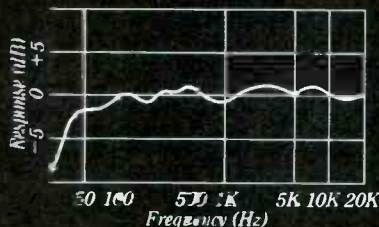
INTRODUCING THE 4313.

Flat frequency response. It means accuracy. Naturalness. Fidelity.

JBL gives it to you without the bigger box that you'd expect along with it, since the 4313 only measures about 23" by 14" x 10".

This new, compact professional monitor produces deep, distortion-free bass. And does it with a newly developed 10" driver.

Its massive magnet structure and voice coil are equivalent to most 12" or 15" speakers. Yet it delivers heavy-duty power handling and



On-axis free-field response,
4313 monitor.

a smoother transition to the mid-range than most larger-cone speakers.

The 4313's edge-wound voice coil midrange accurately reproduces strong, natural vocals and powerful transients.

Up top, a dome radiator provides high acoustic output with extreme clarity and wide disper-

sion. A large 1" voice coil gives it the ruggedness needed in professional use.

Working together, these precision-matched speakers offer superb stereo imaging, powerful sound levels and wide dynamic range.

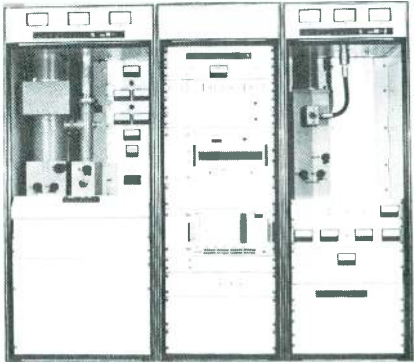
Addition the 4313 soon.

We think you'll agree that its combination of flat response, power and moderate size flattens the competition.

James B. Lansing Sound, Inc.,
8500 Balboa Boulevard,
Northridge, California
91329.

**FIRST
WITH THE
PROS.**





broad band and require no tuning. The transmitter is controlled by logic but a unique feature permits bypassing the logic control manually.

Circle (368) on Reply Card

Glentronix (Booth 1643)

Products: Time code generators; readers; calculators; audio patch panel; side band analyzer; ACR logic analyzer.

Circle (369) on Reply Card

Alan Gordon Enterprises (Booth 1317)

Products: Swintek wireless sound system; CSS-2 crystal sync cassette

recorder; Zeppelin windscreen and shock mount system; fishpole microphone boom; Mark IV directors viewfinder; MNC-71CP camera; Ele-mack cricket dolly.

Circle (370) on Reply Card

Graphic Express (Booth 1908)

Products: See at booth.

Circle (371) on Reply Card

The Grass Valley Group (Booth 1210)

Products: 1600 series production switchers; 1600 series master control switchers; 400 series routing switchers; M200 broadcast automation; video processing and distribution equipment.

New: 300 series production switcher with second generation Mark II digital video effects system; 1600-1X special post-production switcher; audio E-MEM effects memory system; 3241 PAL video processing system; 3280 audio multiplex system; 440 series routing switchers; new sync generator models.

Circle (372) on Reply Card

The Great American Market (Booth 1628)

Products: The Great American Scene Machine; special effects generator; starstrobe; custom projection services.

New: Excaliber cases; RDS HMI lights.

Circle (373) on Reply Card

Gregg Laboratories (Booth 403)

Products:* Broadcast audio processing products—compressors and limiters for AM/FM/TV.

Circle (374) on Reply Card

David Green Broadcast Consultants (Booth 160)

Products:* Distributor of audio/video equipment, test equipment, transmitters and associated broadcast equipment supplies.

Circle (375) on Reply Card

Groton Computer (Booth 118)

Products: See at booth.

Circle (376) on Reply Card

HM Electronics (Booth 1612)

Products: Dynamic-expanded studio and remote wireless microphone systems 22E, 25E, 22EF, 25EF.

*Typical products marketed. New products not announced by BE press time.

CFRN CRY CKCY KBOX KGRO KLOE-TV KINT KLIN
 CNXV KPAC KRVN KYAK KYXY W
 W'BOK WCBQ WFLN WDAR WDWL WFSO
 WFTN WHAT WHP WIRF WJX WJZ WJW
 WKXL WKAP WLDL WLDN WLEW WLNH WLOB WLSW
 WRSC WLW WRVA WNNP V
 WSSV WTCM WSB WTKR WTYF

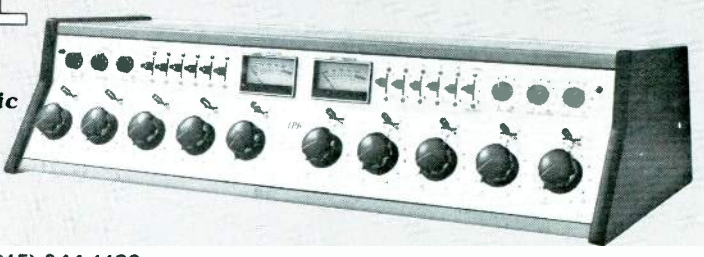
See The Industry's
 most comprehensive range
 of audio consoles
 NAB Booth 402



Model S-12 5 Mixer Stereo



Model S-13C 8 Mixer Stereo/Mono



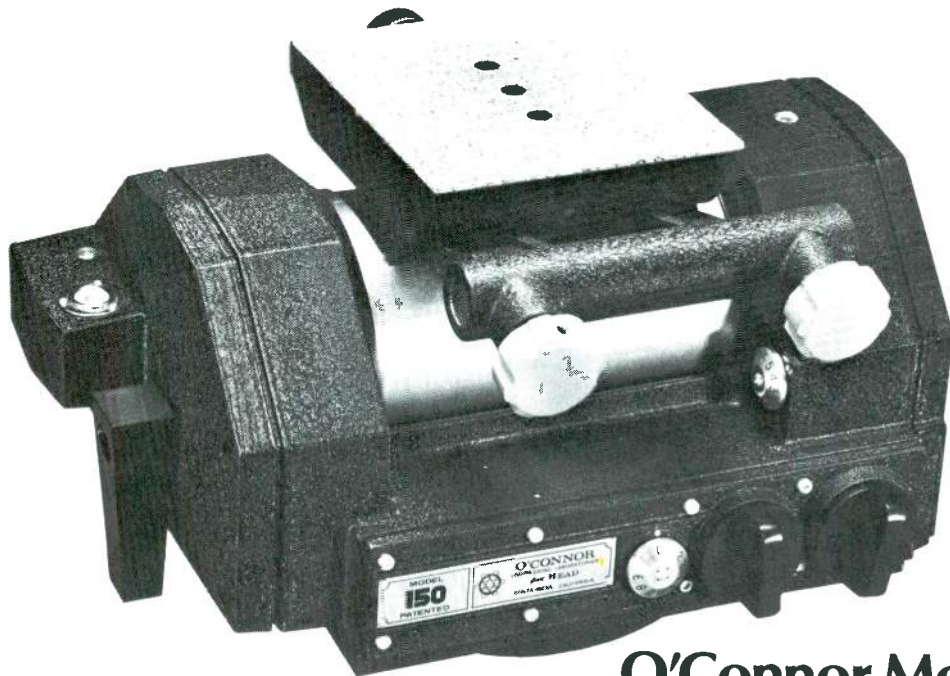
Model S-20 10 Mixer Dual Stereo

PERFORMANCE

LPB Signature II Series audio consoles are designed and manufactured to provide superb operational capability and outstanding electronic and mechanical reliability. Mono, dual mono or stereo . . . 5, 8 or 10 mixer configuration. Why look elsewhere?

LPB® LPB Inc.
 28 Bacton Hill Road, Frazer, PA 19355 (215) 644-1123
 Manufacturers and Distributors of Broadcast Equipment Since 1960

EXCEPTIONAL.



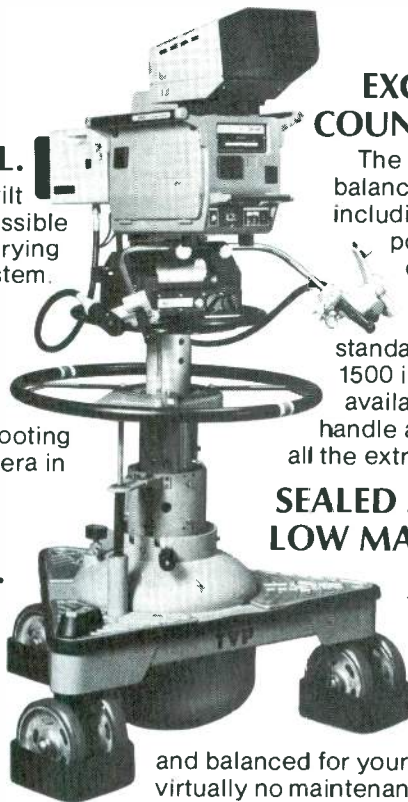
O'Connor Model 150. Exceptional fluid control for heavy television cameras.

INFINITELY VARIABLE DRAG CONTROL.

Exceptional pan and tilt drag control is made possible with the 150's unique varying overlap fluid control system. Between the minimum and maximum levels of drag, the drag force is infinitely variable—enabling cameramen to adjust the drag while shooting without jerking the camera in any way.

PRECISE DRAG REPEATABILITY.

Separate pan and tilt drag dial indicators are provided to aid the cameraman when precise repeatability of a motion is needed. The dials also aid in matching the tilt and pan drag for exceptionally smooth horizontal shots.



EXCEPTIONAL COUNTERBALANCE.

The 150 is counterbalanced at all times, including extreme tilt positions, making operation much easier. A 1000 in-lb spring comes standard with an optional 1500 in-lb spring also available so the 150 can handle any TV camera with all the extras up to 150 lbs.

SEALED SYSTEM FOR LOW MAINTENANCE.

Like all O'Connor fluid heads, the Model 150 is fully sealed off from all contaminants. Once the head is properly adjusted and balanced for your camera, it requires virtually no maintenance whatsoever.

EXCEPTIONAL QUALITY THROUGHOUT.

The 150 is built of lightweight aluminum and magnesium castings, weighing only 25 lbs.

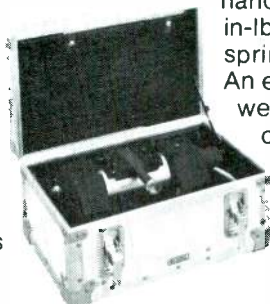
The pan and tilt locks are fully independent of the pan and tilt drag adjustments.

The tilt range is $\pm 45^\circ$.

THE EXTRAS COME STANDARD.

The Model 150 comes equipped with an O'Connor adjustable and removable platform with double handles. The 1500 in-lb counterbalance spring is optional.

An exceptionally well-constructed carrying case is probably the only accessory your Model 150 will need.



O'Connor

FLUID CAMERA HEADS

The Official
Fluid Camera
Head of the
1980 Winter
Olympics



O'Connor Engineering Labs., Inc., 100 Kalmus Drive, Costa Mesa, CA 92626 • Phone (714) 979-3993 • TELEX 685 641
O'Connor Engineering Ltd., 11 Rue des Moraines, 1227 Carouge, Geneva, Switzerland • Phone (022) 42 79 38 • TELEX 23 329

Circle (105) on Reply Card

March 1980 *Broadcast Engineering* 141

New Tape Head & Pressure Roller Maintenance Kit Makes Cleaning Easier . . . And More Efficient

Texwipe's new Audio Tape Head Cleaning Kit **TX250** contains everything a broadcast maintenance engineer needs to keep heads clean — to ensure peak sound fidelity and low incidence of failure.

Specifically designed cleaning pens, one for pressure rollers, one for heads feature adjustable lint-free absorbent Clean-Wicks that can be cut to exact shape to suit the job.

Complete Kit includes:

- One 7-oz. can Audio Tape Head Cleaner.
- Two aluminum Audio Cleaning Pens, with 6" adjustable Clean-Wicks.
- Ten replacement Clean-Wicks.
- One Clean-Wick Cutter.
- One Space-Saver Rack.
- One Pressure Roller Activator.

Each TX250 kit, which costs only \$27.50, contains enough material for more than 900 cleanings! Subsequent cleanings cost less than a penny a piece.

Order your Texwipe kit today and start cleaning your reel-to-reel and tape cartridge machines the professional way.

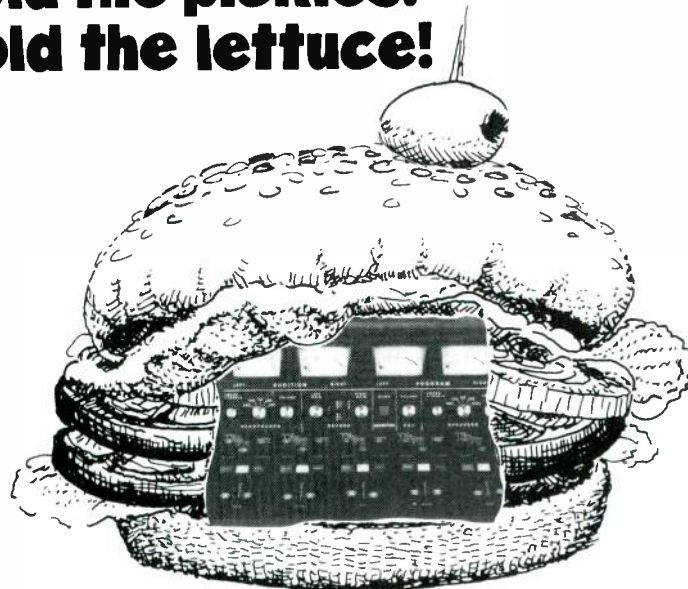
t **TEXWIPE**



Or write for literature to
Texwipe, Hillsdale, N.J. 07642
201/664-0555

Circle (106) on Reply Card

Hold the pickles! Hold the lettuce!



Our Custom Audio Series consoles let you have unsurpassed quality & performance your way! Up to 24 inputs plus optional EQ, reverb, monitor amps, digital clocks & timers, all at surprisingly low prices!

CALL COLLECT 713-782-4592

for our unbeatable console specs, plus details on our preamps, monitors, timers & much more.

Logitek Electronic Systems, Inc. 3320 BERING DRIVE, HOUSTON, TEXAS 77057

Circle (107) on Reply Card

New: Model MX-40 professional portable 4-channel audio mixer; models 27E, 24E wireless microphones.

Featuring... models 27E, 24E UHF low-band (450-470MHz) handheld and body-pac professional wireless microphones with dynamic expander (95dB dynamic range).

see ad on page 172

Circle (377) on Reply Card

Hallikainen & Friends (Booth 514)

Products: Program logging system for radio and TV stations; TVA series modular audio mixers for TV MCR and production/post-production; TEL series digital telemetry adapters; TAX time announce control.

New: Process control computer for transmitter logging and control; VTR cue control system; TVA series audio mixing system kits; TVA 132 audio system output module; TEL 172 digital adapter for Moseley PBR30.

see ad on page 138

Circle (378) on Reply Card

Harris, Broadcast Products Division (Booth 301)

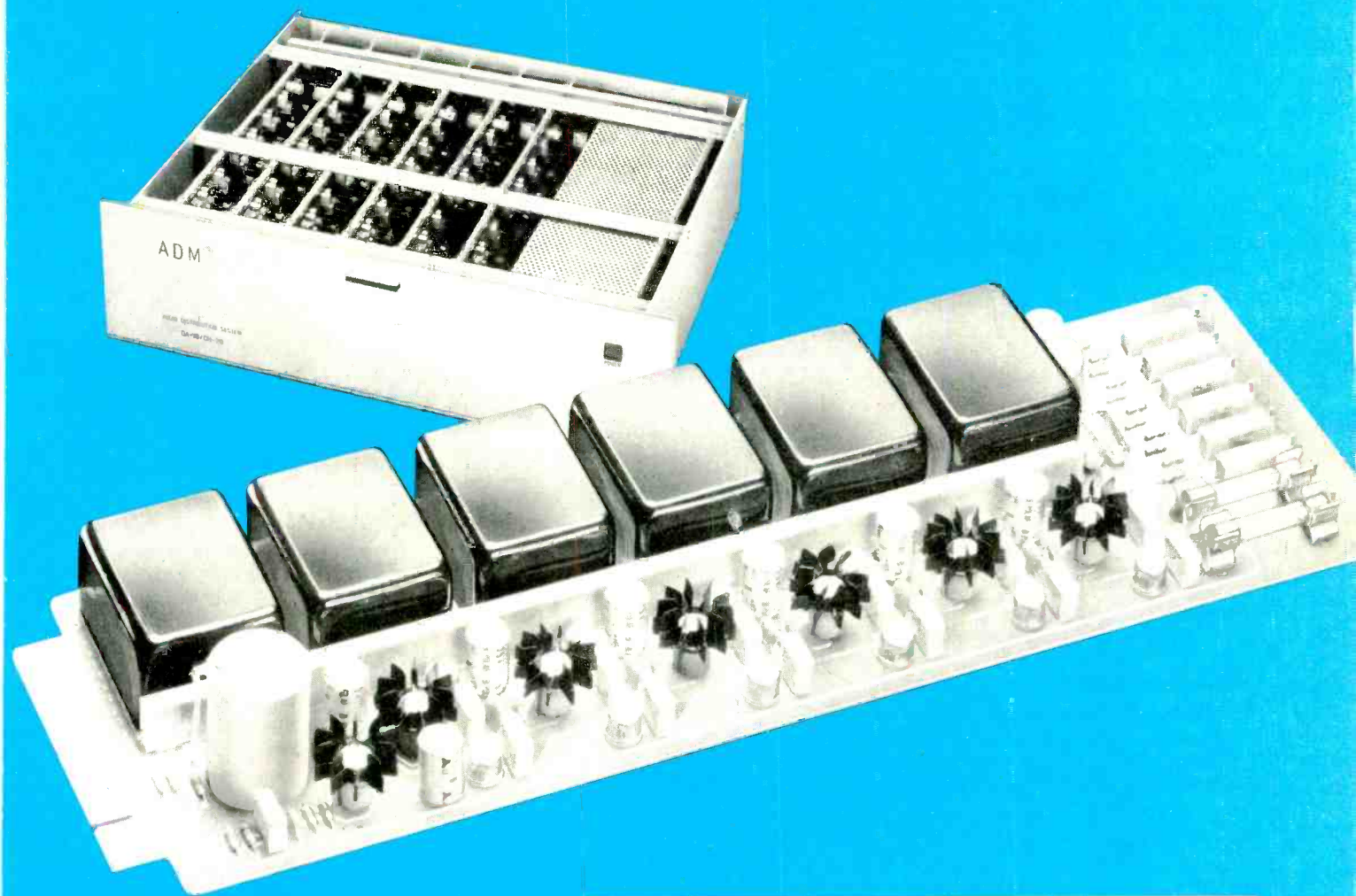
Products: Broadcast transmitters; modular audio control console; tape cartridge systems; program automation system; audio processor; FM exciter; color TV transmitter; color TV cameras; antenna models; computer-aided editing system; digital video time base corrector; image enhancer/noise reducer.

New: FM-100K solid-state, 100W transmitter/amplifier; AM-90 AM modulation monitor; Harris Video System 630 synchronizer; Harris Video System IRIS slide store.

Featuring... 9003 program automation system capable of storing and



*Typical products marketed. New products not announced by BE press time.



COMPANY: ADM,[®] THE AUDIO COMPANY

PRODUCT: DA16B/CH20B AUDIO
DISTRIBUTION SYSTEM

RATING: UNEQUALED!

It's unique. It's ADM quality throughout. It's high on our "best seller" list because it solves the troublesome problem of reliable audio distribution for broadcasters. Here are a few outstanding features:

- Each DA16B is a one-input, six-output plug-in card.
- The input and each output is transformer coupled.
- Input levels up to +27 dBv.
- Output levels up to +27 dBm before clipping.
- Each of the six output amplifiers has an individual, front-

accessed gain adjustment, as well as a test point.

- Each CH20B will house up to six DA16B cards, and has a complete set of redundant power supplies with automatic changeover.
- The DA16B/CH20B system is designed and built to meet ADM's highest quality and performance standards, and carries a five year unconditional warranty.

Contact us today for complete details about the many features the DA16B/CH20B system offers.

ADM *The
Audio
Company*

ADM TECHNOLOGY, INC., 16005 Sturgeon, Roseville, Michigan 48066 • Phone (313) 778-8400 • TLX-23-1114

• See us at Booth 1404

displaying copy for live commercial tags and short PSAs. Also news bulletins can be typed in easily at the last minute on the terminal in the news department and displayed on the screen in the studio for live news inserts.

see ads on pages 25, 27, 29, 159
Circle (379) on Reply Card

Harris Video Systems Operation (Booth 301)

Products: Full line of digital time base correctors.

New: 630 digital synchronizer; EPIC computer-assisted editing system.
Circle (380) on Reply Card

Harrison Systems (Booth 507)

Products: See at booth.
Circle (381) on Reply Card

Karl Heitz (Booth 1807)

Products: See at booth.
Circle (382) on Reply Card

Hitachi Denshi America (Booth 1115)

Products: Portable, studio, convertible color cameras; 1-inch helical VTRs (SMPTE C format); editing systems; time base correctors; color

and b&w monitors; camera pickup tubes.

New: Computer for SK-100; production model of SK-100 camera; ENG camera; TBC for 1-inch TC-200; portable microwave systems; prism studio camera.

see ads on pages 3, 4, 5, 6, 7, 9
Circle (383) on Reply Card

IGM (Booth 103)

Products: BASIC A broadcast automation system; Instacart; Go-Cart;



Information Instacart (static display); Logger.

New: Go-Cart II.

Featuring...Go-Cart II, with all new electronics, including high-speed cue, digital tone sensing and positive tray positioning.

see ad on page 200
Circle (384) on Reply Card

Ikegami Electronics (Booth 927)

Products: HK-312E and HK-357A multicore/triax studio/field production cameras with optional computer setup; HL-79A ENG camera with optional multicore and triax base stations, HL-53 hand-held field production/studio camera with optional computer setup, and ITC-240 hand-held EFP/studio camera.

New: HL-790A convertible self-contained ENG/studio production camera; HL-78A self-contained ENG camera and ITC-350 self-contained ENG camera with optional CCU.

Featuring...the ITC-350 self-contained ENG camera, which features an optional CCU operating on power supplied from the camera head, a color filter wheel, H&V enhance-



ment, stable black balance, shading circuits and an optional ac adapter.
see ads on pages 23, 77
Circle (385) on Reply Card

Image Video (Booth 1822)

Products: Routing switchers; routing switcher control panels; master control (on-air switcher) automation system.

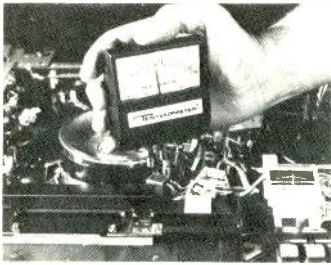
New: 6010 10X1 self-contained routing switcher; microprocessor-controlled TV on-air master control switcher and automation package.

*Typical products marketed. New products not announced by BE press time.

TENDEL'S NEW T.U.S.H.* GAGE IS FOR YOUR U-MATIC...


The people who brought you the TENDELOMETER® NOW proudly present the

*TENDEL U-MATIC SPINDLE HEIGHT GAGE



The T2-H15-UM TENDELOMETER® Tape Tension Gage shown checking the critical hold-back tension on a Sony 2850. Price \$225 complete.

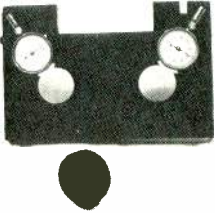
The **T.U.S.H.** Gage is simply inserted into your U-Matic - the indicators are visible through the cassette window. No need to remove the cassette top chamber to read the indicators.



The **T.U.S.H.** Gage measures the critical tape reel spindle heights. It is a must to prevent tape damage due to binding. Technical as well as non-technical persons can determine if the machine needs adjustment.

The **T.U.S.H.** Gage comes complete with master gage, instructions, and carrying case. Price \$495 complete.

"See us at Booth 1124 at N.A.B. or at the L.A. Video Show in May."



Circle (108) on Reply Card

The world's been buying Sintronic Transmitters for 15 years.

What does the world know that you don't?

Forty-two countries throughout the world (including, increasingly, the USA) have learned that Sintronic transmitters are built to last. To operate under the most trying conditions in the most remote locations—like Antarctica, South American jungles, and the Sahara Desert. That when Sintronic transmitters *do* need servicing, Sintronic is there (all our original units are still on the air). And that Sintronic transmitters are available at a remarkably low cost.

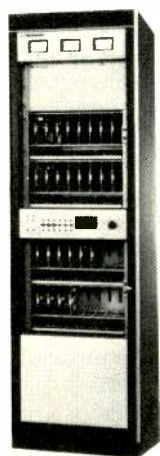
The world knows this because Sintronic is owned by one of the largest American export management firms, Singer Products Co., Inc. Naturally, our initial sales efforts were concentrated overseas. But U.S. broadcasters are becoming increasingly aware of the reliability, ease of maintenance, and outstanding value of Sintronic transmitters.

And while long-lasting reliability is at all times our overriding concern—all our units are, for that reason, conservatively designed—Sintronic transmitters are by no means behind the times. They have recently been redesigned incorporating improved circuit design and modern componentry, but retaining our traditional, time proven techniques. Our current line is, essentially, all new. The Sintronic AM line offers such features as 125% positive peak modulation; high level plate modulation; automatic recycling; cutback to any two power levels; audio processing; remote control capability; and our new solid state 1 kW unit features instant start-up, frequency synthesized exciter, and automatic RF drive regulation. The solid state technology of the exciter, RF driver, and audio preamplifier and driver of this unit has been incorporated into all our units.

Important features of our FM line include maintenance-free, zero-bias, grounded-grid power amplifiers that require no neutralization; a 12-pulse, 3-phase power supply that utilizes fewer failure-prone components and eliminates the need for screen-bias and grid-bias power supplies; overload protection; automatic recycling; automatic power output control; and visual monitoring of critical circuits. Our 17.5 and 27.5 kW models have these protective features in the driver cabinet as well as in the power amplifier cabinet, plus cutback to the 3.5 kW driver output in the event of failure of the PA.

For complete information about any or all of our transmitters, visit us at NAB Booth 126. Or write or call Sintronic.

Circle (109) on Reply Card



Sintronic
CORPORATION

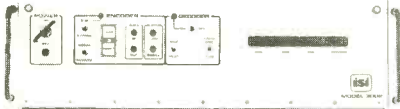
212 Welsh Pool Road,
Lionville, PA 19353
(215)363-0444

Industrial Sciences (Booth 1402)

Products: ISI-500 series terminal equipment; ISI-600, 1200 and 2000 series options; ISI-902 video production switcher; ISI-1002 audio console; ISI-2031 matrix wipe generator; ISI-2065 pointer generator; ISI-1200 series video production switcher.

New: ISI-931 10-input master control switcher; ISI-3000 series broadcast closed captioning system equipment, ISI-200-3 multi-channel processing video production switcher.

Featuring...200 series Polykey video production switchers. Each unit is



capable of three keys and background transition simultaneously. The units feature rotary wipes, auto transitions, 6-input RGB chroma keyer, flip-flop mixer with downstream edged keyer, master fade-to-black, pointer generator, quad split generator and preview monitor selector.

see ad on page 71

Circle (387) on Reply Card

Information Processing Systems (Booth 1802)

Products: See at booth.
Circle (388) on Reply Card

Innovative Television Equipment (Booth 1405)

Products:* Camera support equipment.
Circle (389) on Reply Card

Interand (Booth 1045)

Products: Model 600 basic Telestrator; TAPAS/Telestrator automatic programmable animation system.

New: The Weather Machine; Telestrator Auto-Probe.
Circle (390) on Reply Card

International Microwave (Booth 1633B)

Products: EJ-1013 electronic journalism unit; ICM-1013 XFM.
Circle (391) on Reply Card

International Tapetronics (Booth 303)

Products: Cartridge reproducers; recorder/reproducers; recorder/reproducer/delay units; reel-to-reel machines.

New: Series 99 audiotape cartridge machine; 1K System.

see ad on page 178

Circle (392) on Reply Card

International Video (Booth 1214)

Products: IVC-1010 VTR; IVC-9000 VTR; IVC-7000 camera series.

New: IVC 1-11; IVC 7005/7005P camera.
Circle (393) on Reply Card

JAM Creative Productions (Booth 121)

Products: Station ID jingle packages for all formats.

New: Commercial production library service.

Featuring...The Answer, new commercial production library service, includes commercial campaign concepts, production music, production effects and sound effects.

Circle (394) on Reply Card

Jatex (Booth 1724)

Products: VSEC-42T; VSEC-42TD; VDAPT-N8200 interface adaptor for use with VHS—industrial 1/2-inch.

New: VSEC-62 6-digit model with random search SMPTE conversion module; VGEN IV video generator.

Featuring...the VGEN IV video generator that uses Scene-dex time code. This 4-digit code is written as audible tones on an unused sound track of the videotape. The code provides accurate, repeatable identification of every video scene.

Circle (395) on Reply Card

Jefferson Data Systems (Booth 1511)

Products: Complete sales, traffic and general accounting services for radio and television.

New: Complete in-station computer system that runs on an IBM/System 34 computer; feature film inventory system; Electronic News Processing (ENP); computerized station-rep interface.

Featuring...Electronic news processing (ENP) which provides computer automation to broadcast news operations. ENP ties into the new high-speed wire services to speed story composition with the aid of text editing, and also into character generators and teleprompters.

Circle (396) on Reply Card

Jenel Consultants and Engineers (Booth 1606)

Products: General services include: design of complete TV and radio systems; facility and plant planning,

*Typical products marketed. New products not announced by BE press time.

**NOW, more than ever Allied
can supply your equipment
needs with our new**

**Western
Connection**

In the West
Call Toll Free to our
New Seattle Office

WASHINGTON STATE

800-562-0062

OTHER WESTERN STATES

800-426-4254

**Allied
Broadcast
Equipment**

635 S. E. St. - Richmond, Ind. 47374
Ordering Call 1 800 426 6954
In Indiana Call 1 800 382 6907
Information Call 1 317 962 8596
Chicago Sales Call 1 312 784 2257

Circle (110) on Reply Card

Microtime Introduces Intelligent Products For The 80's



Expanding on many years of digital processing experience and the successful 2525 Video Signal Synchronizer, Microtime has developed new products for the digital decade of the 80's.

These intelligent systems include

- Smart Procamps with Frame Stores
- Digital Video Effects
- Low Cost Synchronizers

The use of microprocessors, a choice of optional features that enhance capabilities, highly human engineered controls provide optimum cost performance ratios...intelligently.

See us at NAB, Las Vegas, Booth 1409.

 **MICROTIME**

Microtime Inc.
1280 Blue Hills Avenue, Bloomfield, CT 06002
(203) 242-0761 • TWX 710-425-1165

Microtime International
Rokin 9-15, Amsterdam, Netherlands 1012 KK
020-23.07.34 • Telex 16354 MI NL

Circle (111) on Reply Card

March 1980 *Broadcast Engineering* 147



ENG goes airborne with TEAC

TEAC Airborne Videocassette Tape Recorders (AVTR™) are designed and manufactured by TEAC specifically for rough handling and airborne use.

- 3/4" U-Matic
- Uses 28VDC directly from helicopter power
- Wide temperature range
- Radio interference protected
- Remote-Record control
- Fully tested by the USAF and used extensively in US Army helicopters



TEAC VIDEO

TEAC Corporation of America
Industrial Products Division
7733 Telegraph Road
Montebello, CA 90640
(213) 726-8417

Circle (112) on Reply Card

layout and design; post-production and computer editing systems; transmitting facility design; automation systems and interfacing; process control computer systems; cable and master antenna distribution facilities; VHF, UHF and microwave communications.

New: Architectural and interior facilities design services.
Circle (397) on Reply Card

K-B Systems: (Booth 1803)

Products:* Magic Slippers for tensioning uneven film reels; custom editor; power rewinders.
Circle (398) on Reply Card

Kalamusic (Booth 215)

Products:* Music formats blending traditional favorites with custom recordings aimed at adult 25-49 audience.
Circle (399) on Reply Card

Kahn Communications (Hospitality Suite, Sahara)

New: Lines-plus audio system; Non-symmetra-MOD modulation enhancement device.
Circle (400) on Reply Card

Kaman Sciences (Booth 124)

Products:* Computerized business systems for AM/FM/TV necessary traffic, accounting, news retrieval, general ledger and inventory; cassette and reel-to-reel inventories; demographic avails submission; film library management and inventory; interface to automated switching.
Circle (401) on Reply Card

Kings Electronics (Booth 1026)

Products: Coaxial and triaxial RF connectors; modular self normalizing video patch panels and accessories.
Circle (402) on Reply Card

Kliegl Brothers (Booth 923)

Products: Key, back and fill lights; KOBOLD HMI daylight fixtures; Kliegpac 9 portable dimmers and controls; PERFORMER memory lighting control console.

New: PERFORMER II memory lighting control console; 575 K HMI fixed focus softlight.
see ad on page 188

Circle (403) on Reply Card

Knox Video Products (Booth 1030)

Products:* Character generators.

Featuring...the KD 128 disc memory system that can hold 350 pages of

information. It is programmable and has a single keyboard.

see ad on page 136

Circle (404) on Reply Card

L-W International (Booth 939)

Products: Athena 4000 and 5000 slo-mo freeze-frame Telecine projectors.

New: Athena 6000.

Featuring...Athenas that offer state-of-the-art digital control CMOS circuitry for complete low-voltage remote control and/or computer control.

see ad on page 174

Circle (405) on Reply Card

LPB (Booth 402)

Products: Audio consoles; 150W and 300W FM transmitters; modular studio furniture; mono and stereo consoles.

New: Citation series audio consoles, Monogram II series audio consoles, AM transmitters.

Featuring...Signature II audio consoles with output director switch,



internal cue system, muting and tally relays, power transformer, modular electronics and dual-line level outputs.

see ad on page 140

Circle (406) on Reply Card

Laird Telemedia (Booth 901)

Products:* Character generators; TU projectors; time/date generators; light controls; optical multiplexers.

Circle (407) on Reply Card

Landy Associates (Booth 1102)

New: Vista 80 character generator by MPB Technologies; radio station automation system for logging and billing by generic broadcast systems; extended font models for the Vista 80.

Circle (408) on Reply Card

Lee-Ray Industries (Booth 1707)

Products: See at booth.

Circle (409) on Reply Card

LeBlanc & Royle Communications Towers (Booth 1319)

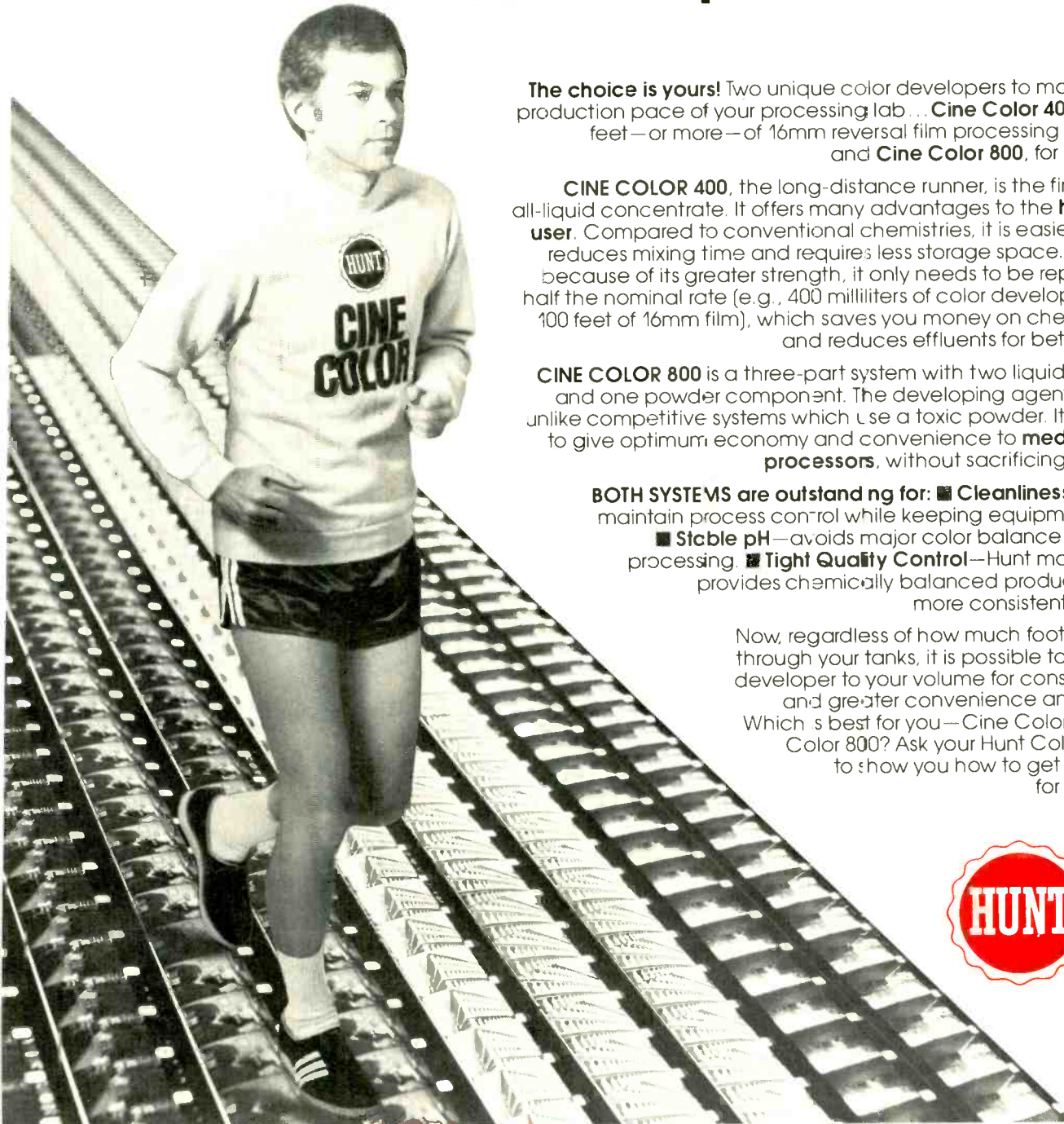
*Typical products marketed. New products not announced by BE press time.

HUNT

CINE COLOR DEVELOPER REPLENISHER

THE MARATHON CHEMISTRY

...goes the distance you set in processing Ektachrome motion picture film.



The choice is yours! Two unique color developers to match the film production pace of your processing lab... **Cine Color 400**, for 25,000 feet—or more—of 16mm reversal film processing per week... and **Cine Color 800**, for shorter runs.

