

SEPTEMBER 1981

\$3.00

BME

BROADCAST MANAGEMENT ENGINEERING

THE SOURCE BUYER'S GUIDE

TO THE BROADCAST INDUSTRY

KU000038278-XM-3811 A11
 -AD
 T W DENBROOK DIR OF ENG
 KUOW RADIO
 325 CMU-U OF WASHINGTON
 SEATTLE WA 98195



The big news is performance. The good news is price.

Once again Panasonic makes headlines with our newest ENG camera, the AK-710. And the reasons are simple: High performance Saticon® tubes plus prism optics—all for a newsworthy price of \$10,950*.

The AK-710's compact size, light weight and durable die-cast chassis make it a natural for electronic newsgathering. While the performance of a high-index optical system with built-in bias light and three Saticon tubes makes

it a natural for news broadcasting: Performance like horizontal resolution of 500 lines center, a S/N ratio of 52 dB and standard illumination of 200 footcandles at f/3.5. And for even more light-gathering capabilities, there's a 2-position high-gain switch.

You'll also get colors as intense as the action, thanks to the AK-710's automatic white balance circuit and built-in color temperature conversion filter wheel. And for minimal comet tailing,

the AK-710's feedback beam control stabilizes highlights that exceed normal white levels without reducing dynamic range or resolution.

Equally newsworthy is the AK-710's built-in genlock and adjustable horizontal and vertical blanking intervals. With them the AK-710 can double as a system camera. There's also an optional remote control unit, as well as a 5" CRT viewfinder for studio use.

So if news is what you're

after, go after it with the AK-710. A newsmaking camera from Panasonic.

For more information about the line of Panasonic broadcast equipment, call your nearest Panasonic office.

Northeast — (201)348-7620
Southeast — (404)923-9700
Midwest — (312)364-7936
Southwest — (214)258-6400
West Coast — (213)655-1111

*Manufacturer's sugg. price. (Lens not included.)
Saticon is a registered trademark of NHK
(Japan Broadcasting Corp.).

Panasonic
VIDEO SYSTEMS DIVISION

Circle 101 on Reader Service Card

www.americanradiohistory.com

Editing starts with CMX

If you think you can't grow from absolute simplicity to total performance look at the world standard for editing.

Editing starts with the CMX 340X because it performs exactly the same simple functions competitors' limited systems do. Two machine cuts editing, for instance, requires the same number of keystrokes. But for you that's only the beginning. The expandability of the 340X will not restrict its simplicity at any point in your growth.



CMX 340X keys are grouped conveniently, color coded, dedicated and easy to reach. That's one reason it's as easy to operate as most limited capacity editors.

Editing never ends with CMX because the 340X is the most expandable and sophisticated editing system in the world. All the new techniques in post-production developed over its five-year history have been added to the earliest 340X systems. The simplicity of the 340X does not

restrict its expandability at any point in your growth.

Editing starts with CMX because every 340X system installation includes basic training in operation and maintenance. CMX has the world's largest staff of editing system specialists to keep you going and growing. These experts are available to install and train you on new features at every point as you grow.

Editing never ends with CMX because our staff editors provide complete 340X training that never stops growing. This training is supported by advanced seminars, newsletters, an editors' advisory panel, plus worldwide experience in post-production that only the editors at CMX have.

Editing starts with CMX because it did. CMX built the first simple, practical, computer-assisted editing system

over ten years ago. Along with our original customers we



have continued to grow and to lead. While others have come and gone, CMX continues to be the world standard for editing. We have the ten-year track record to support you at any point in your growth.

Editing never ends with CMX because your initial investment is protected from absolute simplicity to total performance. Before you invest in post-production, look at the difference

in total investment between competitors' limited systems and CMX.

The 340X has replaced many other systems; and every CMX user has stayed with us when he expanded his system. Editing never stops with CMX when editing starts with CMX.

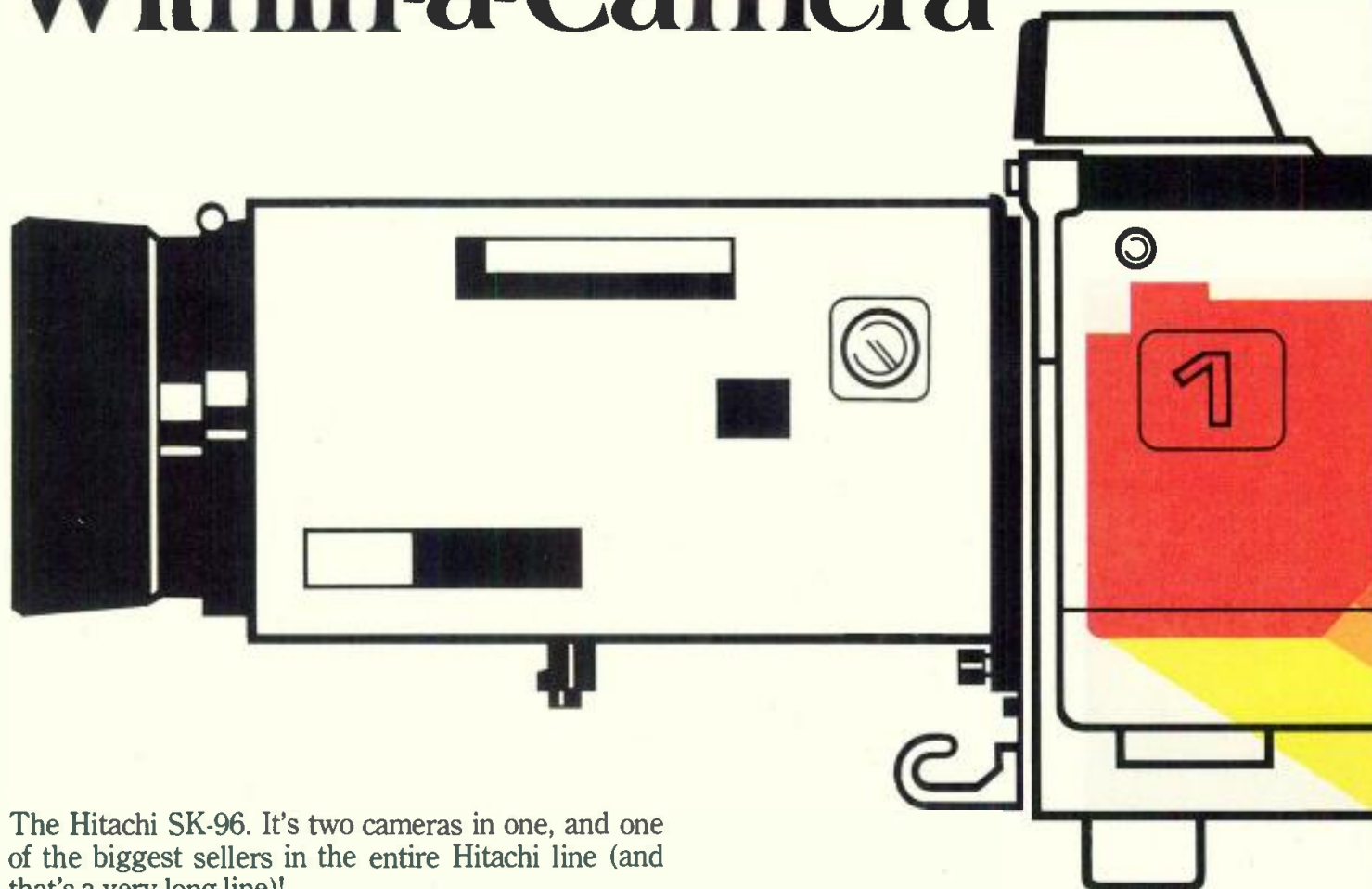


CMX
ORROX

Orrox Corporation 3303 Scott Blvd., Santa Clara, CA 95050 (408) 988-2000 Telex 910-338-0554/Chicago (312) 324-8488/Los Angeles (213) 980-7927/New York (212) 371-1122 International Representatives: Magna Techtronics, Australia/Totsu, Japan/Sight and Sound, Hong Kong/TeknoMerica, Mexico City/Arvid, Argentina/F.W.O. Bauch, United Kingdom/Thomson, France/GTC, W. Germany/Video Promotion, Belgium/Communications Consultants, South Africa

Circle 102 on Reader Service Card

The Inside Story of Hitachi's "Camera- Within-a-Camera"



The Hitachi SK-96. It's two cameras in one, and one of the biggest sellers in the entire Hitachi line (and that's a very long line)!

Why? Two very good reasons: the studio SK-96 and the field SK-96 that's inside it. And though owning the SK-96 is like having two cameras, the cost is more like one. And picture quality is sensational, wherever you shoot.

The Studio SK-96

With the big 7" tiltable, rotatable viewfinder in place, the SK-96 is a knockout studio performer. Minimum performance levels of 550 lines and 54 dB assure you of the kind of superb image quality you expect of a studio camera.

The Field SK-96

Pull the compact head out of the studio housing, put on the 1-1/2" portable viewfinder with its 3" magnifier, and the SK-96 becomes a great field camera: compact, light, but loaded with Hitachi quality.

Indoors and out...

Wherever you're using the SK-96, the extras that make a camera airworthy are built-in: AC or 2-hour

DC pack, prism optics, a 2H enhancer, ABO, color bars, a wide choice of lenses, and your choice of three Saticon or Plumbicon tubes. A Digital Command Unit/triax option lets you shoot up to a mile from the van on remotes. It's a lot of quality and versatility for surprisingly little money. Get the inside and outside details...write.

Hitachi...
Tomorrow's technology today.

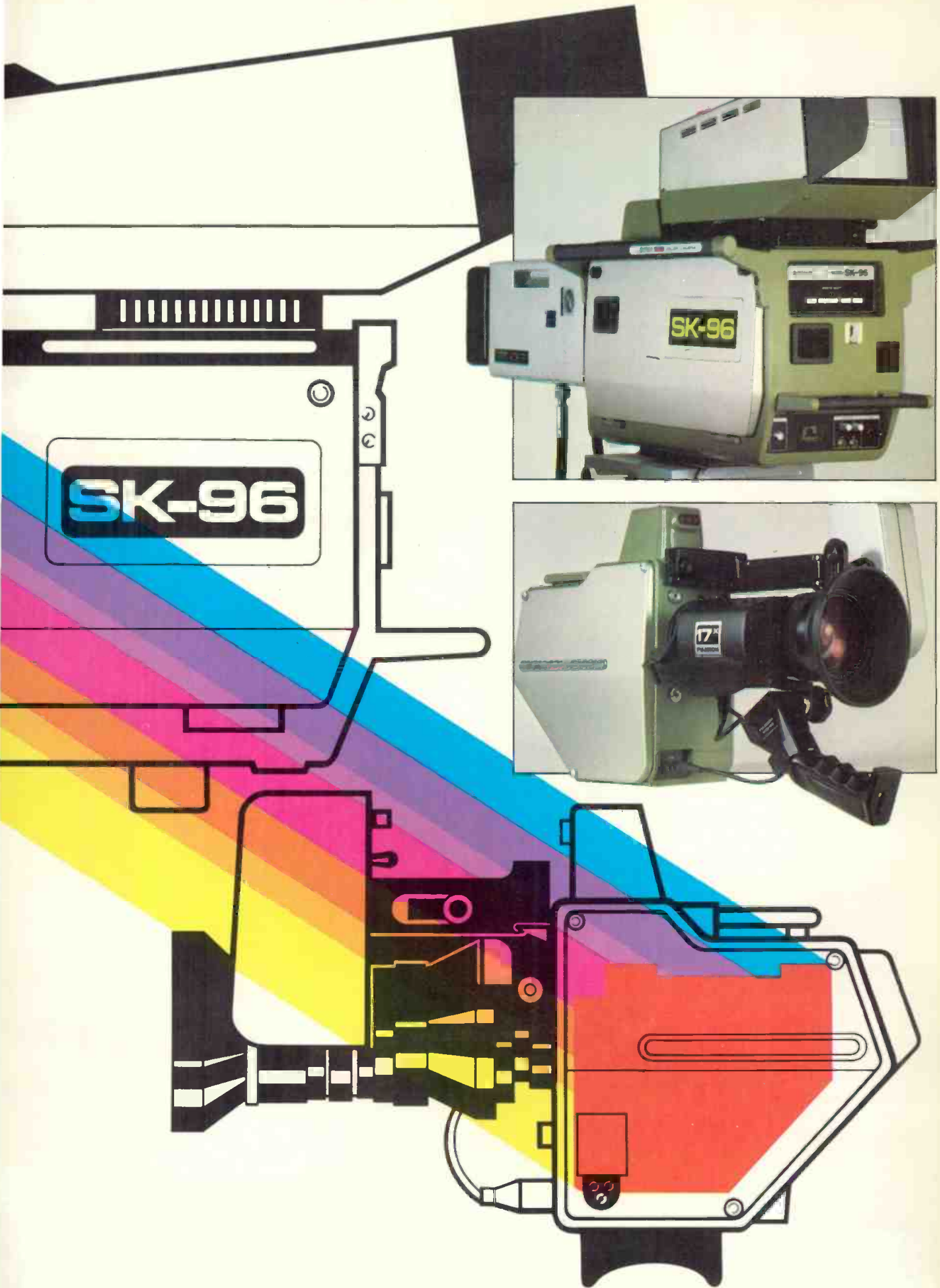
9 Regional Centers for 24-Hour Parts and Field Service.
New York • Chicago • Los Angeles • Atlanta • Cincinnati
• Dallas • Denver • Seattle • Washington, D.C.



HITACHI
Hitachi Denshi America, Ltd.

175 Crossways Park West
Woodbury, N.Y. 11797
(516) 921-7200

Circle 103 on Reader Service Card



BM/E

BROADCAST MANAGEMENT/ENGINEERING

SEPTEMBER 1981/VOLUME 17/NUMBER 9



You want it? We've got it! *The Source*, the broadcast industry's only verified buyers' guide, will put you on the right track for all your station's needs.

8 Broadcast Industry News

FCC gets 13 DBS plans; Radio deregulation passes Senate; Metromedia to buy WCVB-TV

23 Radio Programming & Production For Profit

Syndicators are in orbit

24 BM/E's Program Marketplace

Syndicators revisited: Concept Productions

29 Television Programming & Production For Profit

On the road to... WJBK-TV travels in Poland

35 ABC Engineering Lab Establishes The Facts

Rigorous test procedures help determine the net's purchases

47 Newsroom Computers: The Reliability Question

Are news directors' fears justified?

55 Dual Vs. Composite: How To Choose An STL — Part 1

Performance differences are complex

63 Essential To AM Quality: A Broadband Antenna System

Proper adjustment of arrays is the key

73 Deducting For Lobbying

Attempts to influence the government are never a waste of time — or money

79 THE SOURCE

80 Instant Source Locator

What do you need? It's right here — along with who makes it

97 Broadcast Equipment Manufacturers

Names, addresses, phone numbers, and product descriptions for hundreds of manufacturers. It's verified!

183 Independent Broadcast Reps/Distributors

All major reps/distributors organized by state

235 Great Idea Contest

Win a calculator — enter the Great Idea Contest!

241 FCC Rules & Regulations

FCC distant signal ruling upheld; royalty and retransmission arguments dismissed

247 Broadcast Equipment

BM/E's survey of new products

Publisher

Charles C. Lenz, Jr.

Editorial Director

James A. Lippke

Editor

David Hawthorne

Managing Editor

Janet E. Smith

Senior Editor

Robin Lanier

Senior Editor

Stephen C. Miller

News Editor/Directory Editor

Eva J. Blinder

Special Assignments Editor

Robert C. Paulson

Editorial Assistant

Douglas Damoth

Associate Publisher

Djuna Van Vort

Creative Director

Gus Sauter

Marketing Services Manager

Christine Bunish

Production Manager

David Rose

Advertising Production

Deborah Foley

Reader Service

Robert Crawford

Comptroller

Steven Abramowitz

FCC Counsel

**Lovett, Ford, Hennessey,
Stambler & Siebert, P.C.**

BROADBAND INFORMATION SERVICES, INC.

295 Madison Ave., New York, N.Y. 10017, 212-685-5320, Telex: 644-001

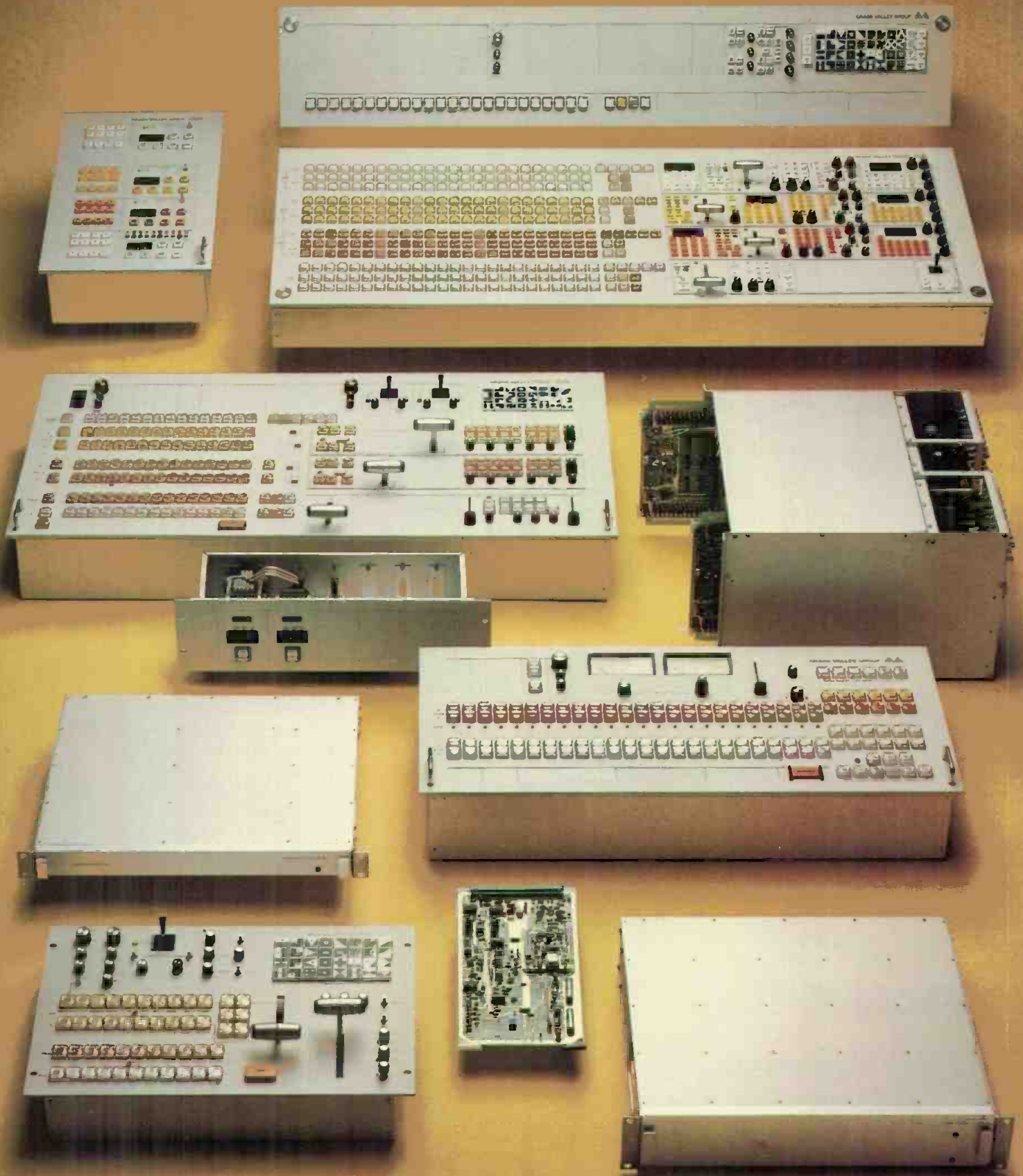
Publishers: **BM/E—Broadcast Management Engineering**

BM/E's World Broadcast News



VBPA BM/E BROADCAST MANAGEMENT ENGINEERING (ISSN 0005-3201) is published monthly by Broadband Information Services Inc. All notices pertaining to undeliverable mail or subscriptions should be addressed to 295 Madison Ave., New York, NY 10017. BM/E is circulated without charge to those responsible for station operation and for specifying and authorizing the purchase of equipment used in broadcast facilities in the U.S. and Canada. These facilities include AM, FM and TV broadcast stations, CATV systems, ETV stations, networks and studios, audio and video recording studios consultants, etc. Subscription prices to others \$24.00 one year, \$36.00 two years, Foreign \$30.00 one year, \$48.00 two years. Air Mail rates on request. Copyright 1981 by Broadband Information Services, Inc., New York City. Second class postage paid N.Y., N.Y. and additional mailing offices.

World leader in television switching, signal processing, and distribution systems



THE GRASS VALLEY GROUP, INC.

P.O. BOX 1114 GRASS VALLEY CALIFORNIA 95945 USA • TEL: (916) 273-8421 TWX: 910-530-8280

A TEKTRONIX COMPANY

Offices: WEST; 21243 Ventura Blvd Ste 206, Woodland Hills, CA 91364, (213) 999-2303 • SOUTHEAST; 1644 Tullie Cir NE, Atlanta, GA 30329, (404) 321-4318 • NORTH
CENTRAL; 810 W Bristol St, Elkhart, IN 46514, (219) 264-0931 • NEW ENGLAND & MID ATLANTIC; 499 Thornall St, Edison, NJ 08817, (201) 549-9600 • SOUTH-
WEST; Seminary South Office Building Ste 316, Fort Worth, TX 76115, (817) 921-9411 • MIDWEST; 3585 N Lexington Ave Ste 238, Arden Hills, MN 55112, (612) 483-2594
Circle 104 on Reader Service Card

BROADCAST INDUSTRY NEWS

FCC Gets 13 DBS Plans

The filing deadline (July 16) for DBS applications had 13 companies seeking FCC approval for various schemes to make use of direct to home satellite transmission. The group includes CBS, RCA, Western Union, Satellite TV Corp. (COMSAT), Graphic Scanning, U.S. Satellite Broadcasting (a division of Hubbard Broadcasting), DBS Corp., Video Satellite Systems, Home Broadcast TV Partners (HDTV), Unitel, Advance, Focus, and Satellite Development Trust.

CBS and RCA both based their plans on using DBS as the means to broadcast High Definition TV. The CBS plan includes an approach which would feed its normal network programming to affiliates but in the HDTV format. The other two channels in the CBS system would feed material to homes, institutions, and businesses which would subscribe. Though CBS filed its application it is still opposed to any DBS plan until after the Regional Administrative

Radio Conference in 1983 which would take up the question of spectrum allocations.

RCA plans a six-channel system with two of the channels reserved for its own or its affiliates use — meaning NBC. Two of the other channels could be switched for HDTV transmission. The other two channels would be available for lease to other programmers. RCA says the system would cost \$760 million.

Western Union wants to put up a four channel system at first, making them available to selective customers. This plan caused some comments from users who claim that this would violate WU's status as a common carrier obligated to sell time on a first come, first served basis. WU wants the right to add at least four more channels at a later date.

Hubbard Broadcasting's USSB wants a three channel system with the option of providing HDTV. Advance Inc. is the only minority applicant and HDTV is the only applicant which may have foreign investors. Satellite Devel-

opment Trust filed its application by telex but it didn't arrive before the deadline. The Commission hasn't ruled yet if it will accept the late application.

Radio Deregulation Passes Senate

The U.S. Senate passed the radio deregulation act by attaching it to the budget authorization bill for the FCC. The vote was a 55 to 40 split, mostly along party lines, with the Democrats voting in opposition. Several Democratic Senators said that they were not opposed to deregulation but to the manner in which it was tacked on to a budget bill.

The measure still has to go to a House Senate conference committee to iron out the differences in the funding bill. The House version does not contain the deregulation rider.

Metromedia To Buy WCVB-TV

Metromedia Inc. has reached an agreement of purchase WCVB-TV, Boston, for a record \$220 million. WCVB is commonly regarded as one of the best television stations in the country which broadcasts more locally produced programming than anyone else.

Metromedia currently has its full compliment of VHF stations and will have to sell at least one of them.

Metromedia, as part of the agreement, acquires BBI Communications which produces and syndicates many of WCVB's programs. This is viewed as one major reason for the purchase in that it gives Metromedia additional programming for its other, mostly independent stations. Currently, the staple of Metromedia stations is off-net reruns which have become very expensive.

The sale is subject to FCC approval.

Courts Act In Two Cable Cases

Appellate courts in New York and the District of Columbia have upheld FCC rulings which moved toward the deregulation of cable. The first ruling concerns the importing of distant signals and other deals with carrying STV stations.

The distant signal case would allow

Sky-Video Debuts on American Airlines

CBS News and American Airlines have begun a new in-flight video magazine service. The program will be anchored by Charles Kuralt and Douglas Edwards and will be shown on flights in which short subjects would be appropriate.

The shows will be called "Magazine of the Air," and "Eye on Science." Edwards will anchor "Magazine of the Air," which will feature CBS News reports from around the world about people and events which don't often

make the evening news. "Eye on Science," will feature stories on health, technology, and nature.

A spokesman for American Airlines said "These new programs will provide American with high-quality programming not available for viewing elsewhere. We think that our passengers will enjoy them."

CBS News says the agreement is another step toward meeting its commitment to develop non-broadcast programming.



Charles Kuralt will introduce the reports on "Eye On Science" aboard selected American flights

Quality, Reliability, Service...

Excellent Reasons for Choosing ADM[®]



ADM 2400 Series II Console

ADM understands how critical it is for professionals to be assured of unfaltering performance under the most demanding conditions. That's why everything we do at ADM—from initial concept to final production—is geared to providing consoles of unexcelled quality and reliability.

The finest of components are used in ADM consoles to assure long life and trouble-free operation. Our exclusive five-year warranty, the most generous in the industry, attests to this fact. Service—if you ever need it—is prompt and professional. Contact ADM Technology, Inc.

Home Office: 16005 Sturgeon
Roseville, Michigan 48066
(313) 778-8400, TLX 23-1114

West Coast Sales: (415) 664-2400

Rocky Mountain Sales: (801) 486-8822

West Central Sales: (817) 467-2990

East Coast Sales: (313) 778-8400

Florida Sales: (813) 577-7759

ADM[®]

The Audio Company

News

cable systems to import the signals of independent stations even if the programming conflicts with the exclusive use of syndicated material by broadcasters in that market.

Broadcasters argued that importing distant signals was unfair competition since the cable company didn't have to pay the licensing fee for the syndicated programs. The court held that not limiting program choices outweighed the exclusivity rule.

The U.S. Court of Appeals in Washington, D.C., upheld another FCC rul-

ing which exempted STV stations from the cable "must carry" rule. The court held that there was no evidence that STV was hurt by not being carried on cable systems. The court said, in fact, that it would present a burden on the cable operator because of the scrambled signal of the pay portion of the STV broadcast.

ABC Radio, Wold Ink Satellite Deal

ABC Radio Enterprises will ship its new program services by satellite under the terms of a long-term agreement with Wold Communications. The deal calls

for Wold to provide ABC with three full-time 15 kHz SCPC transponder channels on Westar III. Two of the channels will distribute ABC's new 24-hour stereo music service; the third will originate daily talk programming.

Wold will also provide uplink facilities in New York and Los Angeles and downlinks across the country. The company has access to the 400-earth station AP system, which is expected to number over 900 earth stations by the middle of next year. Wold will supplement the AP stations with the installation of 10-foot receive-only dishes at ABC-designated radio stations.

Columbia Pictures And Outlet Merge

The Outlet Company and Columbia Pictures Industries have announced an agreement in principle to merge. Outlet currently operates VHF stations in Providence, Rhode Island; Columbus, Ohio; Orlando, Florida; San Antonio, Texas; Stockton-Sacramento, California. The company also owns seven AM and FM stations in Philadelphia, Washington, D.C., Detroit, Los Angeles, Orlando and Providence.

The financial arrangements involve a stock trade of Outlet stock for new Columbia stock. The chairman and the president of Outlet will be the two new Columbia board members.

The agreement has to be ratified by both company's boards and the FCC has to approve the ownership change for the broadcast properties.

SBS To Offer Video Services

Satellite Business Systems has announced that it will be offering video transmission space on its transponders. The importance of the SBS offering is that it is the only satellite operator with available service on the Ku-band. The higher frequency range will make it possible for satellite reception with smaller dishes.

This could provide DBS-type transmission much earlier than would be available on the systems that have applied to the FCC for true DBS status.

A.F. Associates Installs Teletronics Control Room

A.F. Associates went from contract signing to complete installation of a new studio control room for Teletronics in New York in less than 60 days. The control room will handle four Ikegami HK 312 cameras, five one-inch Type C VTRs, a digital effects unit, a character generator, and a Neve 24-channel audio board. AFA not only installed the system in a short period but is already



Record, play and dub complete sporting events and full-length movies . . . non-stop.

Record and playback up to 2 hours, 40 minutes on any standard Sony BVH 1000, 1100, and 1100A or Ampex VPR-1C, VPR-2 and VPR-2B Type C VTR with the Merlin ME 238 conversion kit.

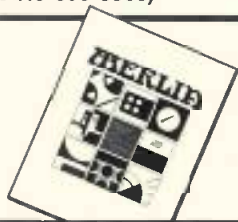
Extended play time allows most full-length movies and sporting events to be recorded on a single 12 1/2" reel. Ideal for master playback when dubbing to small format machines as well as for cable and broadcast automated programming.

MERLIN

1880 Embarcadero, Palo Alto, CA 94303

Call Toll Free — 800-227-1980 (California — Call Collect 415-856-0900)

Merlin Engineering has a full range of products and assemblies for bringing your broadcast VTR up to date, as well as complete engineering facilities for custom applications. Write for your copy of the Merlin catalog.



Circle 105 on Reader Service Card

QUALITY AUDIO.

Audio economy is born through quality—a high standard of excellence in design, components and manufacturing techniques. It is this level, maintained by McCurdy throughout their complete range of audio consoles, which results in decreased maintenance, less downtime, superior performance and an extended life expectancy. That's why McCurdy is your best audio investment for the future.

Our compatibility, flexibility and full range of standard audio products is also to your advantage, paying off in equipment which meets your exact requirements without a custom price tag.

Look to McCurdy for total quality in audio consoles.

SS8816

The McCurdy SS8816 is an unusually compact, fully modular 16 channel stereo console with all the features of larger consoles in a desk-mounting package.

Its size and level of sophistication make it perfect for 'on-air' control or small to medium production applications. Optional modules easily insert into the system, allowing a high degree of flexibility not otherwise found in this size of audio console.

SS8670

The McCurdy SS8670 21 channel stereo console is a fully modular, free-standing audio production system with full broadcast and other application capabilities. The new design, which incorporates an attractive blue facing, features superior performance and adaptability. Its compactness and flexible characteristics make the SS8670 perfect for use as an 'on-air', production or master control console.



McCURDY RADIO INDUSTRIES

TORONTO (416) 751-6262
CHICAGO (312) 640-7077

In Our 4th Decade of Service To The Broadcast Industry

Circle 106 on Reader Service Card

News

working on an expansion of the system without disrupting production at Teletronics.

Heterodyne STL Use Clarified

The FCC has permitted the use of heterodyne STLs in two instances upon application by the operating stations. There are, however, several restrictions concerning the use of this type STL, and the units are not FCC-type accepted.

BM/E incorrectly reported in its June, 1981, NAB Show-In-Print issue, that the ULX-2001 Heterodyne STL from Micro Controls Inc. has been "FCC-type approved." After the accuracy of this statement had been challenged, *BM/E* investigated the circumstances surrounding the use of this type equipment. According to John A. Reed of the FCC's Technical Standards Branch, such heterodyne STLs are unlikely candidates for type acceptance because the potential for transmission of spurious emissions within the FM broadcast band is inherent in this type of equipment and because it is difficult to include the STL transmitter and

transmission path into the required measurement procedures.

Two stations, however, KQWB-FM, Moorhead, Minn., and WSHH-FM, Pittsburgh, Pa., have received letters over the signature of Richard J. Shiben, chief, Broadcast Bureau, of the FCC, authorizing the use of such heterodyne STLs, provided the operators adhere to several conditions. According to Reed, two more such applications by stations are pending approval.

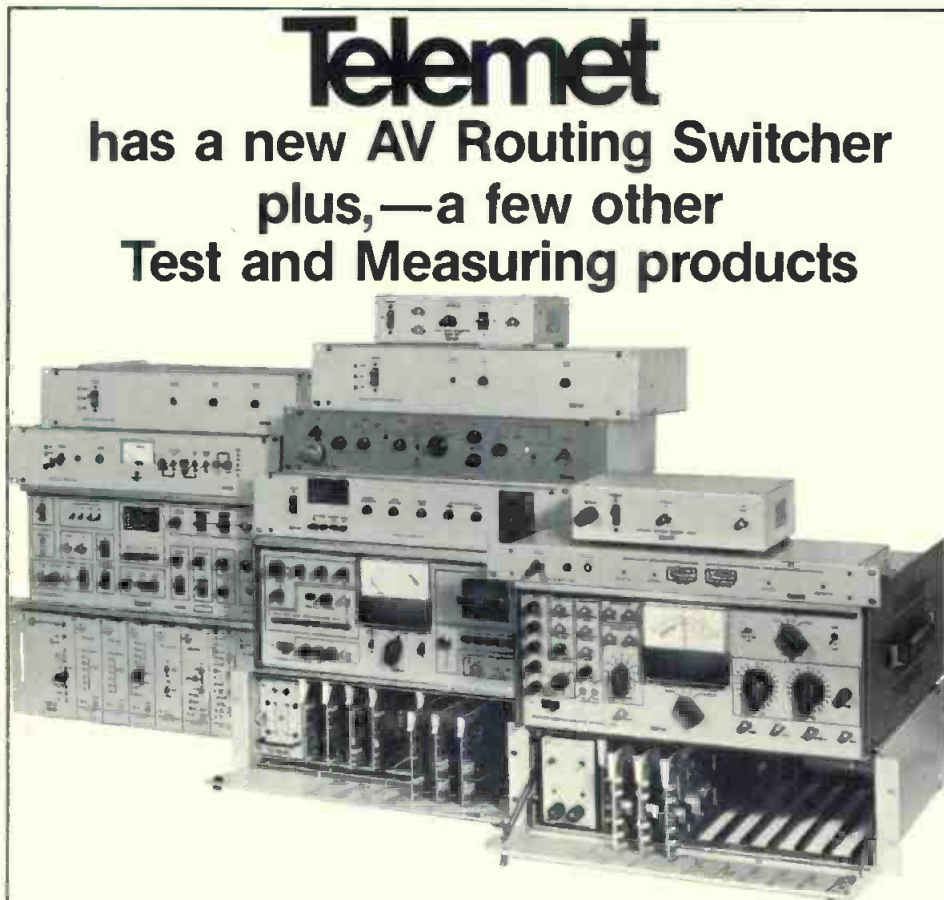
Among the provisions required by the FCC are: A complete audio equipment performance measurement from the input of the stereo generator through the FM transmitter using both conventional transmission system and the modified heterodyne system for comparative purposes; the station must have frequency measuring equipment available and measure the broadcast carrier frequency at least once each calendar week; prior to use of the system, observations must be made over a two day period to insure that spurious emissions are not being transmitted which exceed the limitations set in rule Section 73.3.7 (a) (12)-(14) using a spectrum analyzer or similar equipment; transmission of the FM broadcast transmitter must terminate upon loss of input signal; observation to detect possible spurious emissions must be made and logged as part of the weekly transmission system inspection, and subsequent measurements must be made using the same equipment configuration as used for normal program service. Users are reminded that the authorization may be modified or canceled without a right to a hearing.

Correction

In the Television Programming & Production for profit feature on *World of People* (Dec. 1980), director Gary Brasher was quoted at some length on the vital role played by wireless microphones in the field production of the show. Inadvertently, *BM/E* failed to mention that the microphones selected by *World of People* were manufactured by HM Electronics.

News Briefs

Several minority groups, including the NAACP, Black Citizens for a Fair Media, Chinese for Affirmative Action, and the National Council of La Raza, have asked the U.S. Court of Appeals for review of the FCC's simplified broadcast renewal procedures. Both NRBA and NAB moved in quickly, calling for the new rules to be upheld. . . . NAB has established a **Task Force on Satellite Technology**, headed by Dr. Leo Beranek of



Telemet

has a new AV Routing Switcher plus,—a few other Test and Measuring products

AV Routing Switcher, 7934 is the latest in the state of the arts circuitry.

Fiber Optics Video Transmission System, 4210 has audio sub-carrier. Provides interference-free video and aural transmissions for STL and ENG applications.

Broadcast Demodulator, 3710 is a comprehensive demodulator with both synchronous and envelope detection, built-in self tester, digital display, multiplexed outputs and other convenience features.

Envelope Delay Measurement Set, 3705 measures the envelope delay of video frequencies for compliance with FCC requirements.

Sideband Analyzer, 3706 shows with a calibrated response curve if sideband attenuation and frequency response meet FCC requirements. (model 3709, for deeper resolution and spectrum analysis).

Telemet

A Geotel Company

185 Dixon Avenue, Amityville, L.I., New York 11701

(516) 842-2300 TWX 510-227-9850

Eastern Area Office—(914) 279-3231

Midwest Area Office—(312) 554-1121

Circle 107 on Reader Service Card

"ONE INCH" AUDIO FROM NEVE.

There is one audio mixer that complements the new 1" VTRs. Designed for both production and post production needs, the Neve 542 Series is available in 8 models with 6 to 16 inputs, including a truly portable Ni-Cad powered 8 input suitcase mixer. With Neve's superior quality and support at an affordable price, you can be assured that your audio productions will do justice to your new (or existing) TV and video facilities. Please call or write today for Neve's comprehensive TV audio console information package.

Model 5422
Suitcase Mixer
Ni-Cad powered

Other 542 Range Mixers:
Model 5422R Rack Mount
Model 5432
Table Drop Through
Model 5452
12 or 16 Inputs

Model 5442
Table Top
Mixer

Partial Listing of Recent 542 Range Customers:

ABC-TV • Best Audio • CBS Radio • CBS-TV • CFMT-TV • CFTO-TV
Cinemix • Complete Post • CPTV • Global • KGTV • KRMA-TV • KTTV
Matrix • Optimus • Premore • Producers Color • Reeves • Skaggs
Telemation • Teletronics • TPC • WEAM • Wickreworks • Windsor
WNEW-TV • WTAE • WXXI

**Neve**

Rupert Neve Incorporated Berkshire Industrial Park, Bethel, Connecticut 06801 Tel: (203)744-6230 Telex: 969638

Rupert Neve Incorporated 7533 Sunset Blvd., Hollywood, California 90046 Tel: (213)874-8124 Telex: 194942

Rupert Neve Incorporated P.O. Box 120907, Nashville, Tennessee 37212 Tel: (615)385-2090

Rupert Neve of Canada, Ltd. 2721 Rena Road, Malton, Ontario L4T 3K1, Canada Tel: (416)677-6611 Telex: 983502

Neve Electronics International, Ltd. Cambridge House, Melbourn, Royston, Hertfordshire, SG8 6AU England Tel: (0763)60776

Rupert Neve GmbH 6100 Darmstadt Bismarckstrasse 114, West Germany Tel: (06151)81764

Circle 108 on Reader Service Card

News Briefs

WCVB-TV, Needham, Mass. According to NAB president Vincent Wasilewski, the group will "take a hard look at satellite technology and what broadcasting's appropriate role is in that emerging environment"... Erwin G. Krasnow, NAB general counsel, recently called the FCC's DBS polices "even more wrong-headed" than its interim LPTV moves. He added a hope, however, that the new Fowler FCC "will redirect the unmanageable course" already set.... Joseph A. Smith will chair the NAB's new Advi-

sory Committee on Radiation Regulation, which will monitor attempts to regulate broadcast RF emissions on health or related grounds.

The FCC has denied a petition from the Rocky Mountain Broadcasters Association to permit retransmission of AM broadcast signals by FM translators in the rural areas without primary radio service. The Commission called the need for the service minimal.... The FCC has asked for comment on a proposal giving it authority to temporarily shut down radio equipment that threatens the safety of life or property.... The FCC has authorized the use of TV aural subcarriers for ENG

.... Following a petition from NBC, the Commission has ruled that source identification signals may be transmitted in the vertical blanking interval of the TV signal.

Mutual Broadcasting System has dedicated what is described as the nation's first commercial radio satellite broadcasting facility. The \$2 million computerized uplink facility is located at Bren Mar, Va.... Japan's NHK became the first broadcaster to transmit TV news over the microwave and uplink facilities provided by Pyramid Video, Inc., and the National Press Building in Washington, D. C.... Bonneville Broadcast Consultants clients will receive live satellite delivery of their Beautiful Music program under a joint venture with Satellite Music Network.... CBS Radio is planning a new youth-oriented network, scheduled for launch next spring.... Also in the works is an all-talk radio network, to be distributed by satellite by ABC.

The Atlantic City resort is being served by a new television station, WWAC, Ch. 53, licensed to Atlantic City Television Corp. Production facilities were designed and equipped by Peirce/Phelps.... After a 20-year litigation, WSTE-TV, Fajardo, Puerto Rico, has been granted a construction permit for a change of translator site.... Mid-Maryland Communications Corp. has purchased WLMD-AM, Laurel, Md., for a reported \$1,150,000.

Enterprise Radio has become the first commercial radio net to transmit regularly scheduled programming to Hawaii by satellite.... Cable News Network has agreed to allow live broadcast of its programming by Hawaii's three TV network affiliates in the case of a major news event. The deal is designed to prevent news blackouts caused by lack of transponder space, as occurred after the assassination attempt on President Reagan.... Time, Inc., has acquired six transponders on Hughes Communications Galaxy 1 satellite. The space on the new cable bird will be used to transmit Home Box Office.... The USA Network will join the list of cable nets going to 24-hour programming next month.... Showtime has added approximately five million subscribers with new affiliations since the beginning of this year.

The Eighth Decade Consortium — WJLA-TV, Washington, D. C.; KSTP-TV, Minneapolis-St. Paul; KOMO-TV, Seattle; WRAL-TV, Raleigh-Durham; and WCVB-TV, Boston — has won two awards for its 1980 production, "What Does Your Mom Do?" The group received an Emmy from the Washington chapter of the National Academy of Television Arts and Sciences and a commendation from the American Women in Radio

CHALLENGE: To build TV towers soaring nearly 2,000 ft. above the earth.

We've done it...many times.

CHALLENGE: To build a rugged, reliable, multi-tower array for AM transmission.

We've done it...many times.

CHALLENGE: To build microwave towers to virtually zero deflection requirements; towers that withstand fierce winds and severe icing...successfully.

We've done it...many times.

**GIVE US
A TOWERING
CHALLENGE!**

Stainless. Meeting challenges in tower design for over thirty years...successfully.

The Tower People.

Stainless, inc.

North Wales, PA 19454
Phone (215) 699-4871 • TWX: 510-661-8097

CO181

Circle 109 on Reader Service Card



**FROM
BEAUTY TO BEAST.**

The Compact 22. Priced to keep the competition on its toes.

Our 22-foot mobile unit gives you big production capability at a price that's easy on the purse.

With four cameras and three VTRs, it's versatile enough to handle large or small productions with ease.

Precision engineered to knock down equipment set-up time, the Compact 22 enables you to go from one performance to another and still maintain the highest production standards.

To meet the heavyweight performer that's priced to earn a round of applause... call us today.



Compact Video Sales 

LOS ANGELES: (213) 843-3232 / NEW YORK: (212) 265-6203 / DALLAS: (214) 783-0044 / CHICAGO: (312) 369-0714
WEST COAST HEADQUARTERS: 1104 WEST CHESTNUT STREET, BURBANK, CALIFORNIA 91506 TELEX: 19-4855 TWX: 910-498-4987

Circle 110 on Reader Service Card

News Briefs

and Television. (For the story of the production, see *BM/E*, July 1980)...KPNX-TV, Phoenix, won three awards at the Rocky Mountain Emmy Competition, in the Service, Feature, and Art Direction categories....The annual Ohio State Awards is now accepting entries of educational, informational, and public affairs shows broadcast between July 1, 1980, and June 30, 1981. For information, contact the Ohio State Awards, c/o The WOSU Stations, 2400 Olentangy River Road, Columbus, Ohio 43201, (614)

422-0185 or 422-9678.

The Public Service Satellite Consortium's sixth annual conference on satellite communications, "Space Communications in the '80s," will take place at the Washington Hilton Hotel September 23 through 25. To register, contact the director of communications, PSSC, 1660 L St. NW, Washington, D.C. 20036....NAB will hold its fourteenth AM Directional Antenna Seminar October 7 and 8 at Cleveland's Marriott Inn/Airport. For information, contact Janis Shipe or Chris Payne at (202) 293-3557....Almost one hundred companies have reserved exhibit space for the Los Angeles

SMPTE meet, convening at the Century Plaza Hotel October 25 through 30....The twelfth annual Video Expo New York will fill Madison Square Garden October 20 through 22. For information, call Ann Stockwell at (914) 328-9157....Scientific-Atlanta will hold its seventh annual Satellite Communications Symposium November 1 through 4 at the Hilton Hotel in Atlanta. For more info contact Ray Stuart, general manager, Satellite Communications Division.

Business Briefs

CMX/Orox has established a new European service facility to provide technical support for CMX videotape editing systems in the Hamburg, W. Germany area....The French government has told Antiope Videotex Systems that it will pursue recent teletext successes in the U.S.... Harbor Electronics, Inc., has acquired Lightwave Communications, Inc., a designer and manufacturer of fiber optic systems. The companies will share manufacturing and engineering facilities in Ridgefield, Conn.

The Rocky Mountain Broadcast Center, owned and operated by the Rocky Mountain Corporation for Public Broadcasting, is offering expanded video editing and post-production services at its newly completed Denver facility....The Film Exchange, a new film-to-tape transfer service, opens this month at One China Basin Bldg., San Francisco, Calif. 94107....Audio and video cassette duplicator Tapette Corp. has moved to larger facilities in Huntington Beach, Calif....Fox/Lorber Associates, 60 Gramercy Park, New York, N.Y. 10010, is a new company providing a wide range of video services to the television, cable, and home video industries.

Shively Laboratories is now operating out of its new 22,500 square foot plant on Harrison Road, Bridgton, Maine 04009....The Westlake Audio Professional Sales Group has moved to 7265 Santa Monica Blvd., Los Angeles, Calif. 90046.... Post-production house Video Transitions has occupied its new home at 910 Citrus Ave., Hollywood, Calif.

Klopf Audio Video Co. of 3381 Successful Way, Dayton, Ohio 95414, has been appointed manufacturer's rep for CMS/Orrox.... Ramko Research has appointed Parcom, 2460 Raintree Dr., Southlake, Texas, as its exclusive rep for Texas, Oklahoma, Arkansas, and Louisiana....AKG has named Steffey Marketing Associates as manufacturer's rep. The firm is located at 3575 Commercial Ave., Northbrook, Ill. 60062....Professional Products, Inc., of Bethesda,

Delivery 30 Days or Less!

**There are
consoles,
and then there are
AMPRO CONSOLES...
in a class by themselves.**

Dollar for dollar no other console offers you as many operational features as AMPRO. And that means your job is easier because you can control a myriad of functions right at your fingertips. Standard features included in 6 to 12 mixer models...

1. **FOUR INTERLOCKED PUSHBUTTON SWITCHES** per input channel allows selection of up to 48 individual sources.
2. **FOUR LEVEL LED "STRETCHED PEAK" INDICATORS** on each output channel in addition to two standard VU meters.
3. **REMOTE START SWITCHING** for all high level inputs.
4. **PHASE TEST SWITCH** for immediate audible check of mono sum signal.
5. **BALANCED TRANSFORMER preamps** on all mic and high level inputs.

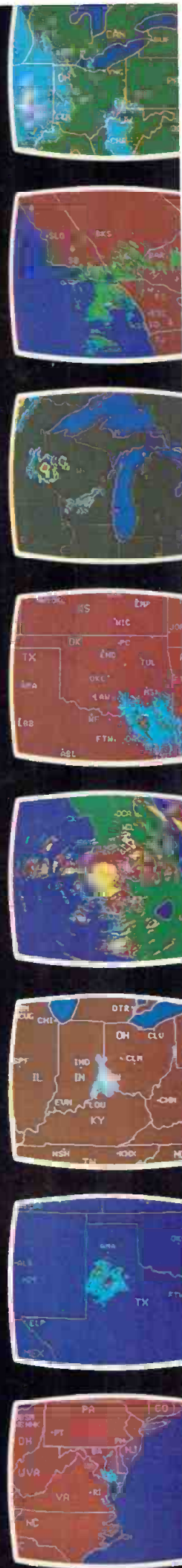
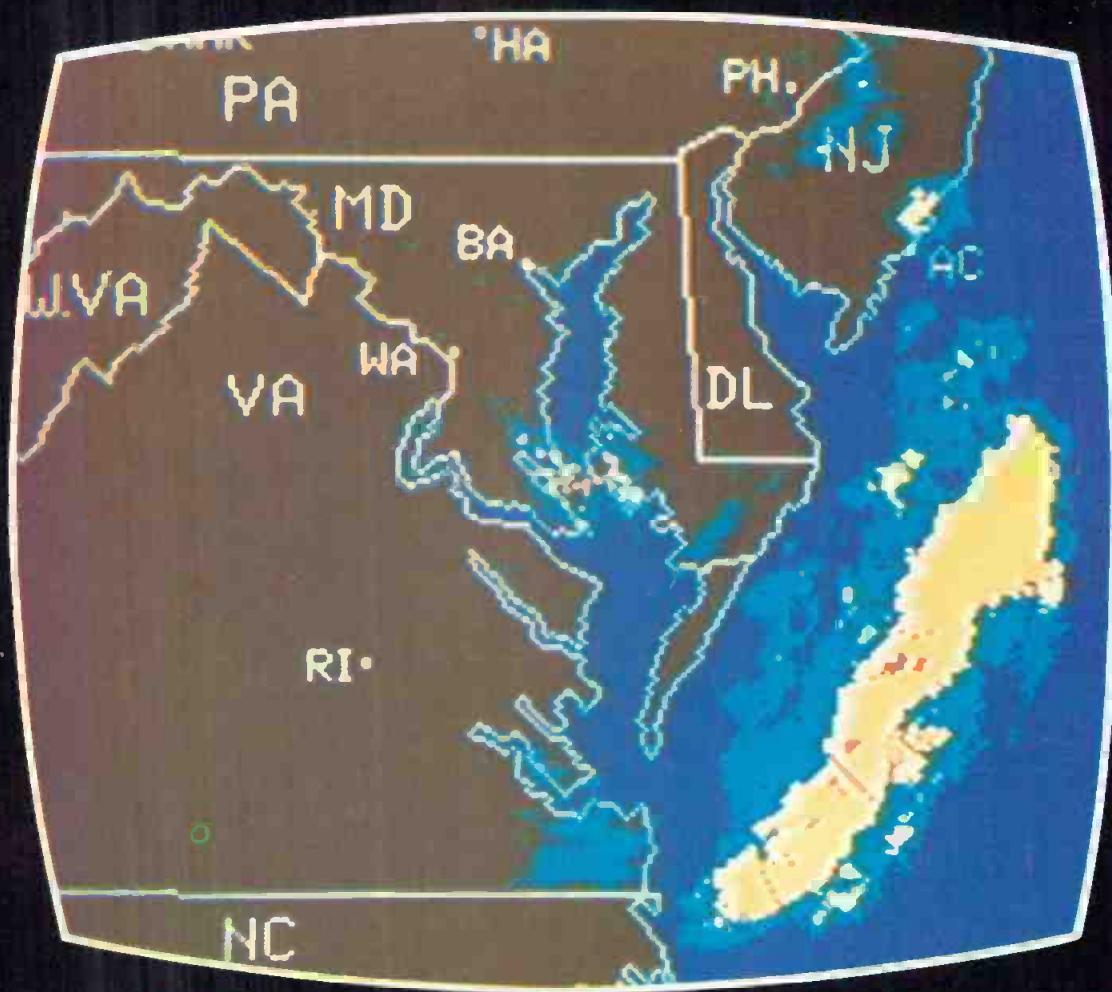
Don't settle for less than Ampro perfection. Take a closer look for yourself. Send for a FREE brochure on CONSOLES today!

AMPRO  **Scully**

Professional Equipment for Broadcasting Professionals
2693 PHILMONT AVENUE, HUNTINGDON VALLEY, PA 19006
(215) 947-7000 • TWX: 510-665-5010 • CABLE: AMPROSCUL HVAL

Circle 111 on Reader Service Card

THE TSC WEATHER PRESENTATION SYSTEM



**FROM NATIONAL WEATHER
SERVICE RADAR REMOTES TO
COLOR SATELLITE DISPLAYS TO
COMPUTER GRAPHICS
WE'VE GOT IT ALL!**

- Time lapse recording for satellite or radar data
- Display centering for your location
- 16 picture storage
- 16 sector 2:1 zoom

**FOR INFORMATION CONTACT MARTY RIESS AT
TSC'S INDIANA OFFICE • 812-384-3563**



TECHNOLOGY SERVICE CORPORATION

2950 THIRTY FIRST STREET, SANTA MONICA, CA 90405 • (213) 450-9755

Circle 112 on Reader Service Card

Business Briefs

Md., will distribute **Artel Communications Corp.**'s fiber optic transmission systems. . . . **Northern California Marketing**, Hayward, and **Star Enterprises**, Yorba Linda, will rep **James B. Lansing Sound** products in California.

Compact Video Services, Inc., has purchased four **Ampex Digital Optics (ADO)** systems for its Burbank post-production facilities. Other major sales reported by Ampex include 15 **VPR-2B** helical scan VTRs, valued at over \$1 million, for **Centro Corp.** and an ADO

system and three **AVC Series** digital production switchers for independent **WGN-TV**, Chicago. . . . **Koplar Communications of California, Inc.**, is modernizing its recently acquired **KRBK-TV**, Sacramento, with four **TH-280** one-inch VTRs, a **TH-50** portable recorder, and a **TK-86** hand-held camera from **RCA Broadcast Systems**. Houston station **KTRK-TV** will go to circular polarization with a **TCL-16A CP** antenna and **TTG-30/30H 60 kW** transmitter, both from **RCA**. . . . **Premiere Productions**, a new North Hollywood post-production house, has added a **Studer A800 24-track** audio recorder to its audio

sweetening room. The company reports that sales of the **A800** rose 400 percent in the last quarter of the fiscal year.

Storer Cable of Miami has purchased a **Compact Video 20 B** video production unit. . . . **Pierce-Phelps, Inc.**, Video Systems Division, will equip a mobile TV production unit for **Warner Amex Cable Communications**. The unit will televise cultural and sports coverage from Columbus and Cincinnati, Ohio, and Pittsburgh, Penn. The company was recently named a sales rep for **CMX/Oroxo**. . . . **Georgie Boy Manufacturing, Inc.**, has recently completed production of a custom-built mobile videotaping unit for public station **WQLN-TV**, Erie, Penn.

Wold-Visnews Broadcast Services reported heavy usage for its first few days of operation at New York's Empire State Building. . . . **Cox Cable Communications** has taken delivery of two **KY-2700U** color video cameras from the Professional Video Division of **U.S. JVC Corp.** for installation at Cox's New Orleans system. **JVC** also notes that its fourth annual Tokyo Video Festival is now soliciting entries. . . . **One Pass Video of San Francisco** has recently added the **Bell & Howell Fernseh** digital noise reduction system to its post-production services. . . . **WJLA-TV**, Washington, D.C., has installed **System 90**, **Jefferson Data Systems'** complete interactive/on-line sales, traffic, and general accounting system.