CINE COLOR 400, the long-distance runner, is the first two-part, all-liquid concentrate. It offers many advantages to the **high volume user**. Compared to conventional chemistries, it is easier to handle, reduces mixing time and requires less storage space. In addition, because of its greater strength, it only needs to be replenished at half the nominal rate (e.g., 400 milliliters of color developer for every 100 feet of 16mm film), which saves you money on chemical costs, and reduces effluents for better ecology.

CINE COLOR 800 is a three-part system with two liquid chemistries and one powder component. The developing agent is all liquid, unlike competitive systems which use a toxic powder. It is designed to give optimum economy and convenience to **medium volume processors**, without sacrificing film quality.

BOTH SYSTEMS are outstanding for: ■ **Cleanliness**—they help maintain process control while keeping equipment cleaner.

■ **Stable pH**—avoids major color balance shifts during processing. ■ **Tight Quality Control**—Hunt manufacturing provides chemically balanced products to assure more consistent film quality.

Now, regardless of how much footage you run through your tanks, it is possible to match your developer to your volume for consistent results and greater convenience and economy. Which is best for you—Cine Color 400 or Cine Color 800? Ask your Hunt Color Specialist to show you how to get the best run for your money!



HUNT CHEMICAL PALISADES PARK, N. J. 07650

Branches and Sales Offices

PHILIP A. HUNT CHEMICAL CORPORATION

Atlanta (404) 872-3811	Chicago (312) 259-8800	Dallas (214) 631-8230
Boston (617) 933-8480	Cincinnati (513) 579-0700	Houston (713) 526-7234
Charlotte (704) 568-1317	Cleveland (216) 234-6566	Los Angeles (213) 589-9111

Miami (305) 462-8288	New York (212) 361-9500	Philadelphia (215) 627-3212
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San Francisco (415) 285-1700	Seattle (206) 226-5150	Washington, D.C. (703) 893-3880
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Montreal (514) 697-7040	

HUNT CHEMICALS LTD.	HUNT CHEMICALS S.A.R.L.
England 0203 467914	France 01 834 65 77
	HUNT CHEMICALS G.m.b.H.
	West Germany 06131 679003

Circle (113) on Reply Card

Products: Examples of various towers.

Circle (410) on Reply Card

Leitch Video (Booth 1309)

Products: NTSC master sync generator; sync source generator; PAL sync pulse generator; video source synchronizer; calibration test signal generators; video processing amplifier; distribution amplifiers; impulse clocks; digital clock readers.

New: NTSC color bar generator; NTSC sync/subcarrier phase monitor; automatic changeover; universal digital clock; 12-inch universal digital clock.

see ad on page 17

Circle (411) on Reply Card

Lemco USA (Booth 1633C)

Products: See at booth.

Circle (412) on Reply Card

Lenco Electronics Division (Booth 1206)

Products: Distribution, test and monitoring equipment; color and b&w monitors.

New: RS170A sync generator; timing

modules; noise-measuring meter; 4-inch b&w monitor.

Circle (413) on Reply Card

Lexicon (Booth 329)

Products: Digital audio delay processor/mixers; digital reverberation systems.

New: PTM 1000 broadcast-quality system for changing the playback time of recorded audio signals without pitch distortion.

Featuring... Model 93 Prime Time digital delay processor mixer with two delay outputs independently adjustable from 0 to 256ms. It has complete mixing for delay and reverb processing, freeing up main console channels and tape tracks.

see ad on page 201

Circle (414) on Reply Card

Lightning Elimination Associates (Booth 317)

Products: Dissipation arrays; power line surge eliminators; data and phone line transient eliminators; lightning warning systems.

New: Electronic filtering systems for power lines; guy charge dissipation chokes; transient eliminators.

Featuring... transient eliminators that provide protection for data systems, RF circuits, telephone cir-



uits, process control singles or multipairs. These eliminators are placed in series between the line and the equipment and will intercept any form of electrical transient above a preset clamp level.

Circle (415) on Reply Card

Listec Television Equipment (Booth 1027)

Product: Complete range of camera-mounting equipment by Vinten, complete range of Digivision prompting equipment, portable audio consoles manufactured by Richmond Sound Design.

New: Vinten MK VII fluid cam head, Vinten type 3089 mini-post head, Digivision series E enhanced 12-inch and 17-inch monitor prompters.

Circle (416) on Reply Card

Live Sound (Booth 127)

Product: Big Country that provides original syndicated voice-tracked format using major market air personalities; Country Beautiful, a modern country music service for use with station personnel.

New: Big Country II voice-tracked format for simple automation systems.

Circle (417) on Reply Card

Logitek Electronic Systems (Booth 414)

Product: Custom audio series broadcast audio consoles; phono preamps, program timers; 15W and 50W stereo & mono monitor amplifiers; encoder/decoder/receiver.

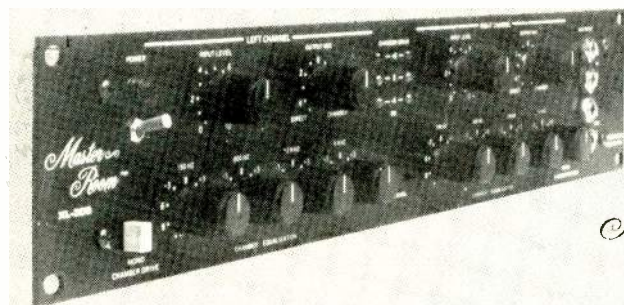
New: Liquid crystal version of T-100 programmable timer, all solid-state stereo delay effects generator, miniature bar-graph LED VU meters, digital remote control transmitters and monitors.

Featuring... BPA-100, a low-noise, transformerless, balanced-input circuit that allows use of 5-lead professional cartridge/toner combination in a balanced mode with all

*Typical products marketed. New products not announced by BE press time.

INCREDIBLE . . .

Natural Enhancement of Broadcast Audio



XL-305T

Master Room

- Totally new design approach
- Exceptionally smooth, natural reverberation
- For on-line or production use
- Superb transient signal response
- Full stereo or mono operation
- Transformer isolation
- Extensive RFI protection
- Self-contained rack mount unit

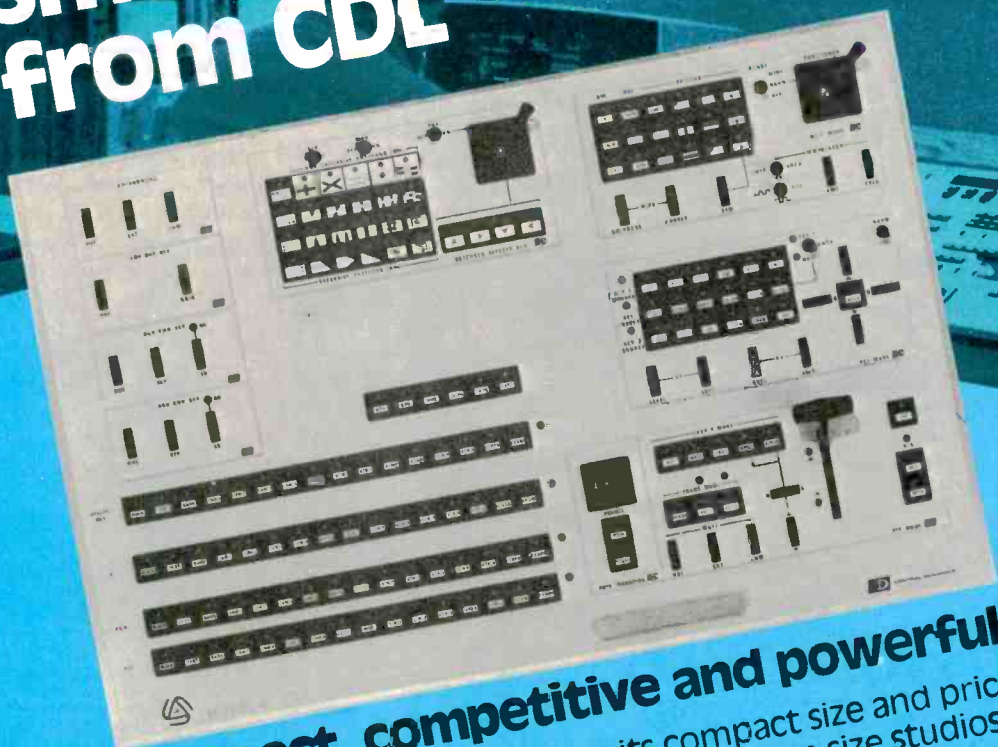
Master-Room XL-305T with its acoustic chamber sound quality provides the natural type of enhancement needed in radio and television audio. The smooth, transient-free sound can add a warmth, color, and dimension that is unobtainable from other reverberation equipment. See your professional audio supplier for a demonstration of the unique XL-305T Acoustic Chamber Synthesizer.

MICMIX Audio Products, Inc.
2995 Ladybird Lane
Dallas, Texas 75220
(214) 352-3811

Hear the XL-305T
at the NAB, booth 406

Circle (91) on Reply Card

the new CD-480-4 another smart switcher from CDL



compact, competitive and powerful

The power of the CD-480-4 plus its compact size and price make it the professional choice for medium size studios, post production suites and mobile vans.

Powerful: includes the unique CD-480 SFX amplifier that permits you to control 4 video signals, in any combination, with one fader handle, plus a wide range of powerful CD-480 modular options.

Compact: 24" wide panel and 21" of rack electronics.

Price: Also compact and competitive . . . ask us.

The CD-480 gives you the competitive advantage.

Central Dynamics, 10 W. Main St., Elmsford, NY 10523, 914-592-5440
Chicago: 312-991-4720, Los Angeles: 213-789-0574, Atlanta: 404-491-9037
Dallas: 214-741-3332, Denver: 303-623-7603, CANADA-Montreal: 514-697-0810

CENTRAL DYNAMICS



Transmitter Power+plus from Cetec

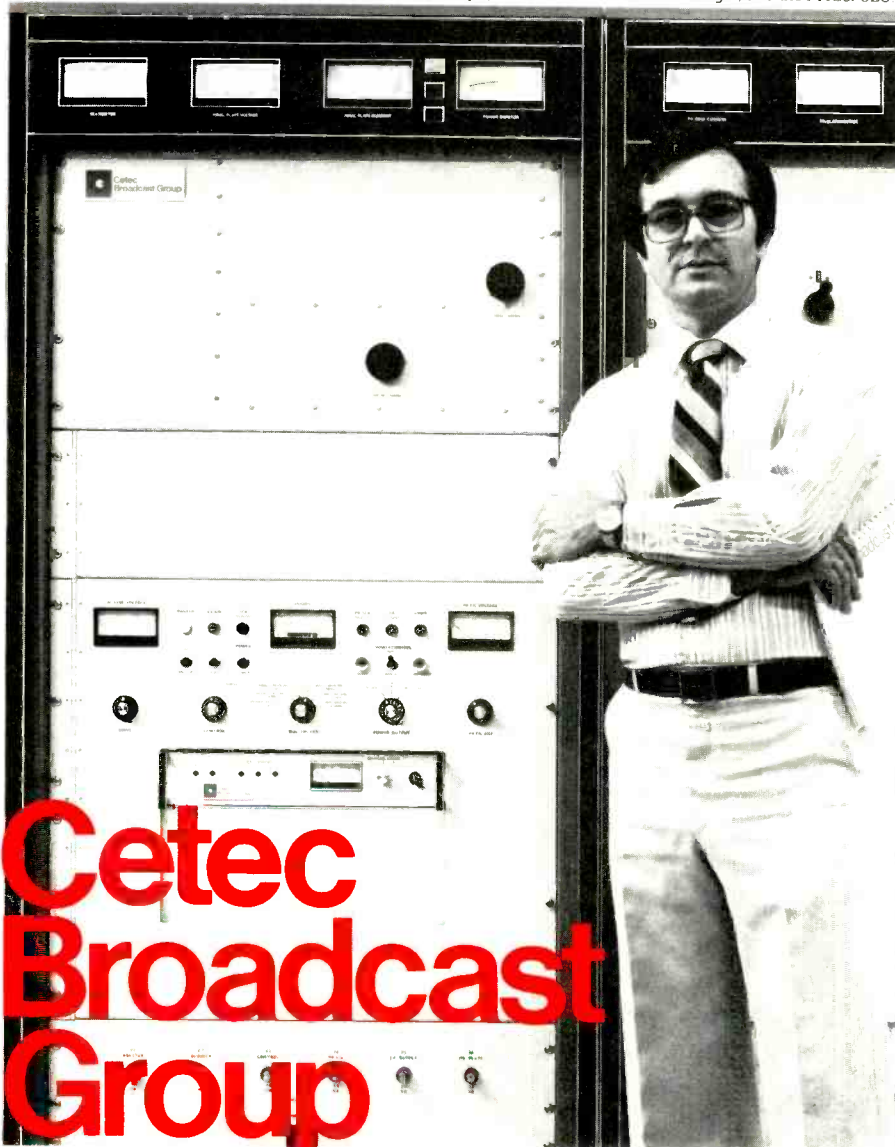
Now the Cetec 25 kW FM broadcast transmission system is even better than before.

It's still the same workhorse Model 625 powerplant. The same stable, zero-base, grounded-grid design. It still delivers optimum performance with no need for continuous tuning. There's still a stand-alone, 2.5 kW backup capability, and automatic power control, and automatic overload recycling.

Now we've added a great new component to the 625 transmission system. The Cetec 690PLL exciter, with phase-locked loop technology and IC controllers, delivers terrific audio signals, clean and clear from any audio source. Model 625 boosts it to maximum output easily, with real power efficiency. **See it at NAB!**

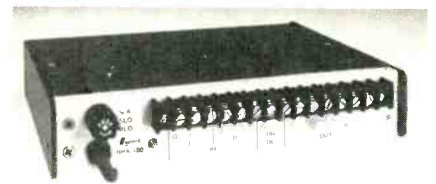


Joe Lloyd, CBG customer service manager, and the Model 625



Cetec Broadcast Group

Cetec Corporation, 1110 Mark Avenue, Carpinteria, Ca 93013 (805) 684-7686
Circle (116) on Reply Card



the hum-rejection advantages characteristic of balanced lines.

Circle (418) on Reply Card

London Electric (Booth 1726)

Products: See at booth.

Circle (419) on Reply Card

Lowel-Light Manufacturing (Booth 1004)

Products: Location lighting systems and fixtures; modular location grip and support equipment.

New: Lightreflector portable light reflector; roll-up soft carrier for light stands and similar items.

Featuring...Softlight 1500, that uses either two 750W or two 500W



tungsten halogen lamps at 120V and provides large-source indirect illumination characterized by soft shadows and highlights.

Circle (420) on Reply Card

MPB Technologies (Booth 1102)

Products: Vista 80 character generator to be exhibited in Landy booth.

Circle (421) on Reply Card

Magnasync/Moviola (Booth 1825)

Products:* Recording and editing equipment; film-to-videotape transfer system; 35mm and 16mm flatbed editing tables; insert recorders and reproducers.

Circle (422) on Reply Card

Magnum Towers (Booth 324)

Products: See at booth.

Circle (423) on Reply Card

*Typical products marketed. New products not announced by BE press time.

INTRODUCING SUCOSCAN™

**the "smart"
remote control
system that
thinks and acts
for itself.**

SUCOSCAN stands for supervisory control and scan. It's the newest and most sophisticated in TFT's arsenal of systems that use computer intelligence to boost efficiency and cut costs. Expandable to 64 sites and 96 channels per site, SUCOSCAN can put over 6,000 channels under your control.

The need for a smart system.

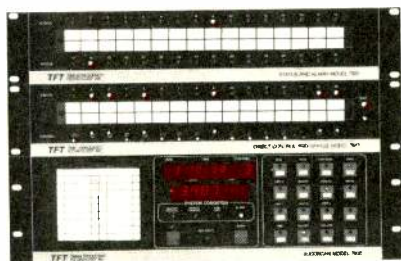
Today, it's becoming increasingly critical to maintain the broadcast signal within the competitive environment. Typical remote control systems do not monitor every channel or warn you of impending problems. All this changes when you have a microprocessor-controlled system like SUCOSCAN. Here is just some of what you get.

— *Comprehensive information at your fingertips.* This means full display of time, site, channel, data, units and self-test status lights. This makes for ease of operation, even without a CRT or teletype.

— *Self-calibration.* SUCOSCAN's advanced software program eliminates the need to recalibrate periodically. It also prevents drift.

— *Fast Scan.* Quick alarm identification is never more than four seconds away.

— *Multiple simultaneous logging.* SUCOSCAN can operate two teletypes and one CRT at the studio and one teletype per remote site—all simultaneously!



— *Computational ability.* Automatic calculation of power, efficiency, and power-to-linear conversion eliminates the need for extra hardware and allows for more reliable facilities operation.

— *Failing channel identification.* SUCOSCAN is programmed to quickly identify failing channels to permit almost immediate analysis. In the event of a power failure a battery back-up preserves the program for several hours.

— *ATS operation provides power and modulation control automatically.* SUCOSCAN's studio and remote computers can be made to interact with each other without ever involving an operator.



Lower operating costs.

You'll reduce downtime with SUCOSCAN because it's easier to spot trends and take corrective action before the signal is lost. An alarm can be pinpointed in seconds.

Furthermore, as FCC requirements change, SUCOSCAN's computer operation will allow unskilled personnel to take over monitoring duties, freeing studio personnel for more productive work.

Don't get caught with yesterday's technology. Smart systems are the wave of the future. You owe it to yourself to look at the most advanced system available today—SUCOSCAN.

Call or write for full information.

TFT

TIME & FREQUENCY TECHNOLOGY INC.
3090 OAKMEAD VILLAGE DR., SANTA CLARA, CA. 95051
(408) 727-7272 TWX 910-338-0584

WIND VELOCITY AND DIRECTION



\$850.00
SENSOR
DISPLAY
80 FT. CABLE

... beautifully and accurately displayed on our liquid crystal display and synchro driven pointer can give you the data you seek.



FEATURES:

- Accurate $\pm 1^\circ$ and ± 1.5 MPH above 15 MPH
- Available calibrated in Knots or MPH
- Solid state non-contacting velocity sensor
- Hydraulically damped synchro direction sensor
- 115/230 V, 50 or 60 Hz or 12 VDC power
- Easy installation — mounts on 1 inch pipe
- Edge lighted for night viewing
- $5\frac{1}{4}'' \times 19''$ panel — available with 1, 2 or 3 displays
- 1 year warranty

APPLICATIONS:

- Airports
- Helipads
- Oil Platforms
- Industrial Plants
- Schools
- Museums
- Radio/TV Stations

GIVE US A CALL FOR MORE DATA



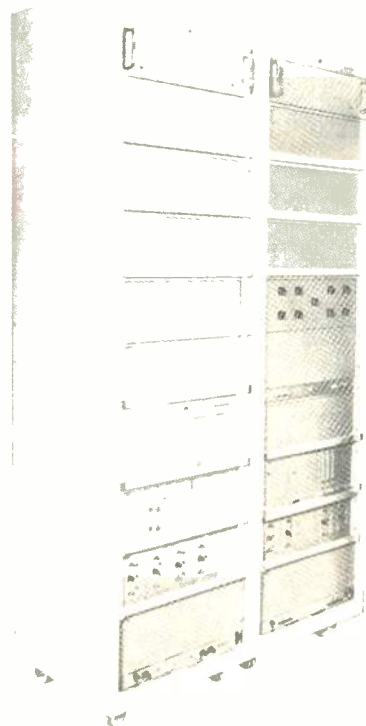
Data Industrial Corporation
Commerce Park Road, Pocasset, Ma. 02559
TELEX 940-445 Tel. (617)563-7196

Circle (118) on Reply Card

Marconi Electronics (Booth 817)

Products: Fully automatic studio and portable cameras; 1-inch C-format videotape recorders; film chain; DICE standards converter.

Featuring...the B3564 standards converter, designed to convert 525-



line 60-field NTSC signals to 625-line 50-field PAL signals, or vice-versa. The changeover is achieved by a single switch. A SECAM output and/or PAL outputs can be provided.

see ads on pages 97, 131
Circle (424) on Reply Card

Marketron (Booth 1914)

Products:* Minicomputer traffic and accounting system, for radio, formatted to accommodate large or small stations, handles spot scheduling for weeks in advance, vertical and horizontal rotation, sales and general management reports, complete billing and accounting information.

Circle (425) on Reply Card

Marti Electronics (Booth 307)

Products: Aural STL for FM and AM stereo, remote pickup broadcast equipment and systems including mobile repeaters, automatic repeater stations, data link system for transmitter-to-studio communication (TSL), digital remote control systems, and broadcast-quality radio links for international markets in 148-960MHz frequency bands.

New: Digital remote control and

hand-carried remote pickup (ENG) transmitter.

Featuring...the aural STL, the STL-8F transmitter and the R-200/950F receiver. The system features a direct FM modulator, plug-in modular construction and RF sensing.

Circle (426) on Reply Card

Matrix Systems (Booth 174)

Products: See at booth.

Circle (427) on Reply Card

Matthews Studio Equipment (Booth 1910)

Products: Location/stage equipment consisting of stands, dollies, dolly track, overhead light diffusion sets, flags and scrims, mounting equipment and accessories. New products for the video market: the video Mini-Jib camera arm for all camera types and the Crank-O-Vator portable light stand for HMI, quartz, incandescent and arc lights.

Circle (428) on Reply Card

Maxell (Booth 1827)

Products: $\frac{3}{4}$ -inch U-Matic videocassette tapes; VHS and Betamax videocassette tape and audio recording tape.

see ad on page 115

Circle (429) on Reply Card

McCurdy Radio Industries (Booth 308)

Products:* Audio consoles; intercoms; audio distribution assemblies; telephone frequency extenders; turntables; processing EQ.

see ad on inside back cover
Circle (430) on Reply Card

McInnis Skinner & Associates (Booth 1718)

Products: See at booth.

Circle (431) on Reply Card

MCI (Booth 104)

Products: JH-600 series console; JH-110A-8-HP tape reproducer recorder; JH-45 auto lock.

New: JH-24 tape machine recorder/reproducer; JH-110B tape machine recorder/reproducer.



*Typical products marketed. New products not announced by BE press time.

Quality

is the only language we speak!

No matter where you are, performance is the one standard common to professional broadcasters the world over. Ampro/Scully has established a reputation for providing a complete line of professional studio equipment with service and sales outlets locally available.

Scully Tape Recorder/Reproducers, Rotary & Linear Fader Audio Consoles, Cartridge Tape Recorder/Reproducers, and Three-Deck Cartridge Recorder/Reproducers.

For detailed product literature, write to us on your letterhead.

Dealer inquiries invited.



AMPRO Scully

Professional Equipment for Broadcasting Professionals
826 NEWTOWN-YARDLEY RD., NEWTOWN, PA 18940
(215) 968-9000 • TWX: 5106672299 • CABLE: AMPROSCUL NTOW

© 1979, Ampro/Scully U.S.A.

Circle (119) on Reply Card

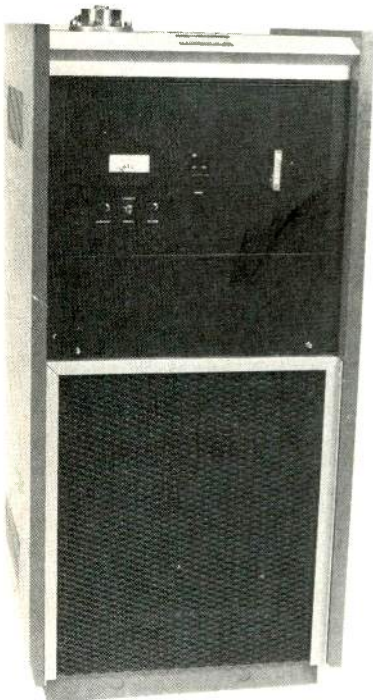
March 1980 *Broadcast Engineering* 155

25 KW Air Cooled Calorimeter-Load

"See us at NAB
Convention Booth #302"

FEATURES:

- Precise Power Measurement
- Exceeds FCC Specifications
- Mobile For Multi Use
- Interlock Protected
- Nonmeasurable VSWR
- Freq. Range D.C.-1.8 GHz



WILKINSON ELECTRONICS, INC.

701 Chestnut St. • P.O. Box 738
Trainer, Pa. 19013 • Telephone (215) 497 5100
TWX 510-669-3188 • Cables: WILEC

Circle (120) on Reply Card

Featuring...the JH-110B series of tape recorder/reproducers featuring transformerless electronics. Mono to 8-track versions are available, all featuring 3-speed (except the 110BC) fully dc servo-controlled transports with variable speed capability and MVC (manual velocity controls).

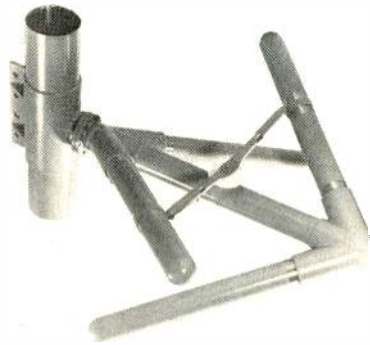
Circle (432) on Reply Card

McMartin Industries (Booth 300)

Products: AM/FM transmitters; audio consoles; remote pickup equipment; FM monitors; SCA transmitting and receiving equipment and audio products.

New: FM antennas; stereo audio processor for AM or FM; stereo generators; SCA generator; monaural audio processor for AM, FM, TV or SCA; high-speed tape erasers; TT-12C turntable.

Featuring...three antenna models, MLCP low-power series, MHCP high-power series and the MSHCP super-



power series. The MSHCP carries a power rating of 30kW per bay and a total antenna rating of 80kW.

Circle (433) on Reply Card

Microprobe Electronics (Booth 408)

Products: Log 2 and Log 4 automation systems and the 100B programmer.

New: The 100B-MP microprocessor-controlled programmer.

Circle (434) on Reply Card

Merlin Engineering Works (Booth 1221)

Products: Refurbished quad VTRs and accessories and refurbishing services.

New: Analogue drop out compensator and a low-cost VTR..

Circle (435) on Reply Card

MICMIX Audio Products (Booth 406)

Products: Reverberation systems.

New: The Master Room XL-305 acoustic chamber synthesizer.

Featuring...the Master Room XL-305 which features transformer isola-



tion, RFI protection and transient signal response.

see ad on page 150

Circle (436) on Reply Card

Micro Communications (Booth 1009)

Products: Coax switches, diplexers and circular polarized antennas.

New: UNF waveguide switches, motorized SPDT switches, motorized transfer switches and motorized waveguide patch panels.

Circle (437) on Reply Card

Micro Consultants/Quantel (Booth 1207)

Products:* Digital effects; frame-store synchronizers/noise reducer; digital standards converter; digital still store library for 700 slides.

New: DPE 5000 plus multiple inputs digital production system; DLS 6000 digital library system for still storage of pictures up to 700 frames with additional capacity available with multiple disc drives.

Circle (438) on Reply Card

Micro Control Associates (Booth 310)

Products: Aural studio-transmitter links; automatic transmitter and receiver switches; sub-carrier generator and sub-carrier receiver; radio and wireline remote control systems, digital and analog.

New: The PTS-10CH Hetrodyne system not yet in production.

Circle (439) on Reply Card

Microdyne (Booth 172)

Products: Frequency synthesized receivers.

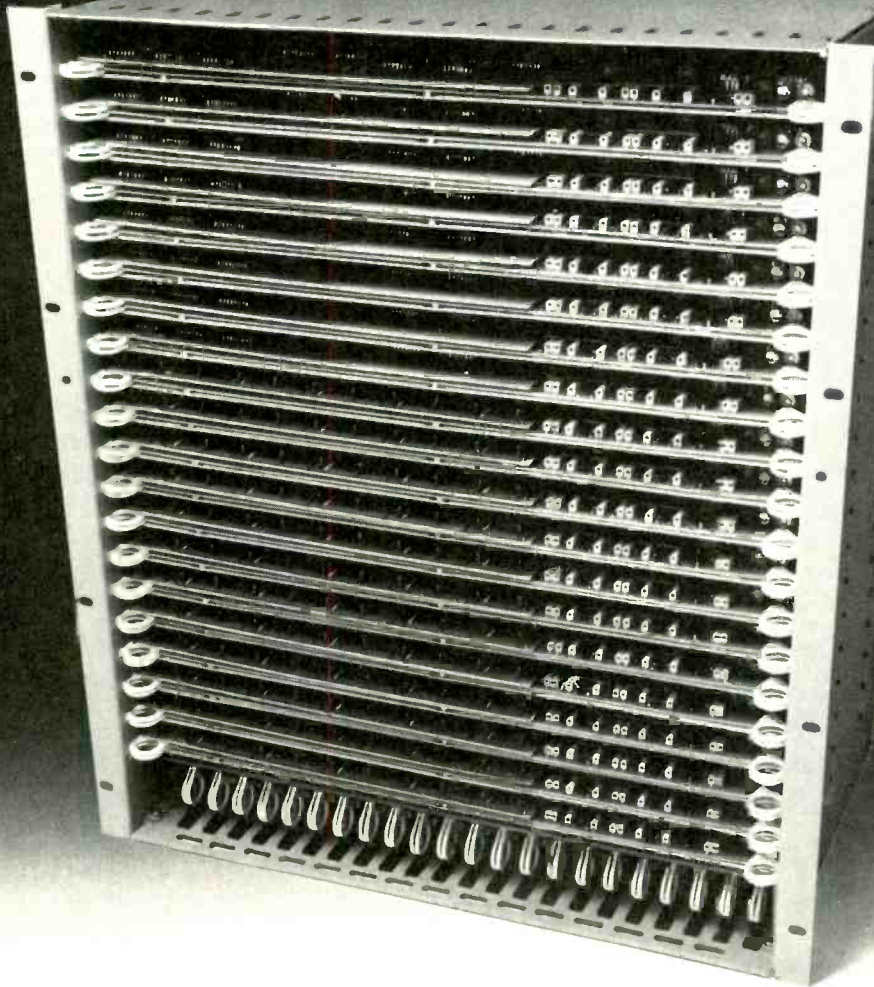
New: 1100-FFC(X1)(S) frequency synthesized receiver and the PR 23(3) 7 meter antenna.

Featuring...the 1100-FFC(X1) (S) that can be manually tuned without the use of crystals through 24 channels. Other features include dual video outputs and a threshold at 8.0dB C/N.

Circle (440) on Reply Card

*Typical products marketed. New products not announced by BE press time.

GET YOUR SIGNALS UNCROSSED.



No matter how complicated your studio operation is, we can unspool your signals and send them on their way, with one of our nine off-the-shelf Switcher series.

Our microprocessor-based routing and machine control systems can satisfy your most complex requirements including automation. The variety of controls available plus single co-ax control cables is unequalled in the video industry.

And to minimize system downtime we've designed our Series 20X and 40X Switchers for optimum reliability and capability. And you can replace a channel module without shutting down the entire system.

For audio use, our solid-state Series AX Switchers make the old fashioned patch panel

a thing of the past.

All 3M Routing Switchers can be built to nearly any input/output capability, with vertical interval switching and can be operated by many types of controls.

Studio operation is getting more complex every day. You can't fight it, so why not switch? Switch to 3M Routing Systems.

Circle the reader service card number at the back of the book for more information or call (612) 736-1032 for system design assistance. 3M Video Systems. Watch us in action.

Video Products Mincom Division/3M
223-5E, 3M Center
St. Paul, MN 55101

Circle (121) on Reply Card

The 3M logo, consisting of the letters '3', 'M', and 'M' in a bold, sans-serif font, stacked vertically.

March 1980 *Broadcast Engineering* 157

— SUPERB —

SIGNAL TO NOISE • 96dB relative 12mv at 1kHz
 THD • .01% RIAA • ±.25dB CHANNEL SEPARATION • 90dB
 MAXIMUM INPUT • 350mv MAXIMUM OUTPUT • +27dBm

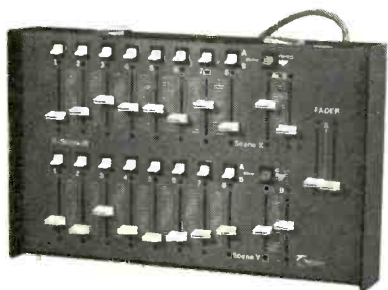
WIOQ-Philadelphia considered Audio-Metrics® phono preamps because of their outstanding specifications. They bought them for their sound. In their words, "they sparkle."

Helen Leicht - midday air personality on WIOQ - Philadelphia; an Outlet Broadcast Station.



Circle (114) on Reply Card

LOW-COST FLEXIBLE TV LIGHTING BY



Teatronics
 INCORPORATED

8-channel (shown), 16, 24, & 36 channel remote-control systems, 2.4 kw to 7.2 kw per channel. RFI filtered, A-B submastering, individual scene black-outs, split cross-faders, 2-scene preset.

SEE IT AT UAP BOOTH 1819 AT NAB AND BOOTH 101 AT L.A. VIDEO SHOW.

DEALER INQUIRIES INVITED • EXCLUSIVE DISTRIBUTOR TO THE VIDEO WORLD

telaudio centre P.O. BOX 921 • BEVERLY HILLS CA 90213 • 213 / 276-2726

Circle (115) on Reply Card

*NAB Product Directory listings start on page 62.

*Use Broadcast Engineering reader service cards to receive more information on products mentioned.

Micro-Trak (Booth 508)

Products: L Series and S Series furniture, phono preamplifiers, distribution amplifiers, audio consoles and audio monitors.

New: Direct-drive turntables, M Series furniture and audio consoles for sports remotes.

Featuring...the USA-1 turntable,



which features direct-drive motor and all-metal housing.

Circle (441) on Reply Card

Microwave Associates Communications (Booth 515)

Products: ENG microwave systems (2-, 2.5-, 7- and 13GHz), helicopter ENG systems, studio-to-transmitter field links, intercity point-to-point microwave systems, antenna systems, satellite down link and distribution systems.

New: Portable products for the 2-, 2.5-, 7- and 13GHz broadcast microwave bands, and new satellite transmit and receive earth stations.

Featuring...the USA-1 built to stand up to broadcast station environment. The unit features a direct drive motor, and new forming methods in an all-metal housing.

Circle (442) on Reply Card

Microtime (Booth 1409)

Products:* Time base correctors; image processors; automatic video source control system; digital signal processing system.

[see ad on page 147](#)

Circle (443) on Reply Card

Modular Devices (Booth 1735)

Products: See at booth.

[see ad on page 222](#)

Circle (444) on Reply Card

Mole-Richardson (Booth 1008)

Products: Portable and studio lights, lighting controls and accessories.

Circle (445) on Reply Card

The Money Machine (Booth 314)

Products: Sales/production library services.

Circle (446) on Reply Card

*Typical products marketed. New products not announced by BE press time.

Another Harris First.... FM-25K—25,000 Watt, One-Tube—High Power FM Transmitter.

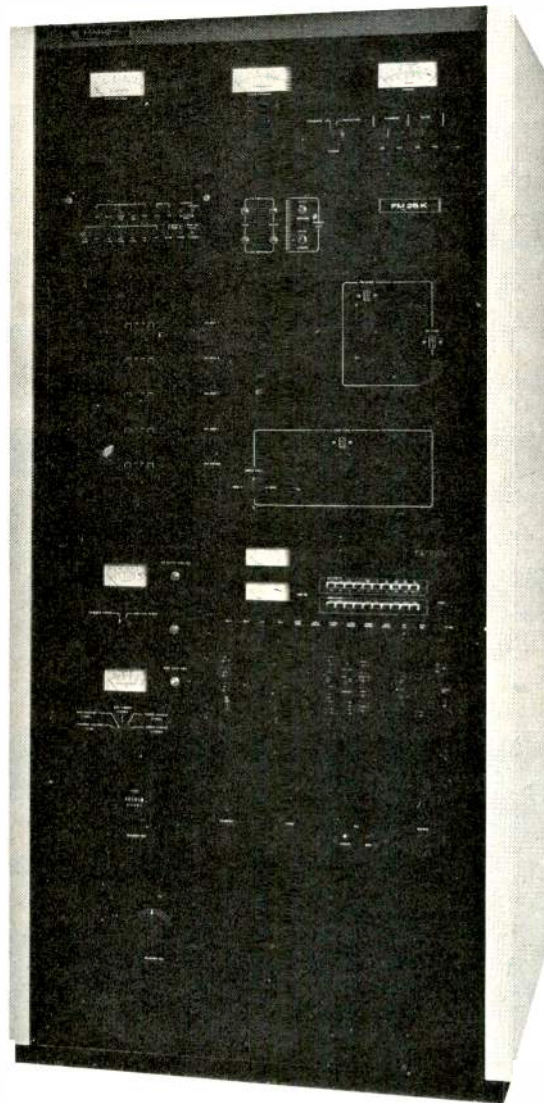
Introduced at the 1979 NAB show, Harris technology has combined advances in both tube and solid-state designs, bringing to the broadcaster the new FM-25K, 25 kilowatt transmitter, a major step forward in high-powered FM transmitters.

The FM-25K reflects the Harris design philosophy of delivering RF power efficiently, without degrading exciter performance. Dependable solid-state control logic, broadband solid-state IPA, single tube design, and the world's most advanced FM exciter, the MS-15, combine to provide the highest performance available.

Simple operation is another plus with five wideband FM solid-state IPA modules combined to produce 350 watts of drive power, with plenty of reserve, providing back-up capability for improved reliability and reducing overall transmitter tuning requirements.

In answer to rising energy costs, the new FM-25K, 25 kilowatt FM transmitter requires less power which means low operating costs and longer component life. Its compact size, built-in protection circuits, status lights, automatic power control, and simple remote control interface make the FM-25K the best buy for broadcasters.

Let us tell you more, contact Harris Corporation, Broadcast Products Division, P.O. Box 4290, Quincy, IL 62301. **Visit the Harris TV and radio equipment display at the 1980 NAB, Las Vegas**



HARRIS
COMMUNICATION AND
INFORMATION PROCESSING

Circle (123) on Reply Card

New: "The Spirit" and "Nashville Plus" station image campaigns.
Circle (447) on Reply Card

Moseley Associates (Booth 505)

Products: Microprocessor remote control system with automatic logger option; digital control system with computer option; digital remote system; telecontrol system; subcarrier main frame; aural studio-transmitter links; automatic transfer panels; isocoupler; stereo generator; SCA generator; FM limiter; aural remote pickup link and earth station remote control.

New: AM limiter, audio gain rider, telemetry return link, telecontrol system and RF power amplifier.

see ad on page 176

Circle (448) on Reply Card

Motorola Communications (Booth 318)

Products:* Mobile and base 2-way radios; remote pickup and loud-mobile communications systems.

Circle (449) on Reply Card

Musicworks (Booth 323)

Products: Alive country format;

casual country format; Country '80.