Five TV broadcasters — **KRPC-TV**, Houston; **WTVT-TV**, Tampa; **WVUE-TV**, New Orleans; **WNGE-TV**, Nashville; and **KRCG-TV**, Jefferson City, Mo. — have ordered **Scientific-Atlanta's** new seven-meter satellite earth station to help them pull in *Entertainment Tonight*. Also ordering the seven-meter dishes, plus 10-meter models, was **Cox Broadcasting Corp.**, which will install the earth stations at five of its stations. . . . **Warner Amex Cable Communications** has purchased its second and third **3M** microprocessor-controlled switching systems for new two-way **QUBE** services in Dallas and Cincinnati. **Magno Sound & Video**, New York, has added a seventh **3M TT-7000** one-inch VTR.

Sony Broadcast has named two new vice presidents: **William Park** as vice president of marketing activities and **Frank Brown** as VP for engineering activities. In addition, **Jim Guthrie** has been named national sales manager for **Sony Professional Audio Division**. . . . **Joseph B. Howe** has been promoted to division vice president and general manager of **RCA's Commercial Communications Systems Division**; the company has named **Leo A. Van Lingen** manager of market planning for that division.

A picture worth a thousand hours.



Everything about our new video animation system is designed to save you many hours of costly production time. This means you can now use animation for perhaps the very reason you never used it before . . . time.

Now, topical animation can be produced quickly to accompany news, sports, weather or similar short deadline projects. Then, when you have more time, use the AniVid System for more entertaining station promos, intros and signoffs or advertising production.

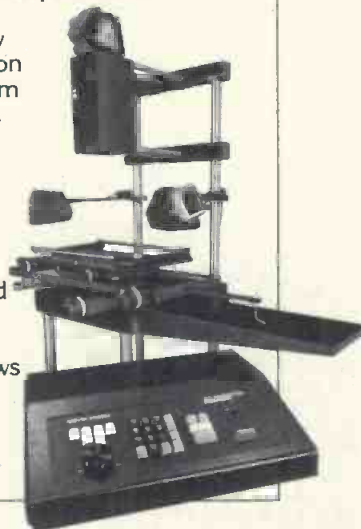
Besides having time on your side, you'll also enjoy full color, broadcast quality first generation animation on video tape. Suddenly you have all the advantages of film animation with the time and cost savings of video tape.

Altogether, it's everything you would want in an animation system. The AniVid System consists of a microprocessor based VTR Controller, a three tube color camera, and a full featured animation stand.

The system accepts any kind of artwork from pencil tests, cel artwork, three dimensional subjects, animatics, pixillation, timelapse, titling, still storage and filmograph to computer generated graphics.

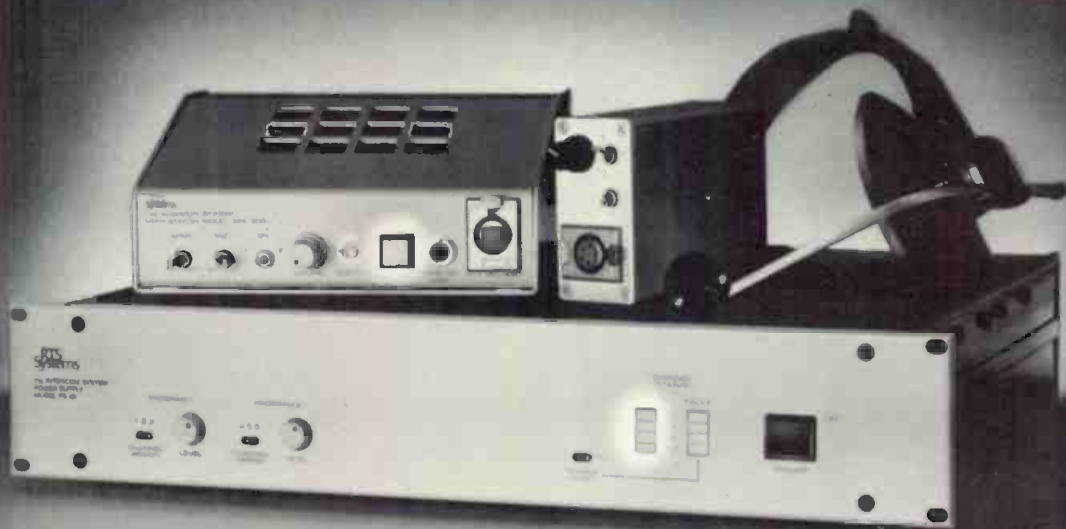
Get the big picture today by contacting **Frank Hofmeister** at **Animation Video**, 1315-B East St. Andrews Place, Santa Ana, Calif. 92705, (714)545-0244.

ANIMATION VIDEO
A DIVISION OF CONVERGENCE CORPORATION



Circle 113 on Reader Service Card

PERFORMERS CAN AFFORD TO BE TEMPERAMENTAL.



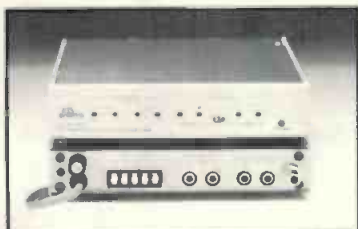
Your Communications System Can't.

When an entertainer has an off day, that's a problem. When your communications system decides to take the day off, that's a disaster.

The TW Intercom System from RTS is preferred by experts because it meets the constant demand for utmost reliability. Professionals value its performance and versatility. Its unique design provides clean, effective communication with no loading or audio degradation — even with 75 stations on line.

To find out why RTS Intercom Systems are fast becoming the industry standard, call today.

Additional Product Lines



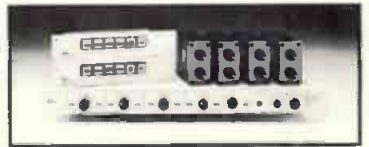
SERIES 400 PRO-AUDIO
High performance
amplifiers



SERIES 1000 MATRIX SYSTEM
Dedicated-line matrix
intercom/squawk system



MODEL 801 MASTER STATION
Multi-channel
communications center



SERIES 4000 IFB SYSTEM
Self-contained
program interrupt system

RTS
Systems
INC.

1100 WEST CHESTNUT STREET, BURBANK, CALIFORNIA 91506 213/843-7022 TELEX: 194855 TWX: 910-498-4987 A SUBSIDIARY OF COMPACT VIDEO SYSTEMS INC.

Circle 114 on Reader Service Card

www.americanradiohistory.com

THE SIGHTS

Chroma Insert Keyer, Model 7011.

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. Also available in PAL.

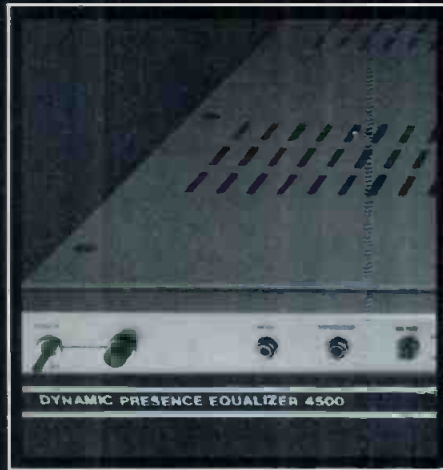


Dynamic Presence Equalizer, Model 4500.

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.



THE SOUNDS

THE SUBSTANCE

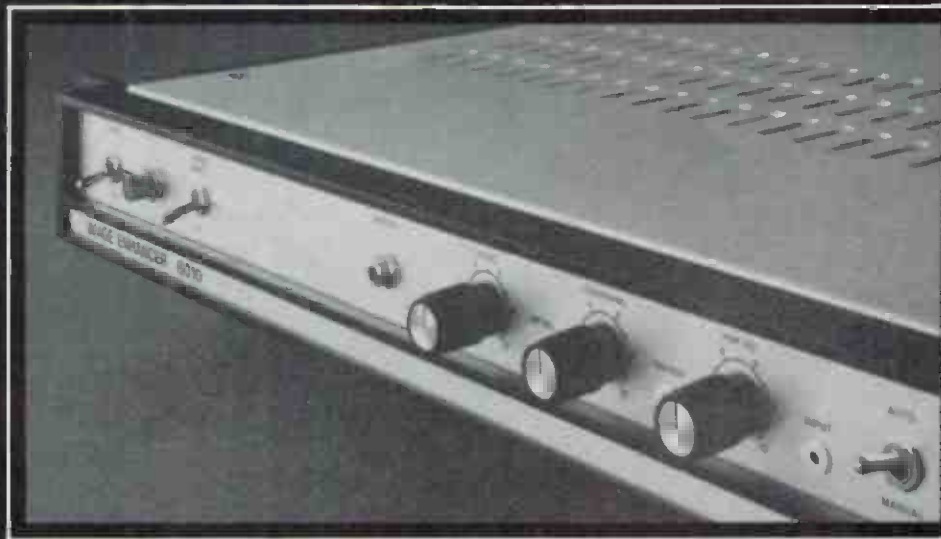
Sights and sounds. Thomson-CSF gives them substance. With proven broadcast products that enhance the image, correct the color, ride gain, equalize and distribute the signal. To put these quality products to work for you, contact your nearest Thomson-CSF distributor.

Lake Systems Corp.
Newton, MA 02160
Videosound of Ithaca, Inc.
Ithaca, NY 14850
Sonocraft Corporation
New York, NY 10018
Lerro Electrical Corp.
Philadelphia, PA 19132
Electromedia, Inc.
Pittsburgh, PA 15213
Tele-Measurements Inc.
Clifton, NJ 07014
Landy Associates, Inc.
Cherry Hill, NJ 08003
Slye Electronics, Inc.
Arlington, VA 22201



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, trappable 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%.



AUDIMAX® Automatic Level Controller.

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.



Technical Video Systems, Inc.
Winston-Salem, NC 27101

A. W. Greeson, Jr.
Greensboro, NC 27403

Quality Media Corp.
Columbus, GA 31908

Gray Communications Consultants, Inc.
Doraville, GA 30340

Gray Communications Consultants, Inc.
Albany, GA 31705

Gray Communications Consultants, Inc.
Tampa, FL 33614

Aluministros Gonzalez
Miami Beach, FL 33139

Gray Communications Consultants, Inc.
Marahan, LA 70123

Broadcast Systems, Inc.
Austin, TX 78758

Electrotex
Houston, TX 77006

H.M. Dyer Electronics
Farmington Hills, MI 48024

Swiderski Electronics Inc.
Elk Grove Village, IL 60007

Television Engineering Corp.
Chesterfield, MO 63017

Bennett Engineering Associates, Inc.
Mercer Island, WA 98040

BCD, Inc.
Anaheim, CA 92806

General Electronics Systems, Inc.
Berkeley, CA 94702

THOMSON-CSF BROADCAST, INC.

37 Brownhouse Road, Stamford, CT 06904
Tel. (203) 327-7700 TWX (710) 474-334



Production Studio, WRBR-FM, South Bend, Indiana.

Electro-Voice's Greg Silsby talks about the Sentry 100 studio monitor

When I first described to Electro-Voice engineers what I knew the Sentry 100 had to be, I felt like a "kid in a candy store." I told them that size was critical. Because broadcast environment working space is often limited, the Sentry 100 had to fit in a standard 19" rack, and it had to fit *from the front, not the back*. But the mounting hardware had to be optional so that broadcasters who didn't want it wouldn't have to pay for it.

The Sentry 100 also had to be both efficient and accurate. It had to be able to be driven to sound pressure levels a rock 'n roll D.J. could be happy with by the low output available from a console's internal monitor amplifier.

The Sentry 100 also had to have a tweeter that wouldn't go up in smoke the first time someone accidentally shifted

into fast forward with the tape heads engaged and the monitor amp on. This meant high-frequency power handling capability on the order of five times that of conventional high-frequency drivers.

Plus it had to have a 3-dB-down point of 45 Hz, and response that extended to 18,000 Hz with no more than a 3-dB variation.

Since it's just not practical for the engineer to always be directly on-axis of the tweeter, the Sentry 100 must have a uniform polar response. The engineer has to be able to hear exactly the same sound 30° off-axis as he does directly in front of the system.

I wanted the Sentry 100 equipped with a high-frequency control that offered boost as well as cut, and it had to be mounted on the front of the loudspeaker where it not only could be seen but was accessible with the grille on or off.

I also didn't feel broadcasters should have to pay for form at the expense of function. The Sentry 100 had to be attractive, but another furniture-styled cabinet with a fancy polyester or die-cut foam grille wasn't the answer to the broadcast industry's real needs.

And for a close I told E-V's engineers that a studio had to be able to purchase the Sentry 100 for essentially the same money as the current best-selling monitor system.

I'm happy to report that we've achieved *all* our objectives.

Market Development Manager,
Professional Markets



EV Electro-Voice®
a gulton company

600 Cecil Street, Buchanan, Michigan 49107

In Canada:
Electro-Voice, Div. of Gulton Industries (Canada) Ltd.
345 Herbert St., Gananogue, Ontario K7G 2V1.

Circle 116 on Reader Service Card

RADIO

PROGRAMMING & PRODUCTION FOR PROFIT

Syndicators Are In Orbit

IT IS BEGINNING—about the time this issue of *BM/E* is distributed, full-format radio programming will go up to a satellite from at least two major sources, with more close behind.

Everybody knows the potential advantages. Programs reach every subscribing broadcaster simultaneously, in "real time." Up-dating is simple and instantaneous. Quality can be top-grade. The subscriber can record the programming for later use or put it on the air directly.

Cost may still tend to be a little higher than tapes-by-mail, but compared with doing programming in the station — trying to reach something approaching the quality level of a first-class syndication — the cost of satellite delivery will bring a large saving.

Moreover, the satellite operation is likely to get cheaper as competition increases, and as more satellites are sent up to ease the current acute shortage of signal channels in space.

Every syndicator *BM/E* has talked with lately is watching the development of satellite delivery closely. It is too early for most of them; they need in many cases an assured body of earth-terminal-equipped subscribers as syndication by satellite makes a dedicated earth station necessary.

The two operations now getting underway are those of Satellite Music Network and Continental Radio. Both have promised regular programming beginning in early September.

Satellite Music Network

This brand-new organization was formed specifically to syndicate full-format programming and deliver it exclusively by satellite. *BM/E* described the creation of SMN in the May issue. It was put together jointly by Burkhardt/Abrams/Michaels/Douglas and Associates, syndicators of Atlanta; Station WCCO of Minneapolis; United Video, satellite special carrier, of Tulsa, Oklahoma; and John Tyler Associates, broadcast consultants, of Dallas. Kent Burkhardt is president of SMN.

The programs will be originated in a studio especially built for the purpose by SMN outside Chicago, and next to the uplink installation of United Video. The latter firm will take the programs up to Satcom I on subcarriers of the signal carrying the TV programs of WGN, Chicago, which United Video

has been most successful in distributing to cable systems. On another subcarrier of that signal are the programs of WFMT, Chicago classical station (as described in earlier issues of *BM/E*.)

SMN's origination studio will be built around top-grade tape machines, disc players, and control equipment in an audio design created by James Loupas, one of the best-known studio design consultants in the country. Studios will be set up for handling both live voice and recorded material.

SMN announced at the beginning the preparation of two full-format syndications, one with "Coast to Coast Country" and the other with "Star Station," the latter an Adult Contemporary music. The plan is to enable two stations in each market, one with each of the formats.

The full program will be aimed at 24-hour coverage and will include, in addition to the music, a complete national and international news service, weather, short features, and individualized ID's, promos, and the like for subscribers wanting such material.

SMN has assembled a corps of experienced on-air men for the operation. The programs will include, says Kent Burkhardt, everything a station needs to be dominant in the market.

In June SMN announced a third format: the Beautiful Music of Bonneville Broadcast Consultants, veteran syndicator, who have agreed to distribute regular programming through SMN for subscribers who want to get it that way. The Bonneville programs will go on a fourth subcarrier of the United Video satellite signal. Bonneville is building a separate studio at the SMN origination installation near Chicago with all equipment needed to put their programs onto the satellite signal.

Marlin Taylor, president of Bonneville, noted how satellite delivery looks from the Bonneville point of view: "Freedom from the rigid discipline of tape duplication and delivery will allow us to make a broader, fresher selection of music more quickly available. Also, the expanded number of stations we expect to serve will allow us to increase our custom music production to the benefit of all Bonneville subscribers."

Bonneville will also provide a regular news service designed especially for Beautiful Music stations.

That both SMN and Bonneville will be able to supply regular news is obviously a marked advantage for satellite delivery; a syndicator cannot supply news along with tapes by mail. To get any of the syndications via SMN, the radio station needs its own earth terminal or a dedicated stereo connection to a nearby cable system that is "looking at" Satcom I, as a great many are. Getting an earth terminal is comparatively easy for radio stations in most markets. The cost, in the range of \$10,000-\$15,000, is not large compared with the capital normally invested in a radio station of moderate to large size. Moreover, if management does not want to make the investment, SMN will lease the terminal to the radio station at low cost.

John Patton of Bonneville pointed out to *BM/E* another way of reducing the cost of the earth terminal. The radio station putting the terminal in may be able to supply feeds for other radio stations in the market who want other non-competitive programs available from the same bird.

The station with the terminal would collect fees for the service.

Both SMN and Bonneville are getting heavy response to their announcements. Broadcasters who want details can get them as follows: Kent Burkhardt, president, Satellite Music Network, 6500 River Chase Circle East, Atlanta, Ga. 30328, telephone: 404-955-1550; John Patton, Bonneville Broadcast Consultants, 274 County Road, Tenafly, N.J. 07670, telephone 201-567-8800.

Continental Radio

Arising from quite different motivations, but ending up with somewhat similar character, is the projected service of Continental Radio. This satellite operation is an arm of the Christian Broadcasting Network, Norfolk, Va.

The organization has worked more than two years to develop a program that will combine "wholesomeness"—freedom from morbid, suggestive, indelicate material — with a current-hit character that will "sell" to commercial radio stations. The result, says Continental Radio, will make radio "alive, topical, fun, interesting, vibrant, and clean, all the things it should be."

The music will be Adult Contemporary, with a partial admixture of



lexicon

URi



SONY

Wireless Microphone



Professional

*Eastern Acoustic Works,
Inc.*



**MAIN DEALER IN THESE
AND MANY OTHER
FINE LINES
COMPLETE SYSTEM DESIGN
AND INSTALLATION.**

**HARRIS AUDIO
SYSTEMS, Inc.**

1962 N.E. 149 St., N. Miami, Florida 33181

(305) 944-4448 **SOUND EAST**

Michael Harris

Radio Programming

"Christian" music. There will also be a full-scale national and international news service, with Continental's own staffers to collect the news and prepare the broadcasts. Continental has also developed promotion programs with plans for every aspect of selling radio to the community.

The operation, in short, like that of Satellite Music Network, aims to supply a radio station with nearly everything needed for programming, with a high professional polish and appealing

material. It will be on the satellite 24 hours a day.

Continental will collect a fee from each subscriber, and will get three minutes an hour for Continental IDs and continuity. The program gives the station about eight minutes of availability for local spots. The signals will be sent up to the satellite by the Christian Broadcasting Network's own uplink equipment in Norfolk, Va. Broadcasters who want more information should address Craig Sherwood at Continental Radio, 1318 Spratley Street, Portsmouth, Va 23704, telephone: 804-393-2501. **BM/E**

BM/E's Program Marketplace

Syndicators Revisited

Concept Productions
801 Riverside Avenue
Roseville, Calif. 95678
Tel. 916-782-7754

IF YOU ARE a syndicator of radio programming, it may take prospective customers a while to realize that you are doing something right, as it does in so many other fields. They may well take a little longer to be convinced that you will keep on doing it.

What has happened to Concept Productions in the last two years indicates that, for them, these waiting periods are over. The company has gone from 20 subscribers about three years ago (and a slow growth rate), to more than 70 as of late July with new ones coming along at four to five every month. The management is confident of passing 100 by the end of 1981, and that is a full-scale syndication operation by any measure.

When *BM/E* first interviewed Dick Wagner, founder and president, for the April, 1978 issue, he had a systematic approach to producing programming for many radio stations at once, based on his earlier years of success as a programmer at individual stations. Wagner wanted to make automated handling of programming sound as "live" as he could, and developed the idea of the individualized voice track as a central element of the plan.

The voice track, produced on a separate tape with the announcements interleaved with the music numbers by the automation system, is still a central part of the operation. Wagner has engaged a staff of expert on-air men, most of them very successfully employed in San Francisco Bay area radio stations. Each one comes to Concept's production studio, or to a studio set up in San

Francisco just for the purpose, for four to six hours a week to make the voice tracks that will go with Concept's music sequence for each station.

The voice-trackers become the on air men at each station; since the track is made daily, the announcers can be most timely and fresh in their references to ongoing events. If the station management wants, the voice tracker can make individualized promos, PSAs, IDs just for that station. Thus for the listener, the voice track supplies, in effect, a local on-air man but one with high professional skill far beyond that which most smaller stations could afford to hire.

Another central part of the operation, already in being in 1978 and even more important today, is a continuing and intensive consultation relationship with each subscriber. Wagner and his associates work closely with each station management throughout the contract relationship to analyze market situations, the station's needs, currents in popular music, and responses of the station's audience.

These analyses are translated into specific programming advice. Wagner has set up his music tapes in such a way that he and the station management have great flexibility in choosing and sequencing the music. The subscriber gets, first, 28 tapes of current hit music—this material is updated weekly. A second group of material is 28 tapes of somewhat older hits and standards, which is also updated frequently. Third are the "library" tapes which hold standards and older music with continuing appeal — updated monthly.

With this material Wagner and his associates can change the music scheduling on a weekly or even a daily basis. Wagner calls this kind of close

work with the subscriber one of his main objectives in running the operation. He finds it personally satisfying in addition to its value in keeping the station's listener appeal sharp and lively.

Concept is currently supplying four different formats. "Concept 1" is all Adult Contemporary; Wagner says this, the most popular format, is a contemporized MOR, the freshened descendant of earlier MOR material. "Concept 2" is Adult Rock; "Concept 3" is Album Rock; "Concept 4" is Country.

Another element of the operation which Wagner says has been most important in the company's recent upsurge is the "Voice-Music Synthesizer," a microprocessor-based control device developed by Concept. Its primary purpose is to eliminate any errors in the relation of the voice track to the music tape. Digital codes are put on the music tapes to identify each musical number. The announcements on the voice track are also encoded. The codes for a piece of music and the announcement intended to precede it are matched.

If there is some error in the overall sync and the voice and music codes do not match, the synthesizer will automatically kill the voice track and let the music proceed. The device also gives a warning to the operator who can do what is necessary to restore sync in the automation operation. A digital read-out on the synthesizer displays the code numbers of material going through to aid the operator in getting the parts of the system in step.

Another function of the synthesizer is to supply an end-of-tape warning. And a further function, developed because of numerous broadcaster requests, is cueing past voice and music for which there is no time because the commercial load is unexpectedly heavy. If the station so desires, the synthesizer will even make a choice, defeating the scheduling of the "oldie" material when commercial loads are especially heavy to produce a tighter current music schedule.

Dick Wagner says the synthesizer has reduced greatly the fear some broadcasters felt in facing a system using automation for an elaborate sync job that would sound messy on the air if it went wrong. The synthesizer is now a key part of the Concept operation.

The most important key, though, as everyone knows, is the organization's skill in choosing music that people want to hear. This is a personal talent of each of the organization's programmers, and it is not analyzable in logical terms. You have it or you don't, and the proof lies in the experience of the stations using the format. Dick Wagner is getting very high marks in the audience ratings of his subscribers. **BM/E**

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



9800 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 118 on Reader Service Card

"IN TWO YEARS, OUR HICCUPED ONCE OR TWICE.



"Our Sony BVE-5000 editing system is unbelievably reliable," says Randy Cohen, vice president and editor for Broadway Video.

"Amazing that Sony could come up with a state-of-the-art computerized system on its first try," Cohen continues. "And because it's specifically designed for one-inch, it lets me do more with my equipment than other editors."

Broadway Video is both a production and post-production facility in New York City. Its recent credits

include "The Best of Saturday Night Live," major political campaigns, promos for the cable network Showtime, and a variety of industrial shows.

"The BVE-5000 worked right out of the box and has been performing flawlessly ever since. With no problems of any kind. Unlike some other systems, whose manufacturers wait for customer complaints to get the bugs out, instead of thoroughly testing their equipment *before* it's sold.

"With its simplified keyboard, the BVE-5000 is

HUMAN EDITORS MAY HAVE BUT NOT OUR SONY."

Randy Cohen, Broadway Video



easier to use, too. It has saved me 25% to 50% of the time other systems require. And since you don't have to be mechanically oriented to use it, the editors can be artists rather than technicians.

"Other advantages include variable search. Dual audio. Vertical interval time code. And the ability to interface with a wide variety of switchers.

"I'll be buying more Sony equipment in the future. Because there are enough reasons for indigestion in this business without machines that hiccup and burp."

Sony makes a full line of 1" and 3/4" broadcast equipment, including cameras, recorders, editors and digital time base correctors.

For more information, write Sony Broadcast, 9 West 57th Street, New York, New York 10019. Or call us in New York/New Jersey at (201) 368-5085; in Chicago at (312) 792-3600; in Los Angeles at (213) 537-4300; or in Atlanta at (404) 451-7671.

SONY
Broadcast

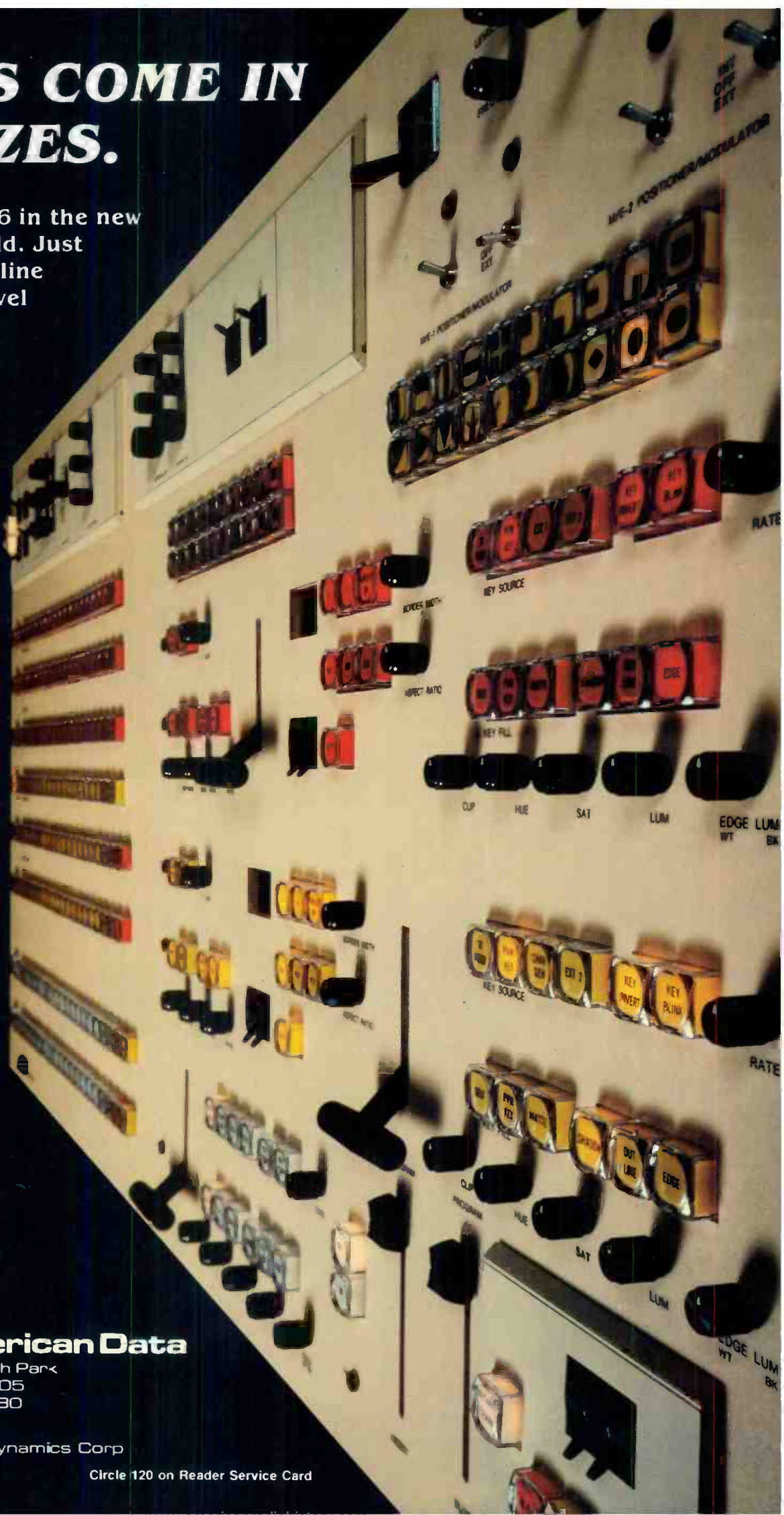
Sony is a registered trademark of Sony Corp.

Circle 119 on Reader Service Card

www.americanradiohistory.com

GIANTS COME IN ALL SIZES.

Model Shown: 3106 in the new American Data Gold. Just one in a complete line of quality multi-level video production systems. Simple to operate, yet advanced in design and reasonable in price.



 **American Data**

401 Wynn Dr • Research Park
Huntsville, Alabama 35805
Telephone (205) 837-5180
TWX 810 726-2125

A Division of Central Dynamics Corp

Circle 120 on Reader Service Card

TELEVISION

PROGRAMMING & PRODUCTION FOR PROFIT

On The Road To . . . WJBK-TV Travels to Poland

LOCALISM is the current trendy phrase in programming. It is supposed to be the salvation of broadcasting against the encroachment of cable into areas that are currently dominated by the networks. While the nets may not be able to compete with cable in programming areas such as uninterrupted movies and more adult fare, local broadcasters may have an increased role in programming to fit the specialized needs of their communities.

Whether the prophets are correct or not it is clear that many local stations are coming up with the kinds of programming that once were the sole property of the nets. The main thrust has been in the documentary area. Local

stations are not only doing more documentaries but are going further afield to do them.

The list of local stations which have sent documentary crews to foreign countries seems endless. But it is not just the major news stories that are causing this increase in going on the road to wherever. The following case study is typical of the kinds of foreign commitments that are being made by many local stations.

Detroit has one of the largest Polish-American populations outside of Poland. The activism of the Poles in the Detroit area led WJBK-TV to take a close look at how the unrest in Poland was affecting the community. It was

discovered that many Poles in the city were sending money and food back to Poland to help out in the midst of the strikes and the chronic shortages of staples.

In the routine coverage of the local angle of the Poland story it became clear to some on the staff that no one really knew what Poland was all about. The discussions that followed centered around not only going to Poland but also around getting beyond the labor troubles and finding out more about the lives of the Polish people.

"The interest in the story went beyond the effect on Detroit's Polish community," says producer Joe Moreland, "the community as a whole was aware of the major story and this provided new and interesting angles." Aside from Moreland, anchorman Harry Gallagher, cameraman Bob Cross, audio technician Grant Smith, and interpreter Michael Krolewski went on the ten day trip to Poland.

Preplanning is vital

Getting ready for the trip took up much more time than the trip itself. Unlike the U.S. where one can shoot practically anywhere without formal permission, other countries, especially Eastern Bloc countries like Poland, require formal permission to do practically everything. The decision to go to Poland was made in late February but it wasn't until June 5th that the crew left Detroit for Warsaw.

The stumbling block was red tape. Visas had to be obtained, as did government approval of the project, travel arrangements, contacts, and transportation.

"Preparation is of prime importance," says Mike Von Ende, WJBK's news director. "You can't be over-prepared." But even with lots of planning, "something will always go wrong," says Moreland. The thing that went most wrong about preparing for the trip was the apparent foot-dragging of the Polish government officials in the U.S. Every time WJBK would feel confident enough to start making the final travel arrangements there would be some last minute delay with paperwork.

"It finally took a letter from the entire Michigan congressional delegation and our two senators to get the Polish officials in the U.S. to agree to the trip.



Anchorman Harry Gallagher tapes a segment in front of the Fiat plant in Warsaw (photo by Joe Moreland)

WJBK-TV cameraman Bob Cross (seated) and audio technician Grant Smith check out the equipment before leaving for Poland. The crew took a spare camera and a spare recorder as protection



TV Programming

PLAIN



There's nothing fancy about the Knox K50.

It's reliable; it's economical; it's basic; the simplest machine we make.

Come to think of it, it does have an independent preview channel... and shadow-edged characters... and a flash function... all as standard features.

Maybe it's fancier than we thought.



A DIVISION OF COMPUTER OPERATIONS, INC.

5001-J Forbes Boulevard, Lanham, MD 20801
301/459-2106 Telex 89-8327



Michael Krolewski (seated next to the camera) interprets the answers of Father Ladislaus Janczak of St. Andrew Bobala church (photo by Joe Moreland)



Harry Gallagher looks on as Cross and Smith tape exteriors of Old Warsaw which have been completely restored after destruction during World War II (photo by Joe Moreland)

FANCY fancy FANCY
fancy FANCY fancy
FANCY fancy FANCY
fancy FANCY fancy
FANCY fancy FANCY
@###@ #/B/ @###@



Do it with style. Better still, do it with *three* styles.

Knox calls it Multifont, and it's built into each Mod-16 character generator.

It's upper and lower case. It's accented letters. And it's resolution down to a *single scan line*.

It's just one of the features standard with every Mod-16.

It's also by Knox. Plain enough?



A DIVISION OF COMPUTER OPERATIONS, INC.

5001-J Forbes Boulevard, Lanham, MD 20801
301/459-2106 Telex 89-8327

Circle 121 on Reader Service Card

Then we had to start dealing with officials in Poland," explained Von Ende. But permission was finally granted and the trip was made.

Both Von Ende and Moreland agree that one of the smartest things that was done was hiring Michael Krolewski as interpreter. Krolewski is a Polish scholar and has made several trips to Poland. He is well versed in Polish history and knows both the country and its people. "We couldn't have done the job we did without Mike," adds Von Ende. "It was a good lesson that we learned and won't forget."

Most countries will provide interpreters for foreign journalists but there has always been a slight mistrust of government-provided interpreters in Communist countries. The fear is that if the interpreter isn't an out and out spy he is at least sympathetic to the government and protective of his job. There is always the doubt that the translations are being filtered to lessen the impact for both parties.

Traveling with ENG equipment

Now that few stations are still using film cameras, the concern is how well

can you travel with ENG equipment. Is it dependable enough away from the station's maintenance shop to be trusted? If the equipment breaks down at City Hall you can either send for another camera or ship the broken one back and get it fixed. Even if you miss that particular interview it is not too hard to reschedule in time to make the six o'clock news. But you don't have that luxury in Warsaw. So planning what equipment to take can be as important as getting the paper work through channels.

There are two theories on traveling with ENG gear. One is to duplicate everything and the other is to take along someone to fix everything. WJBK-TV opted for the first method. The crew took two Thompson CSF Micro-cams, two Sony BVU-50s and one BVU-100 (for playback), a small color monitor, and assorted audio equipment.

One interesting thing brought along were two walkie-talkies. "We asked for permission to take them and provided the Polish government with the frequencies," explained Moreland, "I was frankly surprised when they said yes." The portable radios proved in-

valuable because the crew had to travel in two cars and it provided a constant communications link.

Shooting in Poland

Murphy's Law took over for awhile when the WJBK-TV crew arrived in Warsaw. A customs official claimed that the crew needed a letter from the American Embassy stating that the Embassy would take responsibility for the camera equipment while it was in the country.

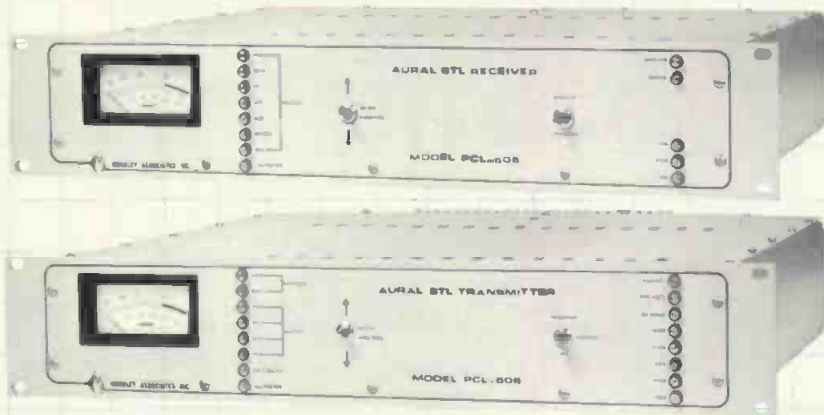
"Before I left, I had a meeting with the Polish consul-general in Chicago and asked repeatedly if there was any other paper work needed. He assured me that there wasn't," says Moreland. Fortunately for the crew their interpreter was familiar enough with the customs procedure to talk them past this stumbling block. It turned out later that no such document was needed.

The point of the WJBK-TV trip was not to deal directly with the political situation in Poland but to find out about the people. At that point it was difficult to separate the political situation from the domestic arena because the Russians were holding "maneuvers" at the Polish border. It fostered a climate that prevented many of the people from talking with the Americans. Before leaving on the trip there had been many telegrams sent to friends and relatives of contacts within the Detroit Polish community. Many of them were now reluctant to discuss the Polish situation for fear of reprisals. But that situation proved different outside the major cities.

For example, the shrine of The Black Madonna is one of the most famous religious artifacts in Poland. Until the WJBK-TV crew arrived, there had been no record of a western news organization being allowed to shoot pictures of the shrine. When that segment of the report aired, a woman in her late 50s called the station to say thanks for making a life long dream come true. She had always wanted to see the Black Madonna but knew that she would never get to Poland, yet now she had been able to see it in her own living room.

WJBK aired a thirteen part series about the Polish trip on its newscasts and then produced an hour-long documentary in prime time. The documentary was called "Polska I Polonia" which translates as Poland and its People. The documentary was a picture of Polish life that many Polish-Americans had never been able to see before. "We got over 500 phone calls the night the documentary aired," explained Von Ende, "for us, that is an incredible response. It just proved what we thought all along, that going all the way to Poland was for us a story of local interest." **BM/E**

THE STL SOLUTION



PCL-606 AND PCL-606/C

- ULTRA LOW NOISE AND DISTORTION
- EXCELLENT SELECTIVITY
- OUTSTANDING FREQUENCY STABILITY
- USER SELECTABLE IF BANDWIDTH
- BUILT-IN DIAGNOSTIC METERING

Designed for even the most congested, high density, RF environments, the **PCL-606** and **PCL-606/C** Aural Studio-Transmitter Links are all new, state-of-the-art, systems designed to provide the highest quality program interconnect available for broadcasters. The **PCL-606/C** handles composite stereo while the **PCL-606** is the monaural version. They are designed for performance, reliability and easy service.

Dynamic range of both the **PCL-606** and **PCL-606/C** Receivers can be optimized as a function of signal level by use of a Pin Diode attenuator circuit. Extremely low noise and distortion characteristics are due to ultra-phase linear IF filters and a

broadband extended linear digital demodulator. The user can adjust IF bandwidth to optimize the balance between distortion and selectivity. Outstanding frequency stability is achieved in the Transmitter by locking both frequency and phase to a synthesized AFC.

Monaural and stereo transmissions are maximized by a compensated linear baseband response. The incoming RF signal can be measured at the **PCL-606** and **PCL-606/C** Receiver over the entire range with the switch selectable, signal metering function. Should there be a failure or abnormal conditions the Receiver can automatically and internally transfer to a stand-by receiver.

Both the **PCL-606** and **PCL-606/C** Transmitter and Receiver have diagnostic metering capabilities to check system performance without the need of external test equipment. All normal service adjustments are easily accessible through the top cover, and the use of the brass enclosed module construction greatly reduces RFI and makes individual PC board servicing easier.

FOR FURTHER INFORMATION PLEASE CONTACT OUR MARKETING DEPARTMENT.



MOSELEY ASSOCIATES, INC.

A FLOW GENERAL COMPANY
SANTA BARBARA RESEARCH PARK, 111 CASTILIAN DRIVE, GOLETA, CA 93117
(805) 968-9621 • CABLE: MOSELEY • TELEX: 658-448

Circle 122 on Reader Service Card



O'LEARY



"Each of us is the star in our own human drama."

Richard A. O'Leary is President of ABC-owned Television Stations, and of ABC International Television, Inc. He is responsible for the operations of the five ABC-owned TV stations and guides ABC's international relations.

"I'm a believer in the competitive system. Above all, it motivates. In competing for viewer attention, variety creates a frame of reference for excellence, professionalism, integrity and character. Our system is such that it tests our character. And for me, character is all.

"Our stations became successful because of the heavy commitment we made to serving our local viewers. And our permanent and absolute commitment to achieving maximum honorable profit. Our news and information services had such a magnetic appeal that viewers made the effort to tune in to us when the traditional 'local' periods came up.

"With the arrival of cable and other alternatives, the viewers are naturally going

to have more choices. They're going to have more kinds of programming available to them, in the same way that bookstores are filled with books. That doesn't mean our place in the sun shouldn't be better for it. There really are endless opportunities here for us in local broadcasting.

"No programming form is bad unto itself. *Examples* of those forms can be good or bad. And I don't find any one form inherently better than another. They all have a right to exist. Like the novel in 18th-century England. It evolved, producing good novels and bad novels. My own opinion of whether a particular program is good or bad comes when I ask myself a simple question: Does this enhance, or demean the human condition? One's own instincts make that fairly easy to decide.

"Ours is a motion picture society. That's why our television looks a certain way. That's also why I have to acknowledge the specific advantages that only film can provide. That 'look,' for example. Certain subjects lend themselves to film. You know they wouldn't have the same impact on any other medium. Film has served us extremely well, and will certainly continue to do so. By the way, when I think 'film,' I think 'Kodak.'

"In making sense of our environment, each of us is the star of our own human drama. If we, as broadcasters, can coordinate all these human dramas to a purpose, hoping that each person finds enlightenment, then we're doing a good job. Television, in that sense, seems to be the lightning rod of today. I'm in it all my waking hours; it's my life; and I love it."

If you would like to receive our quarterly publication about motion picture production for television, TELEK, write Eastman Kodak Company, Dept. 640, 343 State Street, Rochester, N.Y. 14650.

©Eastman Kodak Company. 1981

EASTMAN KODAK COMPANY
MOTION PICTURE AND AUDIOVISUAL MARKETS DIVISION
ATLANTA: 404/351-6510
CHICAGO: 312/654-5300
DALLAS: 214/351-3221
HOLLYWOOD: 213/464-6131
NEW YORK: 212/930-7500
ROCHESTER: 716/254-1300
SAN FRANCISCO: 415/928-1300
WASH., D.C.: 703/558-9220



**America's
Storyteller**

Circle 123 on Reader Service Card

Cost effective!

Can you afford not to consider cost-effectiveness when purchasing a video editing system?



Visit our
Booths 518-520
& 534-536 at
the SMPTE Show.

FACT: Price/performance.

The Datatron Vanguard™ delivers more editing power, for fewer dollars than any other system.

FACT: Speed of operation.

The Vanguard edits faster, with fewer keystrokes, and automates more functions than competitive systems. The Vanguard is simple to operate and easy to understand.

FACT: Reliability. The Vanguard works "out of the box" and keeps on working. Datatron has been building reliable editing systems since 1967.

FACT: The Vanguard has standard features that others charge extra for — i.e., Memory, List Management, Time Code Readers, and more...

FACT: The Smart Scan™ allows manipulation of time —

one thing money can't replace. Capable of edit compression, expansion and motion effects.

FACT: The Vanguard can be purchased for significantly under \$50,000.

FACT: Cost effectiveness may be an extra to others, but it's standard in...

VANGUARD
The Trendsetter

datatron, inc.

VIDEO SYSTEMS DIVISION
2942 DDW AVENUE • TUSTIN, CA 92680
714/544-9970 • TWX 910-595-1589

ABC ENGINEERING LAB ESTABLISHES THE FACTS

By Bebe F. McClain

With as many products on the market as there are today, the selection and evaluation of the right equipment for the right job cannot be taken lightly. ABC puts all critical equipment and systems through a rigorous test procedure before deciding to purchase.

WHEN A PIECE OF BROADCAST EQUIPMENT has been evaluated by the ABC Engineering Lab, all interested parties can rest assured that the item has undergone the most thorough, methodical, scientific series of tests possible.

All evaluations are performed under the direction of the lab manager, Phil Godfrey, a straight talking highly qualified engineer who has no qualms about putting his staff's findings in a formal report that is distributed to over 60 people within the ABC organization including the owned and operated stations. Not only are the interested network departments given the detailed reports, but copies are also sent to the manufacturer (or supplier) involved.

The ABC Engineering Lab is unique in that it shares its findings with so many both inside and outside Broadcast Operations and Engineering (B.O. & E.). Phil Godfrey

Bebe McClain is president of B.F. McClain Productions, Inc., Asheville, North Carolina, and a freelance writer.

explains that the positive results these shared conclusions generate far outweighs the few possible negative ones that might be avoided if these in-depth evaluations were closed. He is quick to point out that everyone on the distribution list fully understands that the conclusions stated in the reports are opinions only. According to Godfrey, "The ABC Engineering Lab evaluates and makes recommendations on equipment used by news, sports, entertainment, and the owned and operated stations of both radio and television. We provide liaison between the vendor and ABC with regard to technical modifications and we provide written feedback in the form of a lab report to vendors concerning problems with their equipment."

A typical evaluation from the beginning

A formal *Request for Evaluation* is the first step. There are many reasons why ABC might evaluate a certain piece of equipment. Often requests come from the network production departments such as news, sports, or entertainment. Other times, vendors may ask their equipment to be evaluated or someone in B.O. & E. may see or hear of an item that could be of use to ABC. In addition, there are many long-term needs for replacing, updating, and expanding present and new facilities. Special projects or applications also require evaluation of new equipment.

In the case we are going to outline here requests had come from various sources for the ABC Engineering Lab to evaluate and recommend a portable 1-inch video tape

A formal request for evaluation is the first step in ABC's testing procedure



**“At half CMX’s price,
how good can the Commander be?”**



“Better!”

**says Andy Maisner, owner of the American Film Factory,
Venice, California**

“I was prepared to pay whatever it took to bring American Film Factory’s facilities up to state-of-the-art standards. But I wasn’t willing to just sign a blank check—so we thoroughly evaluated all the leading computer-assisted videotape editing systems on the market. I was really surprised to discover the United Media’s new Commander II was capable of everything CMX could do and more—and at half the price. Half the price!”

“Let me get specific—the biggest Commander advantage is complete computer control of multiple mix-effect banks for double re-entries. Sure, CMX can do that with a Grass Valley Switcher, but equipping it with E-MEM costs almost as much as the entire Commander II system.

“The other big advantage is Commander’s tremendously flexible list management. Everybody has it, but

Commander’s degree of sophistication far exceeds the others.

“Commander offers a lot of useful features—like sync step, independent audio and video dissolve, and split audio/video edits in and out in one pass. Again, most other systems can cope with these editing needs somehow, but Commander handles them with true automation.

“Reliability is excellent—in a year of operation, we’ve never had a hardware failure. In fact, we’ve already bought our second Commander II system. Commander II is fully CMX-compatible, which reassures my clients—and it’s easier to use and much more versatile, which excites my editors.

“With the Commander’s built-in total capability and realistic price, it’s certainly the *best* system you can buy.”

COMMANDER II

United
Media

4075 Leaverton Court, Anaheim,

CA 92807 • 714/630-8020

Circle 125 on Reader Service Card

ABC Engineering Lab

recorder. Some of the applications of such a unit include:

1. Use on location for soap operas. High quality recording is needed since location scenes are cut into studio scenes recorded on large production 1-in. video recorders.
2. Use on location for major sports events.
3. The 1984 Olympics. There is an ongoing need at ABC to put together the finest complement of equipment possible for covering the 1984 Summer and Winter Olympics. These evaluations must be completed by the summer of 1982 so that production plans can be made.

These are only a few of the reasons why the Equipment Planning group decided to evaluate the 1-in. portable recorders. Actually, any one single request might be deemed reason enough for this committee to order an evaluation. The members of the group are: Verne Pointer, vice president, Broadcast Engineering under whose domain the Engineering Lab ultimately falls; Mike Fisher, director of Equipment Planning, who is responsible for providing all needed input to equipment manufacturers on ABC needs, Phil Godfrey, manager of the Engineering Lab; and three Equipment Planning engineers, Issac Hersly, Keven Dauphinee, and Ron Schlameuss, each of whom have developed expertise in certain areas in addition to maintaining an overall perspective concerning broadcast equipment.

Equipment Planning meetings are held at least bi-weekly. Requests are discussed and priorities are set. Even though the lab evaluated over 200 items last year, it can be difficult to comply with the hundreds of requests received. This committee must determine need and set priorities for what the lab will evaluate.

Once a schedule is made for the evaluations, the vendors are asked to send in the units. Upon arrival, the equipment is carefully unpacked and logged in against what was ordered. In this case the Hitachi, Ampex, and Sony 1-in. portable videotape recorders were to be evaluated. Each unit is put through the same set of rigorous tests with a complete report issued at the end of the process.

We followed the Hitachi unit as it was brought into the lab and turned over to one of the five audio/video test engineers in the lab who will actually perform the tests as part of a project assigned to one of the Equipment Plan-

ning engineers. These test engineers are Warner Johnston, John Agugliaro, Howard Sornstein, Thomas Althoff, and Harvey Waldman.

Upon entering the lab, one is immediately impressed by the orderliness of the layout and the immaculate conditions. Anyone who has ever had occasion to test or repair equipment knows how difficult it is to keep benches clear of odd tools and to prevent mass entanglement of cables. Godfrey admits it is a very difficult task to keep the lab clean during rush projects. "Exacting work requires spotless conditions. A sloppy environment is conducive to sloppy work," says Godfrey who considers housekeeping a matter of discipline.

The test process

The first step in the mechanical portion of the evaluations is to stand back and take an overall look at the unit before delving into any finite measurements. After a visual once over of the unit, maintenance manuals, accessory items enclosed, and any other physical aspect, more specific procedures begin.

Physical Inspection. Before the equipment is fired up, the physical measurements given by the manufacturer such as length, width, height, and weight are verified. It should be mentioned that all test results, measurements, and observations are written down in one notebook by the test engineer who performs all the procedures. This record is the main input for the lab report and is therefore accurately kept and never destroyed. Other external physical characteristics are noted such as the type of connectors used, and their location in regard to protection and accessibility. The overall human engineering factors are taken into consideration keeping in mind the end use of the unit.

The physical inspection continues by removing the cover and checking the general layout. Major concerns are: Is it serviceable? Is the overall mechanical design good? Are high quality easily replaceable components used? Does the unit appear too delicate or unsafe in any manner? Are the components labeled?

Many helpful recommendations have been made to the manufacturer from this physical inspection. Typical suggestions might include such ideas as painting screws that don't have to be removed during normal servicing, capping potentiometers only used in factory adjustment, and rearrangement of certain components boards to decrease exposure to damage.

Of great importance is the service manual. It must not



After arrival the Hitachi unit is set up for testing

ABC Engineering Lab

only be highly legible but also must be printed on durable paper stock that will not tear easily or fall apart over the years. The manual should have all the schematics needed including waveforms for correct alignment and testing.

It is surprising how often equipment is considered unacceptable because of certain physical characteristics that prevent efficient operation. Because of this, ABC encourages vendors to contact them for evaluation during the design and prototype stages of production when this early input can eliminate costly retooling later.

Looking at the electrical character

The ABC Engineering Lab has the most complete array of electrical testing equipment to be found. Besides owning all the basic test equipment needed, the Lab may rent or lease from time to time certain specialized test gear in order to have the most up-to-date test apparatus.

One of the unique features of this lab is the mobile test bays that are easily rolled from one area to another. According to Make Fisher, director of Equipment Planning, "These portable self contained bays are designed to generate and analyze audio and video distortions and anomalies. By putting the racks of test gear on wheels, the equipment to be evaluated (often completely torn down) and the personnel involved including notebooks, manuals, and so on, can stay stationary and out of harm's way while the various test equipment pieces needed are moved in and out. The result is a more efficient procedure."

The *Video Test Bay* is designed to perform a series of tests employing a waveform monitor, vectorscope, test signal generators, sync generator, and B & W monitor. In this instance, evaluating the Hitachi 1-in. portable video recorder, the following tests were included:

- A check of the E to E signal.
- A check of 20T pulse and color bars.

These tests are to verify that the electronics are working correctly before the machine is put through any operating procedures. A tape is recorded and the following tests done:

- A check for mechanical noise
- Measure and record various standard test signals such as: Color bars for set-up; white flat field (100 IRE) for luminance signal-to-noise; full red field (100 IRE at 50 APL) for chroma noise; linear ramp for differential phase and gain; sine² pulse and bar for short time delay, chroma to luminance delay, and pulse response; 10 to 90 APL bounce for clamp circuit, and multi-burst signal for chroma gain distortion and frequency response.
- A check for time base stability.
- Observe tape handling for any build up causing drop-outs.
- Check the signal at the edge of the tape for distortion.

All results are recorded and compared to the tolerances outlined in the printed standards used such as the Video Facilities Testing NTC report #7 and the IEEE Standards on Video Signal Transmission Measurement. Not only are these electrical specifications used for comparison with those promised by the manufacturer but also against any particular specification or parameter that ABC has set for a piece of equipment.

The *Audio Bay* provides another series of tests using a monitor speaker, distortion analyzer, channel switcher, input meter transformer, AC volt meter, 150 ohm attenuator pads, 600 ohm attenuator pads, oscilloscopes, power amplifier, and power supply.

The usual procedure involves playing a prerecorded tape with standard test signals such as a reproduced alignment tape and one verifying wow and flutter. Next, a blank tape is recorded. Normally the tape is recorded at a +8 dBm level at 1 kHz to check the output during the recording.

Finally, the erase head must be scrutinized thoroughly with regard to erase current and the amount of residual signal remaining after erasure. The importance of the audio signal is equal to that of the video signal during these evaluations. Any discrepancy, however minor, is recorded in the notebook along with all the test results.

Signal/Noise Ratio. One of the measurements of greatest concern for any piece of video gear is the measurement of the signal-to-noise ratio. At the ABC Engineering Lab this is done with an Asaca/ShibaSoku color



One record accompanies the equipment throughout the process



Test bays are mobile so that movement of disassembled gear is minimized

WHEN THE MAJORS USE GRAPHICS...