New: Grass roots gold; PAL pop adult lifestyle.

Circle (450) on Reply Card

NEC America (Booth 1301)

Products:* Frame switcher; VTRs; routing switchers; production switchers; time base correctors; color cameras; RF equipment; TV and radio transmitters.

see ad on inside front cover

Circle (451) on Reply Card

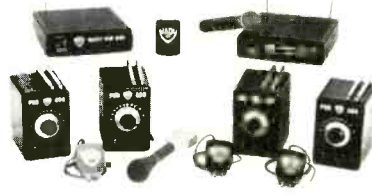
N. T. I. America (Booth 937)

Products:* Signal generators.

Circle (452) on Reply Card

Nady Systems (Booth 1839)

Products: Cordless wireless mic transmission systems; cordless wire-



less music instrument transmission systems; VHF wireless mic and music instrument transmission systems.

New: Cordless black hand-held mic transmitters.

Featuring...full line of cordless microphone systems.

Circle (453) on Reply Card

Nagra Magnetics Recorders (Booth 510)

Products:* Receivers; recorders; weather radar systems.

New: Logging recorders; meteorological chart recorders.

see ad on page 68

Circle (454) on Reply Card

Network Production Music Library (Booth 1615)

Products: Services include source of contemporary music adaptable to commercials, feature films, industrial and educational applications and various multimedia productions. The music library is available on record and tape with each full-version

*Typical products marketed. New products not announced by BE press time.

IF IT'S FROM RUSSCO, IT'S A SOUND INVESTMENT.

RUSSCO is broadcast equipment designed by professional broadcast engineers...Built Rugged, built to work and save downtime. That's Good Investment. When you look over our quick-starting Vari-Speed turntable and our performance boosting stereo and mono audio mixers, you begin to understand RUSSCO Quality. RUSSCO phono pre-amps, power and distribution amplifiers are the finest state-of-the-art. You'll look good when you buy RUSSCO, and the money you Save will Sound Good going into the bank!



• Call Barbara Gaudin for Catalog sheets with our great specs.



PHONO / MATE PRE-AMP

MM260 AMPLIFIER

STUDIO / MASTER 505 MIXER

DISCO 421 MIXER

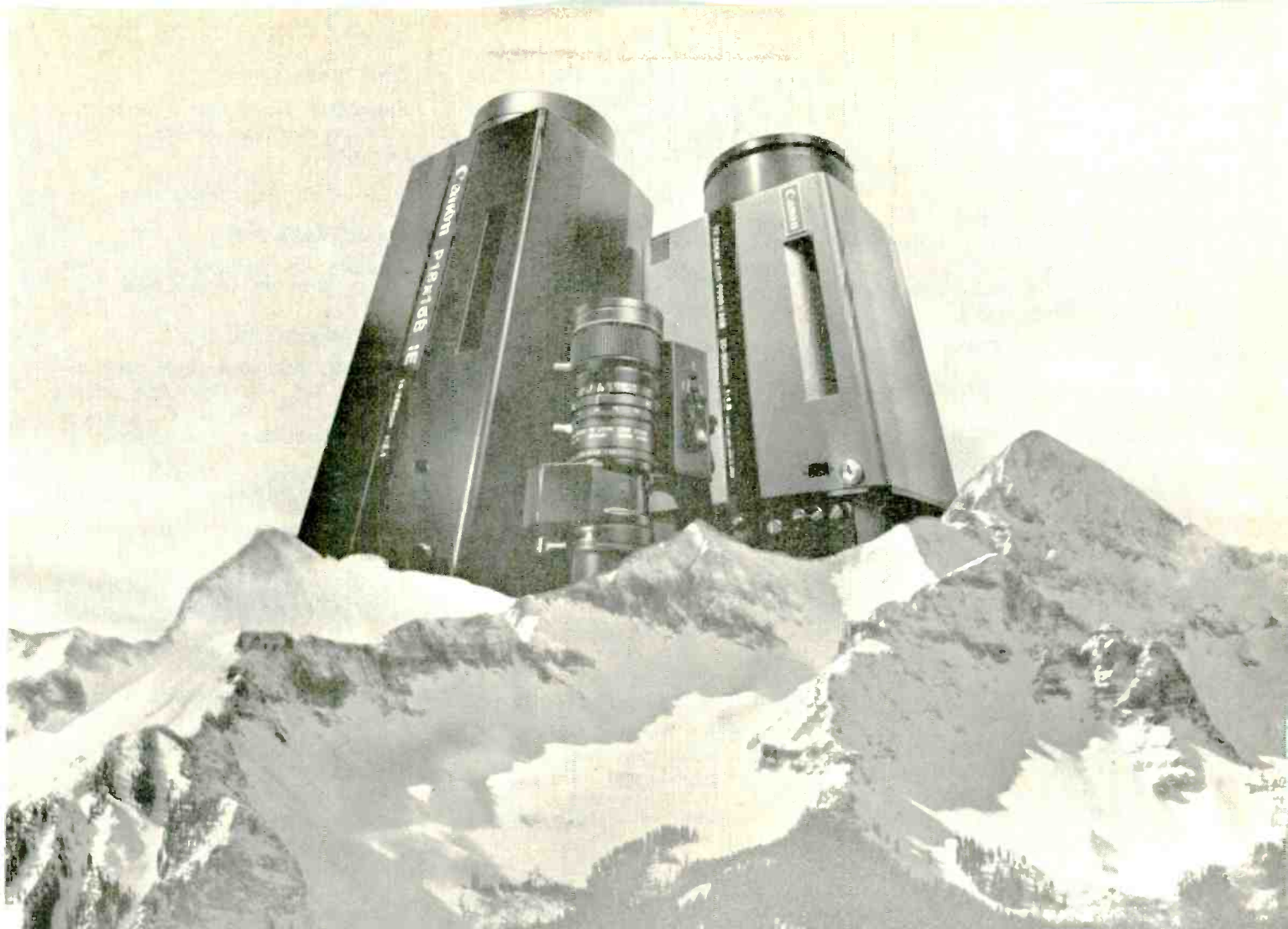
MARK V VARI-SPEED TURNTABLE

MULTI-MATE DI T. AMP.

You can Rely on **RUSSCO**

RUSSCO ELECTRONICS INC. 5690 E. Shields Ave., Fresno Calif. 93727 • Phone (209) 291-5591

Circle (124) on Reply Card



MEET THE OLYMPIC CHAMPIONS

What does it take to be a champion?

To face the greatest challenges devised by man and come out number one, among the finest competition anywhere. That truly calls for unprecedented abilities.

Perhaps that explains why over 80 Canon lenses were chosen to cover the 1980 Olympic Games: Faster, sharper lenses with a wide variety of zoom ratios. Lenses with superior optical characteristics. Boasting lighter weight, smaller size, far more ruggedness, reliability and flexibility.

Little wonder Canon lenses are superior for every application. Even the latest microprocessor cameras, thanks to our built-in high-performance diascopes with unique illuminating systems. Which provides a whole new standard of camera set-up accuracy and picture quality.

Of course, setting new precedents is nothing new for Canon. For years, we've been the number-one choice to cover sports, news, documentaries, specials and more.

Why not put us on your team?

Canon®

Canon U.S.A. Inc. Head Office, 10 Nevada Drive, Lake Success, N.Y. 11040 (516) 488-6700 • 140 Industrial Drive, Elmhurst, Ill. 60126 (312) 833-3070
123 Paularino Avenue East, Costa Mesa, Ca. 92626 (714) 979-6000
Canon Optics & Business Machines Canada, Ltd., 3245 American Drive, Mississauga, Ontario L4V 1B8, Can.
Canon Amsterdam N.V., Industrial Products Division De Boelelaan 8, Amsterdam, Netherlands

VISIT US AT NAB BOOTH NO. 902

Circle (125) on Reply Card

theme in a 59- and 29-second broadcast length.

Circle (455) on Reply Card

Newman/Lustig & Associates (Booth 1837)

Products: See at booth.

Circle (456) on Reply Card

New York Times Information Search Services (Booth 1831)

Products:* See special data base search service at booth.

Circle (457) on Reply Card

Nortronics (Booth 401)

Products:* Complete line of replacement magnetic heads for reel-to-reel cartridge and cassette recorders. Duracore heads provide 10 times normal head life. Also Recorder Care products including head degaussers, bulk tape erasers, head cleaners, 7 splicing blocks to be shown.

Circle (458) on Reply Card

Nurad (Booth 1400)

Products: Quad receive antenna subsystem; MC 3 digital remote control system; Goldenrod series of transmit antennas, other circularly

polarized antennas and turnkey installation capability.

New: Supertrack semi-automatic tracking system for airborne ENG/EJ operations; Auto-transmit airborne transmit system; 70PA5 7GHz power amplifier; circularly polarized TV broadcast antenna; Superquad II receive antenna subsystem.

Circle (459) on Reply Card

Nytone Electronics (Booth 1702)

Products: TSC-1 sequential flying spot scanner systems; TSC-2 random access flying spot scanner systems; TSC-3 fade between slides random access flying spot scanner systems.

Circle (33) on Reply Card

Oak Communications (Booth 1517)

Products:* Subscription TV systems and services.

Circle (460) on Reply Card

O'Connor Engineering (Booth 1122)

Products:* Camera support equipment; fluid pan and tilt camera heads; tripods and accessories.

see ad on page 141

Circle (461) on Reply Card

Oktel (Booth 1715)

Products:* Direct color broadcast slow motion and slide file disc recorders.

see ads on pages 86, 88, 90

Circle (462) on Reply Card

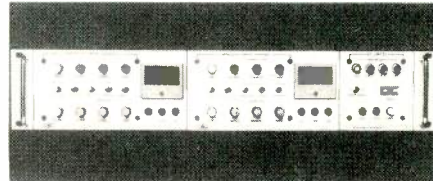
Olesen (Booth 819)

Products: See at booth.

Circle (463) on Reply Card

Optek (Booth 1725)

Products: Automatic bulk tape degausser for videotape and audiotape; duplex wireless PL systems; visual transmitter demodulators.



Circle (464) on Reply Card

Orange County Electronics International (Booth 208)

Products: VS-1 AM Stressors; dynamic range processors; PEQ, DEQ, SEQ parametric equalizers.

New: VS-2 AM Stressor; VS-3 FM dynamic range equalizers.

Circle (465) on Reply Card

Orban Associates (Booth 411)

Products: Optimod-AM processors; Optimod-AM transmitter equalizers.

Featuring... Optimod-AM processors that guarantee uniform audio quality and definition on typical AM radios.

see ad on page 36

Circle (466) on Reply Card

Orrox/CMX Systems (Booth 1209)

Products: Videotape editors.

New: Line of small and flexible editing systems for broadcast and industrial post-production.

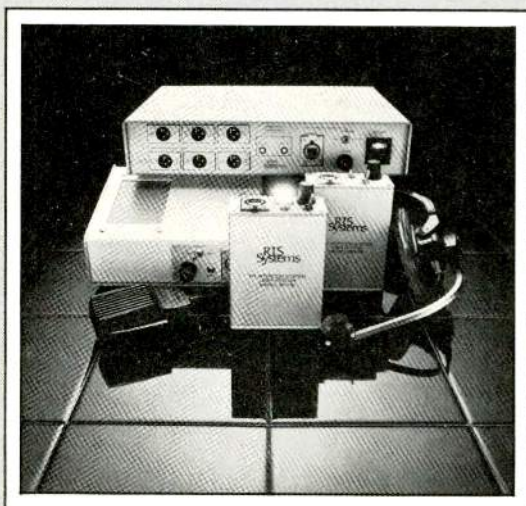
Circle (467) on Reply Card

Otari (Booth 503)

Products:* Professional tape recorders; high-speed tape duplicators.

Featuring... the MX-5050-B professional tape recorder with overall S/N:66dB unweighed at 520 nwb/m (30 Hz to 18kHz audio filter. The unit has three speeds; dc servo $\pm 7\%$, $\frac{1}{4}$ track reproduce and many other benefits.

Circle (468) on Reply Card



THE SUPER SYSTEM

The TW Intercom System: an innovative new intercom system for teleproduction communications in the studio and field. With Super System Phase III, we've incorporated a number of advances which mark a significant increase in product versatility.

Our new design features the portability of 12 volt battery power and convenience of dry-line operation. The system can be arranged with up to 50 various user stations on line, and may be coupled to existing communications lines with one of our active interface devices.

Phase III offers impressive capabilities like powerful headphone amplification, two (or more) channel operation, microphone level limiting, and stable sidetone level. The new units are hand-somely packaged and completely field serviceable.

For additional information, contact RTS Systems, Inc.

RTS
Systems, Inc.

1100 West Chestnut Street Burbank, California 91506 213/843-7022 Telex 194855

Circle (126) on Reply Card

*Typical products marketed. New products not announced by BE press time.

Second Generation

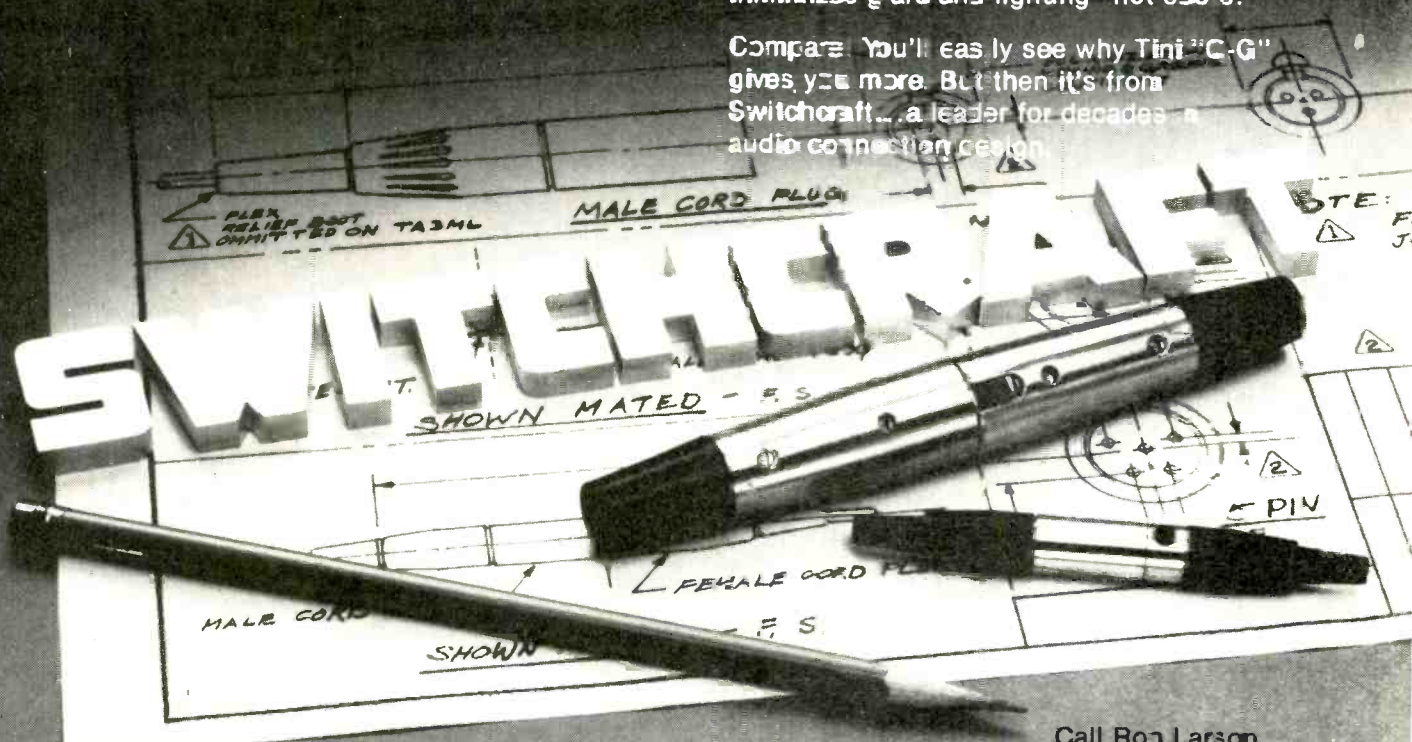
Tini "Q-G" — The New Switchcraft Connector That Has Less Bulk! Less Weight! And Low Cost! It's designed for today's miniaturized lavalier microphones and instrumentation. Disconnect is quick and easy!

Take it apart. See Tini "Q-G" quality. Silver-plated pins and contacts for starters. "Non-scooping" plugs and receptacles have recessed pins to protect against accidental damage. They're keyed for proper mating. Tini "Q-G" reflects the proven quality of Switchcraft "Q-G" and "QGP" professional audio connectors.

Choose either three, four, or five pin/contact styles in both cord plugs and receptacles. The cord plug diameter measures a mere .413" ... accepts cables up to .115" dia. with flex relief bushing .170" dia. without bushing.

Tini "Q-G" receptacles are available with PC terminations and a choice of seven trim cover panel escutcheons for quick, easy identification. The rich metal cord plug housing has a nickel finish that minimizes glare and lighting "hot spots!"

Compare. You'll easily see why Tini "Q-G" gives you more. But then it's from Switchcraft... a leader for decades in audio connection design.



Call Ron Larson
at 312-792-2700 for full details and
Catalog No. NPB-341.

SWITCHCRAFT
INC.

5555 N. Elston Avenue, Chicago, Illinois 60630
(312) 792-2700

Circle (127) on Reply Card

A Raytheon Company

PACE (Booth 1028)

Products: See at booth.

Circle (469) on Reply Card

Pacific Recorders and Engineering (Booth 511)

Products: Audio control consoles; digital stopwatches; digital time-of-day clock and custom cabinetry.

New: Broadcast cart recorder/players; routing switchers; distribution system and distribution amplifier.

Circle (470) on Reply Card

Packaged Lighting Systems (Booth 1621)

Products: Quartz Tele-packs (studio TV packages); Stage-Master dimming; electrified power and rigging track; Travelier (portable TV lighting kits; quartz cyc strips; modular strip-lights; quartz follow spots (60- to 350-foot throws); light trees and telescopic power bridge; remote electronic dimming systems; miniaturized quartz photo floods; special effects controls.

New: Electrical raceway.

Circle (471) on Reply Card

Panasonic, Professional Audio Division (Booth 600)

New: Professional turntables; tone-arms; tonearm systems; consoles; speakers and a direct-drive lathe.

see ad on page 173

Circle (472) on Reply Card

Panasonic, Video Systems Division (Booth 1521)

Products: 1/2-inch VHS players/recorders; portable and studio cameras (b&w and color); generators; b&w and color monitors and microphones.

New: 3/4-inch editing system; b&w monitors and portable color cameras.

see ad on page 33

Circle (473) on Reply Card

Panoak Lighting Systems (Booth 1806)

Products:* Seamless background curtains and lighting control equipment.

Circle (474) on Reply Card

Penn-Beth Marketing (Booth 426)

Products: See at booth.

Circle (475) on Reply Card

Perrott Engineering Labs (Booth 1023)

Products: Silver zinc, nickel cadium

and lead acid battery packs for ENG cameras; VTRs and portable lighting systems; communication batteries for radios; and the Perrott mini-charger for battery packs.

New: A life-extending system for silver zinc batteries and a diagnostic and charging system for nickel cadium batteries.

Circle (476) on Reply Card

Phelps Dodge Communications (Booth 112)

Products: Transmission line; FM antennas and associated items.

New: The Super Power FM antenna.

see ad on pages 58, 59

Circle (477) on Reply Card

Philips Broadcast Equipment (Booth 807)

Products: LDK-14 portable camera for ENG, EFP and studio; LDK-25 multi-conductor studio and field camera; LDK-5 triaxial-cable studio and field camera; LDK-15L portable production color camera; video 80 convertible cameras for ENG, EFP studio and production systems; 1-inch video recorders; UHF/VHF broadcast television transmitters; digital noise reducer; television audio post production tape synchronizer; test and measuring equipment; modulators; demodulators; VITS analyzer and generator; waveform monitor and vectorscope.

New: LDK-14 with triax adapter; Triax repeater for LDK-5; expanded Video 80 line; LDM-3001 fully automatic digital noise reducer; Adams-Smith model 605 tape synchronizer.

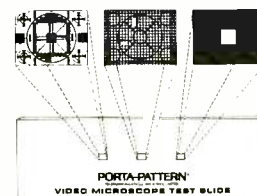
see ad on page 195

Circle (478) on Reply Card

Porta-Pattern, Telecommunications (Booth 1410)

Products: Test charts; chart systems for studio; ENG and EFP applications; test slides; films; spherical transparency illuminator and 8x10 transparencies.

New: 1"x3" ultra-high resolution slide for alignment of video microscope systems; combination reflector/white color balance unit for ENG and EFP use.



Featuring...the model 018-10 video

*Typical products marketed. New products not announced by BE press time.

HPM-41 MIXER

• AC Line or Battery Power • High-Performance Electronics
• A-B and Phantom Power for Condenser Microphones

Our new little mixer gives you a myriad of useful features in a convenient easy-to-use package. Call or write for our detailed product brochure.

EXTERNAL POWER INPUT, CHASSIS GROUND, AUX INPUT 47K OHMS, LINE OUT-500 OHMS, OUTPUTS 100B/UNBAL, OUTPUT LINE MIC, MICROPHONE POWER A-B +12V, PHANTOM +48V, INPUTS 1-4, MASTER, TONE, BATT TEST, PEAK, HEALTHY

MODEL HPM-41 MIXER
RTS SYSTEMS

1100 W. CHESTNUT ST., BURBANK, CA 91506 213/843-7022 TX: 194855

RTS Systems INC

Circle (128) on Reply Card

**IF YOU'RE IN
VIDEO PRODUCTION
OR RADIO
SYNDICATION,
SONY'S NEW
PCM 100 IS THE
MOST IMPORTANT
REASON FOR
GOING TO THE NAB
CONVENTION.**

To state it bluntly, Digital Audio is the current state of the art in perfect sound reproduction and therefore the future of your business as well.

Which means you can't afford to miss what Sony has to say about their newest Digital Audio product, the PCM 100.

And the person who'll be saying it is Sony's expert, Roger Pryor. He's at the Digital Audio section of Sony NAB booth 1211.

SONY
DIGITAL AUDIO

© 1980 Sony Industries, a Division of Sony Corp. of America, 9 West 57th St., N.Y., NY 10019. Sony is a registered trademark of Sony Corporation.

Circle (129) on Reply Card

microscope alignment slide which provides three standard video test patterns of a size that will allow full camera alignment without disturbing the mechanical or optical alignment of the camera to the microscope.

Circle (479) on Reply Card

Potomac Instruments (Booth 107)

Products: Antenna monitoring equipment; AM field meters; VHF FM/TV field strength meter; stereo audio generator and gain set; THD analyzer; IMD analyzer; wow and flutter meter; stereo phase meter; frequency synthesizer/coherent detector; brass and stainless steel jack panels; plugs and patch cords.

New: AM mono/stereo monitor receiver; automatic modulation and power controller; directional antenna processor; automatic transmission system.

Featuring...the ATS-11 automatic transmission system eliminates operating logs, accommodates antenna arrays of up to 12 towers with three separate directional patterns and/or power levels and features built-in self-test, failsafe circuits and data verification software.

see ad on page 196

Circle (480) on Reply Card

Power-Optics (Booth 925)

Products: Remote camera control systems; Grafikon equipment; scene-sync and EDS caption Roller.

New: The "Bag Job" and a portable prompting device.

Circle (481) on Reply Card

Procart (Booth 315)

Products: See at booth.

Circle (482) on Reply Card

Protech Audio (Booth 221)

Products: Broadcast consoles; PC card system; equalizers; compressors; power/monitor amps; power supplies and accessories.

New: Audio distribution amp; private line interphone/intercom; conductive plastic faders and custom broadcast master control console.

Featuring...the 3000 series broadcast consoles which feature 5-, 8- or 10-channels, mono or stereo; Integra 3 plug-in PC cards throughout; multiple input preselect switching, and 2-way remote line inputs.

Circle (483) on Reply Card

QEI (Booth 417)

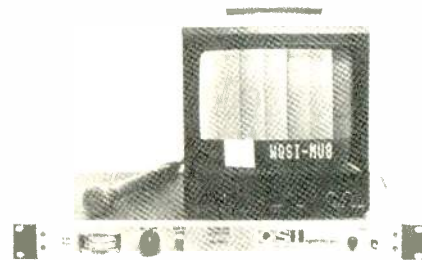
Products:* ATS exciters; stereo generators; FM, stereo monitors; SCA monitor.

Circle (484) on Reply Card

QSI Systems (Booth 1603)

Products: Time date generator; audio video logger; video distributor amplifier; color bar generator split field.

New: Video countdown generator; QSI valid system; color bar generator split field, video source identification with voice follow-through.



Featuring...QSI CB-8000 color bar identifier, a color bar generator combined with a character generator and audio signal source, is designed to originate an identified TV source.

Circle (485) on Reply Card

Q-TV Telesync (Booth 1005)

Products: Video prompter system; console transport; conveyor transport; prompter monitor readouts.

New: Micro monitor prompter system.

Circle (486) on Reply Card

Quick Set (Booth 1012)

Products:* Camera and instrument hardware; tripods; pedestals; cam and fluid head for remote and studio production. All ENG/EPF support gear. Also remote controlled pan/tilt gear for antenna and microwave dish positioning.

Circle (487) on Reply Card

RCA Commercial Communications (Booth 700)

Products:* Color TV equipment, cameras, film systems; videotape recorders; film and tape cartridge machines; control, switching and effects equipment; UHF and VHF TV transmitters; transmission line and antennas; audio equipment; radio transmitters; antennas; station automation equipment; photophone equipment; TV mobile equipment.

see ad on page 83

Circle (488) on Reply Card

*Typical products marketed. New products not announced by BE press time.

SMPTE Editing!

- Datametrics Compact SP733 Reads Time/User Information Over All Input Ranges.
- Manual Use Based on Display and/or Video Inserter.
- Automatic Use Based on Logic Compatible Outputs.

See Our New Line at the NAB Show Booth #1505

datametrics

Datametrics, Inc.
340 Fordham Road, Wilmington, Mass. 01887
Tel: (617) 658-5410 TWX 710-347-7672

Circle (130) on Reply Card

“Our new ‘Tetron’ UHF Transmitter series combines peak performance with 3 down-to-earth advantages.”



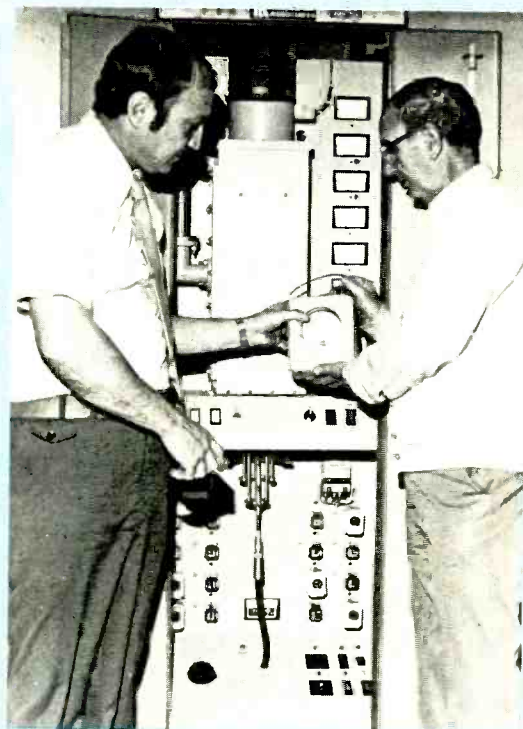
George Townsend, *President*,
“Our business philosophy is simple . . . we deliver equipment that is the latest state-of-the-art at less cost. We’re set up to do just that. And it’s working.”



- 1. Low initial cost**
- 2. Lower operating cost**
- 3. No aural klystron replacement cost**

Townsend’s engineering group has developed the first UHF transmitter line which combines the high performance of klystrons for visual power, plus the practical use of economical tetrodes for aural amplification. There’s no compromise in performance, reliability, or effect on MTBF. In addition to low operational maintenance, there’s an approximate 5 percent saving in the cost of operating power.

These results are being proved today in the world’s tallest TV tower. Perhaps our hardware and know-how can help you, too.



Engineers from Townsend Associates adjusting the new TA “Tetron” transmitter at CFMT-TV in Toronto’s CN Tower. Operation began in November, 1979.

TOWNSEND ASSOCIATES, INC.

P.O. Box 1122 • Mainline Drive Industrial Park, Westfield, Massachusetts 01086 • 413-562-5055

Let’s discuss your TV Transmitter requirements at the NAB Convention, Booth 1007.

Circle (131) on Reply Card

**RCA Electro Optics and Devices
(Booth 700)**

Products: Power tubes for TV and FM; camera tubes for TV broadcast, Saticons, Vistacons, Vistalites, Vidicons.

New: Improved Saticon tubes.
Circle (489) on Reply Card

**RCA American Communications
(Booth 700)**

Products:* Domestic satellite communications services for the US including voice, data, video and related services.

Circle (490) on Reply Card

RF Technology (Booth 1624)

Products: 2 and 7GHz microwave systems; 2GHz helicopter package; 15W power amplifier; 950MHz diversity wireless microphone.

New: 7GHz microwave system.
Circle (491) on Reply Card

RKO Tape (Booth 150)

Products: Complete line of RKO

tape: custom label, standard label, unlabeled blank audiocassettes.

Circle (492) on Reply Card

**R-Columbia Products Company
(Booth 1703)**

Products: Headphones/microphones; headphone intercom systems.

New: Intercom headphone/microphone; 2-way intercom on a single wire; wireless intercom headphone.



Featuring...FM wireless intercom headphone for 2-way intercommunication without wires.

Circle (493) on Reply Card

Radio Advertising Bureau (Booth 123)

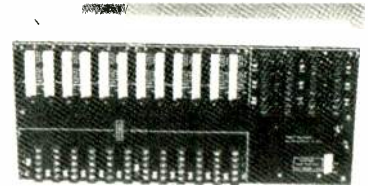
Products: See at booth.

Circle (494) on Reply Card

Ramko Research (Booth 110)

Products: Mono and stereo audio mixing consoles; audio distribution amps; portable mixing consoles; solid-state meters; audio router; turntable preamps; mic/line amps; equalized line amps; monitor amps; turntables; reel-to-reel recorders.

New: PhaseMaster stereo cart/cassette recording/duplicating system; PhaseMaster mono and stereo cart and cassette playback units; record units.

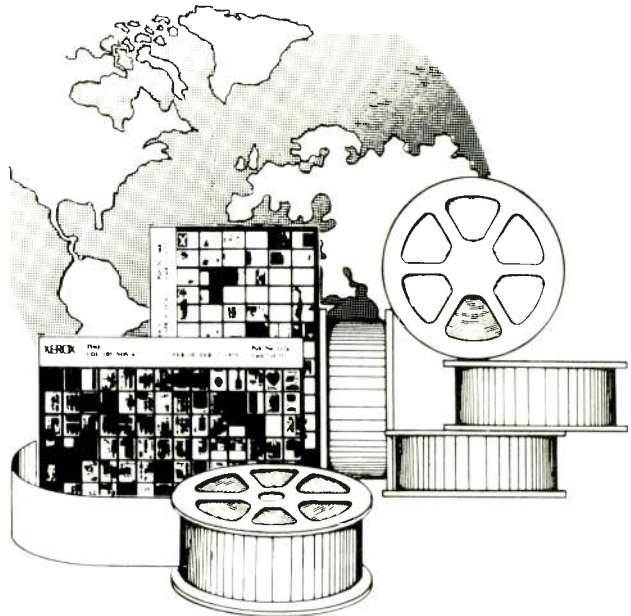


Featuring...audio router/amplifier with front panel lighted status displays and lighted remote controls, and each card has dual outputs for simul-feeds and/or stereo operation

*Typical products marketed. New products not announced by BE press time.

BROADCAST engineering is Available in MICROFORM

FOR INFORMATION
WRITE:



University Microfilms International

300 North Zeeb Road
Ann Arbor, Mich. 48106
U.S.A.

18 Bedford Row
London, WC1R 4EJ
England

Fuji. When your job depends on it.

Video. You use it to make a point.
And a living.

That's why you need Fuji.

Because for networks, independent producers, audiovisual experts and other professionals who depend on us, near-perfect is never good enough.

Whatever the format—2" quad, 1", 3/4" U-matic® or 1/2" VHS or Beta cassettes—Fuji gives you the performance you need to look your best.

That's how we built our reputation for richer, more lifelike color. Clearer, sharper, crisper pictures. Superior consistency and durability. Plus freedom from dropouts, to protect your machines... as well as your reputation.

So, no matter what the job, get the tape that gets the applause. By making you look as good on the hundred-thirty-first playback as you do on the first.

Fuji. The professional tape professionals depend upon.



FUJI TAPE

One brand fits all. Better.

Magnetic Tape Division, Fuji Photo Film U.S.A., Inc.
350 Fifth Avenue, New York, New York 10001 (212) 736-3335



DO YOU THINK YOU COULD SELL A SECOND-RATE WIRELESS MICROPHONE SYSTEM TO THIS MAN?

He's Julius Barnathan, President of Broadcast Operations & Engineering at ABC. And some say he eats electronics salesmen for lunch.

So when he purchased a Sony wireless system for his network's most prestigious event, the 1980 Winter Olympics, you can bet it was second to none.

It had better be.

Mr. Barnathan doesn't like to be disappointed.

SONY[®]

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Circle (134) on Reply Card



and each may be programmed for mono or stereo or a combination.

see ad on page 181

Circle (495) on Reply Card

S. W. Rassmussen (Booth 424)

Products: See at booth.

Circle (496) on Reply Card

Re: DB Company (Booth 1020)

Products:* VTR recording heads.

Circle (497) on Reply Card

Recortec (Booth 1200)

Products: Videocassette recorders; videotape timer; videocassette evaluators; videotape addressor.

New: High-band U-format videocassette recorder.



Featuring...combination 1- and 2-inch videotape evaluator with 5-minute changeover time.

see ad on page 57

Circle (498) on Reply Card

Research Technologies (Booth 1112)

Products: Editing systems; data-film computerized editing system.

New: Self-drive previewer; Quik-Trac speech processor.

Circle (499) on Reply Card

Richmond Sound Design (Booth 1027)

Products: Portable broadcast mixing system.

New: Complete line of remote control modular mixing systems and filters with complimentary distribution amplifiers and custom frequency graphic equalizer systems.

Circle (500) on Reply Card

Robert Bosch

Products: ARI (Automatic Road Information) alerting system.

Featuring...the ARI alerting system that allows the FM broadcast station to automatically activate circuitry in home and car receivers with the intent of providing road/traffic/emergency information.

Circle (501) on Reply Card

Rockwell International (Booth 100)

Products: AM and FM transmitters; exciters; audio consoles; antennas; FM stereo generators.

New: AM transmitter (1kW).

Circle (502) on Reply Card

Rohde & Schwartz (Booth 1110)

Products: Precision color studio monitors; multi-std chroma decoders; RF modulators; precision TV demodulators; FM transmitters; FM stereo test generators and decoders; precision video and RF test instruments; monitoring studio loudspeakers.

New: Line of precision color TV studio monitors.

Circle (503) on Reply Card

Rosco Laboratories (Booth 1024)

Products: Light control media system.

New: A full range of rear projection screen materials in gray, black, light transparent and twin white.

Circle (504) on Reply Card

Ross Video (Booth 1721)

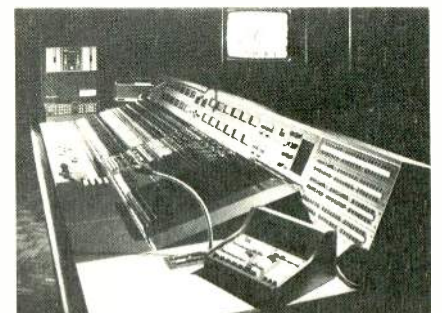
Products:* Video production switchers.

Circle (505) on Reply Card

Rupert Neve (Booth 1203)

Products: Small mixers.

New: DL TV sound post-production systems; TV sound production console.



Featuring...sound production systems.

see ad on page 15

Circle (506) on Reply Card

Russco Electronics Manufacturing (Booth 209)

Products: Series of consoles; rack-

*Typical products marketed. New products not announced by BE press time.

HME Introduces New Concepts in Wireless Microphones:

- Signal-processed audio
- Exclusive technique for eliminating dropouts
- Aerospace-grade design and manufacturing
- Widest selection of products available — worldwide.



hme

PROFESSIONALS
WHO TRY HME ...
BUY HME.

HM ELECTRONICS, INC.
6151 FAIRMOUNT AVE.
SAN DIEGO, CA 92120
PHONE (714) 280-6050

Write or call for our
FREE technical catalog.

Circle (135) on Reply Card

How to get as much switcher as you need without getting switched off by the price.

Switch to Panasonic. Because Panasonic gives you your choice of four versatile switchers/special effects generators (SEG's). So, depending on the size of your studio and your budget, you only have to buy as much switcher as you need.

For broadcast studios and production control centers, there's the AS Series. The AS-6000, with seven program inputs, 14 wipe patterns and a fully adjustable colorizer lets you add color to your supers or fade to a solid color. And it has many other features that you have to see to believe, especially at such a low price—only \$6,000.*

You have to see the AS-6100 to believe it. It's the most advanced Panasonic SEG. It features 10 program inputs, two external key inputs, two downstream key inputs, and three auxiliary inputs for film chains and VTR's. 17 inputs in all. Plus a "spotlight" downstream mixing for up to three cameras, and a fully adjustable colorizer. Yet the price is only \$7,500.*

For creative color production in smaller studios, the

Panasonic WJ-4600A at \$2,095* is an excellent choice. And for more versatile special effects, the WJ-5500A at \$3,950* is even better. Both units offer important features: An internal EIA RS-170A sync generator with genlock, color bar generator and vertical interval switching. Plus internal and external keying. And black burst for fades to black.

The WJ-4600A has six program inputs, six wipe patterns in the normal/reverse mode, two effects buses with a fade/wipe lever, and a preview/program bus.

The WJ-5500A has even more. Eight program inputs. Downstream mixing for three video signals. Nine wipe patterns, a wipe positioner and your choice of sharp or soft edges. Plus normal, normal/reverse, and reverse modes.

All four switchers are compact, self-contained and have illuminated pushbuttons.

Take a close look at them. And you'll get switched on to Panasonic.

For more information, write: Panasonic Company Video Systems Division, One Panasonic Way, Secaucus, N.J. 07094. In Canada, Panasonic Video Systems Department, Mississauga, Ontario.

*Panasonic recommended price, but actual price will be set by dealers.

Panasonic®

just slightly ahead of our time.