BELMONT RACE RESULTS

RACE	WINNER
1st	Queen's Domino
2nd	Mr. Fred
3rd	Mr. Sandman
4th	Debbie Coke
5th	King of Hearts

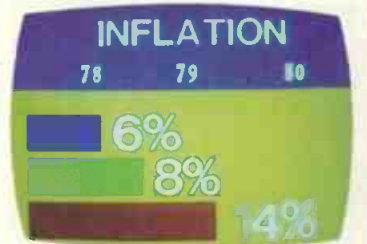


Afghanistan USSR DEPLOYMENT

✈️	80,000	IN KABUL
✈️	895	WITH IN RANGE

100 YARD DASH RESULTS HEAT 1

1. LARRY BOWA	10.47
2. GEORGE BRETT	10.93
3. JEFF BURROUGHS	11.89
4. ANGEL CORDERO	12.21
5. LANNY WADKINS	12.87



Desert Classic

	SCORE	HOLE
1. GENE LYLER	-18	IN
2. ARNOLD PALMER	-18	IN
3. TOM WATSON	-15	14
4. JACK NICKLAS	-14	17
5. BEN HOGAN	-13	IN
6. SAM SNEAD	-12	9
7. HAL GREEN	-10	16

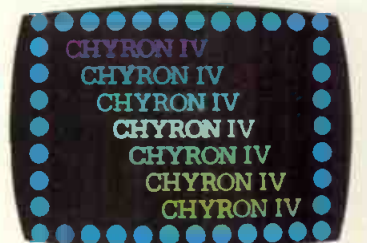
News Poll

	POPULARITY
USSR	30%
ISRAEL	85%



STOCKS

Dow Jones
UP 22.26
This Week



The TV pictures above are real.

CHYRON® IV and creative talent. That's the combination all three networks and most of the major TV stations, production houses and industrial producers depend on for their electronic graphics. With CHYRON, talent is all you need. Because all the other ingredients—quality reproduction, simplicity of operation and broad flexibility—are built right in...

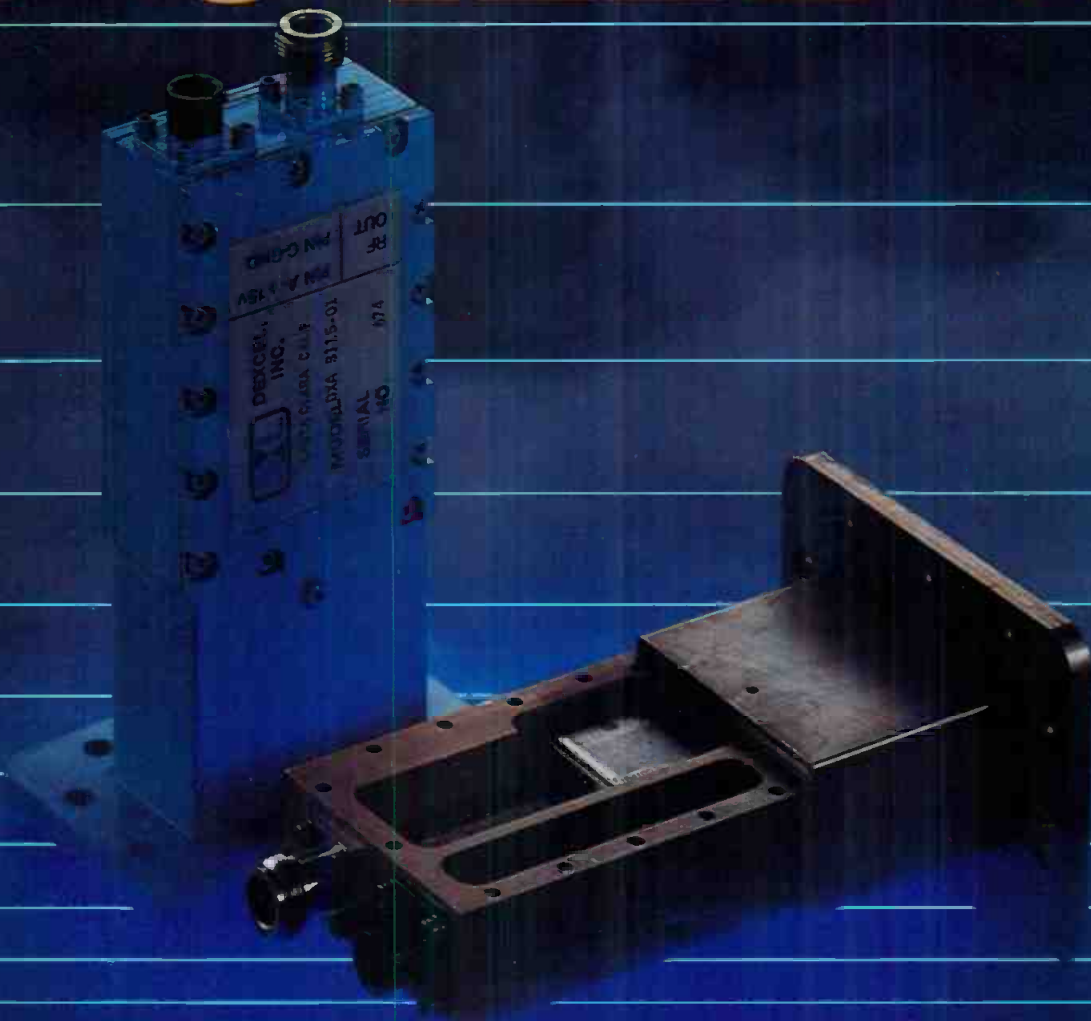
THEY USE CHYRON!

CHYRON TELESYSTEMS
A DIVISION OF CHYRON CORPORATION

265 Bethpage-Spagnoli Rd., Melville, N.Y. 11747 • 516-249-3296 • Telex: 144522 Chyron Melv

Circle 126 on Reader Service Card

DEXCELLENCE



DEXCEL 3115 and 3157 Series Low Noise Amplifiers

Dex-cel-lence: (deks'l-əns), n. superior products and performance from Dexcel.

Dexcel 3115 and 3157 series Low Noise Amplifiers operate at 3.7 – 4.2 GHz in earth terminal applications. Our uncooled GaAs FET LNA's meet or exceed industry specifications for performance. Dexcellence in technology has led to unique design features in our Low Noise Amplifiers.

Examples of Dexcellence: The 3115 and 3157 series LNA's feature Microwave Integrated Circuit (MIC) construction for reliability. GaAs FETS designed and fabricated in-house at Dexcel are used exclusively in our Low Noise Amplifiers. Your noise temperature selections include 85°K, 100°K, and 120°K. Band pass characteristics are well-defined, resulting in an improved video signal.

The DXA 3115 and 3157 series LNA's are packaged to withstand the harshest environmental conditions. A one-piece aluminum case reduces potential mechanical failure. Military-type construction techniques insure quality and reliability. Also, complete lightning destruction protection has been designed into our LNA's.

For more information about Dexcellence in Low Noise Amplifiers, please call . . .



DEXCEL, Inc.

2285C Martin Ave., Santa Clara, CA 95050 - Ph: (408) 727-9833 - TWX: 910-338-1080

ABC Engineering Lab

video noise meter. The signal-to-noise ratio can be a critical factor and one which should correspond with the manufacturers stated specifications or ABC's particular specification.

AC Voltage Test. One of the primary reasons for evaluating the equipment is to determine how well it will perform under the varied conditions called for by ABC Operations. One such consideration is the power requirements of the unit. For instance, will it operate under various voltage tolerances and if so, what is the range. For this test the machine is operated with the voltage ranging from approximately 130-90 V depending upon the manufacturer's specifications. For a portable unit such as the Hitachi portable 1-in. video tape recorder, the AC adaptor is tested to see if it will hold the 12 V DC output constant under various AC input ranges.

All major equipment under evaluation must have an accompanying service manual. Since this manual will become indispensable to those called upon to service the equipment if it is purchased, great care is taken to verify all alignment procedures against the manufacturer's instructions. Sample waveforms are verified, and all test points are checked to verify voltage levels. The thoroughness of the manual's instructions is considered paramount. This manual becomes the "bible" for those in the field. A well designed, good performing machine may be considered unacceptable by ABC if the service manual is unclear or incomplete. Issac Hersly, one of the Equipment Planning engineers, adds, "Performing alignment procedures helps familiarize us with the uniqueness of each piece of equipment and verifies that the alignment techniques given by the manufacturer are valid."

It has to work in the real world

As mentioned previously, the ABC Engineering Lab tries to anticipate the demands of the operating and production personnel regarding future use of the equipment in question. One such consideration is the question of how the equipment will perform under various climatic conditions. An environmental chamber is used to perform these tests. For instance, the specifications of the Hitachi unit state the operational temperature can range from 0°C to +40°C and the storage temperature can range from -20°C to +60°C. It further states that the unit will operate when the humidity reaches 87 percent at 25°C.

To verify this, the recorder is placed into the environmental chamber at room temperature — 21°C (70°F) — with a temperature probe attached to the face of the unit. The temperature is increased in 10°C increments and is allowed to stabilize for one hour before measurements are made. The recorded signal taken at the various temperatures is checked against that recorded at room temperature. Verne Pointer explains, "The evaluation is to determine if the equipment under consideration meets the vendor's published specifications, as well as ABC's particular specifications and operating requirements. For example, if the Sarajevo Winter temperatures are to reach the anticipated -30°F during the 1984 Winter Olympics, will the color cameras and other technical equipment perform reliably during ABC's telecast of that event? Such criteria for equipment used at the 1980 Lake Placid Olympics and other prior Olympics were tested and met."

Of prime importance during the evaluation of any piece

of equipment is how it performs during the field test. Many of the features which might seem unimportant in the lab suddenly become important when the unit is operated in the field. Human engineering features such as placement of knobs, buttons, and connectors play a key role in



ABC employs an Asaca/ShibaSoku color video noise meter to measure signal-to-noise ratio



Great care is taken to verify all alignment procedures against the manufacturer's service manual



The recorder is environmentally tested in anticipation of future operating demands

ABC Engineering Lab



Field testing of equipment is of prime importance



Pictures taken by the various units undergo side-by-side comparison

determining acceptability. Often the lab personnel will not only take the equipment out themselves, but they will also request that ABC Operations test the gear on location accompanied by one or more of the lab engineers. "The informal discussion between the operation and engineering people that results from these field trials is invaluable in determining the overall acceptability," explains Kevin Dauphinee, Equipment Planning engineer. Field recorded tapes are brought back to the lab and closely scrutinized.

Subjective evaluation with side-by-side comparisons

Of all the tests the equipment undergoes, the side-by-

side comparison is the most subjective. Literally, it involves putting one picture next to the other and asking the question, "How does it look?" As one of the Equipment Planning engineers, Ron Schlameuss, put it, "This is a subjective test to detect any minor variations not apparent under the other tests, and to determine the overall quality by using the comparison techniques."

The picture from the Hitachi portable 1-in. recorder is put on one half of a split screen while the picture from the Sony portable is put on the other half. After this comparison is made, the Ampex portable will be substituted for the Sony. All the various combinations of the two units will be set up for comparison.

These comparisons are usually witnessed by more than one person. Time is taken here for more informal discussion concerning overall performance with opinions gathered from many sources. Often those who requested the evaluation will be called in to take a look and offer an opinion.

Standard test signals are sent through both units as well as prerecorded scenes from various programs. Test equipment such as waveform monitors and vectorscopes are closely watched during the side-by-side tests, but other observations involving fine nuances of picture quality, dropouts, and audio quality are determined by the eyes of the viewers.

Vendor input is important

Some time during the evaluation the vendor may be asked to come in to explain some of the special design characteristics of the equipment. ABC has found it useful to have a representative from the manufacturer come before testing begins to verify that the equipment arrived in good shape, to go over the operation, and to explain any accompanying items such as accessories or interface pieces. Since the resulting report will be shared with the vendor he is welcome at any time during the testing to be present and to take issue with any of the findings.

Before the lab report is drafted by the test engineer he will usually call in the lab manager, Phil Godfrey, and run over any unusual findings. It might be that Godfrey will request further testing or a repeat of tests already performed. In any event, he likes to inspect the unit while still in the test area and discuss specific items and overall impressions with those conducting the tests.

Aside from the formal set of tests involved, there is a great deal of informal conversation with the individual staff members who specialize in certain areas dealing with the expected performance of the equipment under consideration.

With the notebook in hand and the various opinions both noted down and in mind, Godfrey himself carefully goes over the rough draft of the evaluation prepared by the test engineer. A conclusion must be drawn concerning the acceptability of the unit. This can often be a tough decision since Godfrey avoids taking the easy way out of multiple conclusions prefaced by qualifying words and phrases. He tries to draw a definite conclusion that is thoroughly substantiated in the report.

The report will be sent to over 60 people within B.O.&E. including the chief engineers of the owned and operated stations and also to the manufacturer. This multi-page report starts off with a description of the unit evaluated, is followed by the conclusion regarding acceptability, and ends with a listing of the entire test results.

Many times the manufacturer will use this valuable input to modify the equipment to make it acceptable to ABC. When this is done, the equipment may be re-evaluated and another report issued.

Even though the formal report is sent to Mike Fisher, director of Equipment Planning, and Verne Pointer, vice president of Broadcast Engineering, they or others at ABC might decide to take issue with the findings. For instance, all conclusions are drawn considering general overall use whereas, in actuality, some special application might be desired. In this case a conditional conclusion might be solicited from Godfrey. It is not unusual for them to meet informally, with Pointer or Fisher playing the devil's advocate to Godfrey's findings. This is all done on a very friendly, yet professional basis, with the main objective being to learn as much as possible about the equipment under consideration. After all, it is these three men who are ultimately responsible to Julius Barnathan, president of Broadcast Operations and Engineering, for providing the best equipment available to do the job. Not only will they recommend the equipment but they will also stay with it through installation and debugging.

Pointer was careful to note that although ABC may not own a particular piece of equipment this does not mean that such equipment is unsuitable for broadcast purposes. In some cases ABC will evaluate equipment with no intention of purchasing it. Since the ABC crews must often rent equipment at certain locations, or subcontract production, they like to be familiar with the performance of the majority of the equipment on the market so they can always be assured of quality when outside equipment is used.

Although price is always a factor, Godfrey indicated that the major considerations in buying equipment include: reliability, maintainability, serviceability, accessibility to manufacturer, performance, cost effectiveness, features and options, ability to withstand hostile environment, ease of operation, human engineering, and the credibility of the manufacturer.

The main objectives of the engineering lab are to provide the best equipment available and to help advance the art. The free exchange of opinion and the sharing of findings are the reasons for conducting the tests. Personalities, affiliations, personal interests and petty concerns of any type are not tolerated. And humor often lubricates the wheels. Godfrey himself is a very approachable man who maintains close friendly relationships with his staff and the manufacturers. He is outspoken and "calls 'em like he sees 'em." On the whole the ABC Engineering and the ABC Operations people appreciate this and the vendors depend upon his no nonsense input.

Godfrey makes a point of explaining to all interested parties that just because the ABC Engineering Lab finds a piece of equipment acceptable that is no reason to buy it. He often clarifies this by recounting how, years ago, he bought a car because *Consumer Reports* gave it the highest rating. From the day of purchase he hated the car. Although it performed well it just didn't suit him or his lifestyle. He is the first to warn, "It must suit your needs. All the Engineering Lab can do is declare it generally acceptable." He usually advises the potential customer to try it out himself keeping in mind that the lab has verified all the mechanical and electrical features. Anyone who has visited the ABC Engineering Lab or has read one of their reports can surely attest to this. **BM/E**



Elcon Video Cassette Cleaner and Evaluator

Are your new, 3/4 inch cassettes sometimes below "Master Stock" quality? Are you throwing away serviceable cassettes? If you're finding out too late about your stock, or want to be sure about the quality of your cassette inventory, you should take a new look at your 3/4 inch cassettes with the Elcon EA 750 Cleaner/Evaluator.

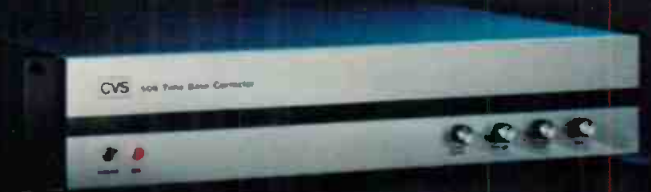
Features

1. Three front panel illuminating LED displays identifies the location of video dropout, upper edge and lower edge damage.
2. Quick and accurate tape grading into categories such as "Master stock," "Standard Quality," "Dub Quality," achieved with user calibrated push buttons.
3. Electronic evaluation—essential for dropout evaluation.
4. Fully automatic—easy to operate.
5. Clean recorded tapes to remove temporary dropout.
6. Fast—certify a one-hour cassette in 6 minutes.

For information, please contact
TEA Television Equipment Associates
Box 393
South Salem, NY 105900393
Phone: 914-763-8893

Circle 128 on Reader Service Card

The only choice...



506 TBC: Low cost TBC with superior CCD performance.



515 TBC: Digital PAL-M TBC for heterodyne VTRs.



516WB TBC: Wideband, digital TBC for broadcast quality with heterodyne VTRs.



630 Frame Synchronizer: Component-coded framestore with TBC. Compressor/Positioner and Digital Noise Reducer optional.



EPIC: Computer-aided "super editor" for all of your video editing requirements.

If you thought that Harris Video Systems only made TBCs...surprise!

Although we've been most famous for TBCs (we originated the commercial digital TBC and won an EMMY for it), we've now gone far beyond that. Today, we're bringing advanced digital technology to the entire spectrum of video production and broadcasting.

Worldwide customers include all major networks, a large number of commercial and educational stations, numerous CATV operations, and a rapidly growing list of industrial and scientific installations.

Further, since we're part of the Broadcast Products Division of Harris Corporation, you can be sure of superb sales and service support almost anywhere.

* Lower cost version, the 516, also available.

in digital video!



507 TBC: Low cost PAL TBC with superior CCD performance.



517 TBC: Component-coded, PAL/SECAM TBC for heterodyne VTRs.



590 TBC: Broadcast quality, digital TBC/Signal Processor for heterodyne and direct VTRs.



631 Frame Synchronizer: Component-coded PAL framestore with TBC. Compressor/Positioner and Digital Noise Reducer optional.



IRIS: Digital still store system for storage and manipulation of video images from virtually any source.

HARRIS



COMMUNICATION AND
INFORMATION PROCESSING

HARRIS CORPORATION Harris Video Systems
1255 East Arques Avenue, Sunnyvale, CA 94086 (408) 737-2100
Telex 35-2028

Circle 129 on Reader Service Card

www.americanradiohistory.com



*Amperex
is dedicated
to product
excellence...*

**...if you're dedicated
to picture excellence –
specify
Plumbicon* TV camera tubes.**

Amperex®

TOMORROW'S THINKING IS TODAY'S PRODUCTS

A NORTH AMERICAN PHILIPS COMPANY

AMPEREX ELECTRONIC CORPORATION, SLATERSVILLE DIVISION, SLATERSVILLE, RHODE ISLAND 02876 • TELEPHONE: 401-762-3800

* Registered trademark N.V. Philips of the Netherlands.

Circle 130 on Reader Service Card

www.americanradiohistory.com

NEWSROOM COMPUTERS: THE RELIABILITY QUESTION

By Peter Kolstad

Newsroom computers are no longer a pipe dream; several systems are already installed and working. But an initial problem with one of the systems has caused news directors to wonder: "What do I do when it breaks?"

Editor's Note: The following article was written with the full cooperation of all the news computer manufacturers. They unanimously agreed that it was more important to provide factual information about the reliability of news computers than to worry about competitive considerations.

THE MAJOR CONCERN of news directors about news computers is how to deal with those points of failure which interfere with the production process. Newspapers have experienced these same problems over the past 10 years. Although deadlines are a lot more flexible in print than in broadcasting, the problems are still the same. We'll look at how publishers have solved this problem as part of the discussion.

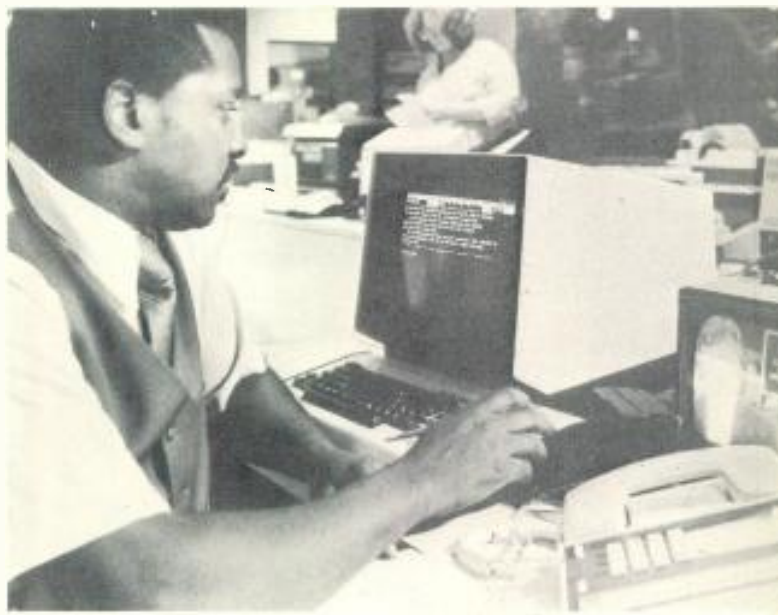
We can go after the problem in two basic ways. The least expensive solution is evasion. By not allowing the computer to get you in the predicament, you never really have to resolve it. This approach requires a lot of forethought and introduces some extra work into your routine, but it doesn't cost anything.

The other answer is geared to quick, even instantaneous, recovery. When the computer fails, you don't let it get in the way for long. This approach always involves additional computer equipment and the associated costs. There are several totally different ways to achieve this security. This is essentially the "double miking" of the computer world.

The evasive solutions

The broken computer problem can be resolved by reverting back to the old methods. The key is to get all of the information out of the computer, using its advantages in news gathering, before the machine crashes. Since you

Peter Kolstad is president of Basys, Inc.



Graylain Young updates assignments on the Basys-designed system at Cable News Network

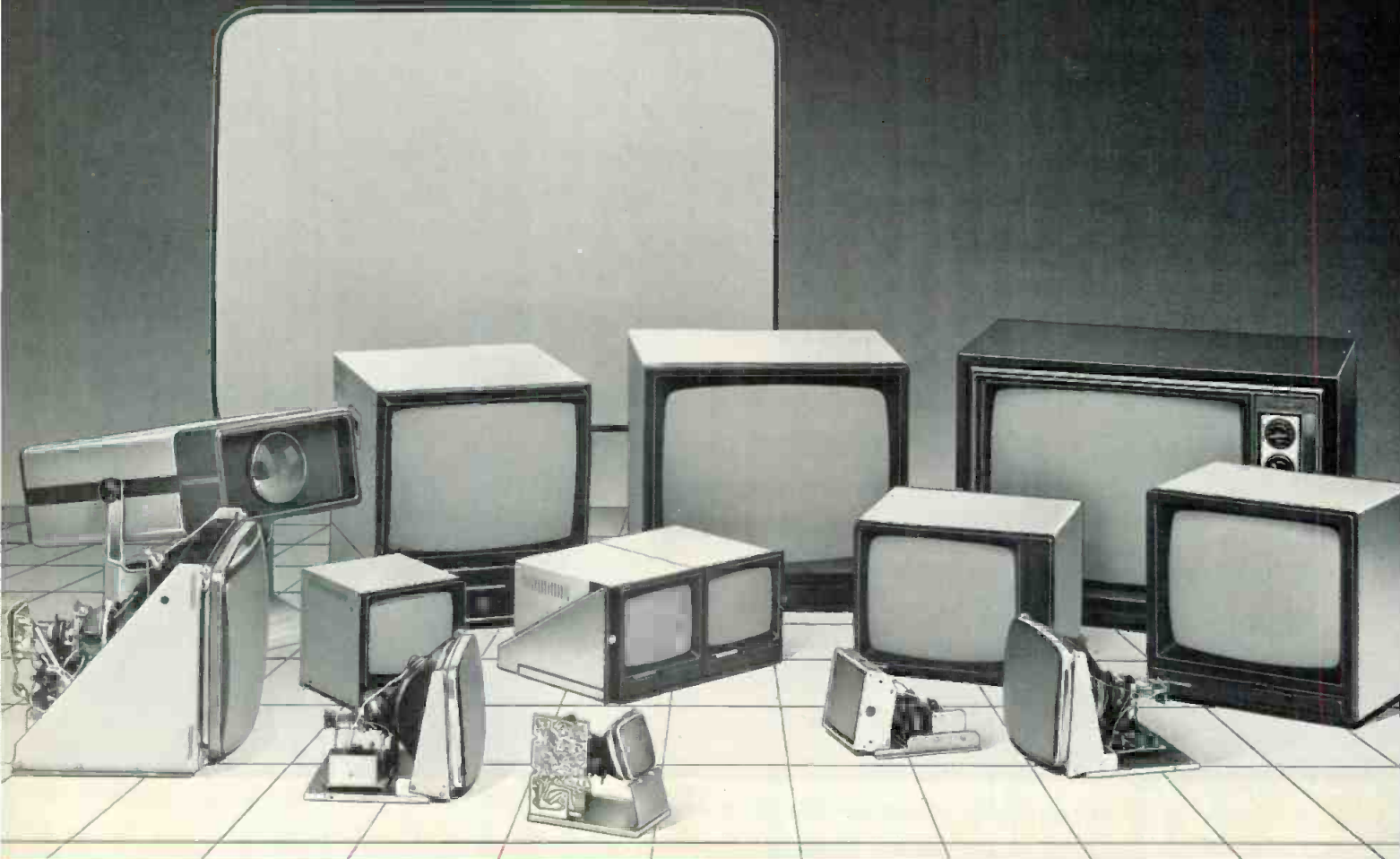
can't predict when the problems will occur, this amounts to establishing standard operating procedures for using the newsroom computer.

In capsule form, this means that you should print everything critical to the show as soon as it is typed into the machine. The idea is to have something to fall back on for tonight's newcasts (the computer will be up tomorrow) that reflects the latest information in the computer's files.

One step beyond this manual method is called automatic printing. This means that the material is printed automatically by the computer as soon as it is typed. This eliminates the need for each writer, producer, or desk assistant to remember to press the PRINT key. (If an electronic prompter is being used, some consideration must be given to its reliability, too. Printers are available with large typefaces that produce scripts that are not only readable by the anchor but also can be mounted onto the prompter belt.)

The other ways to avoid the problem depend on the computer system that you select. McInnis/Skinner Associates, for example, offers a battery backup system that allows the machinery to run for a period of time after the

THE ELECTROHOME DIFFERENCE.



GET IT WITH THE FULL LINE OF ELECTROHOME VIDEO DISPLAYS.

When you choose Electrohome video displays, you're in good company. All over the world, experts in many fields including data, graphics, broadcast, medical education and industry, demand the proven dependability of Electrohome. They count on the Electrohome difference.

Electrohome offers a broad selection of competitively-priced video displays. Attractive, durable, color and monochrome products are available in screen sizes

from 5 inches to 6 feet. Breadth of line...it's an important part of the Electrohome difference.

At Electrohome, we realize that everyone's needs aren't standard, so we will build video display units to meet your special requirements. Custom flexibility...that's part of the Electrohome difference.

Don't settle for second best—get the Electrohome difference. For complete information on video displays with the difference, contact us.

ELECTROHOME

ELECTRONICS

809 Wellington St. N., Kitchener, Ontario, Canada N2G 4J6. Telephone (519) 744-7111. Telex 069-55

Circle 131 on Reader Service Card

www.americanradiohistory.com

Newsroom Computers

power goes off. Usually, though, the printers and terminals are all down due to the power outage, so while the battery protects the information in the computer, it still doesn't let you get it out. There are uninterruptible power supplies available, and you can resort to backup power systems at varying costs. Power is a tough problem (tougher in the South) with no simple answers.

McInnis/Skinner also offers Error Correcting Codes (ECC) on its computer memory. ECC utilizes "wider" memories, recording information in a redundant manner that can later be used to detect and even correct many of the most common memory errors. This is a big step beyond parity memory (which is the minimum that you should accept in a computer).

The QuantaNews system from System Concepts uses a totally different method of evasion. The company builds a floppy disk into the individual terminals that can be used for collecting temporary information before it is sent on to the main storage disk. This means that a single terminal can put together the show. Better yet, you can move the information from one terminal to the next by carrying the floppy disk across the room. This means that several writers can contribute their pieces and the show script can be collected on one of the surviving terminals.

All systems on the market today offer multiple printers. Although, technically, this falls into our "extra equipment" category below, no system should be sold without the extra printer. This lets you redirect the scripts to the surviving device when your main printer stops.