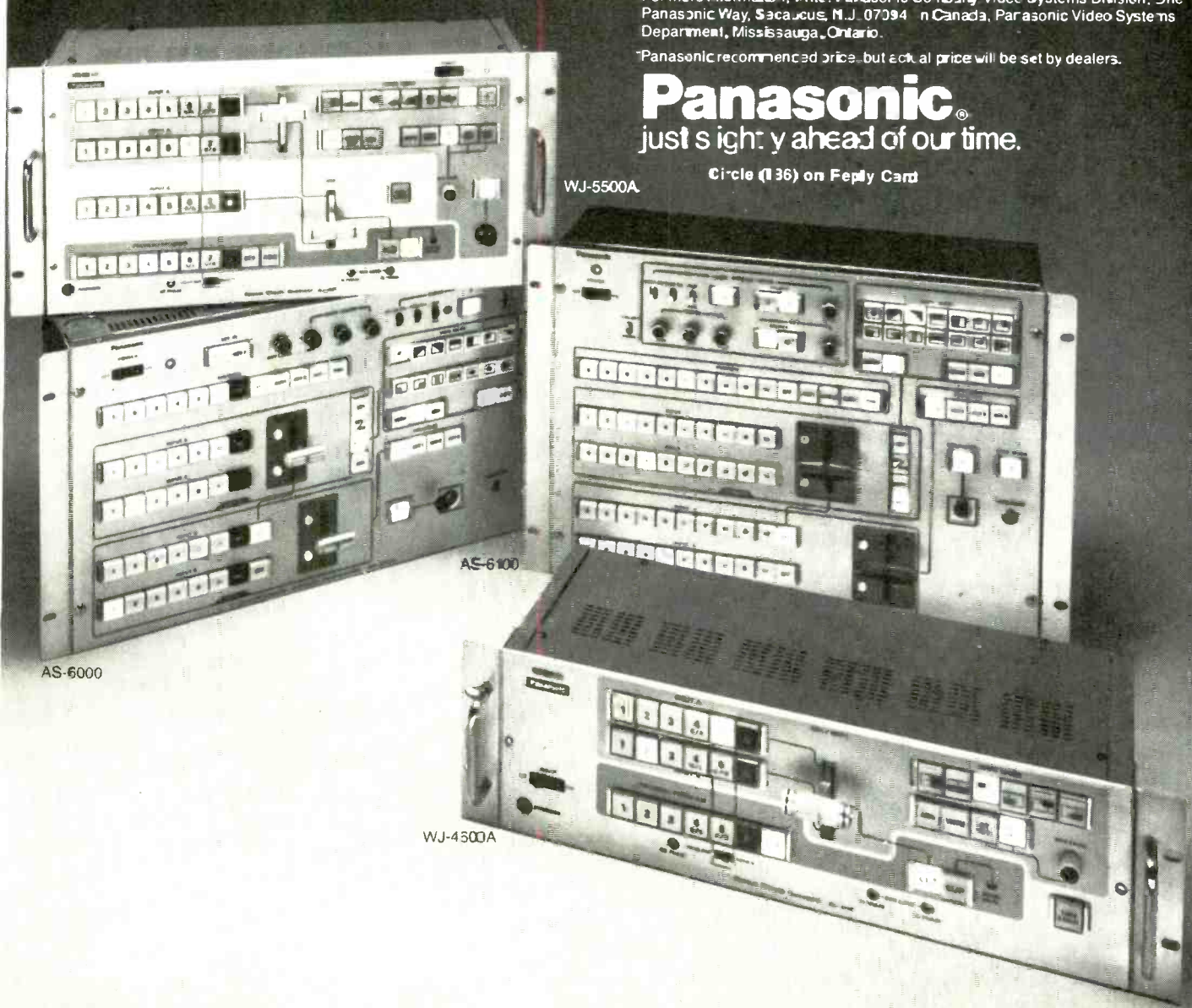
Circle (136) on Reply Card

WJ-5500A

AS-6100

AS-6000

WJ-4600A



mount audio power amplifiers; phono preamps; broadcast turntables.

New: Line of audio distribution amplifiers; Dial-up broadcast remote mixer; broadcast tone arm.

Circle (507) on Reply Card

S.W.R. (Booth 1000)

Products:* Patchless panels; transmission lines; tuners; antennas; consulting services.

Featuring...a patented thermo-controlled coax that eliminates connector heating and prolongs peak performance.

see ad on pages 186-187

Circle (508) on Reply Card

Saki Magnetics (Booth 331)

Products: Long-life ferrite heads for major high-speed duplicators, heads for professional studio recorders.

New: Ferrite 24-track replacement heads for minicom machines; 24-track metal heads for Stephens recorders; long-life Ferrite heads for in-cassette duplicators.

Circle (509) on Reply Card

Scientific-Atlanta (Booth 1305)

Products:* TV demodulators; MET-SAT earth station for receiving weather data.

Circle (510) on Reply Card

Sescom (Booth 905)

Products: Mic-splitters; direct boxes; audio modules; audio transformers; stereo balance boxes; mic-line drivers; line level splitters; stereo input balancers; stereo output balancers.

New: Adjustable active crossovers; 4-channel active audio DA; audio sine wave generators; field mixers; 10-band graphic equalizers; multi box; 3-band parametric equalizers; 4-channel mic mixers; stereo combiners; stereo headphone amplifier and storage box; 3-band tone equalizers.

see ad on page 224

Circle (511) on Reply Card

Sharp Electronics (Both 1216)

Products: 3-tube Saticon cameras; monitor receivers; straight receivers; color special effects generators;

plug-in color bar generators; color sync generators.

New: ENG/EFP cameras.

Circle (512) on Reply Card

Shintron Company (Booth 1107)

Products: Switchers; character generators; edit code generators and readers; sync generators; color background/color bar/color black generator.

New: Model 375 super switcher.



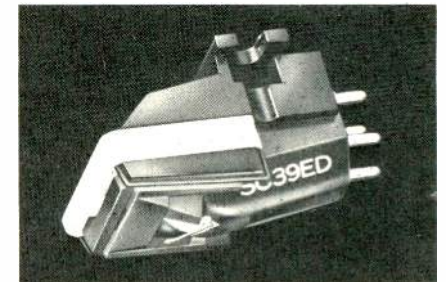
Featuring...the model 318 digital color genlock sync generator that provides broadcast quality composite sync, composite blanking, vertical drive, horizontal drive, burst flag and subcarrier signals.

Circle (513) on Reply Card

Shure Brothers (Booth 200)

Products: Microphones, professional broadcast phono cartridges, broadcast mixers, sound systems and related circuitry.

New: Studio condenser microphones, professional phono cartridges.



Featuring...SC39 series phono cartridges that meet professional requirements of true high fidelity performance, resistance to stylus damage and prolonged record playability.

Circle (514) on Reply Card

Sigma Electronics (Booth 1602)

Products: Gen-lock sync generators; video distribution amplifiers; pulse distribution amplifiers; subcarrier distribution amplifiers; audio distribution amplifiers; video processing amplifiers.

New: Black burst generators, gen-

UP TO 200,000 FRAMES OF STILL PICTURE STORAGE

Not exactly, BUT the Athena telecine projectors permit automatic recall of pictures stored on 16mm film . . .

AND MUCH, MUCH MORE

including **slo-mo** and **freeze-frame**.

Don't miss seeing them at NAB—Booth 939.



L-W INTERNATIONAL

6416 Variel Avenue, Woodland Hills, California 91367 USA.
Telephone: 213/348-8614 • TWX 910/495-1714 LW INTL LSA.

Circle (137) on Reply Card

*Typical products marketed. New products not announced by BE press time.



See us at
Booth 1119
NAB

THEY DON'T BUILD THESE CLASSIC VTR'S ANYMORE BUT THEM BETTER THAN NEW

If you've despaired of ever owning the legendary AMPEX VR-1200 or VR-2000 because of its price, take hope.

Now you can have a previously owned classic AMPEX VTR from AFA for about half of what it originally cost.

An AFA VTR is perfect in every way: VR-1200's or VR-2000's that we have fully and lovingly rebuilt. And they're not just "good as new" ... They're **better!** We've added improvements not available when those models were originally made.

If you operate a TV station, corporate or institutional video center or a production facility, you want the best ... Ampex and AFA. Now both can be yours. Call us today for prices, availability, delivery.

A.F. ASSOCIATES, INC. 100 STONEHURST COURT, NORTHVALE, NJ 07647 201-767-1000
2465 E. BAYSHORE, SUITE 301, PALO ALTO, CA 94303 415-856-1060

Circle (138) on Reply Card

lock sync generators, audio distribution amplifiers.

see ad on page 88

Circle (515) on Reply Card

Bill Simms Partners (Booth 430)

Products: See at booth.

Circle (516) on Reply Card

Sintronic (Booth 126)

Products: Solid-state AM transmitters; FM transmitters.

New: 1kW AM transmitters, all solid-state except PA and modulator.

see ad on page 145

Circle (517) on Reply Card

Skirpan Lighting Control (Booth 1039)

Products: Solid-state dimmers; lighting control systems.

New: K series of dimmers; Cuelog control system.

Circle (518) on Reply Card

Skotel (Booth 1720)

Products: Time and control code generators and readers.

New: Vertical interval time and control code generator.

Circle (519) on Reply Card

Soil (Booth 1109)

Products: Services include design, architecture, construction and installation of complete broadcast facilities; studio; transmitters; antennas; manufacture of custom RF switching systems; consulting and station planning.

New: Computerized remote/local control systems; auto-logging equipment; RF switching equipment.

Circle (520) on Reply Card

Sono-Mag (Booth 309)

Products: Automation systems for radio.

New: Video ESP-1 programmers.

Circle (521) on Reply Card

Sony Corporation of America (Booth 1211)

Products: 1-inch and 3/4-inch VTR equipment; video color cameras; monitors; videotape; digital TBC; PCM audio equipment; computer editing; microphones; related products and services.

Featuring...the PCM-100 digital audio processor and its full line of digital audio and video products. Also expected to be on hand is the model CCD XC-1 color video camera,

said to be the first commercial CCD camera to be marketed. The camera featured a 3/4-inch optical system, S/N greater than 43dB (F2, 500 lux) and weighs 2.8 pounds.

see ad on pages 165, 170, 171, 183

Circle (522) on Reply Card

Sound Genesis (Booth 330-332)

Products: Audiotronics; Ampex; Eventide; JBL; Lexicon; Neumann; Orban; Sony; Sound Genesis Products; Technics; UMC/Beaucart; UREI.

New: Audiotronics series 7000 TV/audio production consoles; audio spectrum analyzers; phono pre-amps; battery-powered headphone amps.

Circle (523) on Reply Card

Sound Technology (Booth 1132)

Products: Line of high-quality audio test equipment including audio generators; distortion analyzers.

New: Tape recorder test system.

Featuring...Model 1500A tape recorder test system that includes

*Typical products marketed. New products not announced by BE press time.

From Marconi to Moseley;

An Industry of Ideas

When Guglielmo Marconi first sent electrical waves across his father's garden, no one really could have guessed the world would be so dependent on his spark of genius. That's the way it is with great innovators.

That's the way it is with Moseley, too. We've got a pretty good idea of where the broadcast industry is heading. That's why we developed the new TCS-2A Telecontrol System. It has all the features that have made Moseley a leader in this field and yet is designed for today's broadcaster. In fact, the TCS-2A is the simplest, economical 8-channel remote control system (with 8 fully independent command, status and telemetry functions) on the market, yet utilizes microprocessor-based technology. The TCS-2A can be used for AM/FM broadcast transmitters, ENG and earth station remote sites, and industrial applications. Combine it with the new model PCL-505A/C STL system with improved high RF density performance and you've developed in operation that's state-of-the-art.

Of course Moseley won't stop with just the TCS-2A. That wasn't Marconi's style and it's not ours!

For more information on all the Moseley Innovators including the Model TCS-2A, PCL-505A/C, MRC-1, DCS-2A, TRL-1, TAL-320, TFL-280B and TGR-340 contact us now.

Santa Barbara Research Park
111 Castilian Drive
Goleta, California 93017
805) 968-9621

Telex: 658448 Cable: MOSELEY



See us at NAB Booth 505

MOSELEY ASSOCIATES, INC.

A Flow General Company

Circle (139) on Reply Card

THE MICROWAVE RADIO FOR EVERY USE

The Only Microwave Radio of its Kind.

Frequency Agility

The TCM-6 is tunable across each band from 1.7 to 15.35 GHz. Change bands by plug-in RF module replacement.

Full Performance

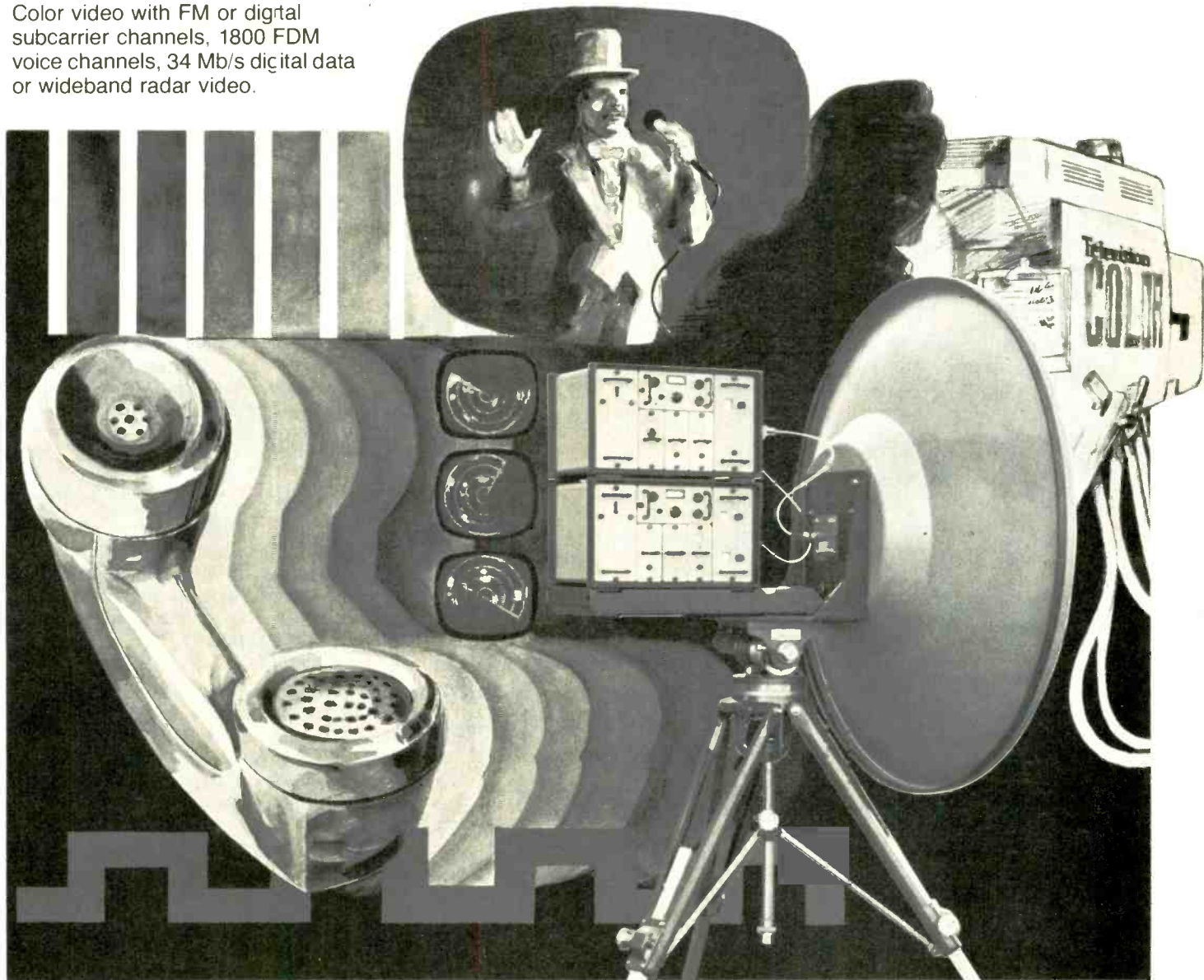
Color video with FM or digital subcarrier channels, 1800 FDM voice channels, 34 Mb/s digital data or wideband radar video.

Fixed Link or Portable

Simplex, duplex and diversity operation in tripod, tower or rack mount configuration.

Proven Operation

Used worldwide from arctic to desert environments by major television and telecommunications administrations.

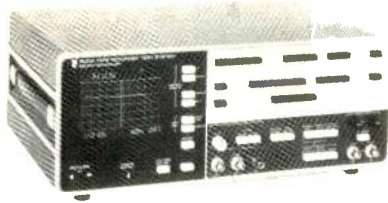


Loral Corporation

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Phone: (714) 278-4100 TWX: TERRACOM SDG 910-335-1202

Circle (140) on Reply Card



automatic graphs of frequency response, harmonic distortion vs level, wow and flutter, noise, speed accuracy and drift, head azimuth accuracy.

see ad on page 107
Circle (524) on Reply Card

Spin Physics (Booth 1118)

Products:* Hot-pressed ferrite quad video head refurbishing service.
see ad on page 82

Circle (525) on Reply Card

Stainless (Booth 935)

Products:* Broadcast, microwave, communication towers.

see ad on page 231
Circle (526) on Reply Card

Stanton Magnetics (Booth 407)

Products: Magnetic cartridges; styli; headphones; Stanton turntables.



New: 310 preamplifier.

see ad on page 211
Circle (527) on Reply Card

Station Business Systems (Booth 509)

Products: BAT systems for computerized sales, traffic scheduling, billing and accounting in radio and television.

New: Computerized newsroom information system; computerized program package and film library system; computerized media and copy inventory system.

Circle (528) on Reply Card

Storeel (Booth 911)

Products:* High-density storage systems.

Circle (529) on Reply Card

Strand Century (Booth 1204)

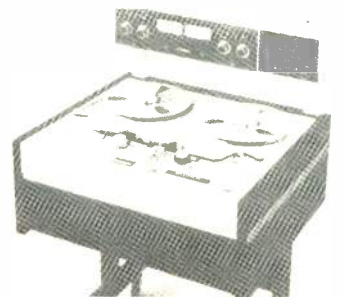
Products:* High-quality studio and location lighting and control equipment featuring Quartz-color laniro's Bambino line of fresnels and HMI spotlights, Micro-Q memory lighting control system and light palette memory lighting control system.

Circle (530) on Reply Card

Studer Revox America (Booth 602)

Products: Multichannel recorders; SMPTE synchronizing and editing systems; broadcast recorders; broadcast remote/production mixing consoles; high-performance stereo monitor amplifiers; turntables; microphones.

New: Mono/stereo recorder/reproducer; telephone hybrid systems; balancing units; digital monitor FM tuners; news and sports events coverage mixing consoles; master/production recorders.



Featuring... Studer A80RC profes-

*Typical products marketed. New products not announced by BE press time.

3D SERIES



Proven.
Over 5,000 ITC 3D's in use—15,000 decks—Stereo and Mono.

Economical.
Three premium line reproducers cost little more than two SP Series single decks.

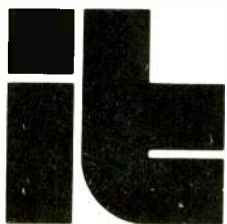
Compact.
Three deck convenience in the space of two SP single decks.

Recorder.
Add a WRA Recording Amplifier and the bottom deck becomes a Master Recorder/Reproducer.

Broadcasters' No. 1 Choice

See ITC's complete product line in Booth 303.

To place a no-risk order (30 day guarantee of satisfaction)
Call Toll-Free: 800-447-0414.
In Alaska, Hawaii or Illinois Call Collect: 309-828-1381



INTERNATIONAL TAPETRONICS CORPORATION

2425 South Main Street, Bloomington, Illinois 61701

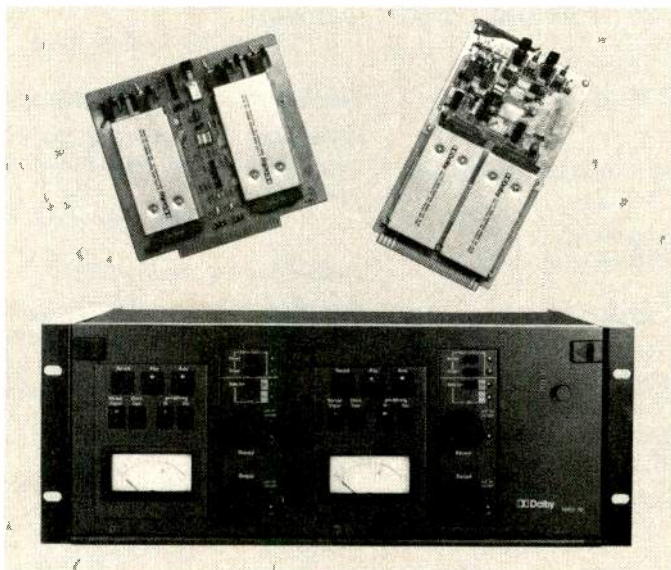
Marketed exclusively in Canada by McCurdy Radio Industries, Ltd. Toronto

Circle (141) on Reply Card

© 1979 ITC

With the Dolby system, the sound can match the picture.

A great deal is happening these days to improve the quality of television audio. New distribution methods such as diplexing, new post-production techniques for laying down sound-tracks without having to re-record them repeatedly on VTRs, the reality of stereo TV audio in some countries — these factors and more are combining with the growing audience sensitivity to good sound to put a new emphasis on television sound quality.



Various configurations of Dolby audio noise reduction for VTRs are shown. The printed circuit boards plug directly into Sony and Ampex 1" machines. The free standing unit is for general purpose use. All units offer 2 channels of Dolby A-type NR.

However, a major bottleneck remains: noise. The better the rest of the studio and distribution chain becomes, the more the noise from the audio tracks of VTRs limits the ultimate fidelity of television sound. The audio signal-to-noise ratio of 2" quad machines is typically worse than 50 dB, while the specs for the new generation 1" machines are typically 52-56 dB. That kind of performance is not as good as many consumer audio tape recorders, and unless improved, may always keep television sound in second place to the high fidelity color picture.

Dolby noise reduction is the proven way to break the noise bottleneck, here and now. It provides 10 dB of noise reduction (rising to 15 dB at

higher frequencies), without audible degradation of the original signal. It reduces hiss, hum, rumble, the effects of multiple-generation re-recording — *all* noise not part of the original signal. It reduces print-through, even years later. It can reduce distortion by permitting the use of lower record levels. And Dolby noise reduction is the key to taking full advantage of the wider frequency range now increasingly being provided in the rest of the TV audio chain.

Since its introduction 13 years ago, Dolby noise reduction has become universally accepted for quality audio tape recording, both professional and consumer. It is also regularly used to improve the audio quality of VTRs in several European countries. Just ask any professional audio recording engineer about the benefits of the Dolby system, or contact us for full technical information. Let us help you in your efforts to provide television sound which matches the television picture.

**Visit NAB Booth 206 for more information.
Hear demonstrations at NAB in the Silver State Room, above the exhibit floor.**

Dolby®

Dolby Laboratories Inc

'Dolby', Dolbyized and the double-D symbol are trademarks of Dolby Laboratories

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London SW9
Telephone 01-720 1111
Telex 919109

SBO 2227 2361

Circle (142) on Reply Card

March 1980 **Broadcast Engineering** 179

ional tape recorder with modern rom technique, fully electronic ape timer including a negative display zero locator.

see ad on page 205

Circle (531) on Reply Card

Swintek Enterprises (Booth 1705)

New: ENG/film dB-S wireless communication system; full duplex communicators and antenna diversity systems.

Circle (532) on Reply Card

Sylvania Lighting Products (Booth 909)

Products:* Incandescent and tungsten halogen lamps for studio, stage and theater lighting.

Circle (533) on Reply Card

System Associates (Booth 1722)

Products: See at booth.

Circle (534) on Reply Card

System Concepts (Booth 1117)

Products: Teleproduction graphic titlers.

Featuring...Quantafont Q-VII Teleproduction Graphic Titler with multiple resident fonts, 20 character size



selection, Nanalog character refinement, full borderline edging, full editing functions, roll and crawl modes.

see ad on page 105

Circle (535) on Reply Card

TTF Lighting Consultants (Booth 1639)

Products: See at booth.

Circle (536) on Reply Card

TVNS (Booth 1804)

Products: See at booth.

Circle (537) on Reply Card

Taber Manufacturing and Engineering (Booth 502)

Products:* Audio heads; VTR audio

heads; bulk tape eraser; audio record/reproduce electronics.

Circle (538) on Reply Card

Tangent Systems (Booth 125)

Products:* Custom audio/video control systems.

Circle (539) on Reply Card

William B. Tanner (Booth 117)

Products:* Custom commercials; station IDs; syndicated music; production libraries; sales assistance; promotion merchandisers; broadcast equipment.

Circle (540) on Reply Card

Tayburn Electronics (Booth 1708)

Products:* ENG systems; microwave radios; antennas-pedestals; digital control systems.

Circle (541) on Reply Card

Tech Theatre (Booth 1709)

Products: Scenic fabrics; cable ties; safety strap; TV makeup; artificial snow and dream cloud; scenic materials and construction supplies.

New: Bubble board.

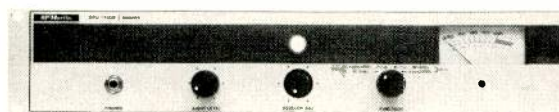
*Typical products marketed. New products not announced by BE press time.



RPU-1103 Portable Transmitter



RPU-1150 Fixed Base Transmitter



RPU-1150R Studio Receiver



RPU-1430 Mobile Transmitter

Everything You Need in Remote Pickup Equipment

McMartin Industries makes everything you need to cover any news story, sports event, or entertainment happening. No need for telco lines.

Hand-held, mobile and fixed based transmitters. Portable and studio receivers. 150 MHz and 450 MHz bands available. All exceed FCC requirements.

Write for more information, or contact your McMartin salesman.

McMartin is what you've been looking for.

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Circle (143) on Reply Card

All those in favor of patch panels, raise your right hand.

Wrestling with those patch cords is cumbersome, awkward and not very good engineering.

But now there's a way to route audio signals with pushbutton ease. Without the patch cords. Without the separate amps, the noisy pots and the mad scramble to adjust levels every time you switch inputs.

Introducing the "electronic patch panel."

Meet the incredible new Ramko ARA-1612 Audio Router/Amplifier.

It lets you use front panel and/or remote control pushbuttons to route 16 inputs to any of 12 outputs, simultaneously or individually, with an instant LED display of what signal is going where.

Each balanced input has its own gain adjustment. The balanced outputs are buffered so you can feed a single input to all 12 outputs with *no* interaction. In addition, each output module contains stereo/mono switches enabling operation in either mode. And, incredibly, you need only a single shielded twisted pair to make all 16 inputs available at a remote location.

More good news.

The Ramko ARA-1612 system also features solid, broadcast-level

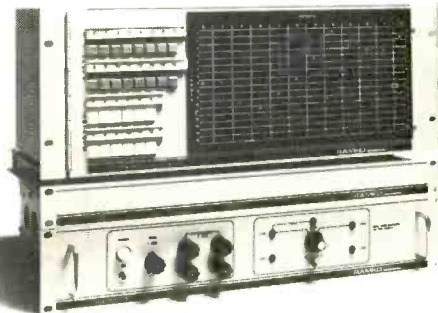
performance specs. Expandability up to 45 in and *thousands* out.

Remote control capability. A dual instant-switchover power supply for 100% on-air reliability. And it's backed by the only two-year warranty in the industry.

Our unique two-week free trial.

Try the Ramko ARA-1612 free for two full weeks (with prior credit approval) so you can pushbutton it through its paces.

Write
Ramko Research,
11355 Folsom
Boulevard,
Rancho Cordova,
CA 95670 for the
details. Or just call
(916) 635-3600 collect -
we'll set you free.



See Us at Booth #110

RAMKO
Brains, not brawn.

Featuring...Bubble board made of extruded closed-cell polyethylene. Each translucent panel is suitable for use as a rear-projection surface. It is flame resistant, will not soak up moisture, may be painted, and is available in 3'x10' panels.

Circle (542) on Reply Card

Technics (Booth 600)

Products: Professional amplifiers; pre-amplifiers; equalizers; tuners; meter systems; turntables; reel-to-reel decks and speakers.

New: The R&B and RAMSA Series components.



Featuring...the RS-M95, a quartz phase-locked direct-drive stereo cassette deck with microprocessor tape tension control; HPF 3-head system; metal tape selector; fine bias adjustment and peak/VU FL meters.

Circle (543) on Reply Card

Technology Service (Booth 907)

Products:* Color weather radar.

Circle (544) on Reply Card

Tektronix (Booth 1111)

Products: Standard video test signal generators; waveform monitors; vectorscopes; color picture monitors; correctors.

New: ANSWER measurement set; spectrum analyzer; logic analyzer; oscilloscope.



Featuring...492 spectrum analyzer offers rugged portability with ease of use and high performance.

Circle (545) on Reply Card

Tele-Cine (Booth 1114)

Products: Schneider lenses and adapters.

Circle (546) on Reply Card

Telecommunications Industries (Booth 1410)

Products: See Porta Pattern.

Circle (547) on Reply Card

Theatre Techniques (Booth 1816)

Products:* Background sets and panels; minicomputer studios/stage lighting controls.

Circle (548) on Reply Card

Theater Service and Supply (Booth 1801)

Products: See at Porta Pattern.

Circle (549) on Reply Card

Thermodyne International (Booth 1627)

Products:* Carrying and shipping cases.

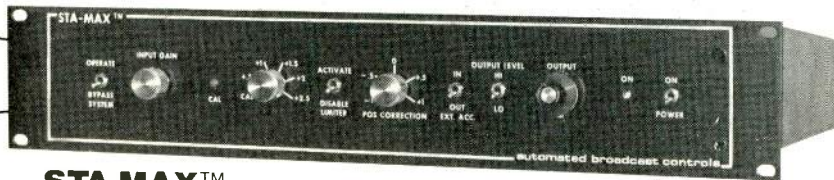
Circle (550) on Reply Card

Thomson-CSF Broadcast (Booth 919)

Products: Audio: FM Volumax automatic peak controller; AM Volumax dual audio distribution amplifier; Audimax automatic level controller; and dynamic presence equalizer; Video: hand-held EFP/ENG color television camera; Vidifont character/graphics systems with changeable fonts, font compose, Vidivote

*Typical products marketed. New products not announced by BE press time.

**take your signal
to the max
without mush**



STA-MAX™

Already proven at top-rated stations in major markets. Sta-Max. With advanced new technology that gives you the loudest FM Stereo signal on the dial. To increase your coverage. And your numbers. With a complete end to overshoot and distortion. And increased mono loudness without degrading stereo separation.

Sta-Max is completely compatible with any processor or compressor, any stereo generator/exciter combination. And it works. Regardless of your format.

Get loud. Stay legal. With Sta-Max.

"See us at NAB Booth #312"

STA-MAX: Now on line at 124 stations

**automated
broadcast
controls**

9155 Brookville Road
Silver Spring, MD 20910
301-587-3505

Circle (160) on Reply Card

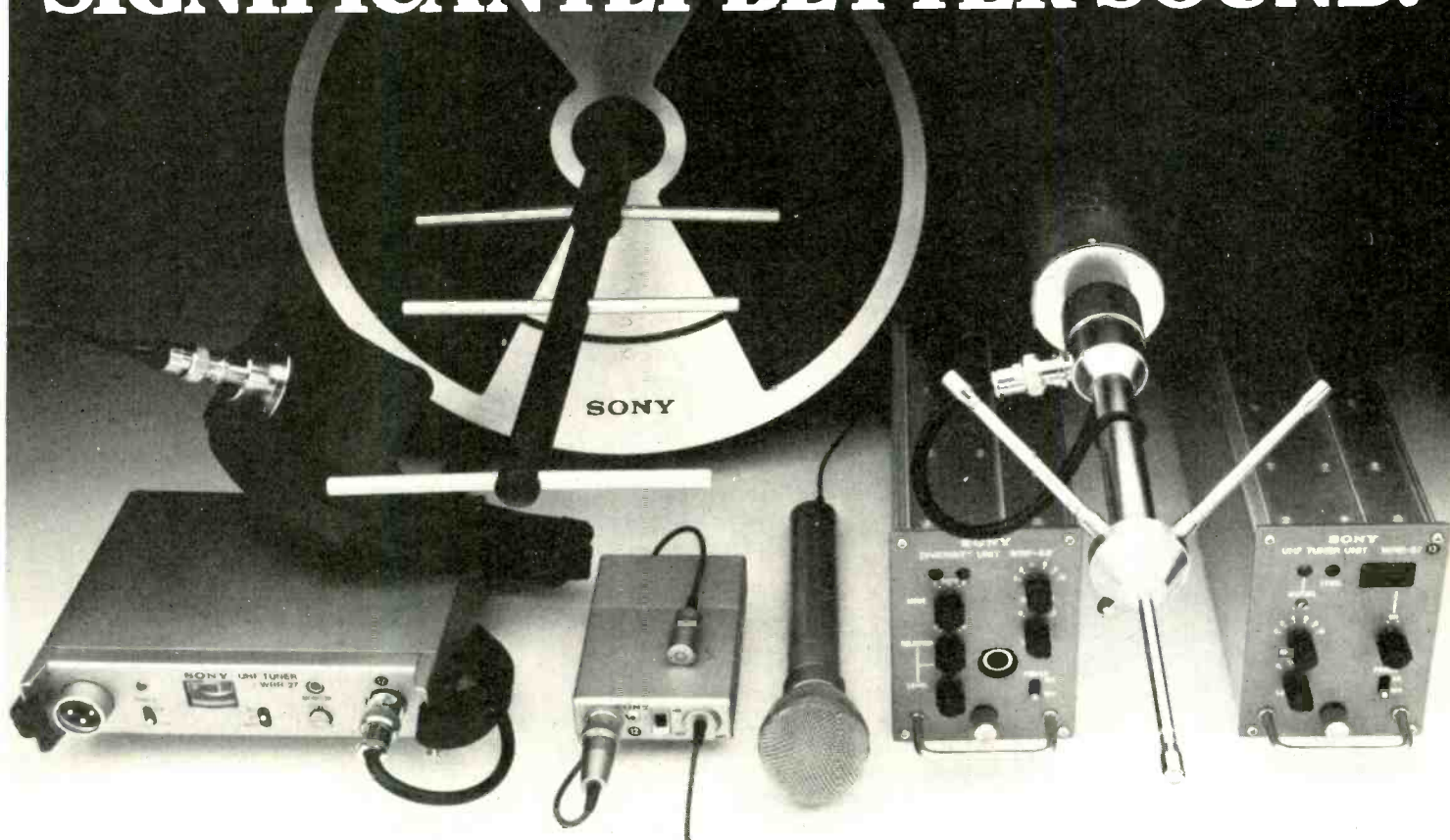
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Please complete the change of address information on the subscription form.

To ensure uninterrupted delivery to new address, answer all questions on the form completely.

**BROADCAST
engineering**

SONY INTRODUCES WIRELESS MICROPHONE SYSTEMS WITH AN INNOVATION NOBODY ELSE HAS: SIGNIFICANTLY BETTER SOUND.



Until now, using a wireless microphone system meant sacrificing the quality of the sound in a trade-off for portability.

No more.

Sony has engineered wireless microphone systems as portable and versatile as any on the market.

But with a very big difference. Excellent sound.

To begin with, Sony offers a wider dynamic range than any other wireless system, a range of 96 dB. This accommodates sound pressure levels up to 130 dB. (While most other wireless systems have limiters which hold their dynamic range to, at most, 75 dB, Sony engineering has produced a system that requires no limiters.)

So what goes into the microphone comes out again at the same sound level. And nothing takes away from the thrill of performance.

What's more, audio distortion is less than 0.1% and signal-to-noise ratio is better than 57 dB (both ± 2.4 kHz deviation, at 1 kHz).

And the new Sony systems are virtually drift-free. Frequency stability is an amazing $\pm 0.005\%$.

Furthermore, Sony wireless systems are available with up to 14 channels in UHF, which means that interference from other sound sources is much less likely than at lower frequencies.

And while many wireless systems are put together with a mixture of components from several manufacturers, Sony uses only one: Sony.

So we've been able to create fully integrated systems that offer you a wide variety of options.

For EFP and ENG, Sony's system includes a tiny lavalier mike, a transmitter about the size of a cigarette

pack and a tuner smaller than a paperback book.

The system also comes with a shoulder-strap antenna and a leather carrying case. Altogether, it's compact and efficient and offers outstanding sound.

For studio and stage use, Sony has a modular rack-mounted system that can be engineered in any combination you want, from single-channel to multi-channel diversity reception.

It can be portable or fixed, and runs from 110 volts AC or 24 volts DC.

For more information, call Sony Professional Audio Products at (212) 371-5800, extension 143 or 145.

You'll find out that no other wireless systems sound as good as Sony's.

SONY

We've never put our name on anything that wasn't the best.

Low Cost High Performance Professional Degaussers

- Save Time
- Save Tape and Film
- Save Money

WRF's wide range of degaussers are designed for years of dependable service for clean and simple erasure of magnetic film and tapes in just about any configuration.

Backed by years of proven reliability, these units are the answer to cutting man-hours and reducing material costs by allowing reuse of prerecorded media.



TYPE 9205A Degausser is ideally suited for complete erasure of program and residual noise from video, audio, and data recording tape and magnetic film—in reels, cartridges and cassettes. This unit will bulk erase reels up to 2 inches thick and 17 inches in diameter. Available for 115 or 230 volt operation.



TYPE 642-21 Degausser is similar to the 9205A except it is limited to erasure of 10½ inch reels. This unit is recommended where size and cost are limiting factors.



TYPE 8905 Magnetic Erasing Pencil is an excellent tool for erasing limited, small areas of tape or film and for demagnetizing record/play heads. In program material, words, complete sentences, and even syllables may be erased. This unit is equipped with a press-to-operate switch on the handle.

MODEL 22-323-1 Foot Switch is a companion accessory to the bulk degaussers that allows convenient, "hands free" operation and provides a positive means of turning the degausser off immediately after use. This is a momentary acting switch and can help extend the life of the degausser.

If you're looking for a degausser with proven reliability that will save you time and money, call or write WRF today.



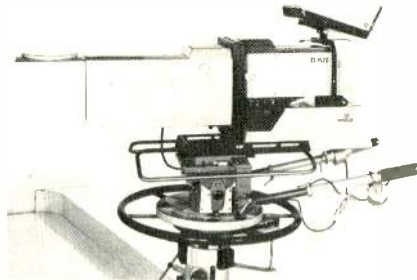
2119 Schuetz Road • St. Louis, Mo. 63141 U.S.A.
314 567-5366 • Telex: 442560

Circle (147) on Reply Card

184 *Broadcast Engineering* March 1980

and Viditext options; digital noise reducer; digital video processor; the Vidiplex/STRAP systems; ENG and Telecine color correction systems; 1kW transmitters; 10W transposers and telecine equipment.

New: TTV 1525 color studio camera.



Featuring...color studio camera model TTV.

see ad on pages 94, 95

Circle (551) on Reply Card

Thomson-CSF Electron Tubes (Booth 512)

Products: 100W UHF triode; 2.2kW UHF 16dB gain tetrode; 5.0kW UHF tetrode 16dB gain; 300kW 30MHz tetrode and 1.0kW UHF cavity.

New: Super noticon 16mm high sensitivity camera tube; and 100W TWT for satellite direct broadcast.

Circle (552) on Reply Card

Thomson-CSF Laboratories (Booth 919)

Products:* Portable color TV cameras; character generators; digital noise reducers; with frame synchronizer; color correctors for ENG/Telecine applications; low-power transmitters and transposers.

Circle (553) on Reply Card

Thorn Lighting (Booth 1815)

Products: See at booth.

Circle (554) on Reply Card

3M Magnetic Audio/Video Products Division (Booth 815)

Products: Videotapes.

New: Scotch Color Plus ¾ U-Matic videocassettes.

Featuring...the Scotch Color Plus ¾ U-matic videocassette, which features a proprietary stabilized ferric oxide offering 3dB improvement in color S/N over industry average and 1.5dB improvement in video S/N over industry average.

see ad on page 129

Circle (555) on Reply Card

3M Video Products (Booth 815)

Products: Character generators;

routing switchers and other micro-processor-based control panels.

New: 1-inch C format NTSC videotape recorder; aided track following; time base corrector; machine control system; random access and disc storage memory.



Featuring...the IT-7000 1-inch high band VTR, which offers an automatic track following feature. Other options are: console with mounted bridge; remote control panel and slo-mo controller.

see ad on page 61

Circle (556) on Reply Card

Telemet (Booth 1010)

Products: Clamping amplifiers; repeaters; modulators; sideband analyzers; test signal generators; chroma keyer; chroma keyer decoder; video cable terminals; RF test equipment; demodulators; group delay measuring equipment; video and pulse distribution amplifiers.

New: 3709 sideband/spectrum analyzer; 3710 broadcast demodulator; 3310 video distribution amplifier; 3315 video distribution amplifier with clamp and equalization; 3320 pulse distribution amplifier; 3325 pulse distribution amplifier with variable delay; 4210 fiber optics transmitter and receiver; 4420 modulator; video isolation amplifier; RF synthesizer; fiber optics with sound; thermal equalizer and routing switcher.

see ad on page 212

Circle (557) on Reply Card

Telescript (Booth 1025)

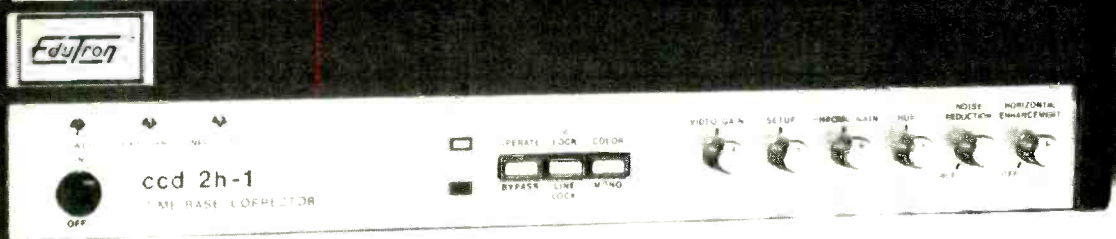
Products: Monitor prompting systems; transports; external drive 2-1 vidicon cameras with 12.5mm f 1.8 1-inch format lens; and beamsplitters with 2nd side l.r. coating.

New: Contrast enhancer and an electronic digital prompting system.

Circle (558) on Reply Card

*Typical products marketed. New products not announced by BE press time.

Now You Can Afford To Do A-B Rolls With Your HET VTR'S.



Introducing the Edutron ccd2h-1. Full Time Base Correction For Only \$5,800.

The ccd2h-1, when used at your editing station or for post production, can solve many problems while it is correcting and enhancing your heterodyne VTR signal. You will be able to synchronize your VTR, allowing you to use it as a source to do mixing at your switcher. With two ccd2h-1's, you can now do A-B rolls between two VTR's.

By using the latest advancements in charge-coupled-device memory technology, we can give you superior performance at a realistic price. The ccd2h-1 has a signal-to-noise ratio of 58 db, $\frac{1}{2}^\circ$ of differential phase, and 1% differential gain. This will give you the best possible reproduction of the video from your VTR.

If you have bad tapes you would like to clean up or good tapes you would like to make look even better, the ccd2h-1 is ready. By using a unique noise coring that gives up to 4 db of noise reduction, all generations of tapes will look better. A horizontal

enhancement of up to 200% boost will sharpen your video. All of this is standard in the ccd2h-1 and available at no extra cost.

The two horizontal lines of window correction will handle typical distortions. The automatic steerable advanced sync will make the window appear much wider as it keeps your VTR centered in the window. This will give you maximum correction range and a zero time system delay.

For complete specifications and the name of your nearest Edutron dealer, please write or call us at: EDUTRON INC., 11003 US Highway 19, Roswell, GA 30075. Phone (404) 992-1626.

The Video Electronics Company

Circle (148) on Reply Card

See us at NAB Booth No. 1714

Compare

Thermo-coupled
Inner (No Hot Connector)

Heat flow
3 to 7 times
faster than
other Mg's

Wrist
Band
Spring
gives one
Contact
surface
(not 2 friction
points like
other connectors)

Flange
25% thicker
than E.I.A.

All dust
collects in
Cup (not on
insulator)

1/4" line
flange
Teflon &
1/8" gins
can't be
pinched

all
welded
flanges

Heavy Wall

all copper connector Inner
(not silver plated Brass)

Country's Best Coat

It takes good connections to get to the top. But it takes performance and reliability to stay there.

When your income depends on your output, why settle for second best? In all cases where our competition failed we performed. LUCK? NO! Just a far better approach to transmission line design.

Unfortunately it's true. Most of our customers had used other people's coax line prior to using ours. After replacement with S.W.R.'s line, none has had an RF failure since. That's RELIABILITY!!

What you lose in performance is the true cost of transmission line. Most stations repair or replace their systems with the same design that caused problems to begin with. Our patented thermo-controlled coax eliminates connector heating and prolongs peak performance longer than any other line available. It truly keeps you on top.

Remember . . .

SYSTEMS WITH RELIABILITY

Is Our Name!

SWR[©] INC

Systems with Reliability

P. O. BOX 215
GOFFSTOWN, N. H. 03045
(603) 497-3000

See us at Booth 1000 in Las Vegas.

FOR MORE INFORMATION
CIRCLE CARD #

150

Television Engineering (Booth 1201)

Products:* Custom vans for remote productions.

see ad on page 38

Circle (559) on Reply Card

Television Equipment Associates (Booth 1019)

Products: Audio and video delay systems; video filters; headphones; and tape evaluators/cleaners/gauges.

New: Video filters for A/D and D/A converters; BCA interphone system; wireless earphone and VIRS generator.

see ad on page 208

Circle (560) on Reply Card

Television Technology (Booth 1623)

Products: VHF and UHF translators and amplifiers.

New: 1- and 10-watt FM translators.

Circle (561) on Reply Card

Telex Communications (Booth 311)

Products: Reel-to-reel tape recorders; reel-to-reel tape logger; tape transports; NAB cartridge tape recorders; amplifiers; headphones and headsets.

New: Turner microphones; Audio-com intercom system and 10½-inch reel-to-reel tape recorder.

see ad on pages 8, 87, 108

Circle (562) on Reply Card

Tentel (Booth 1124)

Products:Tape tension gauges.

New: ¾-inch spindle height gauge.

see ad on page 144

Circle (563) on Reply Card

TerraCom (Booth 1043)

Products: Portable microwave radio; microwave antennas and accessories; and satellite earth stations.

New: THP-2T20 program channel multiplexer.



Featuring...the THP-2T20 program channel multiplexer combining four 15kHz program channels to produce a 1.544 Mb/s data stream for transmission over T-carrier lines or

microwave radio. Optional interface formats include the standard T1 interface, AMI, NRZ or bitternary for microwave transmission. Features include modular construction, interchangeable PC boards color coded for error-free positioning and front panel test and monitor points.

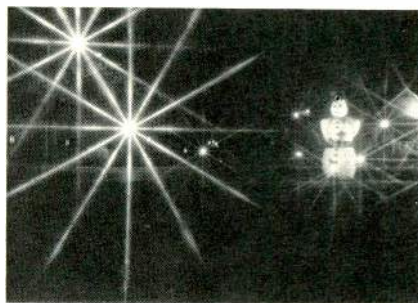
see ad on page 177

Circle (564) on Reply Card

Tiffen Manufacturing (Booth 1810)

Products: Fog filters; diffusion; low contrast; multi-image; polarizer; color-grad; FL-B + FL-D; star effect; vari-color; and center-spot filters.

New: 12-point star effect filters.

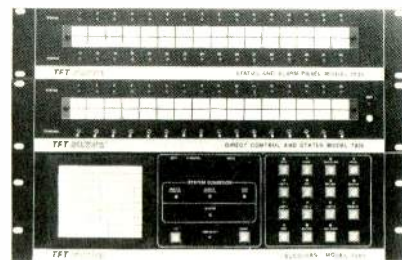


Featuring...the 12-point star filter.

Circle (565) on Reply Card

Time and Frequency Technology (Booth 111)

Products: TV, AM and FM frequency and modulation monitors; stereo and SCA monitors; EBS and STL equipment; digital remote control systems.



New: Microprocessor remote control equipment.

see ad on page 153

Circle (566) on Reply Card

Toshiba International (Booth 1415)

Products: Automatic computerized studio camera; portable ENG camera; portable field production console.

New: Fully automatic microprocessor-controlled studio camera model PK-40A.

Featuring...the PK-40A color camera with fully automatic setup; triaxial

*Typical products marketed. New products not announced by BE press time.

TV Studios with inadequate lighting may have a dim future.

Thanks to our experience in dealing with studio lighting, we have designed six standard TV lighting packages that meet normal needs for standard-sized studios. And since these are complete systems already engineered and in stock, ready to ship, they afford substantial savings.

At Kliegl, we have a team of seasoned engineers who can also design custom studio lighting systems to meet more exacting requirements.

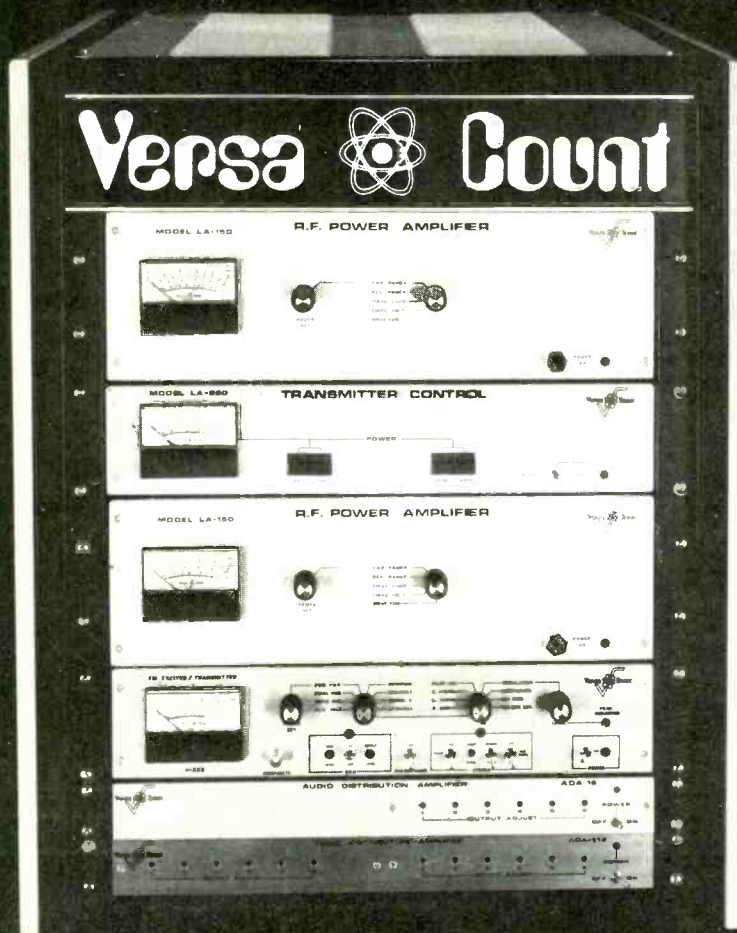
So, if you don't want your viewers to change channels, turn to Kliegl. For complete information on our TV packages, please write or call.



Kliegl Bros.
32-32 48th Ave.
Long Island City
New York 11401
212/786-7474

Circle (151) on Reply Card

RADIO & TV BROADCAST EQUIPMENT



NEW 250 WATT TRANSMITTER

COME SEE US IN LAS VEGAS

BOOTH 516

RADIO EQUIPMENT

- EXCITERS
- TRANSMITTERS
- TRANSLATORS
- MODULATION MONITORS
- STEREO MONITORS
- SCA MONITORS
- STEREO GENERATORS
- SCA GENERATORS
- AUDIO DA's

Circle (152) on Reply Card

TV EQUIPMENT

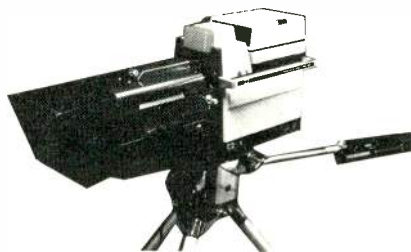
- VIDEO PROCESSOR
- VHF TV TRANSLATORS
- VHF AURAL EXCITERS

Circle (104) on Reply Card

Versa Count

553 LIVELY BOULEVARD
ELK GROVE VILLAGE
ILLINOIS 60007

Phone 312-593-0208



camera cable; 1-inch diode-gun lead oxide tube; computerized fault indication and maintenance.

Circle (567) on Reply Card

Townsend Associates (Booth 1007)

Products:* TV transmitters; power amplifiers; video demodulators; RF detectors; heat exchangers; TV maintenance service.

Featuring...the Tetron UHF transmitter series that combines the high performance of klystrons for visual power, plus the use of economical tetrodes for aural amplification.

Circle (568) on Reply Card

Trans-American Video Incorporated of Nevada (Booth 933, 1321)

Products: Demonstration cassettes

of services offered and of European affiliate.

New: Laser transmitter/receiver. Low-power lightweight transmitter and receiver for audio and video at network specifications. Application for cableless cameras in inaccessible areas.

Circle (569) on Reply Card

Trans-American Video (Booth 933)

Products:* Audio/video location productions.

Circle (570) on Reply Card

Tri-Tec Systems (Booth 1503)

Products: See at booth.

Circle (571) on Reply Card

Trompeter Electronics (Booth 1037)

Products:* Audio and video panels; jacks; patch cords and looping plugs; coaxial connectors; cable and accessories.

Circle (572) on Reply Card

Tuesday Productions (Booth 210)

Products:* Producers of custom video image packages, music

themes, news themes and promotion for TV and radio stations.

Circle (573) on Reply Card

Tweed Audio (Booth 1509)

Products:* Audio mixing consoles and related equipment.

Circle (574) on Reply Card

UMC Electronics (Booth 108)

Products: Beaucart Type 10 cartridge tape machine; Beaucart II Type 40; audio console; motorized azimuth; Beau motors.

New: Monitor II; Beau Pro console.

Circle (575) on Reply Card

Ultra Audio Pixtec (Booth 1819)

Products: Audio mixer amplifiers; battery-powered audio remotes; audio stereo monitor compact amplifiers; video and audio test and measuring equipment.

New: Vectorscopes; portable waveform monitors; ultra-compact multiple audio distribution amplifiers; rack-mount audio monitor amplifier/speakers; battery-powered audio mixers; stage lighting controllers.

Circle (577) on Reply Card

Unarco-Rohn (Booth 1021)

Products:* Towers and accessories for broadcast—material only or complete turnkey installed tower systems.

Circle (578) on Reply Card

United Media (Booth 1711)

Products:. SMPTE time code computer-assisted editors; time code generator with user bits; time code readers with user bits; time code character generators with user bits.

Featuring...the Commander series of computer-controlled electronic video editors with a variety of standard features including uncomplicated keyboards and display, real-time control system for video or audio-tape recoder, microprocessor-controlled electronic memory for keeping track of edits.

Circle (579) on Reply Card

*Typical products marketed. New products not announced by BE press time.

No Memory

When is "no memory" an advantage? When it's a characteristic of your battery system.

With Schneider Sealed Lead-Acid battery belts and packs there is never a problem with "memory effect." The capacity demanded of the battery in previous cycles has no influence on future delivery levels. Battery life will never be shortened by overcharging—the charger senses when the battery is charged. Plus Schneider power units maintain excellent voltage regulation in cold weather and have an unusually long shelf life.

All this adds up to make Schneider Sealed Lead-Acid Battery Packs and Belts a sensible alternative to problem-ridden ni-cad systems.

Battery packs and belts for all film and video cameras and 30-volt lights.

Schneider Sealed Lead-Acid Batteries— "The Problem Solvers"



**FILM/VIDEO
EQUIPMENT
SERVICE
COMPANY**

1875 South Pearl Street
Denver, Colorado 80210 - 303-733-1980

Circle (153) on Reply Card

***NAB Product
Directory listings
start on page 62.**

When you need microphones with "reach," reach for these!

CL42S Shotgun System

The CL42S reaches farther and rejects more ambient noise than any other shotgun of its size ever made. Our exclusive line bypass port makes it more directional at low frequencies so you won't have to sacrifice frequency response when you use it on a boom. Diffraction vanes maintain high-frequency directivity to preserve uniform frequency response if the "talent" gets a little off-mike.

Phantom or AB powered, the CL42S comes complete with windscreen, shock mount, carrying case and handle for hand-held applications. And it's rugged.

CH15S Hypercardioid System

The CH15S is actually more directional than a mini shotgun mike - in a package that's only 4 inches long that weighs less than 6 oz. Specially designed for boom and fishpole use in TV and motion picture studios, but equally at home wherever working space is small and you have need for a compact, highly directional microphone.

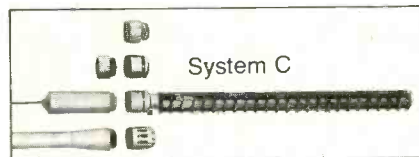
Compatible with phantom or AB power, the CH15S comes complete with windscreen, shock mount and carrying case. And, this microphone is rugged.

The Electro-Voice Warranty

Electro-Voice backs up these two microphones with the only unconditional warranty in the business: for two years we will replace or repair your CL42S or CH15S microphone, when returned to Electro-Voice for service.

at no charge - no matter what caused the damage!

We can do this because we build these microphones to meet our standards for performance, ruggedness and durability. We accept nothing less, and if you're a professional, buying a professional quality microphone, you shouldn't either.



Ev **Electro-Voice**[®]
a gulton company

600 Cecil Street, Buchanan, Michigan 49107

Circle (154) on Reply Card

United Press International (Booth 903)

Products:* Broadcast Datanews; audio network; broadcast newswire; UNIFAX II, Unislides; electronic editing; GOES FAX (weather satellite facsimile wire).

Circle (580) on Reply Card

United Research Labs (Booth 405)

Products: Amplifiers, pre-amps, recorders.

Circle (581) on Reply Card

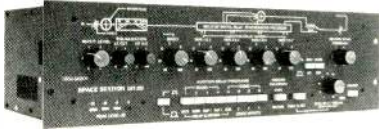
Uni-Set (Booth 1106)

Products: Studio settings.

Circle (582) on Reply Card

URSA-Major (Booth 219)

Products: The Space Station model SST-282 digital reverberation system; audio delay lines; sound effect filters; sound effect systems.



Featuring...the Space Station, a multi-tap digital delay algorithm synthesizes convincing reverberation. Key reverberation parameters such as initial delay pattern, decay time, and high and low frequency decay time can be independently adjusted to simulate a variety of spaces.

see ad on page 218

Circle (583) on Reply Card

US JVC (Booth 1519)

Products: Color monitors; color cameras.

New: U-VCR editing systems, color cameras.

see ad on pages 34, 35

Circle (584) on Reply Card

U.S. Tape & Label (Booth 202)

Products: Bumper strips, window labels, t-shirts and transfers for the broadcasting industry.

Circle (585) on Reply Card

Utah Scientific (Booth 1629)

Products:* VAS-1 series routing switchers; CAV-7 line of compact video and audio routing switchers; control panels featuring single coax

party line control connection and optional encoding to permit switching by device name, rather than matrix input number.

see ad on page 103

Circle (586) on Reply Card

Utility Tower (Booth 500)

Products: Tower sections; lighting equipment; galvanized hardware.

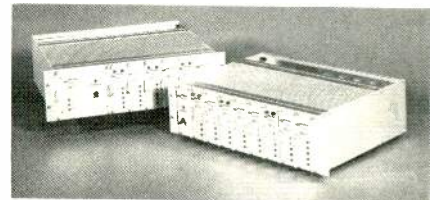
Circle (587) on Reply Card

V & B Tower Construction (Booth 320)

Products:* Tower construction.

Circle (588) on Reply Card

Valtec Corporation (Booth 1811)



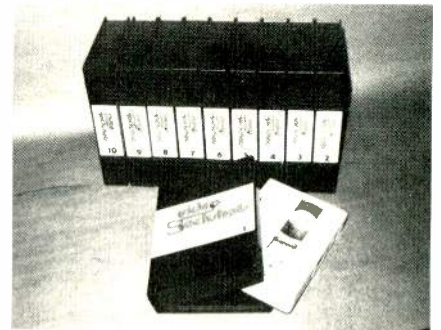
Featuring...VS-100 fiberoptic base-band video systems that simultaneously transmit studio-quality video, high fidelity audio and data up to 3 km without any repeaters.

Circle (589) on Reply Card

Thomas Valentino (Booth 412)

Products: Major production music library.

New: Video stockshots



Featuring... Video Stockshots, more than 28 volumes of stock footage in video.

Circle (590) on Reply Card

Van Ladder (Booth 1813)

Products:* Van-mounted microwave antenna carrier; van-mounted camera platform.

Circle (591) on Reply Card

*Typical products marketed. New products not announced by BE press time.

SEE the 1550B TELECINE in ACTION.

... it's the INDUSTRY "PERFORMER"

visit COHU at NAB

Cohu's 1550B Telecine has an improved ENCODER/ENHANCER/AUTO BALANCE that makes its outstanding COLORIMETRY even better.

Also, see Cohu's line of BROADCAST QUALITY MONITORS. Available in 9, 14, and 17-inch models with Cohu's EXCLUSIVE AUTOMATIC VIDEO LEVEL.



and the Cohu MATTING CAMERA featuring clear and crisp video with maximum detail.

You expect more from Cohu. . . and you get it.



See us at Booth 900

Post Office Box 623 □ San Diego, CA 92112 □ Phone: (714) 277-6700

Circle (155) on Reply Card

ENERGY. We can't afford to waste it.

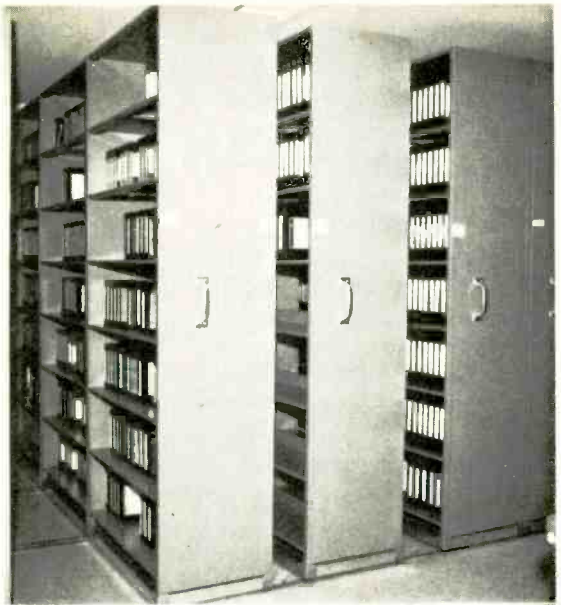
Storeel is dedicated to conserving energy. Yours.

Energy conservation is much in the news these days. Like the weather, many talk about it but few do anything about it. We haven't figured how to change the weather, but we do have several systems specifically engineered for broadcasters that both conserve energy and add efficiency. The very latest (shown installed) is called STOR-MAX.™

Save energy (yours) by converting your overcrowded film and VTR libraries to the new "Instant Access" high-density systems engineered and distributed only by Storeel. Modular Rapid Transit Storage™ maximizes units stored per square foot of floor space, minimizes retrieval time, optimizes energy efficiency.

Our many years of design and engineering pay off in solutions to your storage problems.

Call or write "The Railriders" at Storeel today for free estimate. No obligation, of course.



Illustrated catalog of Storeel's "confusion eliminators" available upon request. Write on your letterhead or telephone for your free copy.

See us at the NAB in Las Vegas, Booth 911.

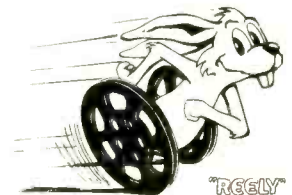
STOR



EL CORP.®

**The
Space-Saving
Engineers**

2050-C Carroll Avenue • Atlanta, Georgia 30341 • Telephone (404) 458-3280



Circle (156) on Reply Card

March 1980 *Broadcast Engineering* 193

Varian, EIMAC Division (Booth 306)

Products: Transmitting tubes for broadcast, FM and TV service.

New: FM transmitter cavity.
Circle (592) on Reply Card

Versa-Count (Booth 516)

Products: FM exciters; FM translators; video processing amplifiers.

New: Modulation monitors; power amplifiers; transmitters.

see ad on page 189

Circle (593) on Reply Card

Video Aids Corporation of Colorado (Booth 1018)

Products:* Editors; party lines; NTSC color sync generators; black burst generators; electro-optical isolators; burst & H-phase meters; video distribution amplifiers; cross pulse generators and monitors.

Circle (594) on Reply Card

Video Associate Labs (Booth 1716)

Products:* Modification equipment for 3/4-inch VTRs.

Circle (595) on Reply Card

Video Data Systems (Booth 1523)

Products:* MPC-3000 microprocessor system; T-1000A titler; TM-1024S titler/message unit; character generators; digital weather systems.

Circle (596) on Reply Card

Videomagnetics (Booth 1808)

Products: Quad videotape head refurbishing; radial air gap rotary transformer; lo-band to hi-band conversions.

New: Ferrite tips for RCA and Ampex heads.

Circle (597) on Reply Card

The Video Tape Company (Booth 1022)

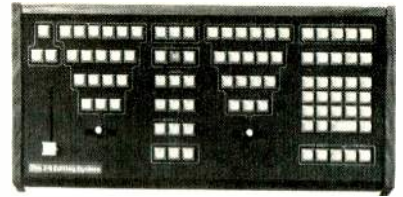
Products:* Blank videotape and duplication in all formats; videotape distribution services.

Circle (598) on Reply Card

Videomedia (Booth 1401)

Products: Computerized editing systems.

New: SMPTE time code sideload BCD reader, multiple source deck editor.



Featuring...Z-6 editing system that offers alternative to SMPTE time code. It requires no separate audio track or cross-talk and is readable at any speed.

Circle (599) on Reply Card

Videotek (Booth 1611)

Products: Color monitors.

New: Demodulators; waveform monitors and 5-inch rack-mount color monitor.

Featuring...TSM-5 video waveform monitor which provides bright, sharp easy-to-observe video waveform displays on a 5-inch CRT.

Circle (600) on Reply Card

Vital Industries (Booth 921)

Products: Production switchers; master control switchers; master control automation switchers; 4-channel video manipulation units.

see ad on page 11

Circle (601) on Reply Card

Vitex (Booth 1120)

Products: Production switchers; master control switchers.

Circle (602) on Reply Card

Wang Voice Communications (Booth 120)

Products: Digital audio delays.

New: Time tunnel model 700 15 and 7.5 kHz 6-second digital audio delay both with expand/compress feature.

Circle (603) on Reply Card

Ward-Beck Systems (Booth 1219)

Products:* Radio audio consoles; TV audio consoles; intercommunication equipment; routing switchers; distribution and monitor amplifiers; test metering equipment.

see ad on back cover

Circle (604) on Reply Card

*Typical products marketed. New products not announced by BE press time.



A professional makes even the toughest jobs seem easy

That's the way it is with Waters professional audio attenuators. They feature glass-hard MystR® conductive plastic elements and slip rings as well as precious metal contacts. What's more, Waters computer-controlled curve-shaping technique assures superior tracking.

Result: smooth, quiet, long-life performance under the most grueling service conditions.

You'll find Waters complete line of professional audio controls meets every need — linear or rotary motion — mono, stereo, or quad. Two standard impedance values are now available, 600 or 10,000 ohms.

If you're into mixing, you ought to get the complete story on Waters audio controls. Write today, or call us at 617-358-2777.

It's the professional way.



WATERS MANUFACTURING, INC.

Longfellow Center, Wayland, MA 01778 617-358-2777



Circle (157) on Reply Card

PREVENT BIRTH DEFECTS March of Dimes

Come up to World Class Television

Come up to Philips "World Class Television" exhibit at NAB. You'll see the World Class cameras and broadcast equipment that have made Philips the Innovative Leader in World Television. With cameras like:

- **The LDK-25 Camera Family**—Introducing the latest version, LDK-25B, plus innovations in automatics and triax as used by ABC in world coverage of the Winter Olympics.
- **LDK-14**—New, World Class standard for ENG/EFP/Studio cameras. Now with triax capability.
- **VIDEO 80**—Latest version of the modular camera and expandable production system in Broadcast and Institutional use around the world.

You'll also see:

- **Philips Exciters and Transmitters**. Over 1300 world-wide. Now the fastest growing UHF/VHF Transmitter line in North America.
- **Innovations in Digital Noise Reducers, Tape Synchronizers, Sync and Timing Systems, and Video Tape Recorders.**

Don't miss Philips live and "hands-on" demonstrations including excerpts of exciting television production from around the world. Booth 807, NAB 1980.

Philips Broadcast Equipment Corp.

A NORTH AMERICAN PHILIPS COMPANY
91 McKee Drive, Mahwah, N.J. 07430



Innovative Leader in World Television

PHILIPS®
TM N.V. Philips of Holland

Warehouse (Booth 217)

Products: Custom imprinted 5-shirts, jerseys, jackets, sweatshirts, running shorts, bags.

Circle (605) on Reply Card

Weatheration (Booth 1625)

Products:* Color remote radar weathersystem.

Featuring...the color remote radar system with features like instantaneous ranging, built-in map overlays, freeze frame and blink capacity as standard equipment.

see ad on page 65

Circle (606) on Reply Card

Weather Services International (Booth 1700)

Products: Weather and sports information services; broadcast weather services.

New: On-air computerized color-graphics systems access WSI's databases of weather, sports, business and election information.

Circle (607) on Reply Card

The Webster Group (Booth 205)

Products:* Audio visual presentations; media research.

Circle (608) on Reply Card

Winstead (Booth 1035)

Products: Editing consoles; videotape and film storage systems; tape trucks; dubbing and post-production consoles.

New: 1-inch VTR consoles; production consoles; duplicating consoles.

Featuring...Model 3100 VTR console which accommodates all 1-inch type videotape recorders. Component design allows for easy addition of VTR turntable, monitor bridge or side control console.

see ad on page 124

Circle (609) on Reply Card

Western Union Telegraph (Booth 1401)

Products:* Video and audio services via satellite.

Circle (610) on Reply Card

Wilkinson Electronics (Booth 302)

Products:* AM and FM transmitters; consoles; silicon rectifiers; dummy loads; line surge protectors.

see ad on pages 64, 72, 156

Circle (611) on Reply Card

Wolf Coach (Booth 1225)

Products: Remote production vehicle.

New: Quick-release camera saddles; quiet power mobile engine generator.

Circle (612) on Reply Card

World Tower (Booth 420)

Products: Towers.

Circle (613) on Reply Card

World Video (Booth 1029)

Products: Color video monitors; color utility monitors.

New: Video test signal generator/gen-lock sync generator; audio monitor amplifier.

Featuring...rack-mounted audio monitor amplifier with a high-quality 10W amplifier and speaker, switchable dual channel inputs and VU meter.

Circle (614) on Reply Card

Ze-Mark Corporation (Booth 1619)

Products:* Film chain systems; video filters; multiplexers; film projectors; slide projectors.

Circle (615) on Reply Card

*Typical products marketed. New products not announced by BE press time.

ANTENNA IMPEDANCE MEASUREMENTS WITH INTERFERENCE IMMUNITY

The Model SD-31 Synthesizer/Detector Is...

... designed for antenna impedance measurements in presence of strong interference ■ High-level oscillator compatible with General Radio 916 Series, 1606 Series, and Delta OIB-1 Impedance Bridges ■ Special coherent detector circuit rejects interfering signals during measurements ■ Crystal controlled frequency, variable in 500 Hz steps from 100.0 kHz to 1999.5 kHz

■ Receiver for detector can be external or optional built-in RX-31

■ Powered by rechargeable batteries

■ Self-contained portable package ■ Field proven

■ Versatile — can use as an RF signal generator for troubleshooting antenna systems; as a variable frequency oscillator for antenna site survey; or other applications requiring a precise frequency source



CONTACT US FOR DETAILS.

POTOMAC INSTRUMENTS

932 PHILADELPHIA AVE.
SILVER SPRING, MD. 20910
(301) 589-2662

Circle (158) on Reply Card

What the 1980 Census can do for your business

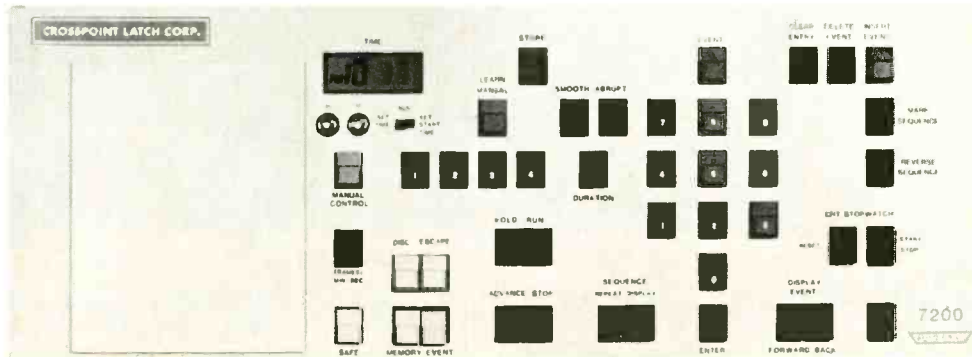
Whether you run a small business or a large corporation, information provided by your Census answers can help your business.

You can use Census data to learn more about your consumer—who he is, what he likes, and what he'll buy.

**We're counting on you.
Answer the Census.**

CENSUS '80 Ad Council
A Public Service of The Magazine & The Advertising Council

COMPUTER CONTROLLED PRODUCTION SWITCHER



Model 7200 AUTO DRIVE™

Introductory Price
\$10,500

The 7200 AUTO DRIVE™ is a sophisticated automated drive unit with its own built in computer. It is plug compatible and mates directly with the 6112 and 6124 production switchers.

AUTO DRIVE™ enables very complex productions to be generated with ease. Complex effects may be set up, rehearsed and precisely timed even before starting up the recorder. Sequences may be displayed, events deleted, added, lengthened or shortened at will. Sequences may be stored one way and then run in reverse. And finally by using an editor in conjunction with the AUTO DRIVE™ a high degree of creative talent can be displayed.

AUTO DRIVE™ controls all functions on the switcher such as hue, saturation, keys, patterns, positioners etc. It stores 256 events. Each event is the entire status of the control panel, as set and adjusted by the operator while viewing the program signal on a picture monitor. The operator thus determines the exact visual impact of what is being stored. Events may be grouped into sequences. Events or sequences may be randomly accessed. Sequences may be reversed by the simple touch of a button. The operator can manually set up a series of increments, store them and then have the AUTO DRIVE™ execute the entire sequence smoothly.

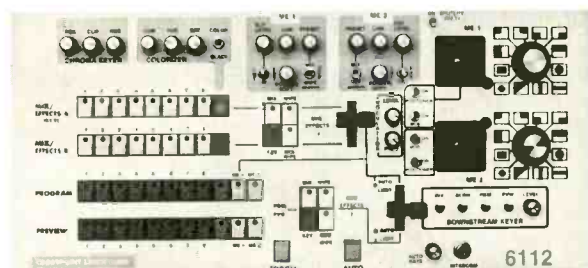
AUTO DRIVE™ controls all functions simultaneously. For instance a bordered circle and diamond can be made to move in different direction across the screen with the border size and hue as well as the overall size of the circle and diamond changing smoothly. At the same time, the inserts within the circle and diamond can be dissolved. AUTO DRIVE™ can even learn and reproduce manual fader handle operations.

In regular programming, attractive intro's may be stored and recalled over and over again as required. A disc option which will be available later, enables up to 2,500 events to be stored for future use.

AUTO DRIVE™ has a solid state memory, 256 events with a duration of one frame to 99 minutes per event. It will interface with 6112 switchers even those already in the field.

Model 6112

The 6112 is a rock stable production switcher with two fully independent mix effects systems and a downstream keyer. It has true double re-entries, dual back porch clamps and many unique features.



6112 Price \$6995
Chroma Keyer \$ 995

Call or write for more details or for information on other products.

CROSSPOINT LATCH CORPORATION

316 Broad St., Summit, N.J. 07901 Tel. (201) 273-1090

Circle (159) on Reply Card



Case Study:

KTTI's Adventures in Automation

Kenneth Knecht president Kencom Yuma AZ

KTTI-FM went on the air early in 1979 in Yuma, AZ, with new call letters and a new automation system. Formerly, as KALJ, it was disc-jockey operated. With new ownership everything changed.

After KALJ went off the air December 31, 1978, there followed a hectic two weeks of complete remodeling of the building and installation of the new Sono Mag automation system and production studio. As chief engineer, I was responsible for the electronics and had assistance from a local engineer, Richard Nix. KTTI-FM went operational on January 15, 1979.

Of the old studio, only the audio console, turntables, mics, stereo modulation monitor, EBS equipment and transmitter were retained. The transmitter room was enlarged and the old stereo equipment was replaced with Moseley audio processors. The old exciter and stereo generator were replaced with a new Rockwell/Collins unit. (A new Marti digital remote control was added later.) The transmitter was thoroughly cleaned, wired for remote control with a motor-driven rheostat for power adjustment and a few relays added (such as a latching relay for plate on/off).