Another technically evasive solution involves the use of intelligent disk controllers. This means that some decision-making power is available to the disk that allows it to correct or retry errors that occur when reading or writing the disk. This often entails extra-careful positioning of the disk's heads or something similar. Temperature variations that may cause expansion or contraction of the disk medium can then be accommodated without much pain.

Then there is the question of computer service and "preventive maintenance." These plans all cost something, varying according to the computer manufacturer and the time for which you are covered (e.g., 24 hours for seven days versus eight hours for five days). In general, though, response is guaranteed within, say, four hours, which is not sufficient for our needs. What is good, though, is the ability to notice anomalies during the preventive maintenance stages and to avoid problems such as a disk controller that is suddenly correcting a lot of errors. The problem can be fixed, then, before it fails and becomes a critical problem. The service organization that handles your maintenance might even stock the cold standby that was discussed above.

It is difficult to cover this topic well since the various vendors have such differing "architectures." The failure of a computer in a network of small machines is not as disastrous as the crash of the lone large computer. Look into how the computer system is organized and what happens when each of the components breaks down.

Preventive solutions

The two basic approaches are to have spare equipment in-house or nearby, or to have redundant equipment operating at all times. These equipment solutions resolve

the problems introduced by failing computers (and their memories), disk controllers, and the disks.

Computer solutions: part 1

The simplest method is to have a spare computer on the shelf. This is referred to as a "cold" standby. The idea is that when the computer crashes, you replace the entire machine with the spare, move all of the cables, restart the new computer and proceed from where you were. This can all happen inside of 10 minutes if you are well prepared. Due to the cost of the computer equipment, your own spare machine is practical only in the microcomputer-based systems.

A somewhat better solution is the "hot" standby. This is an operating backup computer that is often performing other, less time-critical functions. TvNS offers a library computer that operates independently during normal times. If the script computer breaks, those functions are simply moved over to the other machine. This avoids the problem of plugging in your spare and finding that it simply doesn't work.

Hot standbys were traditionally used by smaller newspapers and most often involved running business programs on the second machine. It was understood that typesetting of the daily paper had preference over the accounts payable. With a hot standby used for business, you are better off with an established computer name. This means Data General (from TvNS) and Hewlett-Packard (from McInnis/Skinner). Station Business Systems has a complete, integrated broadcast business system that runs on the same Datapoint computers as its Newscom system; these can operate separately or concurrently. You can also buy a Digital Equipment Corp. (DEC) computer from Basys that is suitable for both business and news.

Disks and disk controllers

The weakest link in a computer system is usually the disk. Miniaturization has advanced electronics so rapidly that it is now the electromechanical devices that get in the way. The disk, usually spinning at 3600 rpm with a head floating less than a hair's breadth away, is an awfully



The newsroom at WBTW is using Jefferson Data Systems ENP to handle most newsroom functions that used to be handled manually

PAY WHOLESALE PRICES for your TUBES & SEMI-CONDUCTORS ONE STOP for all your Broadcast Needs

CeCo is the Largest and
Longest Established
Franchise Distributor of All
Tubes, Semi-conductors and
Related Broadcast Equipment



WE OFFER:

- LOWEST PRICES AVAILABLE—
We Won't Be Undersold!!
- Largest Stocking Inventory—All Brands—
Any Type
- 24 Hour Usual Shipping Service
- 24 Hour Emergency Phone Service

Call Toll Free On Your Requirements

800-221-0860

212-646-6300

Write For Free Catalog



COMMUNICATIONS, Inc.
2115 AVENUE X
BROOKLYN, N.Y. 11235

Circle 132 on Reader Service Card

Newsroom Computers

vulnerable item. The newer, non-removable Winchester disks are generally more forgiving, but disk reliability varies greatly by manufacturer, so it is difficult to make generalizations. Suffice it to say that there are a lot of problems with computer disks.

The first step is to get two disks. With the assignments, the rundown, and the whole show on the disk, you can't afford to have a 'head crash.' (This is the computer's equivalent of wrapping all your tape around the capstan. The head digs into the magnetic surface, destroying itself and all of the information.)

With two disks we have protected the information, but now we have run into the next critical failure point: the disk controller. With disks daisy-chained to the one controller, even the redundant data is lost (i.e., inaccessible) if that controller fails. The simplest answer is to have a spare disk controller on hand and to have an engineer swap it out when it fails. Another method avoids the down-time needed for this swap; it involves redundant controllers. Usually, each controller is connected to only one disk (so that it can't take down the other unit). As with a failed disk, you limp along until it is fixed. Perhaps indicative of the controllers' failure rates, few newspapers bother with redundant controllers when they have only one computer.

Another way to reduce the problems of the critical disk controllers is to add intelligence there. A micro-computer can detect problems when they first occur, accommodate the variance, and adjust to recover, all automatically. This can mean noting that the disk write failed (the story could not be recorded), allocating another 'track' or 'sector' to hold the information, and automatically moving the story to that alternate area. All of this remains invisible to you and your writers.

Computer solutions: part II

Our next step is to go to two processors. The two disks are connected to one or both of the computers through one or two disk controllers. The computers are then connected together so that they can coordinate between themselves. The newsroom computer at the *Washington Post* lets both machines talk to the same (mirrored) disks through their own disk controllers. At the *Atlanta Journal & Constitution*, each computer has its own controller and its 'private' disk. One computer cannot touch the other's disk and information.

There are two philosophies in the world of dual-processor architecture. One utilizes the concept of master and backup systems. As with the computer-on-a-shelf approach, the backup system is not doing any work until the master fails. The switchover in this case, though, is instantaneous.

The second philosophy attempts to increase efficiency by utilizing the second processor in the day-to-day activities. Termed 'load sharing', the idea is to connect half of the terminals to one machine, half to the other and to exchange the information that is unique to each side. Say, for example, that the UPI wire is connected to machine A. When a story arrives, it is written to A's disk, then sent on to machine B to be written there. The theory is that you run with two machines at all times and limp along with half of the terminals when one machine dies. With some systems, you can then hook the cut-off equipment up to the survivor and regain the lost capacity. The prob-

lem, of course, occurs when you lose the computer that is connected to the prompter. Unlike the master/backup approach, you will have to spend a couple of minutes moving cables to get back into the show while your anchors read from paper. On the other hand, your exposure isn't much greater than that introduced by a failing prompter, disk, disk controller, or wall socket.

The Basys computers at Cable News Network use a version of load-sharing to support a lot of terminals and other devices on two small computers. The *Washington Star* has taken things a step further by configuring three computers. When one fails, a second (load-sharing) machine survives, and the third (a cold standby) is wheeled in to take over from the dead box.

A step beyond dual processors is multi-processors. With multi-processors, the various computers usually have assigned responsibilities and talk to one another on one or more electronic buses. One of the computers is assigned the function to manage the disks and the stories (known as the data base) and to respond to requests for that data by the other computers in the network.

The big advantages here are flexibility, expandability, and lowered impact in case of a failure. Terminals can be added and computers can be added by simple connections to the network. If a computer fails, a spare is plugged in (these are usually low cost machines) or at least it doesn't affect the others in the network. Some problem lies in the vulnerability of the data base computer. Sometimes this is the same machine as the others in the net, and you only have to move around some cables to connect the disk to a surviving machine. Again, you have to evaluate the cost



Integrated Technology's Greg Endsley checks out the equipment which will be installed at WRC radio in Washington, D.C.

of the second machine with the effect of an untimely loss of your ability to get your stories.

The most sophisticated of the present multi-processor approaches are provided by the Newscom system from Station Business Systems and the News Machine from Integrated Technology. Using several Datapoint computers tied together with a coaxial cable, SBS can add, subtract, or repair units almost at whim. Since all of the units are identical, "one spare fits all," which can be a help during the critical recovery time.

ITI uses a series of Task Management Computers tied together on a proprietary bus to achieve the same results. As with SBS, any of the component computers can be assigned the functions of running a terminal, listening to the wires, managing the disk storage, printing scripts, and so on.

The QuantaNews machine has a similar but less sophisticated capability to re-assign any of the surviving computers as the machine in charge of the disk unit.

Recap

This information is nowhere near complete, but should give you a base from which to start your research. Computer systems are valuable in that they let you avoid a lot of the clerical efforts needed every day just to get the show on the air. The nature of the beast is that it needs a bit of planning, though, particularly "disaster planning."

We have covered several areas here. Remember that they are mostly conceptual, and do not correspond to every computer supplier's approach to the problem. The table at left summarizes the vendors' thoughts on how they can address the problems; do not take this as the definitive summary of the systems, though. Be aware that redundant equipment costs more all over the board, and that the "best" solution from one supplier might cost much more than a solution that you like better from another vendor. Remember that all of the extra equipment is useless without the special programs that go with it. Many systems cross the lines and don't fit nicely into the matrix, so use caution and talk to the sellers. **BM/E**

Comparison Of Computer Systems

	TvNS ¹	SC ²	SBS ^{3*}	Basys ⁴	MSA ^{5*}	ITP ⁶	JDS ⁷
Automatic Printing	Yes	Yes	Yes	Yes	No	No	No
Battery Backup	Yes	No	No	Yes	Yes	No	Yes
Parity Memory	Yes	No	Yes	Yes	Yes	No	Yes
ECC Memory	Yes	No	No	No	Yes	No	No
Smart Disk Controllers	Yes	Yes	No	Yes	Yes	Yes	No
Preventative Maintenance	Yes	No	Yes	No	Yes	Yes	Yes
Cold Standby	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hot Standby	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual (Mirrored) Disks	Yes	Yes	No	Yes	Yes	Yes	Yes
Dual Disk Controllers	Yes	Yes	Yes	No	Yes	Yes	Yes
Dual Processor System							
Master/Backup	No	Yes	No	No	No	No	No
Load Sharing	Yes	No	Yes	Yes	Yes	Yes	Yes
Multi-Processor (3+)	Yes	No	Yes	No	Yes	Yes	Yes

¹ TvNS (Slyboom, Inc.), World Trade Center, Suite 250R, San Francisco, Calif. 94111; 415-982-3073

² System Concepts, Inc., 2440 South Progress Drive, Salt Lake City, Utah 84119; 801-974-0992

³ Station Business Systems, Inc., 600 West Putnam Avenue, Greenwich, Conn. 06830; 800-243-5300

⁴ Basys, Inc., 4960 Hamilton Avenue, San Jose, Calif. 95130; 408-866-8117

⁵ McInnis/Skinner & Associates, 6529 Classen Blvd., Oklahoma City, Okla. 73116; 405-848-4246

⁶ Integrated Technology, Inc., 9644 View High Drive, Kansas City, Mo. 64134; 816-763-2286

⁷ Jefferson Data Systems, Executive Plaza, 501 Archdale Drive, Charlotte, N.C. 28210; 704-374-3631

*Note: the McInnis/Skinner offering is called NewsCAN, while the Station Business Systems product is named NewsCOM.

If we had set out to give you only
the features our competition gives you,
this is where we'd be today.



Most VTR units give you only a fraction of the features you might want from a video tape recorder. So we didn't stop where our competition did. We kept on adding features. Until we developed the most versatile 1" machine on the market.

Compare the 3M TT-7000 VTR and NTC-10 Time Base Corrector to the competition. Nobody puts together more of the features you want than 3M. And once you see our unit, we think you'll agree that buying anything else is like getting half a machine.

The 3M TT-7000 Video Tape Recorder gives you:

- Auto track following (ATF) ¼ reverse through 2x forward (optional).
- Video and sync confidence heads.
- Three channel audio confidence heads.
- Video sync channel.
- All DC motor and servo tape transport.
- 19" rack mountable with full dust cover.
- Front panel plug-in modules.
- Frame accurate insert and assemble editing.
- Dual tape timer with zero memory.
- Tape speed override on front panel.
- Stop tone and cue-up (0, 3, 5, 7 sec. preroll).
- Contact closure and TTL external interface.
- Variable speed forward/reverse shuttle.
- Still frame jog.
- Autochroma and color framing.
- Audio 3 record in play mode (built-in speaker).
- Instant stop action from play or slo-mo (with ATF option).
- Instant audio bias level adjust.
- Video level calibrate marker.
- Preset/Manual tracking select on front panel.
- Fixed precision rabbited drum tape guide.
- And low RF, high temperature and low voltage alarms.

Our Time Base Corrector comes complete with its own list of standard features:

- Sixteen line correction window.
- Ten bit quantizing.
- Four times subcarrier sampling.
- 65 dB signal-to-noise ratio.
- Velocity compensation.
- Digital one line drop out compensator.
- Compact size (8¾" high by 17½" deep by 18½" wide).
- 45 pounds total weight.
- Portable cabinet or rack mountable.
- And front panel plug-in modules.

Add it all up, and you've got the most complete VTR/TBC package on the



market. For a free demonstration, call (612) 733-7914 or write 3M/Mincom Division-Video Products, 223-5E 3M Center, St. Paul, MN 55144. In Canada contact 3M Canada, Inc., P.O. Box 5757, London, Ontario, N6A-4T1. In Alaska contact 3M Company, 5331 Minnesota Drive, Anchorage, AK 99502. Get the complete picture.

3M Hears You ...

3M



No excuses

In EFP or ENG, getting the shot is everything.

And, a growing number of networks, major stations and independent producers are consistently getting everything with the Ikegami HL-79. They've become so confident with their HL-79's that the need for a "backup" no longer exists.

The more than 2,000 HL-79's in service today have set new industry standards for low light level performance, well-balanced handling and unprecedented reliability. But Ikegami never rests. Now, the best ENG camera is even better. The improved HL-79D Series features an advanced FET preamp that (depending on your choice of tubes) will deliver a 2 to 3 dB gain in

signal-to-noise ratio. The HL-79D Series is available in four new, application-matched configurations that include high resolution diode-gun or low capacitance diode gun tubes.

In EFP and studio production, the new HL-79D will deliver excellent results. In fact, if you don't have an Ikegami studio camera, chances are that the HL-79D will produce a better picture than whatever camera you've got on the floor.

Contact Ikegami and ask for a side-by-side comparison. Then you'll see why an Ikegami HL-79 crew can leave the excuses—and the backup—at the station.

Ikegami

Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, NJ 07607; (201) 368-9171
Northeast: (201) 368-9171 West Coast: (213) 534-0050 Southwest: (713) 445-0100 Southeast: (912) 924-0061 Canada: (201) 368-9179

Circle 134 on Reader Service Card

www.americanradiohistory.com

DUAL VS. COMPOSITE: HOW TO CHOOSE AN STL, PART I

By James L. Tonne

Two ways to take a stereo audio signal from studio to transmitter via air are the dual (two mono links) and the composite, with the stereo signal encoded before it leaves the studio. The stereo broadcaster needs to understand the complex performance differences between the two to make the right choice.

STEREO BROADCASTERS considering the use of an aural studio-to-transmitter link (STL) to carry their programming from the studio to the transmitter face a decision: Should that programming be carried on a dual STL, each of which is basically a monaural system, or should the programming be carried on a "composite" STL, which carries the signal already encoded into the stereophonic form. There are no other viable, economically-feasible, and technically-sound options which can be recommended for broadcast operation. Making the decision involves examining several factors, some of which are seldom taken into account.

Cost

A very important aspect to be considered when comparing the two systems is cost — for a given manufacturer, the cost of the dual system is about twice that of the composite system. Both versions of the STL transmitter and both versions of the STL receiver are basically similar. The dual version uses conventional audio transformer inputs and outputs with barrier-strip connections, whereas the composite version uses Type BNC input and output connectors. The dual version has a relatively narrow receiver I.F. bandpass, while the composite version uses a special wideband I.F. bandpass capable of passing the stereo signal while meeting FCC or other governmental regulations and industry standards for stereophonic transmission. These differences, however, are minor; the units are *basically similar* in both complexity and cost. In fact, some of the circuitry is identical for each type (the power supply, as a specific example).

But the user needs two links if they are of the dual type

James L. Tonne was associated with Moseley Associates, Goleta, Calif., when this article was prepared.

and only one link if it is of the composite type. To an *approximation*, then, when the links themselves are priced, the cost of a dual system is about twice that of the composite system if they are packaged separately.

Redundancy

Another important item to be considered is redundancy. The loss of a small and inexpensive component can cause a system to be "down," in spite of the best maintenance or protective procedures. The dual-mono system for stereo offers redundancy in that if one link should fail the other link can keep the station on the air, although in the monaural mode.

An interesting option selected by some stations is the use of a *pair of composite* systems with an automatic changeover system. This is commonly known as a "hot standby" system. Should the STL transmitter fail, the changeover or transfer system will place on-line a standby transmitter. If the STL receiver should fail, the transfer system will switch to a standby receiver. Such a system offers full redundancy, even in the stereo mode, provided the transmitters or receivers are separately packaged. If there is a commonality between a pair of transmitters or receivers (if they are in a common main frame, for example, sharing a common power supply), and if a failure occurs in that common section, then a part of the redundancy vanishes.

Hot-standby systems of both the dual and the composite types are popular in the more competitive markets where the station's rate card must be carefully supported.

Separation

The dual system does not degrade audio-channel separation to any significant extent; actual measurements show an audio-channel interaction (loss of separation) about 50 dB below normal operating level. (This is a "worst case" figure, using a modulating rate of 15 kHz. Rates lower than this, for example 1 kHz, will commonly yield separation measurements between the two STLs of about 60-65 dB.)

The composite STL will degrade separation to a greater extent than the dual system. If an ideal stereo signal is applied to the composite-link STL transmitter, the separation of the stereo signal as delivered by the composite STL receiver is commonly degraded to about 45 dB. (Better performance than this is common at the audio midband, typically approaching 55 dB.) If a stereo signal whose separation is marginal (30 dB) is applied to a composite

Dual Vs. Composite

STL, the STL will add little *additional* separation loss. The signal degradation in a composite STL is due largely to a finite system bandwidth. Normally only a gross misadjustment or component failure will cause the separation actually to fail to meet FCC or similar specifications.

On sum, the dual system degrades separation minimally, to about 50 dB (worst case), while the composite link can degrade separation somewhat more, to about 45 dB (also worst case). Such degradations are certainly inaudible, although easily measurable.

Crosstalk

Crosstalk in stereophonic transmission is distortion-related: Harmonic distortion of signals in the main channel may result in unwanted components appearing in the subchannel. This is called "main-to-sub" crosstalk. Intermodulation of signals in the stereo subchannel may result in unwanted components appearing in the main channel. This is called "sub-to-main" crosstalk. These two kinds of crosstalk, called non-linear crosstalk, will result in a less than optimum audio quality upon stereo demodulation. Non-linear crosstalk is normally introduced into a system subsequent to the point of stereo encoding, and is the kind of crosstalk with which the FCC rules concern themselves.

Another kind of crosstalk is vector or linear crosstalk. This is a simple result of amplitude and/or phase disparities between the two audio channels. Linear crosstalk is inaudible (provided that the channels are matched within about 1 dB and 10 degrees, not at all difficult to achieve in practice). Its primary mischief in measurement is the masking of true or non-linear crosstalk. Linear crosstalk is normally introduced only prior to the point of stereo encoding.

The dual system can introduce linear crosstalk because the two STL systems may have a slight amplitude and/or phase difference between them. The dual system normally does not introduce non-linear (real) crosstalk because non-linear crosstalk is introduced into the system after the point of stereo encoding. The composite system normally cannot introduce linear crosstalk because the transmitted signal has already been encoded into the final stereophonic waveform prior to application to the link. The composite system normally introduces some non-

linear crosstalk, typically about 45 to 50 dB below full modulation. This degradation is largely due to a finite system bandwidth, especially in the IF (selectivity) portion of the STL receiver. Note that most signal degradations will occur in that IF portion.

Signal-to-noise ratio

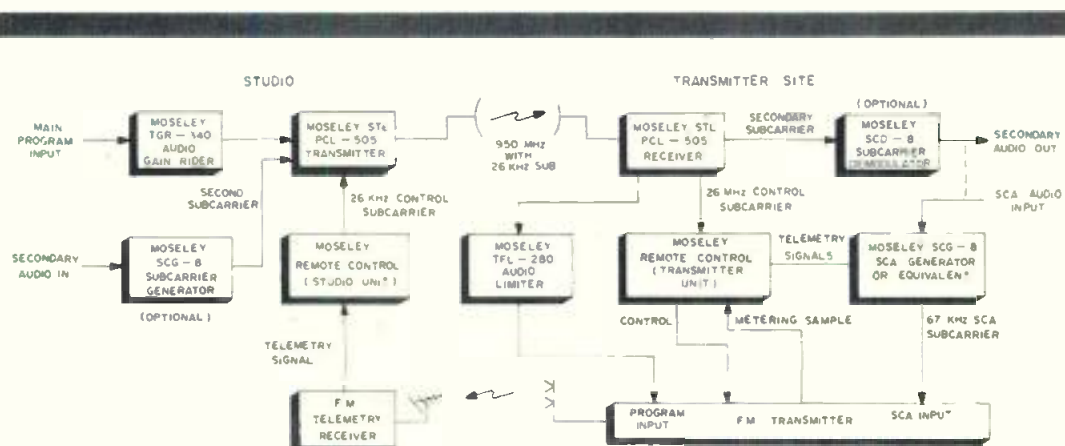
The signal-to-noise ratio of the audio delivered by the dual-mono system is commonly better than the audio (after stereo demodulation) passed by the composite system. This is due to the mono STL receiver having relatively narrow RF and IF bandwidths and employing both de-emphasis and audio lowpass filtering for a restricted noise bandwidth. Pre- and de-emphasis is a valuable scheme for increasing the SNR of a system, but it cannot be used on the composite stereo signal. In addition, the signal carried by the composite STL cannot be companded or similarly processed for SNR enhancement. The difference in SNR between the two systems (composite vs. dual mono) is a function of received signal strength, for a given receiver front-end design. The key design item which controls the SNR of an STL is usually the noise figure of the receiver front-end. It is assumed that such mundane items as power supply filtering are adequate.

In practice (with a normal signal strength of perhaps 500 μ V into the receiver) the SNR of the audio from the dual system is better than the audio recovered by demodulating the output of a composite system by 2 or 3 dB.

Harmonic distortion

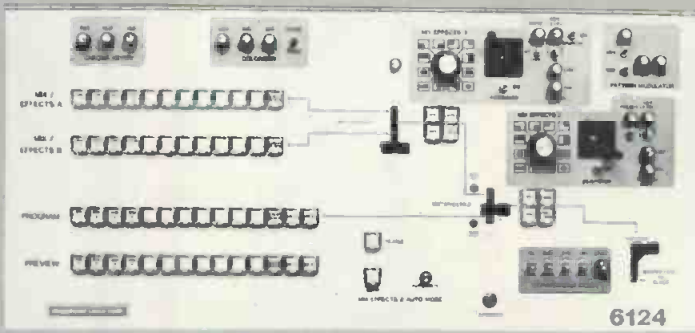
The harmonic distortion measured in a dual system will typically be about 0.25 percent over the 50 Hz-15 kHz range (including harmonics to 15 kHz), and is commonly less (0.15-0.2 percent) at audio mid-band. The harmonic distortion in a composite system normally measures about the same, but the figures are valid from 50 Hz to 15 kHz (and including harmonics to 75 kHz instead of only 15 kHz). Although of little audible benefit, this performance is required of the composite STL to pass the stereo signal with low crosstalk. Harmonic distortion in the dual system is measured directly; harmonic distortion in the composite system may be measured in that manner but additionally manifests itself as nonlinear crosstalk from the main channel into the stereo subchannel. The result will be less-clean audio upon stereo demodulation.

In the audio region, harmonic distortion figures for the two kinds of systems are similar. Because of the possibil-

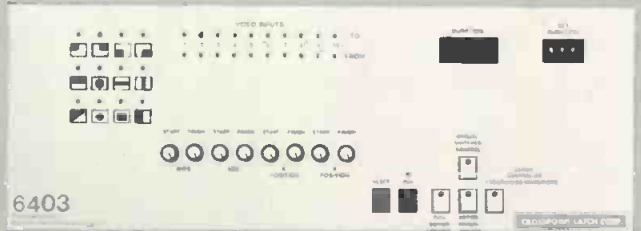


Block diagram of dual monaural STL with remote control system

VIDEO PRODUCTION SWITCHERS



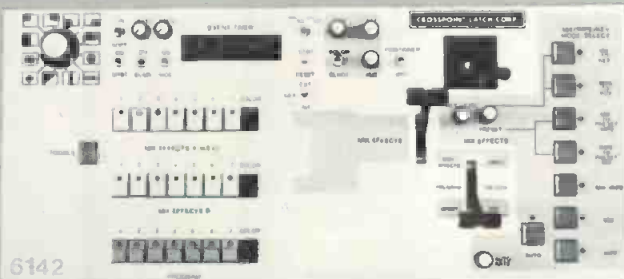
Model 6124 Twelve inputs (including colorizer/black). Two fully independent mix effects systems each with double re-entry. Master fade to black. Downstream keyer with matte and blink. RGB Chroma Keyer Plug compatible with AUTO DRIVE™. Price N.T.S.C. \$13,700. PAL \$14,700.



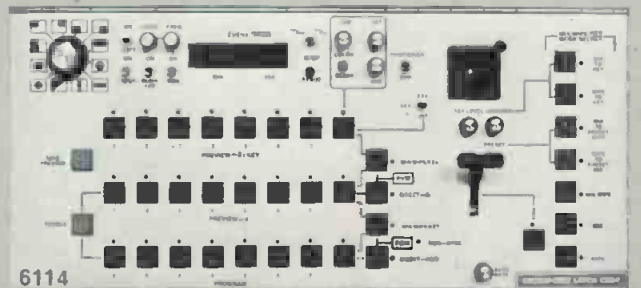
Model 6403 PROGRAMMABLE EDITOR-SWITCHER INTERFACE. Allows Crosspoint Latch switchers to interface directly with editors. The 6403 controls mix, wipe, positioner, pattern generator and A and B buses on one ME. Editor modules are available for Video Media editors. The 6403 interfaces with most simple editors without the use of the editor module. Price N.T.S.C. \$2,750.



Model 6107 Two bus input (including colorizer/black). Full preview. Automatic mix wipe. Intercom amplifier. Price N.T.S.C. \$3,800. PAL \$4,800.



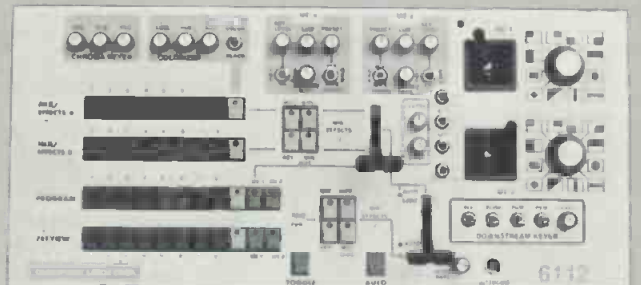
Model 6142 Three bus switcher with eight inputs including colorizer. Double re-entry. Two fader handles permits mixing from one input to a wipe between two other inputs. Price N.T.S.C. \$4,995. PAL \$5,995.



Model 6114 Eight input, three bus switcher (including colorizer/black). Double re-entry. Full preview. Price N.T.S.C. \$4,450. PAL \$5,450.



Model 7200 AUTO DRIVE™ Computer controller. Plug compatible option for 6112 and 6124 switchers stores 255 events which can be grouped into any number of sequences. Each event has a maximum duration of 99 minutes: Frame accurate. Production tool which enables complex effects to be run in rapid sequence. Drastically cuts down editing time. It also interfaces with editors. Price N.T.S.C. \$12,500. PAL \$13,500.



Model 6112 Nine inputs (including colorizer/black) four buses. Two fully independent MIX EFFECTS systems, downstream keyer with preview, matte and blink. Remote control panel. Double re-entry on each ME. Price N.T.S.C. \$7,630. PAL \$8,630. Encoded Chroma Keyer \$1,050. Not available in PAL

For information on other switchers and products write to:

CROSSPOINT LATCH CORP.