The Sono Mag automation equipment withstood shipping well and ran correctly right away. It was a

simple matter to install the audio output lines, with a switch to select either the production studio or the automation for the air feed. The installation proceeded with only two minor incidents. One afternoon the automation played two tapes at the same time and the computer was reluctant to accept commands from time to time.

In the meantime we developed a production studio that included two Otari tape decks, an Audi-Cord data/program cart recorder with CRT, keyboard and interface for recording logging data on the carts, a line printer for the programs aired, two turntables, the old air studio 8-channel stereo board, stereo announce mics and Realistic cassette recorder/player and a Pioneer tape deck. A second older Audi-Cord cart machine was added later for recording large carts and as a backup unit. We also installed a 24Hz oscillator to put cue tones on reel-to-reel tape.

This was quite a project. It takes a lot of wire to assemble a system of this size, and time is needed to chase down ground loops and mis-

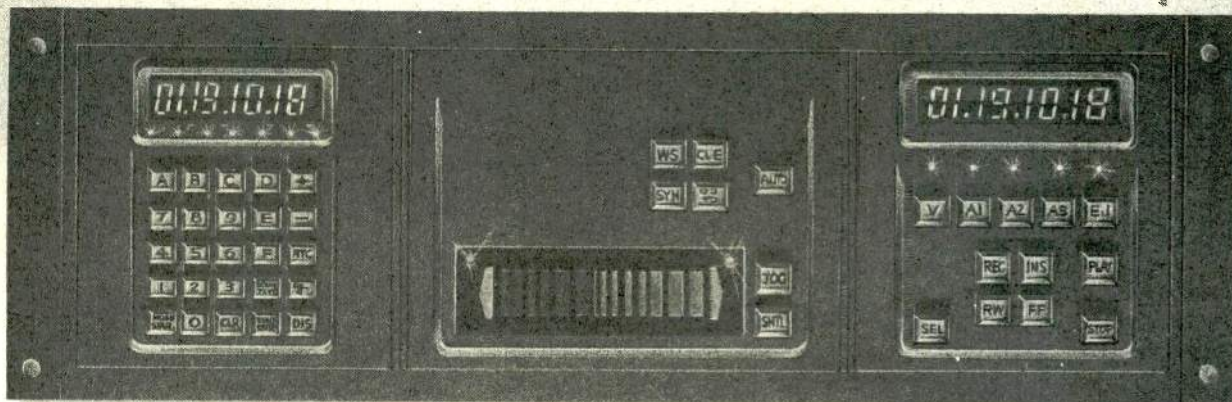
cellaneous hums and buzzes. KTTI got on the air on schedule, then the fun began. First, we discovered that a nearby AM station was being picked up in the automation system, and it was loud enough to draw listener complaints. The source was traced to the network line, with RF being picked up on the phone line outside. A repeater coil with bypass caps installed where the line entered the building solved that problem.

Next, for some unknown reason, the automation decided to start two sources at once, and continued to double roll until the cancel button on the switcher was pushed. An extensive effort has gone into solving this problem. A temporary solution has been to remote control the cancel button with the transmitter remote control. We have also added a special phone line and a touch-tone-operated switcher. Thus, we can get out of a double roll from the remote control point or from home.

Our unique remote control set is located at a telephone answering service, with all the employees there first getting provisional licenses, then restricted permits when the FCC rules changed. This has worked well, the staff there having all the required equipment including a stereo modulation monitor and an EBS.

A power failure was the next experience. The computer failed to recover and had to be re-programmed for seven 24-hour days. The gel cells normally supplied were re-

Computer Technology Comes To Video Control



Imagine a SMPTE generator, a SMPTE reader, a VTR controller and a character inserter — all in one software-based unit. With features that will shave hours off production time . . . Like recording scene and take numbers . . . a "GO TO" function that will cue tape by those same scene and take numbers, or by time code . . . And an "AUTO" with a real time clock that programs VTR functions for execution at exact times.

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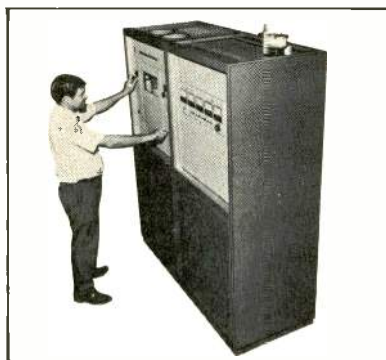
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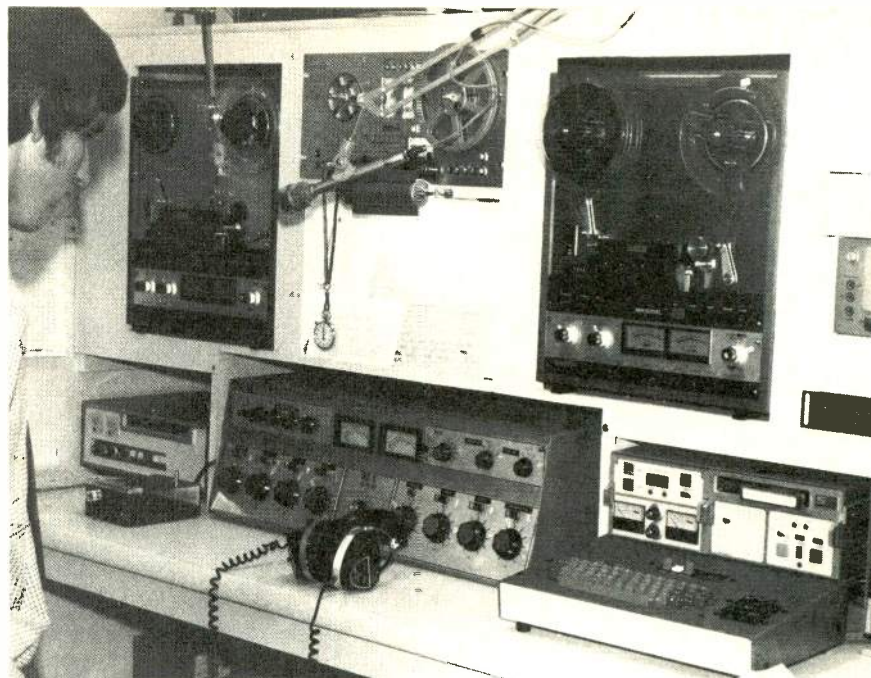


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The new KTTI production control room.

placed with a heavy duty automobile battery to extend the reserve power.

The system runs 24 hours a day, seven days a week unattended except for changing tapes and cleaning tape heads. We started out with six reel-to-reel machines, three carousels, a time announcer, a backfill cart deck and another cart deck for buffers and IDs. Later the backfill cart was used for local news and three more carousels were added. (It takes about three hours to install them, and they worked right out of the box.)

In retrospect

Experience has shown a high degree of reliability built into modern equipment. There have been small annoying problems, but no major ones. However, troubleshooting is now very difficult because the intelligence is scattered throughout the system with signals going back and forth between the computer, switcher and tape equipment. Thus, troubleshooting may be too much for some contract engineers, but better manuals from manufacturers would help.

The KTTI experience points out some things to look for in automating a station.

- The automation system should be an easy-to-program interactive system that tells you what you did wrong when you made a mistake.
- The tape decks and carousels should be only peripherals doing what they are told via standard re-

mote control and with a feedback tally to tell the computer the command was received and accomplished.

- The switcher should only concern itself with switching audio sources on computer command, perhaps with built-in silence sense.
- The program clock should only be used to feed the correct time to the computer.
- To simplify troubleshooting, all the intelligence should be put in the computer—not spread around to all the peripherals.
- With memory getting cheaper every day, the program should be put in ROM, the events in RAM. Better yet, use bubble memory instead of regular volatile RAM: During a power outage the memory is still there. (Or else build in a mini-floppy disc to hold the events. Then after a power failure the memory could be automatically reloaded.)
- Have a dual redundant switcher, with each switcher operated by a separate computer. Use either computer to change the event list, then record the new event list on disc during a music event.
- If you can buy a hobby computer with 32K of RAM and ROM for \$1000 complete with CRT and keyboard you can have redundant computers. They can operate in parallel with easy crossover. A simple audio switcher with silence sense would come in at about \$500, two for \$998. A mini-floppy disc sells for \$400, the controller maybe \$100.

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Selections can be programmed easily into the computer.

The tape decks would be cheaper because all they would need is playback preamps and remote control. So, not counting racks and tape decks, the controller portion would be about \$5000 including power supplies and two separate mini-floppies.

• Use tape decks with enough reliability to stand up under frequent play. Rebuilt Ampex 350 decks should work fine, with new solid-state preamps. The Otaris are ex-

cellent too.

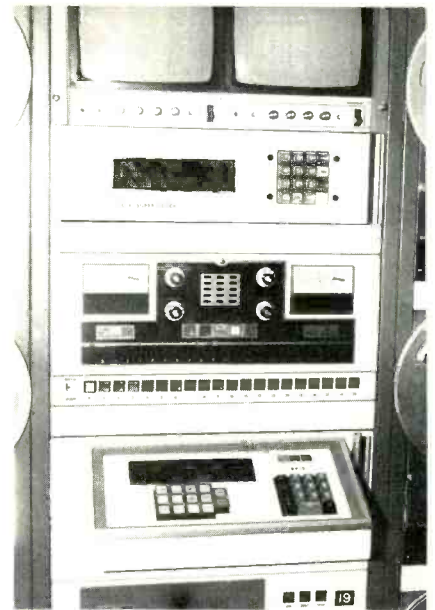
• If you can't use carousels, build a spot tape for the next day on reel-to-reel. Or, use several cart playback machines set up to play in sequence and have the operator load them several breaks ahead.

• Automatic logging? Record the logging data on the cart after the out cue and print after the spot is aired.

• Give the engineer good documentation: Wire list; frame diagram; detailed block diagram of the overall system and mark the schematics with normal voltages under indicated conditions at every terminal of each active device.

• Put a diagnostic program into the computer ROM so the computer can tell the engineer what the problem is and where to look. There are many fast programs available that will test 16K memory in a few minutes and tell which chip is bad.

• Keep in mind that many stations are being kept on the air by contract engineers who don't have spare time to tinker with the system and read the manuals. Thus, the equipment should help in diagnostics. Build in equipment redundancy if you expect to run 24 hours a day



The heart of the automation system—programmer, computer, switcher, and clock.

and avoid serious problems.

• Keep the system simple, keep it redundant. You're not selling any time if you are off the air with a malfunction. All the technology is there, use it! □

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Field Producers for "Evening Magazine" maintain creative control by acting as cameramen on many productions.



An "Evening Magazine" production unit at Group W's KPIX-TV in San Francisco.

Group W's "Evening Magazine" -an evolving technology

By C. G. Perry,
vice president broadcast operations
and engineering

When word of a new, locally produced, Monday-through-Friday TV magazine series called *Evening* first began circulating in broadcasting circles during the fall of 1976, the response among industry professionals and pundits ranged from skepticism to outright amusement at the originators' outlandish hopes for success.

After all, how could a single station, Group W's KPIX (TV) in San Francisco, expect to compete in the 7:30-8 PM access time period (the half-hour returned to network affiliates for local programming by order of the Federal Communications Commission in 1970) by pitting a totally unknown features-and-information offering against such slickly produced and popular syndicated programs as *The Hollywood Squares* and *Wild Kingdom*?

Three years later, Group W takes

pride in a program many presumed to be too news-like to do well in a segment of the broadcast day where only game shows, comedy repeats and wildlife adventure series had dominated.

Evening flourished at KPIX, and spawned sister versions at Group W stations in Boston, Philadelphia, Pittsburgh and Baltimore within a year. It then spread to non-Group W stations through a cooperative production and distribution arrangement under the title of *PM Magazine* in early 1978. *Evening/PM Magazine* is now cooperatively produced by 51 stations, and besides being a critical and financial success, it is the number one draw in most communities in which it is broadcast.

To truly appreciate the success of this dark horse programming idea, take a look back at the summer of 1976, when a few news-oriented advancements in broadcast engineering technology gave an adventure-some few the means to try something wholly different in locally pro-

duced programming.

KPIX was under no pressure to change its 7:30-8 PM Monday-through-Friday fare, which led all local competition. Still, Group W, instrumental in winning the access period from the networks, had grand ideas about the quality of programming its five stations should broadcast in the time segment the FCC designated for local station family programming.

KPIX producers proposed originating a nightly features and information alternative to games and jungle shows, and Group W was willing to back them financially. The concept and methodology was left to the people at KPIX, and they looked to the new production technology designed for ENG.

Reasoning that the ideal bridge between early evening hard news and the entertainment programming lay with something that was part news and part entertainment, the originators of *Evening* sought to devise a program blending the

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Compare the editing facilities of the A80/RC Mk II with any other master recorder on the market. And the unique Studer real-time (positive and negative) digital tape position indicator and zero-locating feature. Compare the noise level of its electronics. Check out the wide variety of available head configurations, including a pilot tone version with or without resolver for

film sync applications. Vari-speed control (± 7 musical semitones) is standard, as is a monitor panel with built-in speaker/amplifier which lets you cue the tape right at the machine without tying up your monitor system.

As for servicing ease, the A80/RC Mk II is simply incomparable. All the logic boards have LED status indicators so a failure can be spotted instantly. You can even take apart the entire recorder with the two Allen wrenches supplied.

Of course, there aren't any secrets to the incredible rigidity of the die-cast, precision-milled A80 frame and the extraordinary machining tolerances of its stainless steel headblock. Only Willi Studer's characteristic unwillingness to compromise.

Others could make their heads and motors as well, no doubt; they just don't. Servo-controlled reel torque and capstan drive (independent of line frequency or voltage) aren't exactly new concepts. Nor is PROM-logic transport control. But try them all out and see whether you can settle for anything less than the Studer A80/RC Mk II.

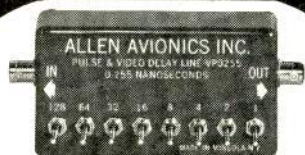
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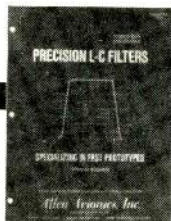
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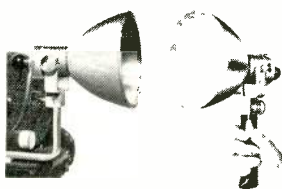
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Video noise reducer

freshness and immediacy of news with high-quality entertainment.

Film production on a five-night-a-week basis was clearly prohibitive in terms of cost and time. ENG-inspired reductions in size of videotape cameras, portable tape recorders and tape editing equipment enabled KPIX producers to launch a new nightly series of both substance and style.

The idea was to produce two 7-minute feature segments, for example, the medieval sport of jousting as currently practiced, or an interview with, say, Burt Reynolds—combined with a 7-minute featurette on health, leisure or out-and-about discoveries, for presentation each weeknight.

What set *Evening* apart from anything done before was its ability to use the world for a set. Using the new technology to best advantage, production was to be done entirely on location.

Three minicamera truck units, self-contained production units on wheels, were introduced in mid-summer of 1976, representing an investment of \$250,000.

As the show developed, problems appeared, centered on the changes in technology. People experienced in film production now had to learn videotape.

Film was a flexible medium, where one man with one camera could cover an event quickly and efficiently. Tape equipment used in this first effort required two operators, one to operate the camera, and a second to carry the videotape recorder.

Familiarity with the film editing equipment did not immediately provide familiarity with videotape editing. A whole new learning process

was required.

A third problem was the newness of the equipment and the inevitable maintenance problems that needed to be worked out. Former film editors suffered miserably when their editing systems failed to perform as expected. The systems themselves, only in existence a matter of months, required constant attention. It seemed that there were only three people on the face of the earth who knew how the machines really worked.

One 7-minute segment often meant seven hours of actual taping and 10 more of editing, and 80-hour workweeks were not uncommon.

But an almost fanatical love for the project developed among the dozen or so people originally involved. They stuck to their goal and produced the marriage of man and machine now evident; the same *Evening* that took KPIX many months to launch can be aired by a newly participating station in about six weeks.

The success of the *Evening* experiment is both an echo of Group W's past and a standard of excellence for the company's future. In the 60 years since Westinghouse-owned KDKA radio in Pittsburgh broadcast the results of the Harding-Cox election (the first scheduled radio broadcast in history over the first licensed station in the US) the Westinghouse Broadcasting Company has been a pioneer in the industry.

Scientific developments in Westinghouse laboratories in the 1920s helped make both FM and TV broadcasting practical. That spirit is still there today. As stated by Daniel L. Ritchie, Group W's president and chief executive officer, "Group W will continue to exploit every creative opportunity technology will allow."

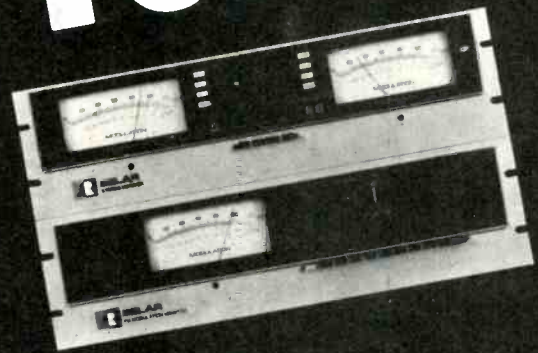
In concert with that philosophy, a recently executed agreement with Western Union will make Westinghouse the first major group capable of providing instant transfer of program material between its own station—and others—by means of a full 2-way satellite communications network. Utilizing this technology for program material such as *Evening/PM Magazine* will allow Group W to provide a more timely delivery of important information to the viewing audience.

The minicamera revolution is still underway. Group W believes it has yet to realize the opportunities offered in other spheres. The success of *Evening/PM Magazine* is ample evidence that a great new programming technology is in our hands. □

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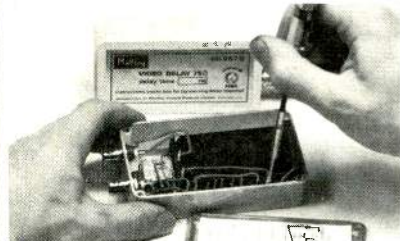
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KTXL-TV expands facilities; beefs up production

Things are hopping at KTXL-TV, the UHF channel 40 in Sacramento, CA, with a new look in expanded facilities and equipment. Robert Nelson, chief engineer, points out that the addition of 10,786 square feet to the existing 11,400 square feet of facilities was necessary to meet KTXL's growth plans. The new design adds a control room dedicated to production, separates the on-air and production work, and adds two 40'x60' production studios equipped with Kleigl lighting packages at \$200,000.

KTXL is pleased with its new facilities and excited about new equipment added and on order. Nelson recently attended demonstrations at KSL-TV (Ch. 5) in Salt Lake City, UT, on use of the RCA TK-47 automatic studio color cameras and is ecstatic about the camera's performance. "In the two days we spent experimenting the TK-47s," noted Nelson, "we did things to them you'd normally not do, and they stroked themselves right back

into perfect adjustment."

KTXL has three of the TK-47s on order, with delivery scheduled for January. "When they're operational," Nelson continued, "we expect to save four hours a day in camera set-up during our studio productions. And that means more production, more efficient operations."

And that's not all. KTXL has added a new TFT remote control system and has the following equipment on order:

- an Audiotronics Grandson II recording/mixing audio control console with 38 inputs
- all new monitoring equipment, including 24 b&w monitors (Conrac 12" units) and two Conrac 5300 series color monitors
- three RCA TK-76 portable cameras to go with the two already in use; and
- two additional RCA TR600 2-inch Quad machines.

Field production at KTXL? "Not yet," says Nelson. "We're waiting until we can go 1-inch all the way."

New Mark V Weatherminder

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The unique 069 Commentator Box gives you a single-run connection for two mikes, phones, or mike/phone combos, with full talkback and separate cue facilities. The mixer unit provides the engineer with complete telephone initiate/monitor facilities (local battery or central office powered) for dial system, balanced program line and radio link feeds. You can run the 069 from an AC power line, self-contained

NiCads, or a 12V car battery for complete operating freedom.

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Dimming control and consoles

By William F. Schelling, chief lighting director, CBS

Television lighting and dimming systems design has experienced remarkable technological advances over the past 10 years, and it is hard to predict just how much further they will go in the near future. Memory control systems are no longer just spoken about, they are an operational reality in many studios. When the memory design breakthrough occurred, all of the manufacturers in the lighting control field jumped on the bandwagon and started their own memory control research and development programs. Most have come up with not just workable, but fine memory systems.

The above was just to whet the appetite of the many local stations throughout the US that have no dimming control at all or, at best, marginal controls. In today's complex TV industry, every station requires some type of dimming control in its studios. Dimming control is a must. No matter how small the studio, dimming is needed for lighting control and overall picture quality, affording the lighting director the proper tool while he is plying his trade and art form. It allows the lighting director to design imaginative, artistic pictures by shading a face rather than turning a light off, by cross fading a cyc color or pattern instead of switching from one to another. An important

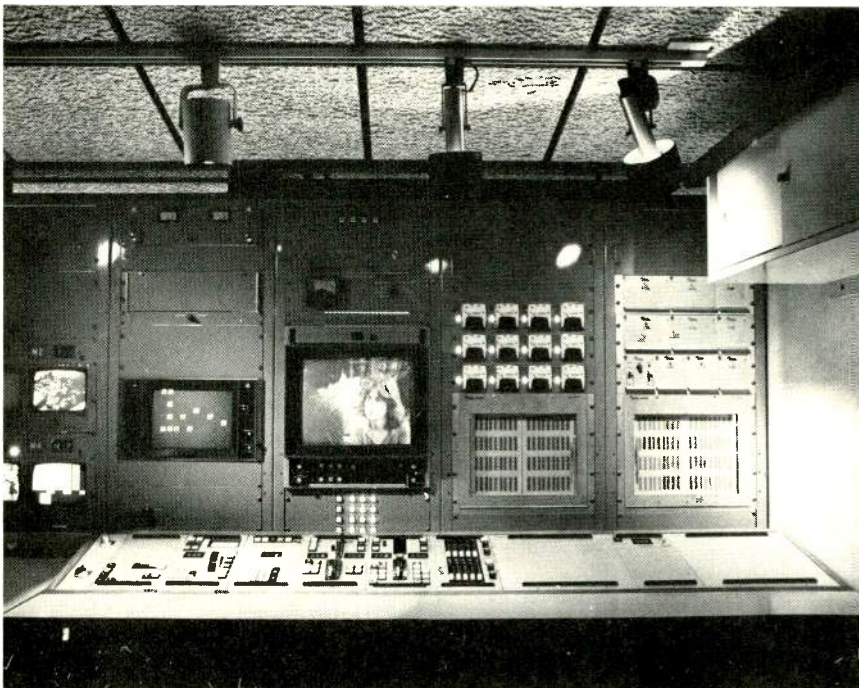
scene in a production can be enhanced by selective dimming to create a number of dramatic pictorial compositions.

A common example of the importance of dimming control for the typical local station is on the local portion of the news show, when the newscaster surprises the lighting director by coming on the set wearing a very light colored suit. If the back light (BL) is on a dimmer by itself, then the lighting director has no problem. He takes the dimmer down a point or so, eliminating the glare on the subject's shoulders.

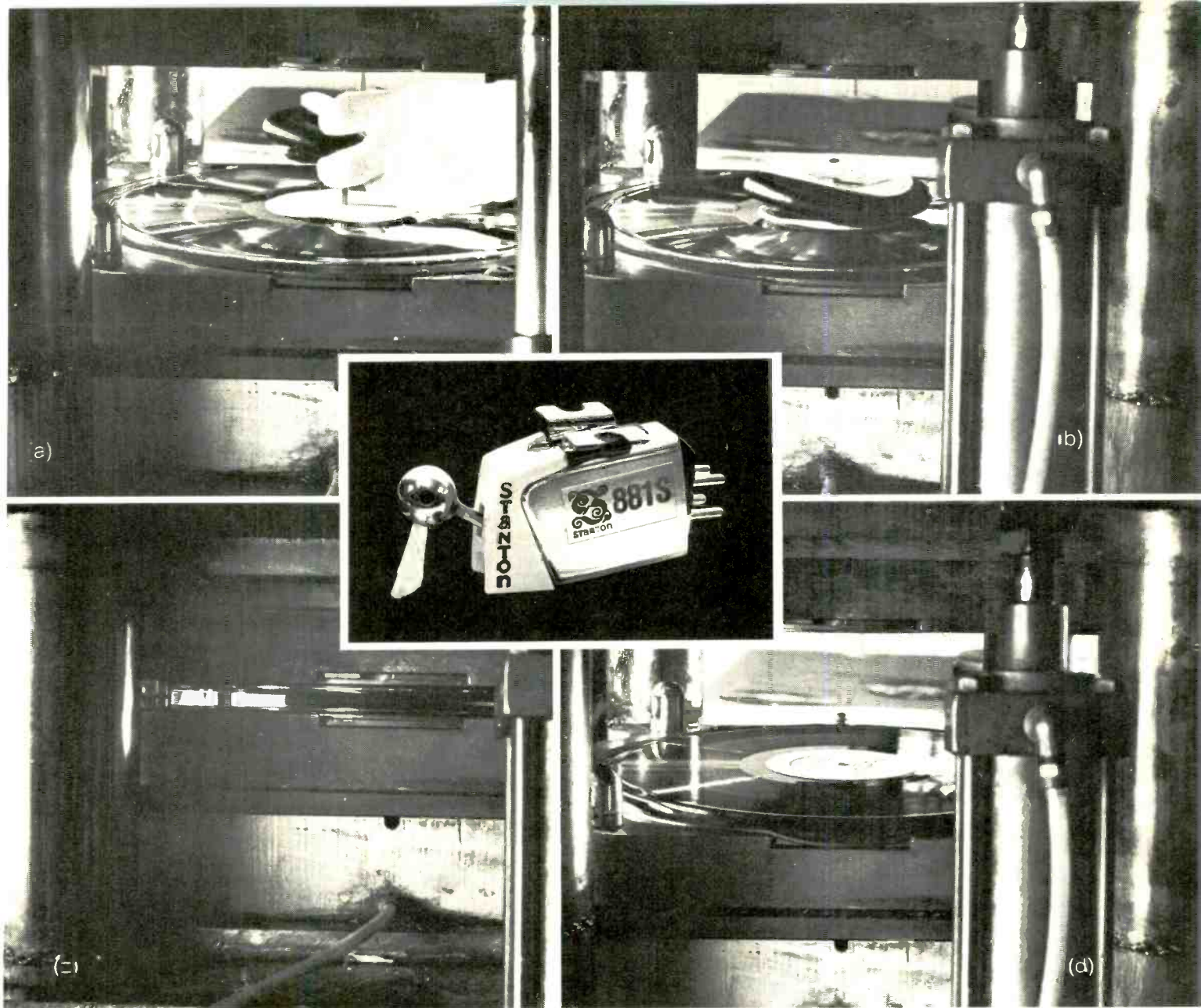
The commentator may also be using a new hairdressing that adds an oil base to his hair, and he needs the BL reduced. Once again, having studio dimming capabilities allows the lighting director to take the BL down to where the picture is good and yet the commentator's head doesn't glow as though he uses "that greasy kids' stuff." The lighting director now checks the key light to see if this is at the correct level. Because of the suit reflection, the key may have to come down a point too. So much for lighting dimmer controls in general.

A different concept that many people in the industry are now looking into is called dimmer per outlet. It provides the lighting director with a dimmer control for each and every outlet in his studio.

There have been great advances in television camera electronics. Camera technology has produced smaller, more sensitive units. Tape reproduction has been improved to the point where it equals film. Switching consoles and the special video effects that can now be achieved boggle the mind. Lighting has had to keep pace with all the new camera advances. The new memory systems make dimmer per



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March 1980 *Broadcast Engineering* 211

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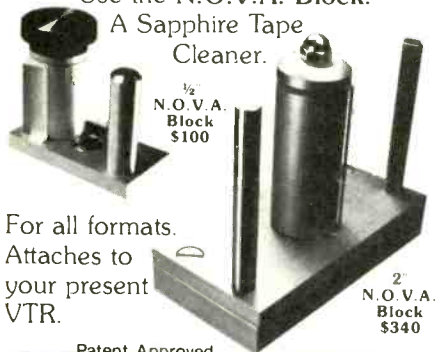
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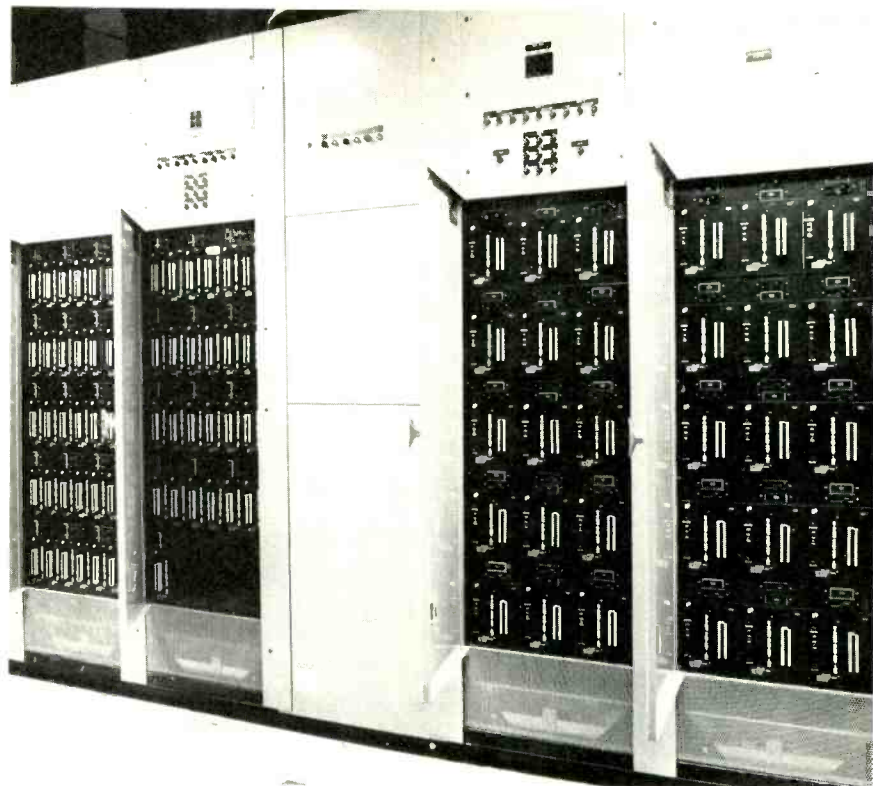
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212 *Broadcast Engineering* March 1980



Strand Century Modular Memory System with 480 outlets.

outlet the most flexible control system yet.

The entrance into the television arena of memory systems has afforded the lighting director unparalleled control over his studio lights. A requested lighting effect can be achieved, which before would have been the cause for a long pause, and then, because of its complexity, the cancellation of a cue. Along with complexity, the limited dexterity of the control board operator who would calmly say "You think I got seven hands, dummy?" should be mentioned. Today, the operator can deliberately program his board to meet the wildest demands of the lighting director with little effort. These cues are then executed to perfection through the use of electronics memory control and dimmer per outlet.

In addition to the technological advances and operation advantages inherent in memory dimmer per outlet systems, a word about cost effectiveness is in order. Dimmer per outlet eliminates the need for hard wire patching, which is both cumbersome and costly. Doing away with hard wire patching not only eliminates buying a large patch board with heavy gage wire and copper busses, it also eliminates the time-consuming function of patching

and the man-hours to do that patching. Now when the lighting director picks up his show and plugs it in, he can actually set his console in a cue mode, so that when he begins his rehearsal he is set up and ready to go. This cuts down on costly set-up time, studio usage time that is becoming very costly, and saves overall studio production labor time. The sooner the show is picked up, the sooner the production can go on camera, thereby reducing the cost of the entire production.

Studios, such as the CBS Studio 52 in New York City, have in operation a memory/dimmer per outlet system like the one described. The system is Strand Century's MMS (Modular Memory System) with 480 outlets. The installation is comprised of 341 2.4-kW dimmers, 141 6-kW dimmers, eight 12-kW dimmers and a total of 130 memories to handle all 480 dimmers. In this system, there is a pin matrix backup that can handle all 480 dimmers and can be patched into 10 sub-masters. This was installed as a safety measure, in case the memory went down (which never has). In fact, the system at CBS was installed in August 1978 and as of January 1979 there has been no loss of memory nor any down time at all.

THE UNCOMPLICATED CONSOLE

Compare the sensible panel layout of these broadcast mixers to the cluttered array of tiny buttons, midget knobs and closely spaced faders on other mixers costing much more. Ours are easier to operate and understand.

Compare the sensible electronic packaging, with only 2 kinds of electronic modules used. That's redundancy! Plus, such standard features as 4 inch log taper slide pots, selectively illuminated VU meters, mono output, electronic audio switching, 2-way remote control and, of course, our furniture quality oiled walnut end panels and armrest.

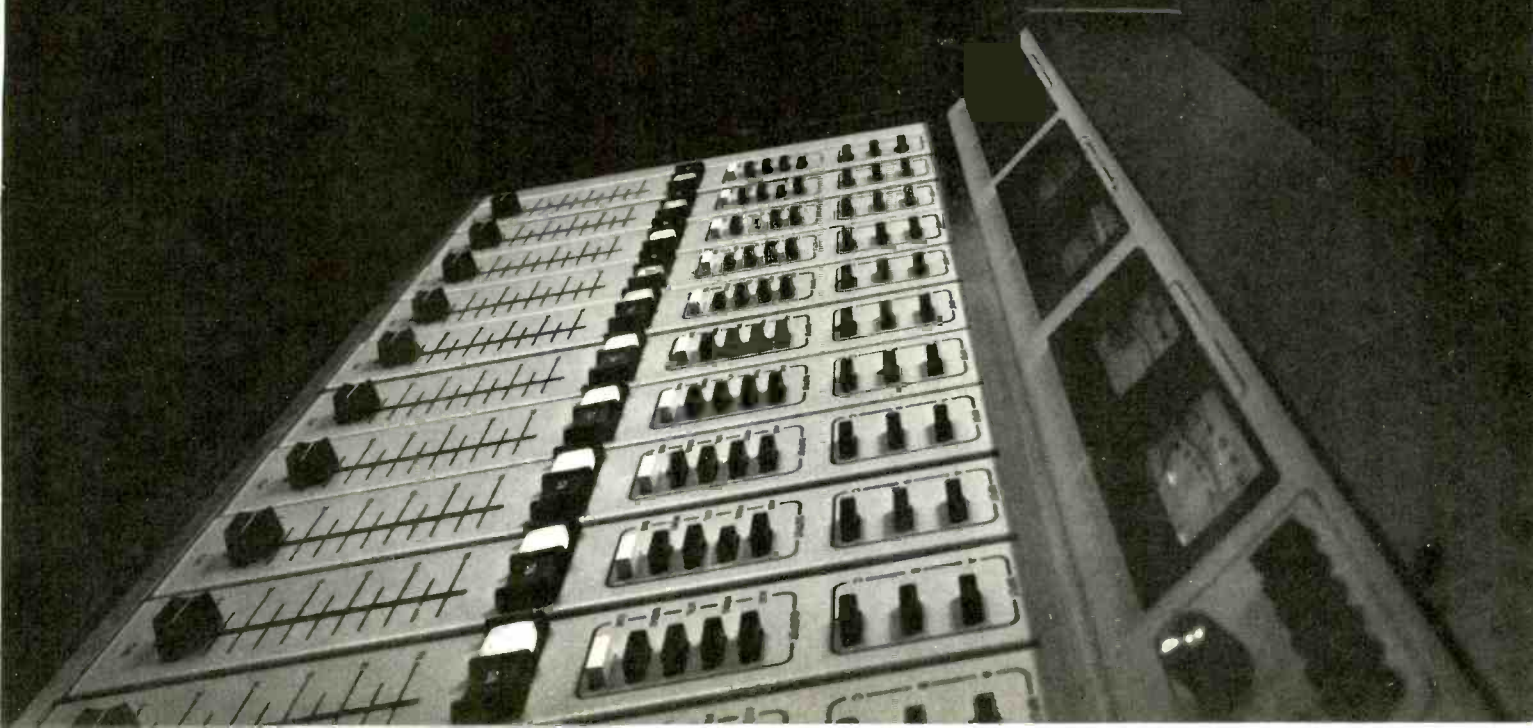
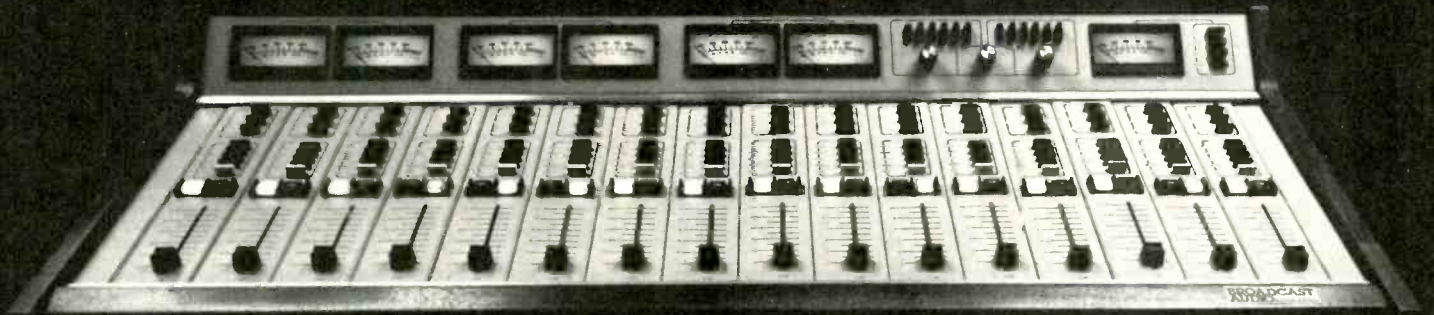
Three expandable models to choose from: SYSTEM 16 (illustrated) is priced at \$8,250 with 8 mixers (expandable to 16) with 3 metered stereo outputs and 1 metered mono output. Additional mixers \$365 each. Delivery? Stock to 3 weeks.

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The 1980 Winter Olympics Replay

- Lake Placid, New York
- February 12-24, 1980
- 50½ hours of television coverage

The Nation and the world was held spellbound by spectacular athletic achievements at the 1980 Winter Olympics.

The engineering efforts by ABC, which made the telecasts possible, and the sports direction which pulled it all together, deserves special recognition. Our praise goes

to Julie Barnathan, president, Broadcast Operations and Engineering, ABC Television, and Roone Arledge, president, ABC News and Sports for their skills and efforts. They and their organization made it possible for the "thrill of victory and agony of defeat" to be experienced by viewers the world over.