95 Progress Street, • Union, New Jersey 07083 • Tel. (201) 688-1510

Dual Vs. Composite

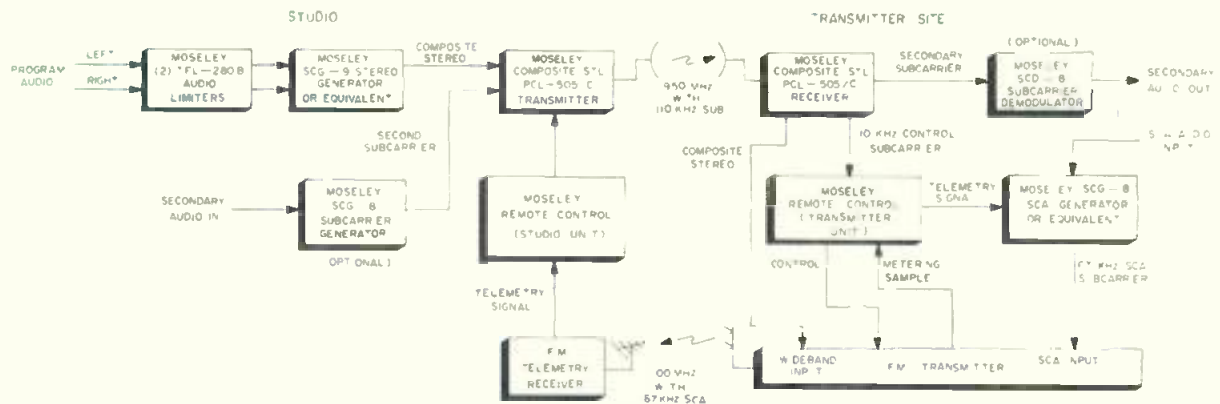


Diagram of composite STL plus remote control

ity of non-linear crosstalk, the composite STL audio *after stereo demodulation* may be less clean than the audio passed through a dual system.

Intermodulation distortion

The intermodulation distortion (IMD) figure for the dual link, measured using a standard 7000/60 Hz 4:1 test-tone pair, is typically about 0.2 to 0.4 percent. The composite system IMD typically measures about the same, but IMD in the composite system additionally manifests itself as non-linear (real) crosstalk from the stereo subchannel into the main channel. This may result in less-clean audio upon stereo demodulation.

Should either kind of link carry an FM subcarrier for control or secondary-quality programming purposes, then IMD will reveal itself additionally as crosstalk (largely from the main channel region) into the FM subcarrier. Either kind of system can carry a 67 kHz subcarrier. Because of the wider IF bandwidth in the composite STL, it will pass a 67 kHz subcarrier with less degradation (crosstalk from the main channel into that 67 kHz SCA subchannel) better than will the dual system. In the audio region the IMD figures for the two systems are similar.

Audio frequency response

The dual system normally contains lowpass filters which pass the program (to 15 or 16 kHz) and reject control or secondary-quality program subcarriers at 26 kHz or above. These filters typically roll off the audio response perhaps 0.3 dB at 15 kHz. This is normally of little significance.

The composite STL also has lowpass filtering to reject such subcarriers, but in that system the subcarriers are at 110 kHz or above. The subcarrier-removal lowpass filtering, which rolls off at about 80 kHz, has virtually no effect on the *audio* frequency response. In fact, the *audio* frequency response of the signal passed through the composite STL is determined almost solely by the characteristics of the associated stereo generator (and the audio limiter, should that limiter have less than flat response).

The dual system has a rolloff of the audio response of about 0.3 dB at 15 kHz; the composite system is notably flatter in the audio region, commonly within about 0.05 dB to 15 kHz.

Channel adjacency

The composite STL is required to carry the entire stereo waveform and perhaps a subcarrier without significant degradation. Whereas "consumer" radio receivers may be able to use considerable selectivity to eliminate adjacent-channel problems, this degree of selectivity cannot be so easily enjoyed by broadcast multiplex receivers including the composite STL, which must pass signals with considerably greater fidelity (especially as regards both separation and crosstalk) than the consumer radio. One of the areas in which a multiplex receiver differs from a consumer receiver (and the composite STL receiver is a multiplex receiver) is in the degree of selectivity in the receiver. This commonly requires that the manufacturer work closely with his IF filter vendor, or have uncommon in-house design capability, or use the very latest solid-state technology. Regardless of how the receiver selectivity is achieved, it is one of the more critical items in the receiver design task. And as a result of the more stringent fidelity requirement, the composite version of a given-design STL uses an IF strip which has wider response than the dual version. A result of this difference is that the composite system is somewhat more susceptible to adjacent-channel problems than the dual system. This point is of little concern in the smaller markets; it is of significance in the larger (spectrally crowded) markets.

Antenna polarization can be controlled in STL applications to reduce the effects of adjacent-channel interference. Using a different polarization than your spectral neighbors can easily add 10 dB (over 20 dB as an upper limit) to the rejection of their signals.

Antennas/feedlines

The dual link needs a pair of antennas at the transmit (studio) end of the link. This is recommended in order to keep the transmitters from "talking to each other" with the resultant intermodulation generating spurious signals at the carrier frequencies plus-and-minus multiples of the carrier-frequency difference. The transmitter outputs may be combined in a duplexer, which is moderately expensive — about the cost of another antenna. Should a very long transmission line be used at the studio, then the possible use of separate feedlines will also enter into the

Take a close look at what Tape Transports are going to be like in the '80s

The all new Telex 3000 is here NOW!

No industry has witnessed more technological improvements over the past few decades than our own. So, if you're looking for a tape transport for broadcast, studio or industry, it's important to choose a product with all the latest industry innovations in one unit, the NEW Telex 3000. Write for exciting details about these features.

- Interchangeable head blocks
 - A.Q.R. (Auto Cue Release)
- Differential electro-mechanical braking
 - Spill-proof logic
 - Motion sensing
 - Tape counter
 - 4 head capability
 - Hyperbolic tape path
- Remote control capability
- Play only or record/play combinations
 - Auto cue/rewind/cycle
 - Dual speed
- Hysteresis drive motor
- Two torque spooling motors
 - Quiet operation
- 120/240 volt operation
- Urethane pressure roller

Quality products for the audio professional



TELEX

TELEX COMMUNICATIONS, INC.

9600 Aldrich Ave. So., Minneapolis, MN 55420 U.S.A.
Europe: 22, rue de la Légion-d'Honneur, 93200 St. Denis, France.

Circle 136 on Reader Service Card

www.americanradiohistory.com

Did you know that AFA is the nation's largest designers and builders of video systems?

VIDEOTAPE DUPLICATION CENTERS
TELETRACK VIDEO SYSTEMS
CABLE NETWORK PLAYBACK CENTERS
OLYMPIC CROSS-COUNTRY
SNOW CAT CAMERA SYSTEMS
RESEARCH VIDEODISC FACILITIES
RACE TRACK VIDEO PRESENTATION SYSTEMS
MOBILE TV PRODUCTION UNITS
STUDIO PRODUCTION FACILITIES
STANDARDS CONVERSION FACILITIES
SATELLITE UP-LINK VIDEO SYSTEMS
COMPUTER COLOR CORRECTION FACILITIES
CMX POST PRODUCTION FACILITIES

Now you know!



BUILDING BETTER SYSTEMS BY DESIGN.

AF ASSOCIATES, INC. 100 STONEHURST COURT, NORTHVALE, N.J. 07647 (201) 767-1000

Circle 137 on Reader Service Card

www.americanradiohistory.com

Dual vs. Composite

picture. At the receive site (at the transmitting plant), the dual system should use separate receiving antennas. If a receiving splitter is used, a three decibel (minimum) loss is incurred. On short paths this is of little concern, and such a receiving combiner is inexpensive. The use of a combiner, however, will allow a single transmission line to be used at the receive location.

The composite STL system needs only one antenna at each end of the link, and only one transmission line at each end. There will normally be no combiner losses; combiners and splitters are not normally used in the composite system. The antennas can be of either polarity in the 950 MHz region. In fact the antenna polarity is commonly dictated by mechanical considerations regarding mounting of the assembly. It is always a good idea to use a different polarization than your spectral neighbor(s).

Fade margin/signal strengths

It is customary to design a system (choose the antennas, feedlines, and so on) in a manner that provides considerably greater signal into the STL receiver than is normally required so that a signal-strength fade will still leave a satisfactory received signal level. These fades are of little significance on short paths (up to 5 miles), but may be of considerable significance on long paths (30 miles or more), especially if it is of a "grazing" type. A satisfactory fade margin for either the composite or the dual-mono system is about 10 - 15 dB.

However, the dual system requires less signal strength than the composite system for a given degree of signal-to-noise ratio. As an example, a typical modern design monaural receiver (the kind used in a dual system) operating at 950 MHz will require about 10 - 15 mV for a 60 dB SNR. This figure is based on a receiver front-end noise figure of about 9 dB, an IF bandwidth of 200 kHz, 75 ms de-emphasis and 15 kHz audio lowpass filtering. The composite receiver requires about 20 dB greater signal strength for that same 60 dB SNR, measured under the same conditions (excepting a 350 kHz overall IF bandwidth), when the SNR is measured in the manner that the broadcaster measures it — at the output of a stereo demodulator. (Simply measuring the de-emphasized wideband composite signal is a poor method of measurement, yielding numbers which are not necessarily related to the SNR of the stereophonically-demodulated and then de-emphasized signal.) It is assumed in this discussion that the SNR is not being restricted by power supply hum or some similar item.

With the composite STL receiver, the SNR should be measured in a manner different than that used to measure the SNR of the monaural receiver (or a dual, for stereo). By far the best way to measure the SNR of the composite system is to measure the SNR of the demodulated left or right audio channel. This will normally be considerably better and more meaningful than measuring the SNR of the wideband signal as it exits from the receiver. It is also more meaningful, and will be a poorer figure than measuring the SNR of the wideband signal with de-emphasis applied.

Although a 10-20 dB fade margin is reasonable for system design purposes, the dual system requires less signal strength at the outset than does the composite system, for a given SNR. BM/E

FitzCo

SOUND, INC.

AAE "Concept One" AUTOMATION

AKG

LEXICON

AMPEX

SENNHEISER

BGW/TANNOY

TECHNICS

HANNAY

VEGA

EVENTIDE

NEUTRIK

IVIE

WIREWORKS

AUDIOARTS ENGINEERING

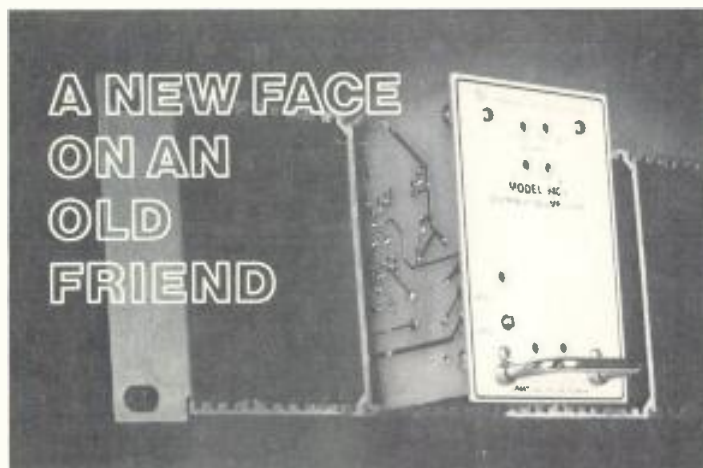
FitzCo

SOUND, INC.

204 N. Midkiff, Midland, Texas 79701

Phone: (915) 684-0861

Circle 138 on Reader Service Card



GRAHAM-PATTEN SYSTEMS

Introduces a New Series of Video Line and Terminal Equipment that is Plug-in Compatible with The Grass Valley Group 900 Series Equipment

- AVAILABLE NOW — Model 9401 Video. Pulse and Subcarrier DA
- COMING SOON — Specialty DAs, Video Keyers, Mixers and DSKs
- DELIVERY — Stock to Four Weeks

GPS

GRAHAM-PATTEN SYSTEMS
P.O. BOX 1980 GRASS VALLEY CA 95945
(916) 273-8412

Circle 139 on Reader Service Card

Another cold, hard fact.

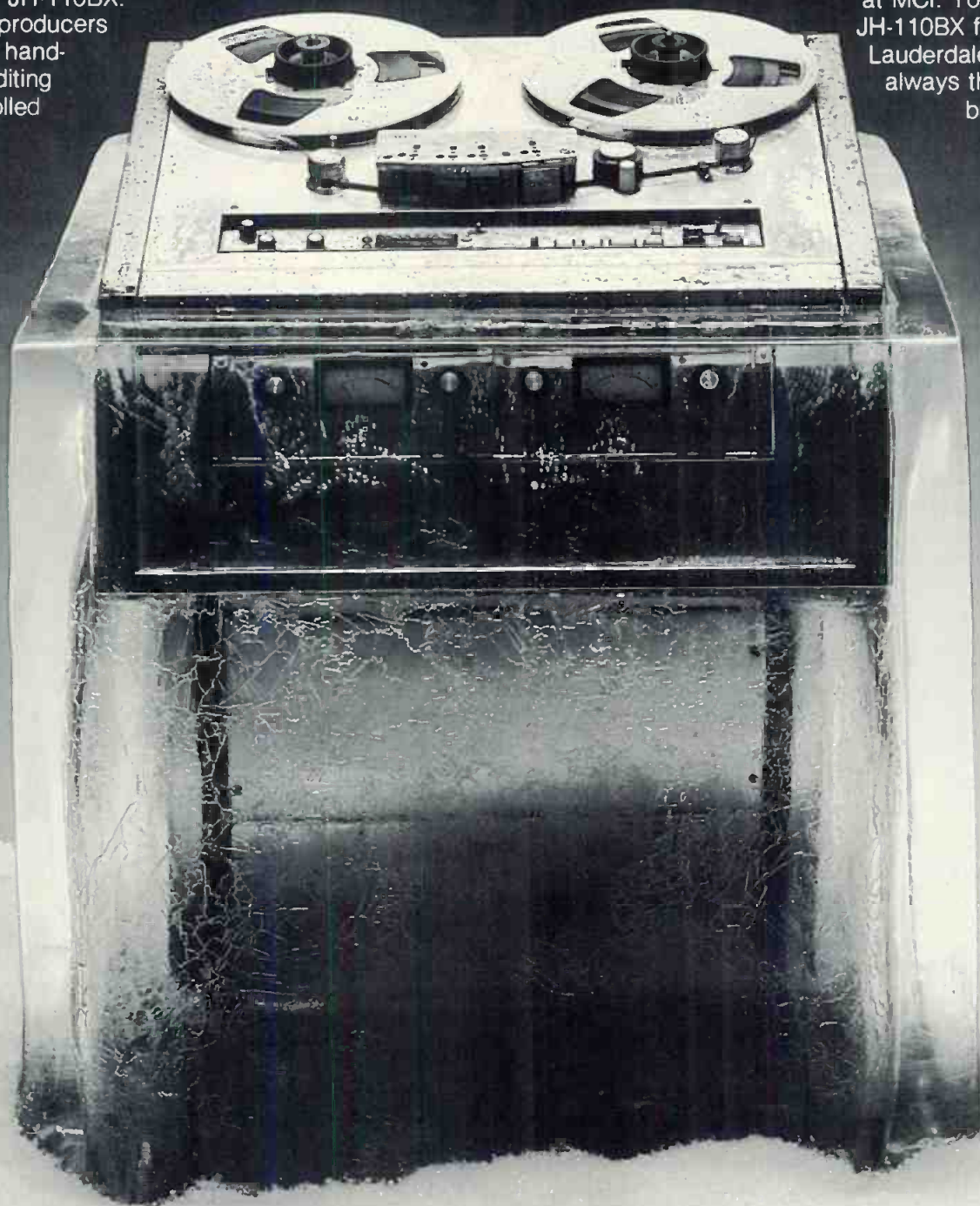
As broadcast quality becomes more and more demanding, MCI makes more and more sense.

When we built the JH-110 Series, we took a fresh look at professional recorder design and developed a radically new transport system. Today, this cool running Total Servo Transport has made MCI the most accepted line of studio recorders. Now this proven system is available in versions specially designed for broadcasters' needs. MCI's new JH-110B and JH-110BX.

These recorder/reproducers offer smooth tape handling, unmatched editing capabilities, controlled tape tension, and

quartz locked speed accuracy. A digital spot timer/locator included at no extra cost, and their transports have been designed from the ground up for use in synchronizing systems with video or other audio recorders. We even make a SMPTE/EBU synchronizing unit, the JH-45. If you're thinking about upgrading or a new installation, take a good look

at MCI. You can buy a stereo JH-110BX for \$4800 FOB Fort Lauderdale, Florida. MCI, always the most expensive, but always the best.



For more information, contact your local MCI dealer or write MCI, Inc.,
1400 West Commercial Boulevard, Fort Lauderdale, Florida 33309 USA. Telephone: (305) 491-0825. Telex: 514362 MCI FTL.

Circle 140 on Reader Service Card
www.americanradiohistory.com

TWA1100-0005-81

ESSENTIAL TO AM QUALITY: A BROADBAND ANTENNA SYSTEM

By Dane Juberra

Many AM transmitters need only a broadband antenna system in order to perform at a high level. This article tells how to adjust AM antenna arrays for the essential broadband performance.

RECENTLY, "BANDWIDTH" has become a popular buzzword in AM radio stations, partly because broadcasters expect AM stereophonic broadcasting to require good passband characteristics and partly because modern transmitters are capable of high quality transmission if presented a wide band load. Thus the antenna has been identified as an important, perhaps critical element in the modern AM broadcast plant.

This article presents an overview of the bandwidth characteristics of AM antenna systems, while at the same time relating those characteristics to on-air performance expectations. Keep in mind that while most concerns arise in conjunction with directional antennas, some omnidirectional installations are worthy of scrutiny as well.

Achieving a flat passband characteristic is a relatively recent endeavor in the long history of AM broadcasting. Transmitters capable of full and efficient modulation by the entire audio spectrum are in widespread use. The limitations imposed, however, by some antenna systems have caused the on-air performance to fall short of the results heard when operating the transmitter into a wide-band test load. With awareness of the causes of narrow band performance, one can correct many existing problems, and avoid these problems at the design stage.

Bandwidth is a requirement of any communications channel. (Even radiotelegraphy creates sideband frequencies.) Standard broadcasting is ideally the transmission of a fixed carrier frequency attended by a pair of sideband frequencies for each frequency in the message. Figure 1 shows various representations of 100 percent modulation of an RF carrier signal by an audio frequency sine wave. The top representation shows the components in real time. The largest is the carrier. It is followed by the lower

sideband component and the upper sideband component, each having half the amplitude of the carrier. (The frequency difference is exaggerated for clarity.) If these were added together, they would appear as shown in the center, which is typically the signal seen on an oscilloscope connected to the output of an AM transmitter.

The signal at the bottom is the audio signal recovered by an envelope detector. This assumes, however, an ideal transmission medium with wide bandwidth. Transmitting a 1 kHz tone requires enough spectral "room" to transmit signals having frequencies both 1 kHz higher than and 1 kHz below the carrier frequency. But all real systems, even though handsomely linear, have limited bandwidth. This means that some frequencies will be attenuated more than others and that the phase shift of some components will not be proportional to their frequencies. These effects will lead to distortion of the wave shapes. Even though these attenuated and phase-shifted signals are not distorted in the sense that they contain no additional frequency components, the passing of this signal through a non-linear process such as envelope detection may produce a highly distorted result.

Consider what would happen if the transmission medium eliminated one of the sidebands, while leaving the carrier and remaining sideband untouched. Figure 2 shows that, in addition to a 50 percent reduction in audio signal, the harmonic distortion of the resulting envelope would be about 12 percent. The dashed line is a true sine wave.

Now look at the effect of phase errors. If the carrier phase were changed by 90 degrees, an extreme case to be sure, the modulated signal would appear as in Figure 3. The modulation is quite low even though the sideband amplitudes are still half of the carrier. Also the frequency of the envelope signal is twice what it should be, as shown in the lower part of the figure. The recovered signal is, in a sense, all distortion! A more moderate phase error is analyzed in Figure 4. Here the carrier phase is shifted 13 degrees. The resulting envelope contains about 6 percent distortion.

These very difficulties which limit the fidelity of envelope-detected monaural signals are also likely to impair stereo performance — particularly separation. In order to achieve 20 dB stereo separation at 10 kHz with an

Mr. Juberra is lead engineer, the Harris Corporation.

Broadband Antenna System

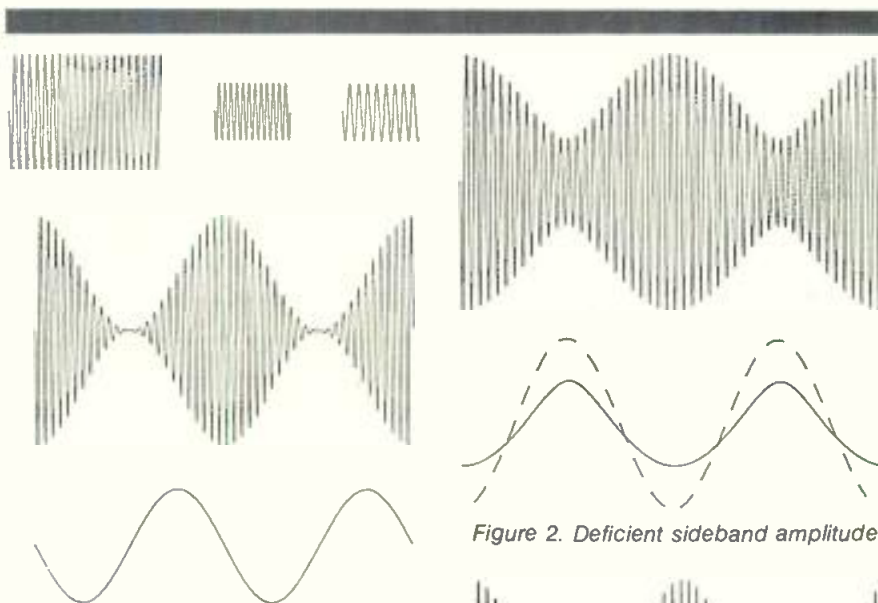


Figure 1. Ideal 100% modulation

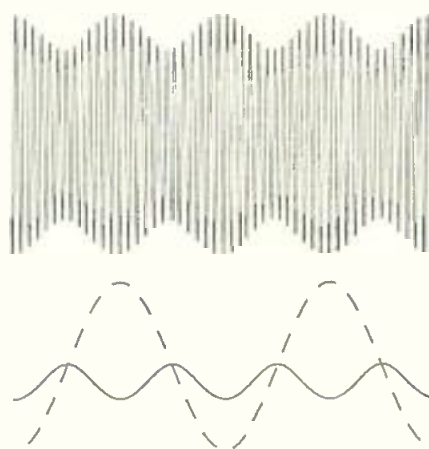


Figure 3. 90° phase error

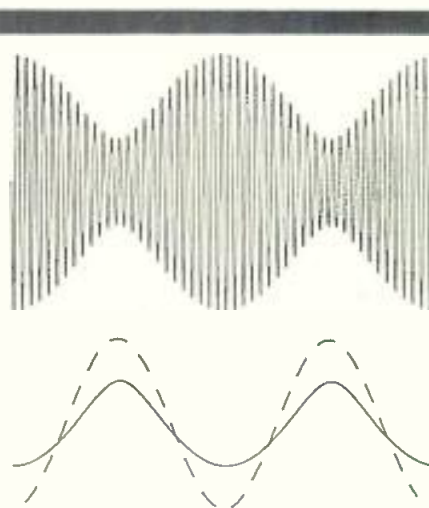


Figure 2. Deficient sideband amplitude

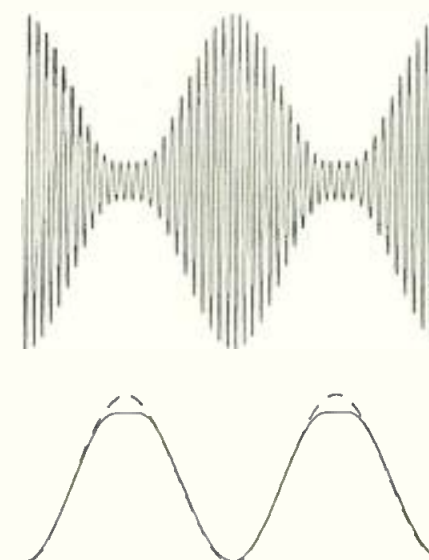


Figure 4. 13° phase error

additive stereo system, the sidebands need not remain equal, but should be nearly conjugate: their magnitudes should be equal and their phases the negative of each other. The amplitude should be within 7 percent of equivalence and their phases should be within four degrees of conjugation.

A common first step for generating conjugate sideband signals is to assure that the transmitter generates sidebands of equal power. This means that the transmitter should see a symmetric impedance curve at a point where it operates nearly as an ideal voltage (or current) source. In most transmitters this is at the final amplifier plate and is usually not at the transmitter output. Remember that an ideal voltage source can be converted to an ideal current source by adding 90 degrees of phase shift. The final amplifier load impedance should be measured to detect sideband impedance imbalance. If this condition exists, it can be corrected by additional phase shift at the transmitter output.

Assume that a transmitter under study performs well into a test load, but poorly into the antenna. Excessive envelope distortion is a good indication of plate impedance asymmetry or severe system phase nonlinearity.

Make the distortion measurement in the far field with a wide band RF amplifier and detector. Unless the specific receiver response is known, the AM section of a typical home hi-fi receiver should not be trusted. Also, results may vary significantly with receiver location if the antenna is directional.

Other measurements which can be helpful and which may be readily available are the impedance measurements of the antenna. In the case of a directional antenna, this is the common point sweep, which is typically on file with the directional proof. For non-directional antennas, the antenna impedance measurements should also be part of the station's public file. It is important that both resistance and reactance variations be considered. Plot the measurement sweep on a Smith Chart. One can then readily determine the degree of mismatch at a particular frequency off the carrier frequency. Figure 5 shows a simplified 50 ohm Smith Chart. The horizontal line across the center represents impedances which are pure resistances. The outer circle represents pure reactance. Plotted here are the impedances $50 + j50$, $50 - j50$, and $50 + j0$. The dashed circle about the center of the chart is the VSWR circle for the points through which it passes: all the

INNER VIEW 2: A closer look at Conrac Monitors



Matched Phosphors: Different screens, same shade.

There's nothing magical about how we achieve the same picture on several Conrac monitors. Hue for hue, shade for shade, the colors are an exact match.

Conrac achieves this color reproducibility with its Colormatch™ picture tube. A precision-made CRT whose screen phosphors are closely controlled to fall within ± 0.005 tolerance of specific chromaticity coordinates (as measured on the CIE colorimetry chart).

And, since every Conrac Colormatch™ phosphor CRT adheres to this CIE standard, the subtle color tones you get on one monitor will be precisely duplicated on every Conrac monitor with a Colormatch™ phosphor CRT.

Correct color reproduction: Conrac precision at work.

Conrac's precision decoder delivers an accuracy of 2%, as measured on NTSC color bar test signals. This assures you that the color signal in each Conrac monitor is being properly separated and controlled.

Conrac's picture quality comes from a number of engineering advances.

One of these is demodulator output filtering. Tunable filters allow precision alignment of the sharpness of the color demodulation signals. Result: crisp, clear color separation with no

ringing, preshoot or overshoot distortions.

There's also Conrac's highly accurate decoder. If the decoder is inaccurate (illustration), the blue color bars will be unequal in amplitude and produce shade differences as seen on the color bar display. Conrac's decoder, on the other hand, is precisely aligned to produce color bars of equal amplitude and shading.