Broadcast Engineering congratulates the American Broadcasting Companies for its exceptional Olympics coverage and the manufacturers of equipment that made it possible. □



Julius Barnathan,
president,
Broadcast Operations and Engineering
ABC Television



Roone Arledge
president,
ABC News and Sports



Technicians are shown here at the ABC Sports Production center at the 1980 Winter Olympics in Lake Placid preparing footage for the 50.5 hrs. of Olympics coverage. During the closing ceremonies of the Olympics, a segment showed the telecast preparations, engineering handicaps, and the millions of dollars of equipment needed for this event.



Command Performance!

United Media's new line of SMPTE/EBU video editing equipment offers the superior quality, outstanding performance and the prestige that is commanded by today's sophisticated user.

Our streamlined COMMANDER I & COMMANDER II computer-controlled electronic video editors offer a variety of standard features which inspire confidence in their quality of edits and associated functions by providing continuous reliability and ease of operation.

COMMANDER Series were designed with the creative operator in mind providing:

- Uncomplicated keyboards and display
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- Totally complete with features that may only be offered as options by other manufacturers.
- Less technical skill required to set-up, operate and edit with UMI products.

Accessories such as Time Code Readers, Generators and Character Generators were also designed with the user in mind, providing features such as user-bits, 24, 25, and 30 frame rate selection, drop frame and non-drop frame selection and much more.



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BC5 SERIES	
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DC FILTER CHOKES	
5.0 HY @ 1.0 ADC	
(REPLACES BE-0572)	\$175
5.0 HY @ 2.0 ADC	\$225
8.0 HY @ 1.5 ADC	\$200
10.0 HY @ 1.0 ADC	\$200
MISCELLANEOUS	
RCA BTA 1R/S TRANSFORMER	\$400
VANGUARD 1 PLATE TRANSFORMER	\$450
COLLINS 20V2 PLATE TRANSFORMER	\$350

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Ampex expands Mexican joint venture

Ampex and Aurex, SA de CV announced a \$3 million expansion of Aurex's Mexico City facility, a joint venture company that manufactures and markets magnetic tape. Arthur H. Hausman, Ampex president and chief executive officer, and Federico Valdes, Aurex chairman, said the plant expansion is scheduled for completion in early 1981 and will enable the manufacture of video and other precision magnetic tapes. Aurex currently manufactures audio recording tape for industry and consumers.

Burbank Studios impressed with echo cancellers

The ready availability of echo cancellers proved to be the winning factor in RCA Americom's renaissance at the Burbank Studios. On November 26, 1979, two RCA Americom private leased channel satellite circuits began operations out of a total of five circuits the studios use for their everyday telecommunications needs.

Datatron on Nasdaq wire

Datatron has announced that due to increased trading activity in its stock during the past year, its stock transactions have qualified for reporting over the NASD's National Over-the-Counter Nasdaq wire. The company's stock has been listed since 1975 on the Western Over-the-Counter Nasdaq, and was the 20th best performing stock on Nasdaq in calendar 1979.

Ampex expands Golden Reel Awards

To broaden its participation in the worldwide market for audio recording tape, Ampex announced it is expanding its Golden Reel Awards program to all international markets. Since the start of the program in the US three years ago, Ampex Golden Reels have gained acceptance among performing artists and recording studios as a major symbol of success.

Radiotechniques formed

Edward (Ted) Schober has formed a consulting firm primarily aimed at serving radio broadcasters. Services include: station design and construction, equipment design, field studies,

Data Communications creates new marketing arm

Data Communications, the Memphis-based information processing firm, has realigned the organizational structure of its Broadcast Division, formerly known as BIAS, and made a series of new personnel assignments, it was announced by F. Scott Pierce, president of the division. Bill Boyce has been named manager sales and services, Dewey Hemphill will be the new sales manager and Dorothy Simon has been moved from assistant regional manager to regional manager.

Skip Sawyer has been named director of product development for a newly formed division, the corporate marketing division, which operates under the umbrella of DCC, the corporate head. Sawyer will join Dwight Drinkard, who recently joined DCC as marketing services manager, in the creation of an overall marketing strategy for the DCC diversified products.

Communitronics grand opening

Communitronics has announced the grand opening of their new, larger and completely modernized production facilities. The 20'x32' studio features the latest broadcast cameras, a professional production switcher, on-line/off-line editing and other modern features.

Other new enlarged areas include equipment demonstration room, conference room, administration and sales offices, plus an updated and newly equipped multi-bay service complex.

Divisions include an Audio Visual Rental department, an enlarged Video & Audiotape duplication facility and video and audiotape sales department.

WCLF installs Microtime equipment

WCLF Channel 22 Television, Clearwater, FL, made history when it became the first religious TV broadcasting station to install two Microtime 2525 video signal synchronizers. WCLF is a new religious TV station operating in temporary facilities until construction of its new permanent facilities is complete. Bill Baird, Microtime's Southeast regional manager, and Dave

If Your Television Operation is on the Move... Stop Right Here.

Today, after nearly a decade of successful user-oriented experience, Compact is manufacturing and selling mobile location systems designed and engineered to answer your remote production needs for the 1980's.

Compact builds a standard line of mobile location production vehicles and a portable up-link earth station with generator, each ruggedly designed to meet the demanding requirements of location production.

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Each unit in our standard line not only represents today's state-of-the-art technology, but each is also wired both electrically and electronically to accommodate orderly expansion as your production requirements change. And delivery is surprisingly prompt.

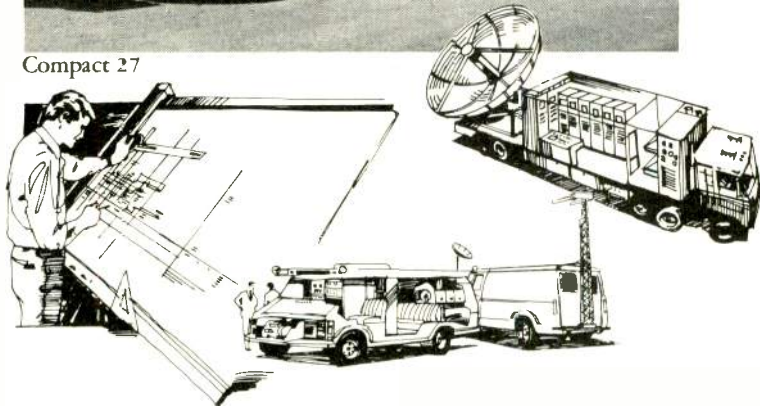
So, if your television operation is on the move, learn how Compact can help get you there. And prior to the NAB and NCTA conventions one of our experienced broadcast engineers will be glad to call on you with more details. Contact Mr. Oscar Wilson, Sales Division.



Compact 40



Compact 27



Compact Video Systems

Sales Division

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New York (212) 986-2430
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A Step Ahead

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March 1980 *Broadcast Engineering* 217

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Our versatile new digital reverb unit is the most useful sound processor that a broadcaster can buy today. The SPACE STATION can give added presence and body to a live announcer's voice, enhance music and speech for more sophisticated in-house commercials, simulate an endless variety of acoustical spaces, and generate unusual special effects. Moreover, the SPACE STATION can add four delays and/or reverberation to each of its two outputs, creating a spacious mono-compatible "stereo" version of the source that is especially effective for anyone listening in the limited confines of a car.

If you're already familiar with single-function digital units or bulky unadjustable mechanical systems, we know you'll be pleasantly surprised by the SPACE STATION—and by its price, only \$1995.



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B-2

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"Slowing down from 70 to 55 mph on the highway saves me 6¢ a gallon. Keeping my car tuned saves 4¢ a gallon. And I'm saving another nickel a gallon by using radial tires and keeping them correctly inflated."

For a free booklet with more ways to save energy and money, write "Energy," Box 62, Oak Ridge, TN 37830.

ENERGY.
We can't afford to waste it.

U.S. Department of Energy

Smith of Sun Video, Largo, FL, have assisted SCLF with many of their technical video processing equipment requirements.

Merger

Polyline announced that it has merged with its division, Recording Supply and Pro Audio Specialties. The recording industry supplier manufactures plastic reels and boxes, and through its divisions offers audio and videotape and accessories, and stocks a selected line of Switchcraft brand audio connectors.

Sony predicts strong video growth

A combination of interrelated communications factors will make the professional, industrial and business use of videotape technology a growth industry for the 1980s, according to a top executive at Sony Video Products.

"The overall economic picture for the US and world industrial economies in the next few years may not be particularly bright, but certain industries will prosper from these same down-turn factors by being used as solutions to new and developing business problems. We believe that video is perfectly positioned for the next decade," explained Koichi Tsunoda, president of the Sony Video Products Company, a division of Sony Corporation of America.

News/Sports Radio Network purchase Wisconsin Independent Network

The assets and ongoing business of the Wisconsin Independent Network, headquartered in Nenenah, WI have been purchased by News/Sports Radio Network and all operations have been transferred to News/Sports Radio Network's facilities at 9431 W. Beloit Road, Milwaukee, WI 53227.

Ampex and Signal merge

The Signal Companies and Ampex jointly announced that the two companies have entered into an agreement in principle for the merger of Ampex into Signal through an exchange of common stock.

The terms of the agreement in principle call for the exchange of 0.79 Signal common share of stock for each common share of Ampex. Ampex has approximately 11 million common share outstanding and an additional approximately 1.7 million shares reserved for issuance upon exercise of employee stock options

and conversion of convertible debentures. The merger is subject to termination by either party if, anytime up to 10 days before it becomes effective, the average of the closing prices of Signal common stock on the New York Stock Exchange for any consecutive 5-day period shall have exceed \$51 per share or been less than \$40 per share.

Completion of the merger is also subject to approval by the board of directors and shareholders of each company, a favorable tax ruling and approval of various regulatory agencies. The merger should close in mid-1980.

The agreement was jointly announced by Forrest N. Shumway, Signal chairman and chief executive officer and Arthur H. Hausman, president and chief executive officer of Ampex.

Shumway stated, Ampex is a premier high-technology company, well-respected in its markets. "Ampex meets our investment criteria in that it is non-cyclical and a leading company in a growth industry. It manufactures high-quality products," said Shumway.

Ampex is headquartered in Redwood City, CA. It principally designs, manufactures, and markets worldwide professional audio and video systems, computer memories and data handling products, magnetic tapes and accessories. At the end of its fiscal year ended April 28, 1979 it reported sales of \$380 million. It employs 12,000.

The Signal Companies is a worldwide, multi-industry company reporting sales of more than \$4 billion. It employs 53,000. Its units include The Garrett Corporation, Mack Trucks, Inc., UOP Inc., Signal Landmark, Inc., and Dunham-Bush, Inc. Signal's investments include Golden West Broadcasters and Natomas Company.

Merger

Radio and TV stations will soon be offered a new and expanded choice of computer-based broadcast management systems as two of the major companies now in the field announced plans for merging their facilities and personnel into a new organization to be known as **Broadcast Management Concepts**.

An "agreement in principle" has been reached for the merger of the Computer Division of **Bloomington Broadcasting**, located in Bloomington, IL, and **Automated Business Concepts**, headquartered in San Diego, CA, according to Timothy R. Ives, president of Bloomington and Thomas G. Haag, president of ABC.

NEED A HAND?

After planning and installing some of the most creative and up-to-date sound systems in top Japanese broadcasting studios, our engineers now know that they can solve any problems..... even yours. Cost performance assured.



SS-380st PORTABLE MIXER

Dimensions 16CH stereophonic
615(W) x 540(D) x 175(H)mm
(24-7/32" x 21-9/32" x 6-29/32")
Weight 27kg(16CH), including power supply
(59.4 lbs) - metric pound



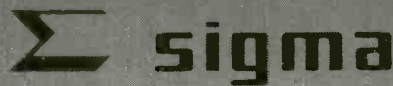
SS-402 (For EFP) 4-CHANNEL PORTABLE MIXER

Inputs 4
Outputs 2 (stereophonic)
Monitoring (stereophonic)
Single phase, UM2 x 8 (continuous for 4 hours)
Dimensions 270(W) x 210(D) x 80(H)mm
(10-21/32" x 8-9/32" x 3-5/32")
Weight 6kg approx.
(13.2 lbs) - metric pound



SS-403 (For ENG) 3CH ULTRA-COMPACT TYPE MIXER

Dimensions 3CH Input
152(W) x 114(D) x 47(H)mm
(6" x 4-1/2" x 1-7/8")
Weight 1kg, including battery
(2.2 lbs) - metric pound



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* Also, we can act as your sales agent in Japan.

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Headquarters of the new organization will be in San Diego, with a full-service Midwest office in Bloomington, IL. Regional offices in Dallas and New York are planned for March, with additional offices to be added during 1981.

SALES/CONTRACTS

RCA

Channel 4, Sao Paulo, Brazil, will begin broadcasting a circularly polarized TV signal next year with a new RCA transmitter and antenna system valued at more than \$1 million, RCA Broadcast Systems announced. The Sao Paulo outlet of the TV Tupi Network will install a 50kW RCA transmitter and a VHF Fan-Vee antenna.

Pye

Pye TVT is equipping and installing Studio 'B' at the new BBC Manchester Network production center. Studio 'B' is the second production studio at the Oxford

Road center to be installed and is part of the BBC policy to consolidate production facilities on to one site rather than the existing pattern of nine separate radio and TV studios which make up the BBC Manchester production facility.

Frezzolini Electronics

Frezzolini recently received a contract from Ampex for Frezzolini-design and manufacture of portable power elements for the Ampex videotape recorders that will be used to tape the 1980 Olympics in Moscow. The contract includes Frezzi battery packs for the VTRs and associated equipment including ac-mains-isolated Frezzi-Fast battery chargers.

Harris

WTVK, Knoxville, TN, has awarded the Broadcast products division of Harris a contract for a BT-110U1, 110kW UHF color TV transmitter and an Andrew Antenna.

The broadcast products division of Harris will deliver an outside broadcast van equipped with three TV line color cameras to the University of Chile in Santiago.

An MW-50A, 50kW AM transmitter for WBT, Charlotte, NC, is being provided by the Broadcast Products division of Harris.

Marconi

Southern Television has placed an order with Marconi Communication Systems Limited for three studio cameras and one portable, all from the Marconi Mark IX family of automatic color TV cameras. They are to be used to fit out southern's outside broadcast van.

Datatron

Datatron has announced that it has purchased from Dytek Industries, design, ownership and exclusive manufacturing rights to that company's line of video production switchers, routing switchers and controllers. Included in the acquisition was a new line of production switchers to be marketed for the first time by Datatron.

Neve

George Cook, the BBC's assistant director of engineering has signed a contract with Neve Electronics International for seven new control desks custom designed for BBC Radio. This is the largest single BBC order ever won by Neve.


Robert Bosch

The Moroccan National Broadcasting Organization RTM has placed an order with Robert Bosch GmbH, television systems division, for new color studio equipment including 3 KCP 60 cameras, a type RC 1051 ME studio production switcher and the associated peripheral units.

An order for 49 1-inch BCN VTRs from Radio Television Espanola has been received. Twenty-five of the SMPTE/EBU B-Format recorders are portable BCN 5 cassette machines of BCN 20 reel-to-reel units. Half of the 24 studio BCN 50s are equipped with digital still play and slow motion facilities.

Kansas State Network

Kansas State Network reported record first quarter operating revenues and net earnings. Operating revenues for the first period of KSN's fiscal 1980, ended November 30, 1979, rose 14% to \$5,841,000 from \$4,137,000 a year earlier.



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April 13-16, 1980



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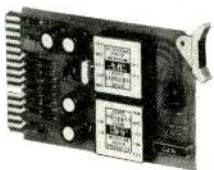
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4820**

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UP TO 16 CARDS PER FRAME



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CHANNEL (2 X 8) OR (1 X 16)**
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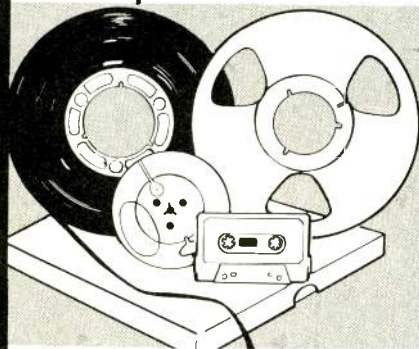
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new products

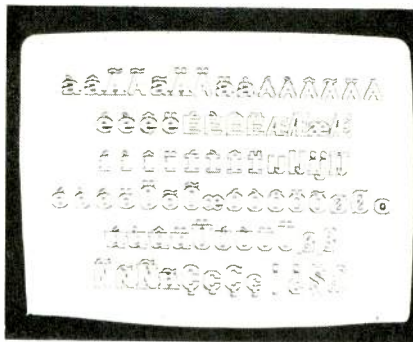
Post-production system

Videomedia announce the Z6-E post-production system. In the Z6-E, the edit points are determined by going out of the event as opposed to entering the event, which demands a frame match edit every time an effect is implemented and limits the operator to A/B rolls at best. The Z6-E can perform A/B/C/external rolls plus 2, 3, 4, + way splits.

Circle (617) on Reply Card

International language accents

Eleven international languages are supported in resident memory display by a single optional PROM set in Quantafont Q-VII teleproduction graphic titler from System Concepts.



The international set will call up 79 characters and provides true lower case accents to support Dutch, Danish, English, Finnish, French, German, Italian, Norwegian, Portuguese, Spanish and Swedish.

Circle (618) on Reply Card

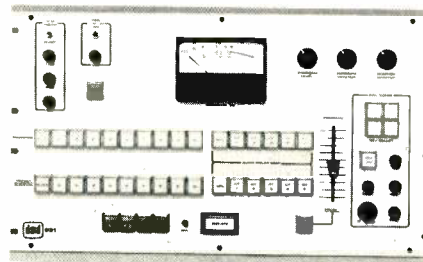
VTR editor interface

Dynasciences has available a 1-inch format VTR interface kit to be used with their model 104 post-production editor. The kits are adaptable to most 1-inch VTR models, specifically the Sony BVH-1000.

Circle (619) on Reply Card

Master control switcher

ISI has announced release of a new 931 master control switcher designed for small station operations. The unit features 10 audio follow video inputs with five audio



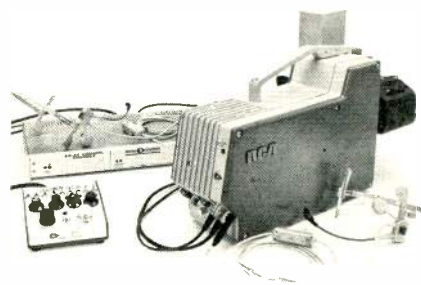
breakaways and audio over/under. Automatic transitions, colorizer, program audio VU meter, and downstream keyer with border edging, four input selector and independent colorizer complete the list of standard features. Options include a time display.

Circle (620) on Reply Card

TK-76B CO-AX remote control

Cinema Products announces a new digital remote control system for RCA TK-76B ENG/EFP cameras.

The new CP CO-AX system consists of a mini-CCU, a digital encoder, and a camera-mounted decoder sandwiched between the TK-76B camera door and the camera body. The digital encoder will accommo-



date two mini-CCUs to control two separate cameras, each equipped with its own decoder. The system eliminates the need for multi-core camera cable by using a single coaxial cable to provide studio-like remote control. The system is also available for Ikegami HL-77 and HL-79A cameras and MNC-71 series cameras.

For information: Cinema Products, 2037 Granville Ave., Los Angeles, CA 90025.

VIRS generator

Television Equipment Associates announces a new VIRS generator manufactured by D-Lab. This compact generator can be installed at

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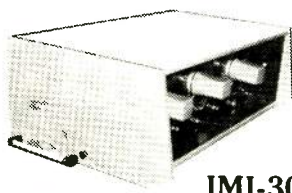
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224 *Broadcast Engineering* March 1980



the program source to provide an accurate reference of luminance and chrominance level and phase. The reference signal is automatically added to line 19 or 20 in either or both fields. The 1-line reference signal comprises a 3-level stepped luminance signal with 70, 50 and 10% picture levels. Following program recording or transmission, the video level, set-up, chroma gain and phase can be adjusted manually or automatically by introducing corrections that restore the VIRS signal to its original form.

An automatic line sampler enables the generation of local VIRS if another signal is already present on that line of the program. Front panel status lamps indicate the presence of program video, subcarrier lock, external or local VIRS and power.

Circle (621) on Reply Card

Video filters

A new range of low-pass video filters is now available from **Broadcast Video Systems, Ltd.** These passive filters are ideal for installation at the output of character generators to eliminate spurious spikes occurring above the normal video pass band. Features include phase equalization, low insertion loss and better than 45dB rejection above the cutoff frequency, with extremely fast roll off. Cutoff frequencies are available from 0.5MHz to 10MHz.

Circle (622) on Reply Card

Electret-condenser lavalier

According to **AKG**, the new C-567 is among the smallest lavalier obtainable with comparable professional acoustical quality and mechanical durability. The transducer

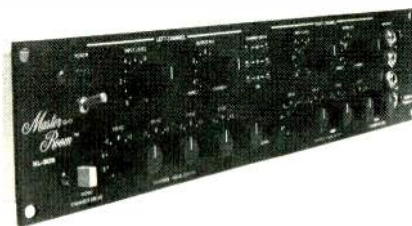


system is field replaceable. The microphone head and output module are all-metal zinc construction, chrome-black plated. The microphone may be phantom powered from the mixers or recorders or by any AKG external ac or battery-powered phantom power supplies. The C-567 is omnidirectional with a frequency range of 20-20,000Hz.

Circle (623) on Reply Card

Acoustic chamber synthesizer

The Master-Room XL-305 acoustic chamber synthesizer, from **Micmix**, incorporates a new design in compact, self-contained reverberation systems. The XL-305 is a full stereo unit featuring two independent channels, switchable to either mono



or stereo imaging of monaural signal. Input and output level controls as well as dry/reverb mix controls are provided for each channel. Each channel also includes a 4-band equalizer that allows the XL-305 to effectively simulate the reverberant sounds of a plate, live chamber or concert hall.

Circle (624) on Reply Card

Video signal synchronizer

Microtime has announced shipments of the 2525 video signal synchronizer. The 2525 features RS170A sync generator; field 1, field 2, or frame freeze for digital video effects; auto freeze or black burst selectable on last field of active video; infinite H phase resolution for precise switcher timing control; optimized clean performance with





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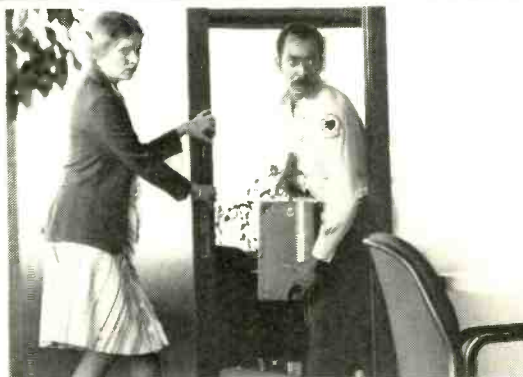
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input source hot switch; line error detection, velcor, DOC and hetrocolor processing.

Circle (625) on Reply Card

VTR monitoring unit

Marconi Electronics has introduced a VTR monitoring unit that combines remote video level TBC controls with monitoring selection in a self-contained 3½-inch high, 19-inch rack-mounting unit. The B4624 is compatible with all Ampex VPR-1 and VPR-2 and Marconi MR1 and MR-2 1-inch VTRs. A choice of either of two sets of interconnection cables can be supplied for operation with either A or C formats. A waveform-on-picture facility shows video, TBC and servo waveforms superimposed on the picture. A 4-way selector switch enables the selection of the three standard



audio channels in addition to the operational EBU 4th audio channel that feeds an internal 3-watt audio amp and speaker.

Circle (626) on Reply Card

Editing systems

Convergence has introduced three new ECS-100 series editing systems; the ECS-102A, ECS-103A and ECS-103B. The flexibility of the software-based design of the ECS-100 series allows the editing systems to be fully expandable and upgradeable at any time.

The ECS-102A is an entry level, single-source editing system featuring cruise control, trimmable in/out points, and operates with ¾- and 1-inch VTRs. This editing system is particularly suitable to ENG editing, animation and automatic dialogue replacement, and is fully upgradeable to the multi-source ECS-103B.

The ECS-103B is a single source multiple source, cuts-only videocassette editing system. This system is unique with its capability to employ additional source VTRs with cuts-only editing. Other features include split audio and video edits, 99

scene store and recall and high speed search.

The ECS-103B is a single source or a multi-source, on and off-line post-production editing system with A/B roll capability and switcher control for special effects. It works with 1- and ¾-inch videotape formats. Additional features include sync roll, split audio and video edits, high-speed search, 99 scene store and recall, and status display generator. The unit is capable of producing an industry standard edit decision list with full effect notation.

All ECS-100 series systems are capable of operating in control track or SMPTE time code, drop frame or non-frame and can produce an edit decision list when equipped with the optional EDL-100 edit decision lister.

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Voltage-controlled amplifier

A low distortion, low noise, high bandwidth voltage controlled amplifier has been introduced by **dbx**. All-discrete design boasts a minimum gain-bandwidth product of 50MHz, resulting in full audio band-

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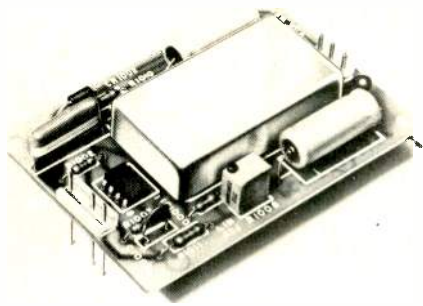
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Am enhancement

Available from **Kahn Communications**, the Non-Symmetra-Mod enhancement system allows the AM broadcaster to custom enhance a signal to increase coverage. The NSM unit accomplishes this by producing a more fully modulated



signal (125% positive) with a clean, low distortion sound, and with significantly purer sideband structure than produced when clippers are used. This system is compatible with normal audio processors, such as the Kahn Symmetra-Peak device, Dorrough DAP, etc. The NSM-125 directly feeds the AM transmitter, making it the final step in the modular processing system.

Circle (629) on Reply Card

Mobile titling system

Chyron Telesystems has developed the compact and ruggedized model RGU-1, which incorporates many of the features of the CHYRON-IV, including 27-nanosecond resolution; a large standard font library compatible and interchangeable with



CHYRON-IV standard font library; font storage in groups of four complete fonts at a time; individual character-by-character color with optional colorizer/keyer/edger; controllability from an unlimited number of keyboards; and an optional second channel that converts the RGU-1 into a high resolution dual channel system.

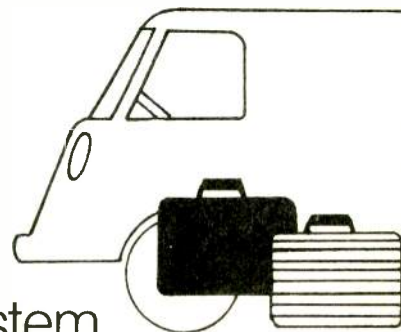
Circle (630) on Reply Card

Tape reproducer

Ampro/Scully has announced that the Scully 270 Series tape reduction system, that features bi-directional capabilities, will continue to be manufactured. The Scully 270 is designed for use in long-play back-

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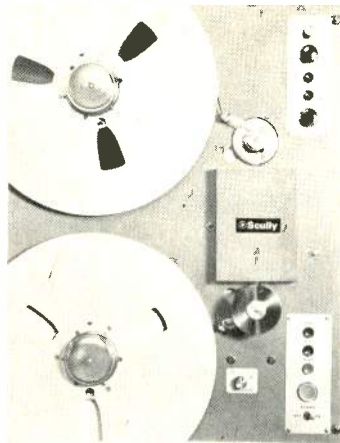
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ground music and automated broadcast systems. It utilizes 14-inch reels providing continuous uninterrupted music for up to eight hours at 3.75 ips., and is available in monaural 1/2-track; stereo 2-track, one directional; or 1/4-track stereo, bi-directional. It also fits into any standard 19-inch rack.

Circle (631) on Reply Card

Field strength meter

Rohde & Schwarz announces the ESH-2 test receiver for high-precision measurements of field strength, interference according to CISPR and MIL specifications, and tuned-frequency voltage measurements, and for radio monitoring over a frequency range from 10kHz to 30MHz, and



a usable sinewave input signal range from -30dB (μ V) to +137dB (μ V). This sensitive receiver, with its high overload capacity, accuracy (error for voltage measurements <1dB, for field strength measurements < 2dB), wide voltage range

(30 nV to 3V), and outstanding rejection of all unwanted signals.

Circle (632) on Reply Card

Audiocom intercom system

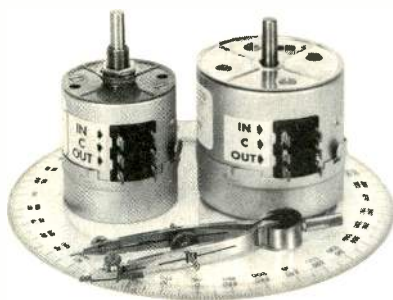
Telex has introduced the Audiocom, a closed-circuit headset intercom system. Components may be selected for a single or multiple line intercom, suitable for small or large, indoor or outdoor, portable or permanent installations. Paging, program feed and options such as light/tone signalling are available. Headset intercoms are easily installed with simplex wiring and standard connectors for short or long distances, exceeding five miles.

Circle (633) on Reply Card

Portable monitor

Deliveries of the new BARCO CM-33 battery-operated portable ENG/EFP color monitor have begun by E & O Systems, Ltd. The compact 12-inch monitor, operated by battery or ac power, is designed for mobile broadcast and closed-circuit TV

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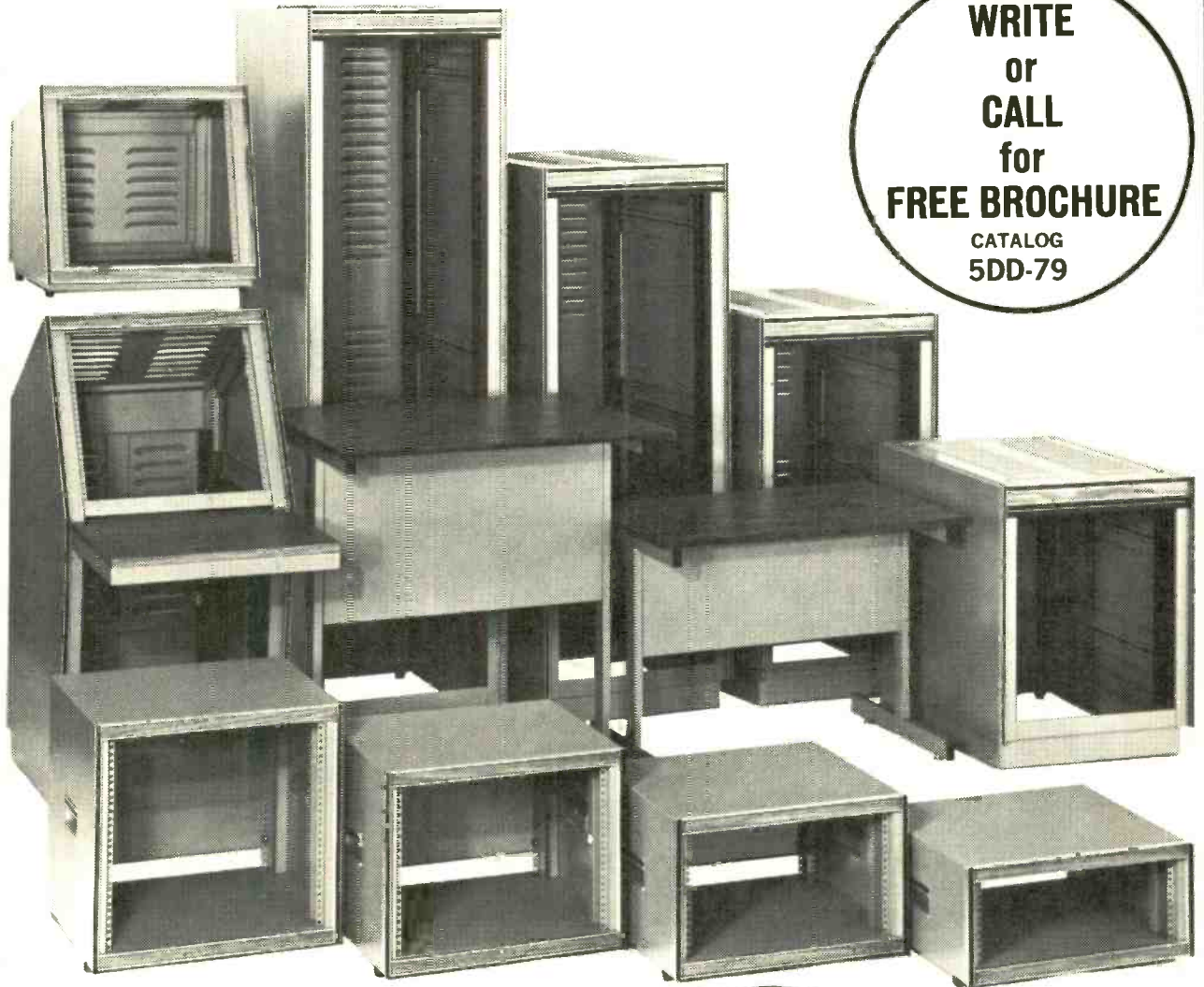
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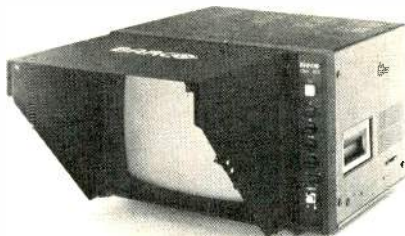
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applications. The CM-33 weighs 32 lbs., and can be rack-mounted in a studio or mobile van.

Circle (188) on Reply Card

Hands-free intercom

Clear-Com has developed a hands-free intercom speaker station, the KB-124, available in rack-mount and portable versions.



Applications include videotape room, master control, lighting grid, motion picture sound stage, on location film and ENG/EFP; any area where a headset would be restrictive or impractical.

Circle (634) on Reply Card

Wireless headphones

R-Columbia Products announces wireless intercom headphones that provide 2-way intercommunication without wires. Micro-electronics make it possible to compact narrow band FM communication receiver and transmitter into standard-size headphones. Limiting circuitry pre-

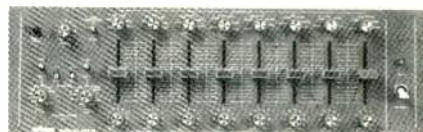


vents transmitter overload at close range, while a sensitive capture range allows operation up to 150 yards. FCC certified and license free, the model TR-50 has a built-in crystal-controlled FM transmitter, superhetrodyne receiver, a standard 9V battery, and 7-inch receiving antenna. A squelch circuit drives the receiver into quieting during times of no transmission. Each operator hears his own side tone as an indicator that transmission is taking place. Five channels are available for operation.

Circle (635) on Reply Card

Equalizer

The **Orban 672A** is a quasi-parametric equalizer with graphic-type EQ controls. Wide-range high-and low-pass filters with 12dB/octave



Butterworth slopes follow the graphic section. The 672A has two outputs, arranged so that these filters can also be used as a full turntable electronic crossover.

Circle (636) on Reply Card

Color monitors

The PCM-500 series of professional color master studio monitors is now available from **Lenco**. The monitors feature a black shadow



mask precision in-line gun cathode ray tube, and a switch-selectable comb filter in the luminance/chrominance separator. Resolution is 625 lines or more. The monitors accept both NTSC and RGB inputs.

Circle (637) on Reply Card

Headsets

The Astrolite series of headsets **Racal Acoustics** features interchangeable cushions. Ear-enveloping and ventilated foam cushions are available. The headset can be



supplied with three different ear-phones and six different micro-phones. For most intercom applications, Astrolites are supplied with a coil cord, mic switch and plug.

Circle (638) on Reply Card

Digital TBC

Harris Video Systems has introduced the CVS 520B digital TBC. It features an optional 16 line window. The unit dubs cassette and other non-capstan servo'd heterodyne VTRs to quadruplex and other



production machines, converts all heterodyne VTRs to interlaced color, and uses 9-bit four times subcarrier PCM digital sampling to maintain picture quality on multi-generation tapes.

Circle (639) on Reply Card

FM exciter

Cetec has introduced the 690PLL FM transmitter exciter. The unit is a frequency-synthesized phase locked-loop exciter with output power from 3 to 15W. Stability is rated at ± 300 Hz (with ± 100 Hz typical). Frequency range is programmable in 100 KC channel spacing, with a

frequency range of 88MHz to 108MHz. Model 690PLL is compatible with all FM transmitters and all available audio processing systems.

Circle (640) on Reply Card

Microwave link analyzer

The model 3711/12A microwave link analyzer by **Hewlett-Packard** covers both the traditional 70MHz and the new broadband 140MHz IF carrier communication systems. Along with dual IF capability, the

MLA features sensitivity at -20dBm, a frequency identification system, sweep range adjustable from 0.5MHz to 50MHz at 70MHz and out to 100MHz at the higher IF.

Direct readout of the variable marker frequency is displayed on a 5-digit LED counter. Resolution is to 10kHz and accuracy is typically to 20kHz, making it ideal for narrow-band satellite filter testing. The counter also is useful in establishing IF inputs and setting modulator center frequencies.

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The National Academy of Video Arts & Sciences

The election of officers of the National Academy of Video Arts & Sciences was held November 11, 1979 at the Academy offices in New York City. Officers elected were Ciel Dunne Kabler, Multi Media Productions, president; Alan Rogers, Modern Telecommunications, first vice president; Lee Roy Kaminski, KTK Video, second vice president; Rush Hickman, Convergence, third vice president; David J. Schweitzer, independent director of videography; Col. John J. Whiteside, Committee for the Future, treasurer.

Partial election of the board of judges also took place at the meeting. Judges screening committee includes: Chris Frost, EUE Screen Gems; Michael Little, executive producer, 700 Club, CBN; Rick Quintana, independent producer and consultant; Dick Millais, The Video Tape Company; C.S. Tepfer, C.S. Tepfer Publishing; Herman Schloss,

JVC; Peter Caranicas, "Videography;" Elliott Minsker, Knowledge Industries Publications; Tom Naughton, Studio III. Specialists in various non-broadcast video fields will be appointed.

Society of Broadcast Engineers Chapter 59—Kansas City, MO

The January meeting of Chapter 59 was held at the television facilities of the University of Missouri at Kansas City School of Medicine. Prior to the formal meeting, Robert Mertz, facilities engineer, gave chapter members a tour of UMKC's impressive television facilities designed to train students in medical arts.

The meeting was called to order by Jack McKain, chapter chairman. He introduced the speaker for the session: Don Markley, broadcast consultant of Don Markley & Associates, Peoria, IL, and BE's facilities editor. Markley gave an enlightening

presentation on audio proofs for AM/FM systems, and often had the group in laughter by relating some of his field experiences.

CMBA to meet in Chicago May 8-10

The Concert Music Broadcasters Association annual meeting will be held in Chicago, IL, May 8-10, 1980 at the Sheraton Plaza Hotel.

More than 50 commercial FM and AM radio stations which have adopted classical music as their principal format are members of the association. The officers are: Hal Rosenberg, president (general manager, KFSD, San Diego); John K. Major, executive vice president (director of research and marketing, WFMT, Chicago); Maurice Loewenthal, vice president (general manager, WTMI, Miami); Robert Conrad, secretary (program director, WCLV, Cleveland); Fred Miller, treasurer (general manager, WDSC, Portland, ME).

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Circle (191) on Reply Card

WESH-TV to construct Harris antenna

WESH-TV, Daytona Beach, FL, one of two TV stations owned by Cowles Broadcasting, recently broke ground for a taller tower that will help increase the station's coverage area. WESH-TV has ordered a Harris circularly polarized TV antenna to further improve signal coverage. Harris will provide WESH-TV with a BTD-50L2, 50kW TV transmitter and a 9100 facility control system. Marvin C. Whatmore, Cowles chairman; John M. Haberlan, Cowles president; and second-grade student Becky Evans, triggered the ground-breaking blast near Orange City, FL, where the 1740-foot tower will be constructed. The tower will be Florida's tallest when completed in about six months.

CN tower houses UHF transmitter

The world's tallest free-standing structure, Toronto's CN tower, houses six TV station transmitters within its 1815-foot height. The most powerful of these is the recently installed transmitter developed by



The CN Tower (background) houses locally-designed TA transmitter utilized by CFMT-TV, Toronto, Canada. Left to right are Emile Adamyk, president, Comad Communications and manufacturers representative for Townsend Associates in Canada; Daniel Iannuzzi, president, CFMT; and George Townsend, president, Townsend Associates, Westerfield.

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in more than
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production
houses
the world over.**



Townsend Associates, Westfield, MA, for use by station CFMT, Channel 47, Toronto. The TA transmitter provides CFMT with an effective radiating power of 800,000W.

CFMT is the first to use a transmitter which uses a klystron in the visual amplifier, while utilizing tetrodes for aural amplification. The use of tetrodes in the amplifier is a design innovation that results in reduced energy requirements for operation. Also, tetrodes are about 20% of the cost of klystrons, which results in a lower selling price than conventional UHF transmitters.

According to George Townsend, president of Townsend Associates, the new TA transmitter is the first full line of UHF transmitters to employ this new engineering technique.

Regional Administrative MF Broadcasting Conference

The first session of a Regional Administrative MF Broadcasting Conference in Region 2 (the Americas) opened Monday, March 10 in Buenos Aires.

Delegates from 28 Member countries of the International Telecommunication Union (ITU) are taking

part in the Conference which will last for three weeks. Three other ITU Member countries will send observers.

The first session of the present Conference concentrates on formulating the technical and operational criteria and the planning methods which will serve as a basis for the preparation by the second session of a frequency assignment plan for the MF broadcasting band in Region 2 (535-1605kHz).

The second session will be held in November 1981.

The agenda of the 1st Session is:

- To establish the basis for the preparation, by the second session of the conference, of a frequency assignment plan for the MF broadcasting band in Region 2 (535-1605kHz), taking into account the following non-exhaustive list of items: definitions; propagation data; modulation standards and channel spacing; protection ratios, including noise levels; required values for the minimum usable field strength, for the usable field strength and for the nominal usable field strength; transmitting antenna characteristics and transmitter powers; planning methods;
- to specify the form in which requirements for inclusion in the frequency assignment plan should be submitted to the Union and to fix the date by which they should be submitted.

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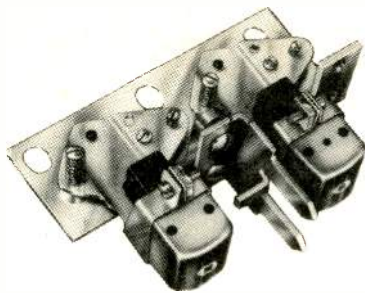
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Labels: Trouble Sources

On two separate occasions we have suffered equipment failures that could have been prevented by the manufacturers. First, a little metal serial number label fell off a power transformer in a 25Hz automation tone generator and shorted out the rectifier diodes. The printed circuit board was also damaged by the arcing and a resistor was destroyed. Then, a metal label inside the top of our AM console fell off and shorted out the monitor amplifier causing the power supply to automatically shut down and put us off the air. An IC was destroyed in this incident.

I would like to suggest to my fellow engineers that equipment be examined to locate metal labels that are stuck on parts or inside the cabinet. These labels should be relocated or removed and placed in the instruction book for future reference. I also urge equipment manufacturers to either locate these labels in a safe place where no damage will result if they fall off when the glue dries out or return to paper or plastic labels.

Harley Drew
 Operations Manager

Editor's Note: According to an unofficial announcement of the FCC's action concerning labels received October 3, 1979, the following practice is necessary for manufacturers. Paper nameplates and soluble glue are prohibited. Metal nameplates must have a minimum thickness of 0.020 inches if used. Nameplate data must be permanently affixed and displayed so as to be visible to the purchaser at the time of purchase.

As used here, "permanently affixed" means that the required nameplate data is etched, stamped, indelibly printed or otherwise permanently marked on a permanently attached part of the equipment enclosure. Alternatively, the required information may be permanently marked on a nameplate of metal, plastic, or other material fastened to the equipment enclosure by welding, riveting, etc., or with a permanent adhesive. Such a nameplate must be able to last the expected lifetime of the equipment in the environment in which the equipment will be operated and must not be readily detachable.

The amendment was effective October 29, 1979.

Oops! Emmies missed

Your October issue on the Emmy Award cover story (chart, p. 32) missed the mark and got its ATAS and National ATAS mixed up. In 1978, for example, CBS's invention of the Digital Noise Reducer for color television won National ATAS' Emmy but didn't get into your recap lineup even though **BE** noted that occurrence on p. 12 of the October 1978 issue.

Sherman Levin
 CBS Technology Center

Editor's Note: Our apologies for not listing your 1978 Emmy. This error was not an oversight, but actually part of a more serious problem in dealing with two (competing) academies. However, we did correctly identify the two groups. Unfortunately they each want to be recognized as the official academy while at the same time bestowing identical awards and operating totally independently.

"Live" again

Thanks for the impressive treatment given **Live From Lincoln Center** by Don Redell in your September, 1979 issue. Judging by the response we've had, your circulation exceeds our Nielsen ratings! The cable layout chart looks dazzling, but some comments might help: **O.P.** stands for "opposite the prompt side" and is a term for "stage left" handed down from the old Metropolitan Opera House; we do not feed digital video anywhere, **PCM** in the lower left corner should read **PGM** (or program); cameras 7 & 8 were sitting on **Elemack dollies** and had ordinary lenses (not 80 x 24); cameras 2 & 3 had Rank MRL lenses.

For perspective, your readers might be interested in the fact that our shows are now carried, video **and** stereo, by the PBS satellite network, the stereo being digitally encoded for transmission on PBS' Digital Audio Transmission Equipment (DATE). There was a typo that occurred (exception: the picture caption on the bottom of page 104): my last name is spelled with a "c."

Mark Schubin
 technical designer,
 Live From
 Lincoln Center

new literature

Microwave catalog

Nurad—A commercial catalog describes the firm's full line of microwave/ENG products and systems capabilities and features the new Superquad-II, claimed to have increased gain, guaranteed sidelobes.

Circle (642) on Reply Card

Equipment catalog

Harris—The Broadcast Products Division offers "Broadcast Equipment Accessories 79-V." The 200-page catalog lists thousands of items required by the broadcaster in areas of audio, RF and video. Specifications, photographs, prices and ordering information are included for each item listed.

Circle (643) on Reply Card

Distortion measurement systems

Radiometer Electronics—Completely automatic distortion measurement systems and equipment are presented in a 6-page brochure. The pamphlet describes automatic distortion meter and automatic sweep oscillator forming the basic analyzer unit.

Circle (644) on Reply Card

Capabilities brochure

Loral—TerraCom, a division of Loral, has introduced its new capabilities brochure. The illustrated, 4-color, 12-page brochure describes the firm's line of tunable microwave and digital multiplexers, production facilities and R&D and quality control programs.

Solid-state brochure

Cherry Electrical Products—A 14-page brochure contains an introduction to solid-state capacitive keyboards and valuable application data. Specifications, detailed block diagrams and schematic charts give a concise description of these advanced design keyboards.

Videotaped training course

Datatron—The availability of a videotaped training course on the operation and maintenance of its Tempo 76 videotape editing system has been announced. Produced in full color, the course is being offered in ¾-inch format on a series of eight cassettes. The complete set of eight tapes is priced at \$1150; individual course segments are priced at \$350 per tape.

Short form catalog

Cohu—The 1980 edition of the Short Form Catalog describing their current line of closed-circuit television products is now available by request. Included is the new line of monochrome television monitors as well as environmental and low light level cameras.

Circle (648) on Reply Card

tube talk

30 mm

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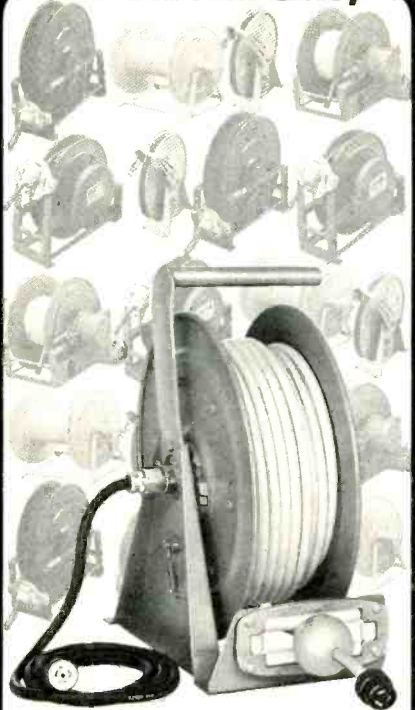
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THE HUMOR CORNER

Editor's Note: A few months ago this department was started to acknowledge that the exciting profession of broadcasting has its lighter moments. The reader response to the initial columns of this department was most reassuring, and several contributions were received.

The first contribution below came anonymously from a South Carolina station. Since this literary work was unsigned, we do not know which broadcasting department produced it.

The broadcaster's corporate structure

General manager

- Leaps tall buildings in a single bound.
- Is more powerful than a locomotive.
- Is faster than a speeding bullet.
- Walks on water.
- Gives policy to God.

Program director

- Leaps short buildings in a single bound.
- Is more powerful than a switch engine.
- Is just as fast as a speeding bullet.
- Walks on water if the sea is calm.
- Talks with God.

Traffic manager

- Leaps short buildings with a running jump. (And favorable winds!)
- Is almost as powerful as a switch engine.
- Is faster than a speeding BB.
- Walks on water in an indoor swimming pool.
- Talks with God if special request is approved.

Sales manager

- Barely clears a quonset hut.
- Loses tug-of-war with a locomotive.
- Can fire a speeding bullet.
- Swims well.

- Is occasionally addressed by God.

Full-time announcer

- Makes high marks on the wall when trying to leap small buildings.
- Is run over by a locomotive.
- Can sometimes handle a gun without inflicting self-injury.
- Dog paddles.
- Talks to animals.

Salesman

- Runs into buildings.
- Recognizes locomotive two out of three times.
- Is not issued ammunition.
- Can stay afloat with a life preserver.
- Talks to walls.

Part-time announcer

- Falls over doorsteps when entering buildings.
- Says, "Look at the choo-choo."
- Wets himself with a water pistol.
- Plays in mud puddles.
- Mumbles to himself.

Chief engineer

- Lifts buildings and walks under them.
- Kicks locomotive off the track.
- Catches speeding bullets in his teeth and eats them.
- Freezes water with a single glance.
- ...is God!

Safety First, Or Last

There was a young man from Clower
Whose job was to paint our tower.
No safety belt wore he
Said, "I'm agile as can be,"
Now his wife paints his grave with flowers.

Mark Goodson
K-HYM Radio
Gilmer, TX

meetings, events & seminars

March 20-21—The Portland Chapter of the American Marketing Association will be co-sponsoring a National Conference encompassing the theme "Electronics Marketing in the '80s—A Decade of Challenge and Opportunity." The fees will be \$145 for AMA members and \$165 for non-AMA members. Contact on letterhead James L. Mater, Management/Marketing Associates, Bank of California Tower, Portland, OR 97205, (503) 228-9327.

May 3—The topic for the 1980 Midwest Acoustics Conference will be "Microphone Techniques for Recording and Broadcasting." The Conference will be held at Hermann Hall, Illinois Institute of Technology, Chicago, IL. For additional information contact Tony Tutins, Knowles Electronics, 3100 North Mannheim Road, Franklin Park, IL 60131 (312) 455-3600.

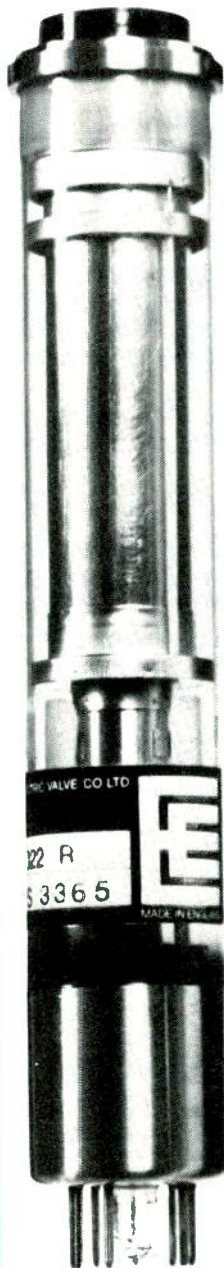
May—Peirce Phelps has scheduled its 12th Annual Video Forum to take place in Philadelphia May 6-8 and in Washington, DC May 13-15. There is no charge for admission; requests for invitations or additional information may be sent to Teresa Fuller, 2000 Block North 59th Street, Philadelphia, PA, (215) 879-7175.

June 3-7—The 29th annual convention of American Women in Radio and Television is being held at the Hilton Palacio del Rio and San Antonio Marriott in San Antonio, TX.

September 20-23—The 8th International Broadcasting Convention, IBC 80, will be held at the Metropole Conference and Exhibition Centre, Brighton, United Kingdom. IBC 80 will have over 70% more exhibition space than IBC 78. Further information can be obtained from the IBC Secretariat, the Institution of Electrical Engineers, Savoy Place, London, United Kingdom WC2R OBL.

October 5-8—The International Federation of Television Archives will be holding the 1980 General Assembly in Ottawa, Canada. For further information contact A.W. Ross, Canadian Broadcasting Corporation, P.O. Box 8478, Ottawa, Ontario, K1G 3J5, Canada.

tube talk



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(2) **PHILIPS LDH-20 COLOR CAMERAS**—each with 1:10 zoom, 500 ft. camera cable, CCU, video control unit, daylight filters, 2X teletextenders, ITE tripods, dolly and cam heads—all in excellent condition. (1) Hitachi 1212 and (1) 1000P Color Cameras with zoom lenses, CCU, tripod and dolly—all in excellent condition. Contact Stu Lefkowitz, Video Production Services, 1212 Tenth Street, Berkeley, CA 94710, (415) 526-6741.

1-80-3t

FOR SALE—7 SMC 250 RS carousels, SMC EC-2 encoder, 2-16" turntables, 2-ASR-33 teletypes, 3-Revox A-77, 26.13 MHz, 250 watt link transmitter, 2 equipment racks. (304) 253-7311.

3-80-2t

3 **TELEFUNKEN U47** mikes, power supplies, cables. One mike needs capsule. \$2500. Fulton, Rox 980, Tulare, CA 93275. (209) 686-6485.

3-80-1t

IKEGAMI HL77A. Excellent condition. \$32,000 or best offer. (301) 986-0512.

3-80-1t

FOR SALE: 2 JVC CR-8300U 3/4" recorders & 83U edit controller. Contact Audio-Visual Technologies, 1433 N. 1st Street, Phoenix, Arizona, (602) 258-2972.

3-80-1t

2 **GATES POWER SUPPLY** relay system & power amps for Gateway consoles—\$150 ea. 1 Gates M-5576 program amp—\$75. 5 AM-10 Ampex stereo mixers—\$250 ea. 2 Ampex 351-2 rack mount—\$1500 ea. 2 Ampex 351-1 factory console—\$1200 ea. 1 Ampex AG-350-2 factory console with extra 1/4 inch P/B head—\$1700. Also Ampex FR-1100 & 300 decks—\$250 ea., PR-10-1—\$150. 1 Scully 284-8 factory console, motion sensing, remote—\$6500. Call David Lundy, (606) 546-6650, P.O. Box 485, Barbourville, Ky. 40906.

3-80-2t

CABLE L.O. Lost its lease. Following equipment for sale: **PLAYBACK**, editing, production, used 3/4" tapes, BW movies on tape. More information call (217) 525-1239.

3-80-1t

EQUIPMENT FOR SALE: Microwave Associates MA2A transmitter, receiver, antennae, dishes. 2 watts, 2 Glg. range, one audio channel. Solid state. New Life Communications, (612) 235-6404.

3-80-1t

VIDEO AND AUDIO DISTRIBUTION AMPLIFIERS. COMPLETE PLANS AND PC BOARD \$20.00 EACH. ASSEMBLED, TESTED, GUARANTEED, \$35.95 EACH. TELE-AMPS, 8688 ROYAL DRIVE, NOBLESVILLE, INDIANA 46060. Check or Money-Order, P.O. # OK on 6 or more units of same type.

1-80-3t

COPPER STRAP, Ground Screens and #10 wire, BCA, (404) 487-9559.

1-80-1tf

AMPEX AVR-2 VIDEOTAPE RECORDERS: Three fully loaded nearly new VTRs (two with editors), equipped with dropout comp., Autochroma/velocity comp., auto tracking, and full color monitoring. Interfaced to CMX-300 system, plus three spare heads. Contact Rod Hall at (213) 577-5400.

3-80-4t

SPECTRUM ANALYZER—ASL model 8622 RF Spectrum Analyzer, 10 to 1000 MHz, 3-inch CRT, manual and application notes, weight 22 lbs. Excellent condition, \$895. M. W. Roberts, 3694 East Tompkins, Las Vegas, NV. (702) 451-3517.

3-80-3t

T-V PRODUCTION EQUIPMENT: 40" TV videotaping production truck. Latest network & maintenance equipment. \$340,000.00, (213) 985-5562 or 397-5922 Home, Withers.

3-80-1t

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Excellent career opportunities are immediately available with the Grass Valley Group, for talented people with television industry experience in these areas:

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BROADCAST TELEVISION ENGINEER wanted. In-depth maintenance work history necessary. F.C.C. First Phone and 5 years initiating preventative maintenance programs and leading maintenance personnel in the accomplishment of these goals. Salary commensurate with experience. Send resume to Director of Engineering, WLRN-TV, 1410 Northeast 2nd Avenue, Miami, Florida 33132. 3-80-11

TELEVISION BROADCAST MAINTENANCE ENGINEER. Applicant must be familiar with all types of television broadcast equipment. Knowledge of digital circuitry in addition to analog required. Experience necessary. Reply to Dept. 493, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. E.O.E. 3-80-11

WSM AM/FM is seeking an experienced, energetic Radio Engineer to supervise, improve and maintain our Radio Studio facilities. This position requires previous years of experience in these areas, as well as knowledge of state-of-the-art equipment and techniques. Supervisor ability a must. Send resume, references and salary requirements to the Personnel Director, WSM, Incorporated, Box 100, Nashville, TN 37202. An Equal Opportunity Employer. 2-80-21

MAINTENANCE ENGINEER: SAUDI ARABIA: USA based firm needs experienced engineer to maintain PAL TV studio and multi-media presentation areas. Applicant must be a self-starter and work without supervision. Contract will be a minimum of one year, renewal is expected. Outstanding salary with all living expenses paid. One month vacation with travel paid to USA and/or Europe or Orient. No provisions for family living abroad. Starting April. Call R. Henderson, (201) 288-6130 or send resume to Stylst Systems, Inc., 39 Industrial Avenue, Teterboro, N.J. 07608. 2-80-21

REMOTE ENGINEER to share operations and maintenance duties. Must be good troubleshooter. CEI and IVC cameras, Sony 1", Ampex quad. New Life Communications, 424 W. Minnesota, Willmar, MN 56201. 3-80-11

NO SNOW HERE: Maintenance Engineer to maintain TR-70, TC-100, PC-70, TH-100 and other miscellaneous studio equipment. Please contact Tim Rounds, WBBH-TV/20, 3719 Central Av., Fort Myers, Florida 33901; Phone (813) 936-0195. 2-80-21 e.o.e.

MAINTENANCE ENGINEER—3 to 5 years experience for a modern, well-equipped northeast large market independent. Good salary and benefits. An Equal Opportunity Employer. Send resume and salary requirements to Broadcast Engineering, Dept. 492, P.O. Box 12901, Overland Park, KS 66212. 3-80-21

CHIEF ENGINEER for major market AM-FM in Pacific Northwest. Must have Chief Engineer experience with strong maintenance/audio/transmitter background—enthusiasm and ambition essential. Salary \$24K-\$28K, depending on experience. Reply with resume to Dept. 495, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. E.O.E. 3-80-11

S.E. SUNBELT V STATION has opening for a maintenance technician. Must have FCC 1st Class License, three years of maintenance experience and strong technical background. Excellent salary and benefit package. Replies treated in confidence. Send resume to Dept. 497, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. E.O.E. M/F. 3-80-11

CHIEF ENGINEER for network affiliate VHF TV station. Thorough technical experience necessary and supervisory experience required. Excellent career opportunity with benefit package and salary commensurate with experience and qualifications. Send resume to Dept. 496, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. We are an EOE. 3-80-11

MAINTENANCE ENGINEER: Excellent opportunity for advancement. Maintain and repair color broadcast equipment. Two years experience plus FCC First Class License. Send resume to WXXI Personnel Dept., P.O. Box 21, Rochester, N.Y. 14601. EOE. 3-80-11

VIDEO ENGINEER: Large international corporation needs experienced engineer to maintain and operate equipment including Ikegami and Sony cameras, 1" - 3/4" VTRs, assorted switching, processing, and audio units (type C in 1980). Applicant should have minimum 3 years color CCTV or broadcast experience. Graduate of 2-4 year electronics program preferred. Facility located near Chicago. Excellent benefit package provided. Send resume and salary requirement to Dept. 494, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. 3-80-11

ELECTRONICS ENGINEERS: Sony, the leading company in video, is offering opportunities to ambitious engineers who are aiming at a very promising future. If you have experience in broadcast maintenance with emphasis on digital technology, you may send resume to Mr. Carlo Severo, SONY BROADCAST DIVISION, 47-47 Van Dam Street, Long Island City, N.Y. 11101. We are an equal opportunity employer M/F/H/V. 3-80-11

BROADCAST ENGINEER—MOUNT ROYAL COLLEGE requires an experienced VTR and general broadcast engineer for its studios in CALGARY, ALBERTA, CANADA. The system includes: Phillips LDH-1 cameras, Ampex BCC-1 cameras, Ampex VPR-1/TBC-800 VTR's, Sony and Hitachi ENG systems, JVC-8500/RM-85 U-matic editing facilities, Conrac monitoring equipment, and all professional quality support equipment. The successful applicant MUST have a strong background in digital and analogue circuitry, as well as general proven experience in television systems maintenance. Mount Royal College offers excellent employee benefits and competitive salary with the industry. Please submit resumes, SPECIAL DELIVERY, prior to March 31, 1980 to: Personnel Office, MOUNT ROYAL COLLEGE, 4825 Richard Road S.W., Calgary, Alberta, Canada T3E 6K6. 3-80-11

RCA/EEOC SMRTE Tape Editing Controllers. Used with RCA TR-61 recorders. Units have been recently overhauled. McDonald's System—Television Department, 2010 E. Higgins Road, Elk Grove, IL 60007, (312) 593-3230. 2-80-21

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RCA Service Company's Broadcast Engineers travel all over the world to install, maintain and service transmitting systems, television cameras, and/or television tape recording equipment.

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VIDEO TAPE OPERATOR/ENGINEER for Rocky Mountain area. Familiar with Sony 1100, ACR-25, Ampex 1200, full-time network delay. FCC first. Apply Charles Upton, Pikes Peak Broadcasting, Box 1457, Colorado Springs, CO 80901. (303) 632-1515. EOE. 3-80-1t

TELEVISION CHIEF ENGINEER for growing station in 195th market. Management experience necessary. All fringe benefits, station located in beautiful southern Idaho. An Equal Opportunity Employer. Reply to Dept. 484, Broadcast Engineering, P.O. Box 12901, Overland Park, KS 66212. 12-79-tfn

MAINTENANCE ENGINEER: Experienced maintenance engineer for Ampex 1" facility, also Sony 3/4". Will train partially. Good maintenance background preferred. Salary negotiable. Mobile Video Productions, 1933 NW 27th Ave., Portland, Oregon 97210. 2-80-tfn

TELEVISION PROGRAM DIRECTOR: Position currently available. Responsible for supervision and operation of campus color television services. Includes planning and production of programs, supervision of production workers, implementation of goals related to development of television operations. Limited television practical teaching will be required. MA in Communications with emphasis in educational television. Some practical experience required. Salary competitive. Send resume and credentials by April 1, 1980 to: Mr. Dwight Cleveland, Director of Broadcast Services, Office of Communications, Troy State University, Troy, Alabama 36081. Troy State University is an Affirmative Action/Equal Opportunity Employer. 3-80-1t

TV TECHNICIAN—Experienced in operation of news van and live and tape microwave feeds, perform maintenance on ENG equipment working with Dallas news staff. Must have 1st class license and valid driver's license. EOE. Submit resume to KXAS-TV, P.O. Box 1780, Fort Worth, Texas 76101. Attn.: Chief Engineer. 3-80-1t

TELEVISION SYSTEMS ENGINEER: If you are a television systems engineer with a track record in designing color television studios, master controls, RF and baseband distribution systems, surveillance systems, and specification writing, or, if you have equivalent design experience in broadcast television or a top CCTV business, industrial, or educational operation; if you want to advance your professional future by working with the leading television and audiovisual consulting and design firm in the field with offices in New York, Los Angeles, and London; if you want to work in New York City, where the action is, with top professionals, on projects which are setting the trend—Send your resume and salary history, in confidence, to: Robert J. Nissen, Vice President, Hubert Wilke, Inc., 280 Park Avenue, New York, New York 10017. Full company benefits. Salary commensurate with experience. 2-80-2t

MAINTENANCE/OPERATION POSITION open in Washington, D.C.'s top independent UHF station. Non-union shop, with salary up to \$29,640 plus O.T. Only those with maintenance experience in all types of digital and analogue equipment will be considered. First Phone required. An operation shift will be necessary, as well as maintenance. Reply, by letter only, to Personnel, WDCA-TV, 5202 River Rd., Washington, D.C. 20016. E.O.E. 3-80-1t

STUDIO ENGINEER to replace employee of more than 40 years in three person department. We require a First Phone and experience with maintaining and installing solid state studio equipment. AM Directional and high power FM transmitter experience desirable but not required. We offer a quality conscious shop, competitive wages, and good benefits. Resume and references to Don Lange, Chief Engineer, WEBR, 23 North Street, Buffalo, New York 14202. WEBR is an equal opportunity employer. 3-80-1t

TELEVISION STUDIO MAINTENANCE ENGINEER: Four years studio maintenance experience required, First Class F.C.C. license preferred. Please send resume and salary requirements to: Jesse A. Holbrook, Chief of Technical Services, Office of Instructional Resources, 170 Taylor Education Building, University of Kentucky, Lexington, Kentucky, 40506, or call (606) 258-5831. 3-80-1t

OUR PRODUCTION LOAD is expanding and we need HELP! PTL has openings for the following production positions: Studio Lighting Director, EFP Lighting Director, Lighting Technicians, Cameramen, Scenic Staging, Prop Construction. A minimum of two years broadcast experience required. Salaries are competitive. Send resume to Production Unit Manager, PTL Television Network, 7224 Park Road, Charlotte, N.C. 28279. PTL is an Equal Opportunity Employer. 3-80-2t

TIRED OF SNOW? PTL has openings in these areas: Videotape, Audio, and Satellite Engineering. Minimum qualifications are 1st class license, 2 years broadcast experience, plus modest maintenance experience. Must be able to work second or third shifts. Salaries are competitive. Send resume to Director of Engineering, PTL Television Network, 7224 Park Road, Charlotte, NC 28279. Equal Opportunity Employer. 3-80-2t

ENGINEERS (TELEVISION): New television facility in Phila. has immediate openings for personnel qualified in the following areas: STUDIO BASEBAND SYSTEMS, STL MICROWAVE EQUIPMENT, TRANSMITTERS. Write: Harry Jenny, RADIO BROADCASTING CO., 3600 Conshohocken Ave., Philadelphia, PA 19131, or call: (215) 879-0900. 3-80-1t

TV ENGINEERING/OPERATIONS. Position consists of teaching and television service responsibilities. Teach responsibilities in areas of television engineering and operations. Service duties include scheduling campus TV productions, supervising student operation crews, maintaining television equipment. Qualifications: Bachelor's minimum, Master's preferred. First-class FCC radio-telephone license required. Salary open, depending on qualifications. Position open July 1980. Send letter of application, resume, credentials by April 15, 1980, to: Virgil Pufahl, Chairman, Department of Communications, University of Wisconsin-Platteville, Platteville, Wisconsin 53818. 3-80-1t

CITY OF EAST CLEVELAND, DIRECTOR OF COMMUNICATION: New Municipal department responsible for public information/relation services, enhancement of City's image, and development of documentary on City's rebirth. Education: Bachelor's required, Master's preferable in journalism, public relations, communications, english or related field of study. Experience: Minimum two years in journalism, media, advertising, or related field; administrative skills helpful. Skills desired: Photograph, video equipment, movie equipment, productions media operations, journalistic style layout, grant-proposal writing. Salary range—\$14,170-\$20,000. Apply or submit resume: East Cleveland Personnel Department, Room 207, 14340 Euclid, East Cleveland, Ohio 44112, between the hours of 8:30-11:30 A.M. AN EQUAL OPPORTUNITY EMPLOYER - M/F. 3-80-1t

CHIEF ENGINEER: AM directional, FM stereo Class C, Naples, Florida. Must have EE or equivalent experience (minimum 10 years). First Class License. Some television experience helpful. Must have top references and training for a stable job with top pay. Send complete resume to: Homer Dixon, Radio Television Centre, 333 Eighth St. South, Naples, Florida 33940. Equal Opportunity Employer. 3-80-1t

FIELD ENGINEER: Responsible for maintenance of optimum operation of the IHETS statewide telecommunications network except for those services provided by the telephone company. Will provide consultation and other technical services for member institutions. A fully equipped van is provided for the extensive travel to member campuses throughout the state. FCC 1st class license, minimum two years experience with and skill in maintenance of TV electronic equipment, including microwave radio system, videotape recorders, TV monitors and switchers. Submit resume and salary requirements to James Potter, Indiana Higher Education Telecommunication System, 1100 West Michigan, Indianapolis, Indiana 46223. EOE/AA employer. 3-80-1t

HELP WANTED (CONT.)

ASSISTANT CHIEF ENGINEER—Hands on maintenance experience with all types of studio and transmitter equipment including digital devices. First Class FCC license is required with supervisory experience or ability. Great advancement potential with top group broadcaster. Send resume to Steve Weber, KFSN-TV, 1777 G Street, Fresno, CA 93706. We are an Equal Opportunity Employer. 3-80-1t

TV MAINTENANCE ENGINEERS AND TECHNICIANS—For TV production and sports facility. Maintenance Engineer required for quad tape, W/time code editing, studio cameras, slo-mo, scoreboards and computer, IVC 9000, Ediphor video projectors, and much more. Also, Video Engineer for four camera (PC-70) remote truck. Maintenance background preferred. Contact: Bill Denton, MCI Production, #10 Greenway Plaza, Houston, Texas 77046, (713) 627-9270. 3-80-2t

MAINTENANCE ENGINEER: Wanted immediately for radio network. Must be experienced with all types of tape machines, consoles, digital control systems and related broadcast equipment. Remote work, microwave and satellite experience helpful, but not a must. Send resume to: William E. Wilson CE, UPI Audio Network, 220 East 42nd Street, New York, New York, 10017. Call (212) 682-0400. 3-80-1t

V.T.R. BENCH TECHNICIAN. Must have knowledge of small format, helical systems (repair and alignment). Minimum 1 year experience (digital logic systems knowledge helpful). Salary commensurate with experience. Full benefits program. Send resume or call: Personnel, Columbia Pictures Videocassette Services, 1501 Landmeier Road, Elk Grove Village, Illinois 60007. (312) 640-2350. 3-80-1t

LICENSED TV TECHNICIAN experienced in operation and maintenance. NBC Station with heavy local commercial production. Latest equipment, fringe benefits. Write Jerry Merritt, WICS-TV, Springfield, Ill. or call (217) 753-5665. EOE. 3-80-2t

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WANTED: Pre-1926 radio equipment and tubes. August J. Link, Surcom Associates, 305 Wisconsin Ave., Oceanside, Ca. 92054, (714) 722-6162. 3-76-tf

WANTED—RADIO TRANSCRIPTIONS: 16" "Eddy Arnold Purlina Shows" by Brown Bros. Will purchase all or tapes made from. Want other 16" & 12" transcriptions or radio station libraries of records 78's, 45's, 33, etc. Boyd Robeson, 2425 W. Maple St., Wichita, Kansas 67213. (316) 942-3673, 722-7765 nites. 3-80-2t

HIGHEST PRICES PAID for 112 Phase Monitors and for clean, 12 year old or less, 1 KW and 10 KW AM Transmitters. All duty and transportation paid. Surplus Equipment Sales, 2 Thorncliffe Park Dr., Unit 28, Toronto, Ontario, Canada, M4H 1H2. 416-421-5631. 2-79-tfn

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WANTED (CONT.)

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NEED 30 KW UHF KLYSTRON TRANSMITTER, (209) 578-5636, EVE. (209) 521-0909. 2-80-3t

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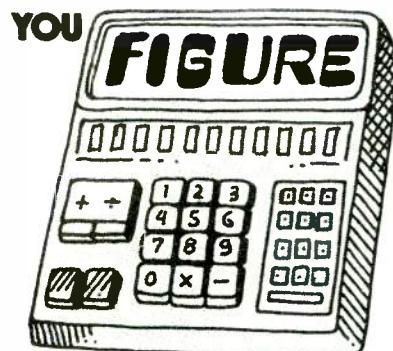
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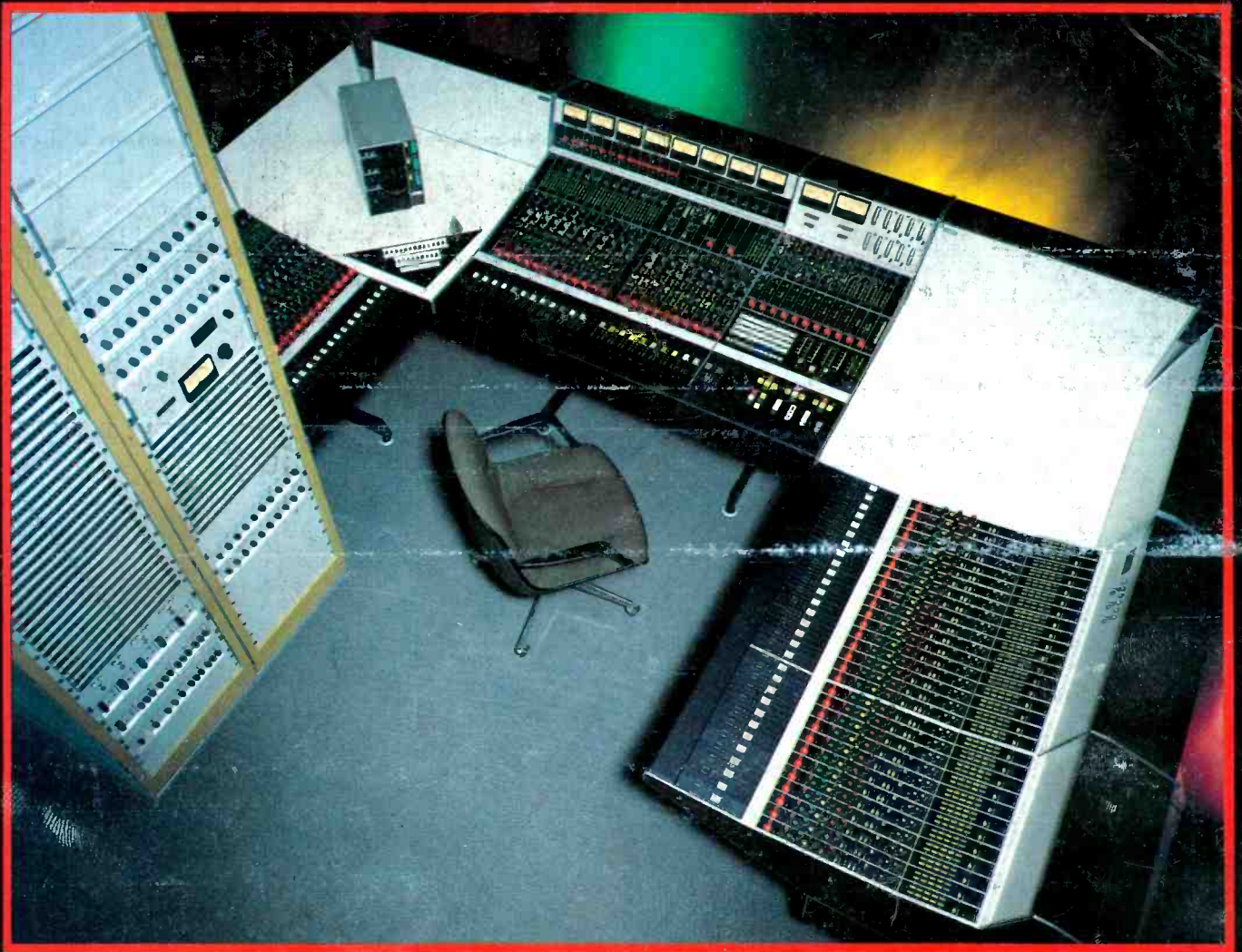
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