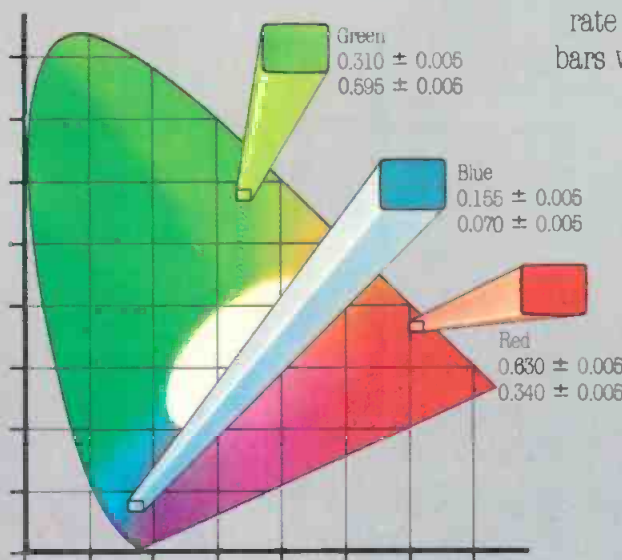
Conrac Technology: Over thirty years of leadership.

Conrac's track record of technical innovation stretches back more than 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.

Matched phosphors and color stability are just two ways Conrac technology can save you time and money.

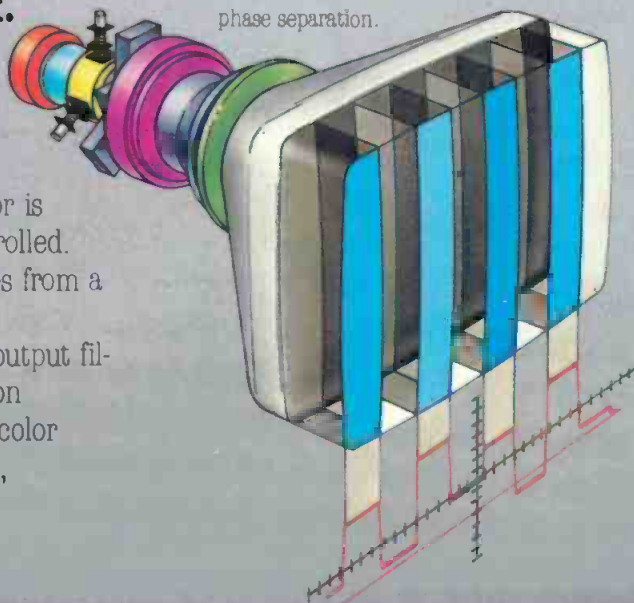
For the complete inner view of Conrac technology, call or write us today: Conrac Division,

Conrac Corporation,
600 North Rimsdale Ave.,
Covina, CA 91722, Telephone:
(213) 966-3511, Telex: 67-0437.



Conrac ensures a ± 0.005 tolerance for their CRT phosphors.

Oscilloscope waveforms show how Conrac achieves color quality by ensuring precise demodulator phase separation.



Quality you can take for granted.

The picture is worth a thousand words



The Marconi Mark IXB Colour Camera

You don't have to look very far to appreciate why TV cameramen are behind the Marconi Mark IXB Colour Camera.

With an amazingly sensitive optical assembly giving pictures down to 50 lux, a new electronic package including head amplifiers and talk-back circuit coupled with a lightweight multi-core camera cable, small CCU and low power consumption, the Mark IXB is the star performer in every studio and outside broadcast role.

To put yourself in the picture, contact: John White or Simon Frazer

Marconi Electronics Inc.

100 Stonehurst Court, Northvale, New Jersey 07647, U.S.A. Tel: 767 7250 Telex: 710-991-9752

Circle 142 on Reader Service Card
www.americanradiohistory.com

Broadband Antenna System

points on this circle have the same VSWR, approximately 3:1. To determine the VSWR, simply read the value R_1 , where the circle passes through the center line, and divide by the chart impedance.

In many cases, the shape of this impedance curve will be close to the shape of the curve of the simple RLC resonant circuit. One can compute an equivalent Q for the circuit by noting the degree of mismatch at a sideband frequency. The formula for equivalent Q is given in Figure 6. Required is the VSWR of the impedance at a particular sideband frequency and the fractional variation of the sideband frequency relative to the carrier frequency. To give a quick example, if the impedance at 1000 kHz is 50 ohms and the impedance at 990 kHz is 60 ohms, then the antenna exhibits an equivalent Q of about 10.

Equivalent Q is a convenient measure of the bandwidth of single series-fed antennas. Height and effective radius are the principal parameters here. Figure 7 shows the result of computations of cylindrical antenna impedances using the method of moments. Notice that the effective Q is quite high for short antennas and for antennas near $\frac{1}{4}$ wave-length. Although not shown, the Q of a 30 degree antenna is more than 100! Notice that Q is lowest for heights near 140 degrees. Also notice that the Q does not vary much with substantial changes in diameter, a function which is basically logarithmic.

Another area of concern is with pass/reject filters. The effect of these traps is more profoundly felt as the trap and pass frequencies come closer together and as the degree of attenuation at the trap frequency is increased. Traps can be a serious source of passband difficulty, particularly if they

are designed without consideration given to their effect on the passband impedance curve. A station operating with a half wave antenna, which should have a naturally low Q, once reported a 10 kHz sideband mismatch of nearly 3:1. This is an equivalent Q of 71! The culprit turned out to be the reject traps through which the impedance had been measured. An even more complex problem arises with diplexing, which is complicated by the presence of the pass/reject traps. Here it must be remembered that a filter element will affect both transmission channels. The problem is even further complicated if a higher order of multiplexing is used.

Next consider a mismatched transmission line feeding a single antenna (refer to Figure 8). The standing wave represents stored energy which tends to limit bandwidth. However, this may not be appreciable unless the line is electrically very long or the mismatch is excessive. The equivalent Q of a mismatched line due to energy in the line is approximately the VSWR minus one for each quarter wavelength of line. Thus a one wavelength 50 ohm line terminated in 150 ohms will exhibit a Q of about 8. This is a VSWR of about 3, probably near the safety margin for the line installed.

Perhaps the most classic bandwidth problem is the matching of one resistance level to another. The difficulty increases with increasing difference between the levels. Often multiple matching stages are used for bandwidth improvement. The idea of this approach is to add as little Q as possible to the system. But in the case of a single antenna whose Q is not low, the Q added by a simple matcher may be of little significance. The Q added by an "L" matcher is shown in Figure 9. Matching 1000 ohms to 50 ohms adds a Q of about four. Certainly some matchers, for example a 130 degree network, can cause serious bandwidth degradation. But this problem can be avoided

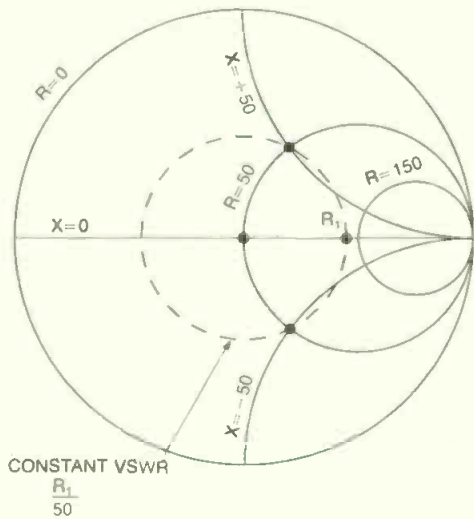


Figure 5. Simplified Smith Chart

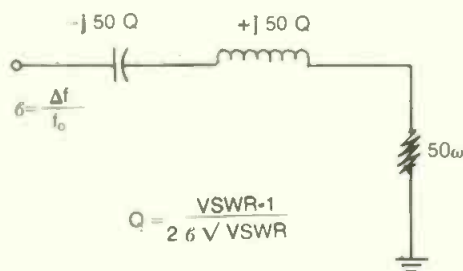


Figure 6

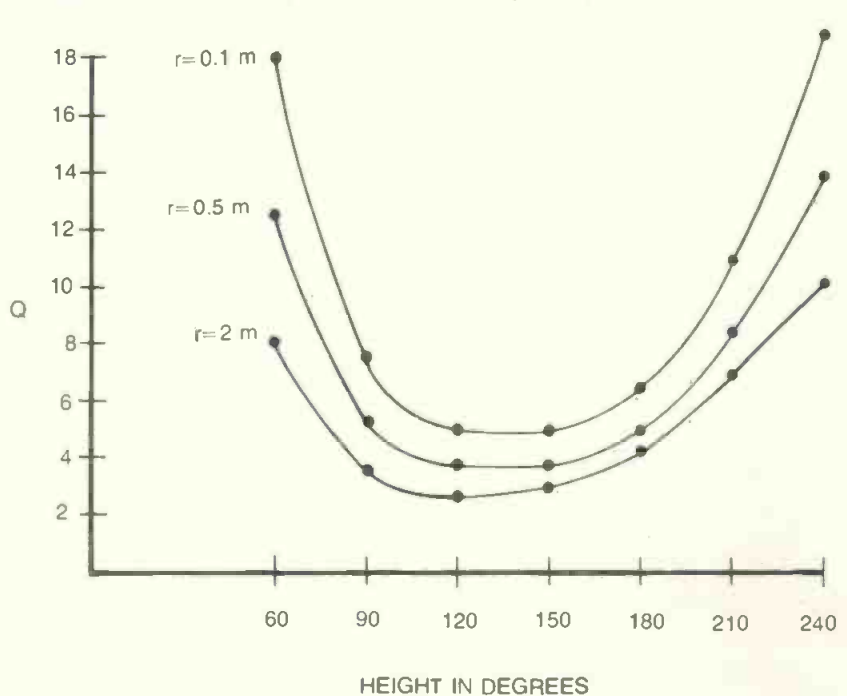


Figure 7. Equivalent Q versus antenna height

EMCEE translators offer advantages from hill top to bottom line

On site, the EMCEE solution to TV translator requirements is quite uncomplicated. A translator must go on the air quickly. Stay on the air continuously. And require a minimum of time and attention to accomplish both.

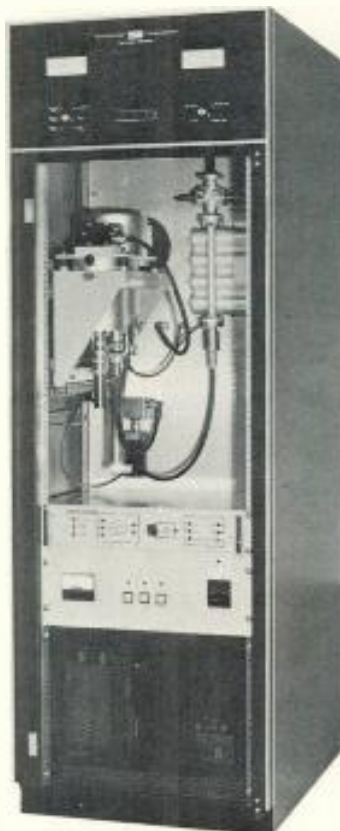
An approach you probably share.

With that in mind, EMCEE developed the new TUA1000C amplifier.* A one-thousand watt unit that shares the high gain, efficiency and reliability of the entire EMCEE line. And introduces further improvements like compact single bay construction. Solid-state control circuitry. LED status indicator. A slide out RF cavity and more. Which makes the TUA1000C amplifier the perfect solution for either conventional or new low power TV applications.

EMCEE also offers an uncomplicated approach to complete turnkey services, contract installation and maintenance and system design applications.

And that's where the bottom line advantage lies. Because no matter what your translator requirements may be, EMCEE can help you reach all of your market. All of your broadcast day.

*Type accepted



EMCEE

**BROADCAST[®]
PRODUCTS**

a division of
ELECTRONICS, MISSILES & COMMUNICATIONS, INC.
P.O. Box 68
White Haven, PA 18661 U.S.A.
Phone toll free: 800-233-6193
(In PA, call collect: 717-443-9575)
TWX: 510-655-7088
Ans: EMCEE WHHV

© 1981 EMCEE Broadcast Products

Circle 143 on Reader Service Card

Broadband Antenna System

by using multiple matching sections, each with lower phase shifts.

A common technique for isolating transmission lines on an AM tower is the so-called bazooka section. A cautionary note is in order here: A typical bazooka section is simultaneously operating in two somewhat conflicting modes. In one mode it seems to fatten the tower. In the other mode, its outer conductor and the tower act as a transmission line, storing energy in a standing wave. This stored energy can be minimized by avoiding extremely close spacing to the tower. Indeed this technique can be used with satisfactory results. Note that the skirt feed, using drop wires around a grounded tower may, if incorrectly designed, create problems for similar reasons.

The common slant-wire shunt fed antenna certainly warrants attention. If there is excessive stored energy, it will be in the inductive loop formed by the feed wire, the ground, and the tower. Results are likely to vary, depending on tower height and feed geometry. Looking at the 1937 measurements of Smith and Morrison on the WWJ tower, the Q at the quarter wavelength frequency was about five. But the Q at the half wavelength frequency was 13!

The most serious bandwidth problems in directional arrays are the constraints placed by Mother Nature on superdirectivity. Such arrays are said to be aperture deficient: the spacing between elements is not as great as the phase shift of the fields. Too much gain is expected of too small an antenna. The arrays are characterized by uniformly low base resistances and hence high base currents. The inherent Q of such a system can be approximated by multiplying the Q of an isolated element by the square of the RSS/RMS ratio. This, incidentally, may be a very different number for the night pattern than for the day pattern, even though the same towers are used both times.

Certainly not all arrays are inherently narrow band. A two tower widespaced array with quadrature phase is inherently broadband. One is naturally alarmed by the complexity of a multi-element system. But already cited is an example where increased complexity is an accepted broadbanding approach — multiple matching stages. But surely the feed system can cause trouble. Several obvious points come to mind. First, the design of tapped-tank power dividers began, in years gone by, with the assumption of a high Q tank circuit. Second, in order to give matching circuits a wide adjustment range, small capacitances were placed in series with large inductors, another source of excessive stored energy. A point already mentioned is excessive "T" network phase shift.

In some cases a "band-aid" cure is suitable for an existing system. A widely used "black box" approach consists of a phase shifter and series resonant circuit. In an array these can be used at the antenna couplers and/or at the common point. While adding Q and hence raising the mismatch far from the carrier frequency, one may improve the match over a small band near the carrier. Since the law limits emissions beyond the 15 kHz sidebands, this appears to be a reasonable approach. Figure 12 summarizes this technique. Shown are a narrow band load, a transmission line (in this case a quarter wavelength) to provide the necessary phase shift, and a series resonant circuit to provide reactance compensation. Also shown are Smith chart rudiments to describe the impedance—

TM

RECORDEX

Improves any cassette VTR



Actual unretouched monitor images.

The picture quality of $\frac{3}{4}$ " or $\frac{1}{2}$ " VTRs can be improved by RecordEx™, a revolutionary device from Faroudja Laboratories. RecordEx pre-processes video prior to recording to boost, and therefore preserves in play-back, picture details normally lost in color-under formats.

Color-under pictures pre-processed through RecordEx look natural, life-like and rich in all the nuances and detail that previously only film and expensive tape formats could preserve. Broadcasters like the elimination of the "cartoon" effect or plastic appearance caused by loss of details. Because large outlines are not modified by RecordEx, the picture does not look enhanced. It looks as if it came from a better VTR.

RecordEx is an add-on device available in a portable battery-operated configuration. Connections are easy and no adjustment is required in daily use. An AC adapter is available.

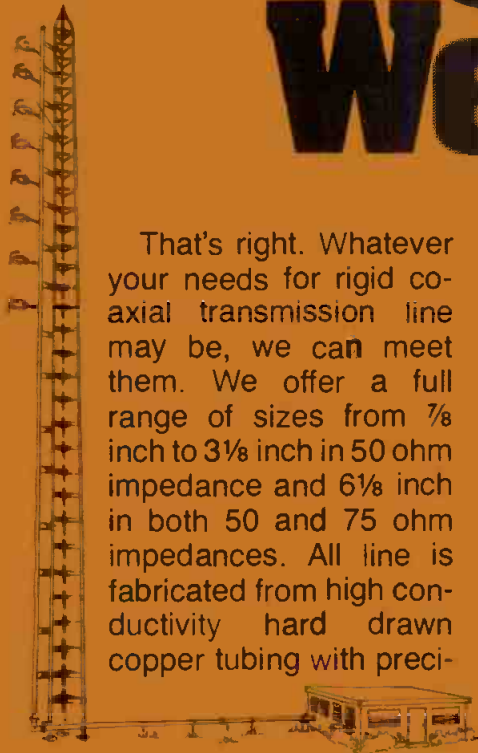
Send for detailed information on how RecordEx can work for you.

FAROUDJA Laboratories

Faroudja Laboratories Inc.
946 Benicia Avenue
Sunnyvale, California 94086
Telephone 408/245-1492

Circle 144 on Reader Service Card

Rigid line? We have it.



That's right. Whatever your needs for rigid coaxial transmission line may be, we can meet them. We offer a full range of sizes from $\frac{7}{8}$ inch to $3\frac{1}{8}$ inch in 50 ohm impedance and $6\frac{1}{8}$ inch in both 50 and 75 ohm impedances. All line is fabricated from high conductivity hard drawn copper tubing with preci-

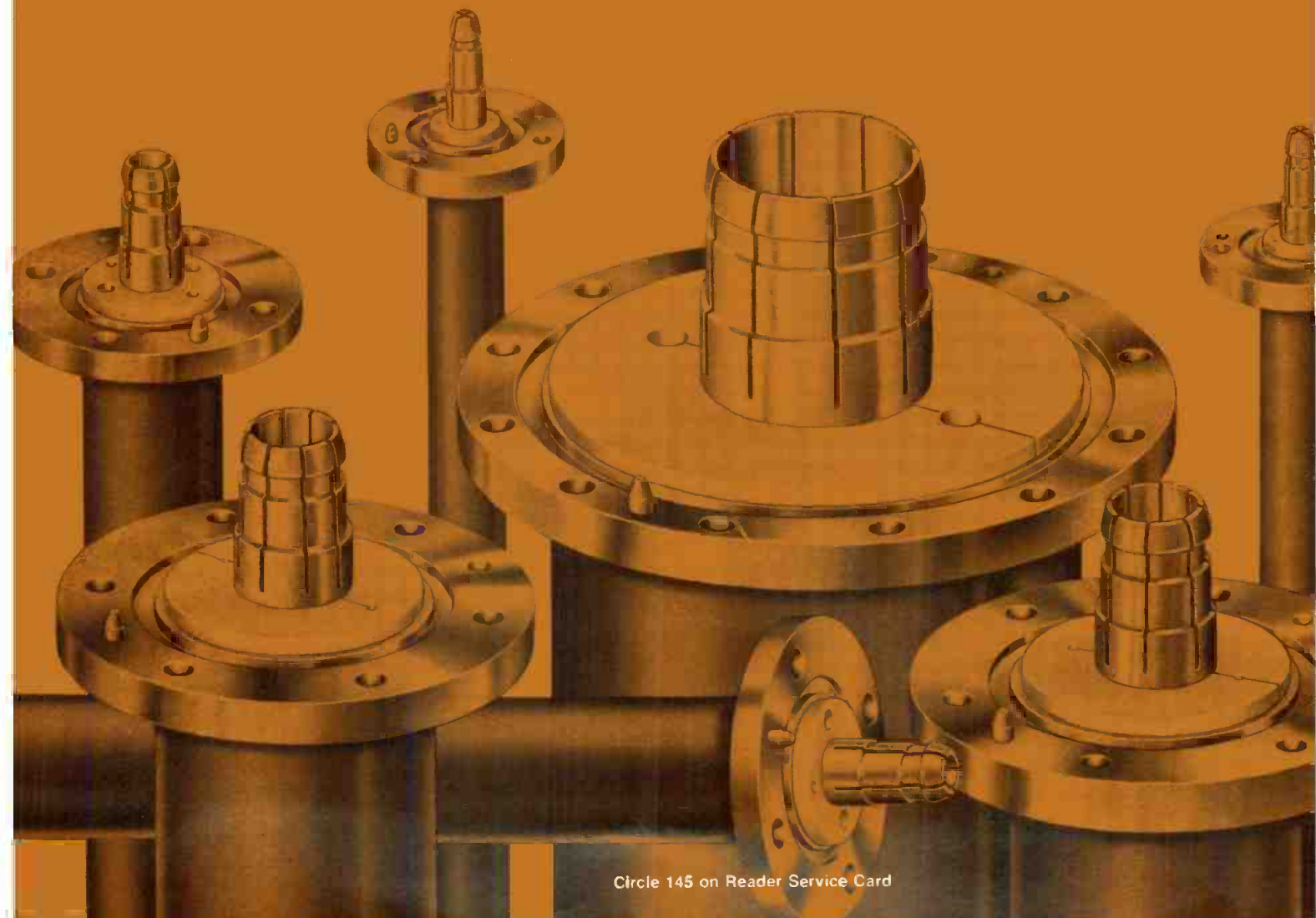
sion machined, pin-type Teflon dielectric insulators. EIA bolt type flanges and connectors are fabricated to EIA standards and US Mil specifications. You have the option of ordering in 20 foot sections or any special length with flanges on both ends, one end or without flanges. A full line of matching components, hardware and installation accessories are also available.

Special assemblies? Absolutely. We design and build rigid line terminations, power dividers,

FM Broadcast antennas, low pass filters and directional couplers.

Write, telephone or telex for Catalog 737 with all the details: Phelps Dodge Communications Company, Route 79, Marlboro, NJ 07746, (201) 462-1880, TWX (710) 722-3861.

**phelps
dodge**
Communications Company
DIVISION OF PHELPS DODGE INDUSTRIES, INC.



Circle 145 on Reader Service Card

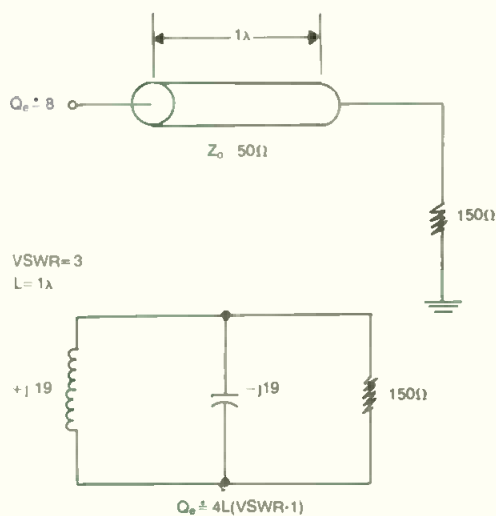


Figure 8

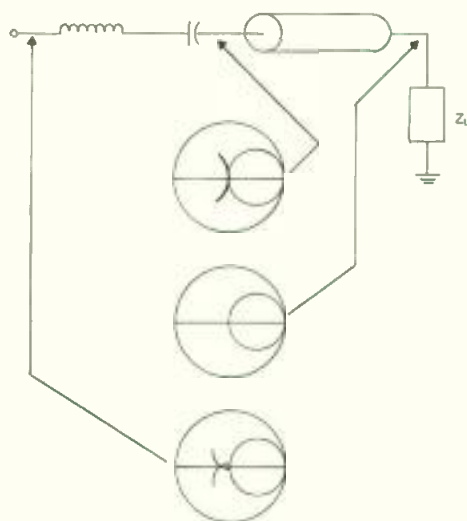


Figure 10. Series-resonance compensation

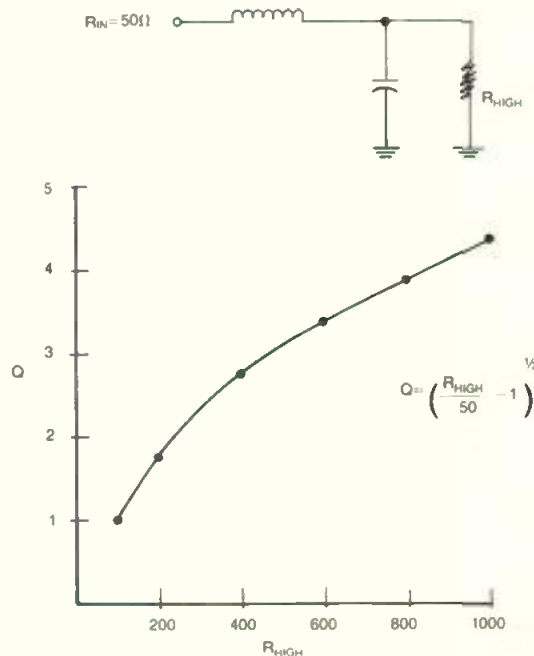


Figure 9

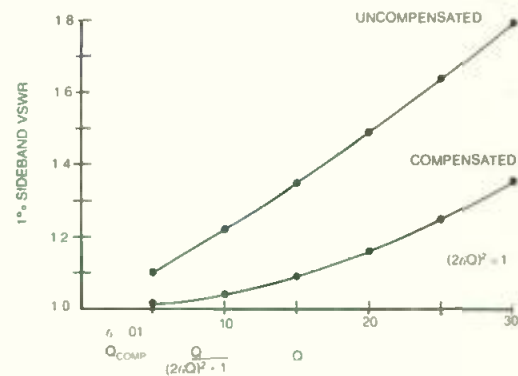


Figure 11. Limitations of series-resonance compensation

Broadband Antenna System

frequency relations at points of interest in the circuit. But the ability to compensate far upstream in the circuit is limited, as the graph of Figure 11 shows.

Assume that it is desired to resonate the impedance at the carrier frequency and at the sideband frequencies which are 1 percent removed from the carrier. The line marked "uncompensated" is the relation between equivalent Q of the load and the 1 percent sideband VSWR. It is derived from the equation of Figure 6. The VSWR at that sideband frequency will remain after compensation is found on the line marked "compensated" at the point directly below the starting point on the "uncompensated" curve. Thus, if the VSWR 10 kHz away from an assumed 1000 kHz carrier is 1.65:1, we could only expect to reduce it to about 1.2:1 with a single compensation section. The Q of the components to be added is given by the formula in the middle of the figure and is 20 for this case. Note that the Q of the uncompensated load is about 25.

There may also be a realizability problem. For example, to compensate a Q of 30 to the point shown, one needs

to add a series resonant circuit having a Q of 22. If this circuit were placed at the input of a 50 ohm, 50 W phasor, the capacitor would have to withstand about 100,000 V during peak modulation.

One should certainly avoid as many indiscriminately placed high Q circuits as possible; those used purposely for broadbanding should exhibit high stability. Vacuum capacitors are recommended.

Finally, the approach ought to be one for which results can be reasonably well predicted. While abilities to compute self and mutual impedances are improving, do not underestimate the value of a thorough set of measurements throughout an array. If designing a replacement phasor, for example, a few nights' work with a bridge can help assure an optimum design. It might also save considerable time when installing the new equipment. Even an up-to-date sweep of that single stick is a good idea if a new antenna matcher is required.

BM/E

Editor's Note: Significant portions of this article were drawn from Mr. Jubera's paper, "Modernizing AM Antennas For Stereo," delivered at the National Religious Broadcaster's Convention, January, 1981.

rugged, cost effective vans... Philips equipped.



Photos courtesy Wolf Coach (Models A, C, D), Shook Electronics (Model B)

If you want the best mobile... for the best price... and with the best equipment... start with Philips.

These 4 standard fully equipped mobiles will consistently and reliably produce the quality you require for prime time and network feeds.

Selectively equipped with rugged, reliable equipment including:

- Philips LDK14S ENG/EFP cameras, or LDK5B triax or LDK25B multicore remote/studio cameras, or Philips' new LDK44 ENG/EFP cameras,
 - ADC or CDL switchers,
 - portable or rack mount 1" C type VTR's...
 - even lighting kits and mics,
- these vans are ready to roll with self-contained airconditioning and power generator systems.

And, these vans are designed for expansion and customizing. Plus we offer total financing.



It's easy to get started. Call or write and our design team will aid you in selecting a model and equipment to match your budget and application.

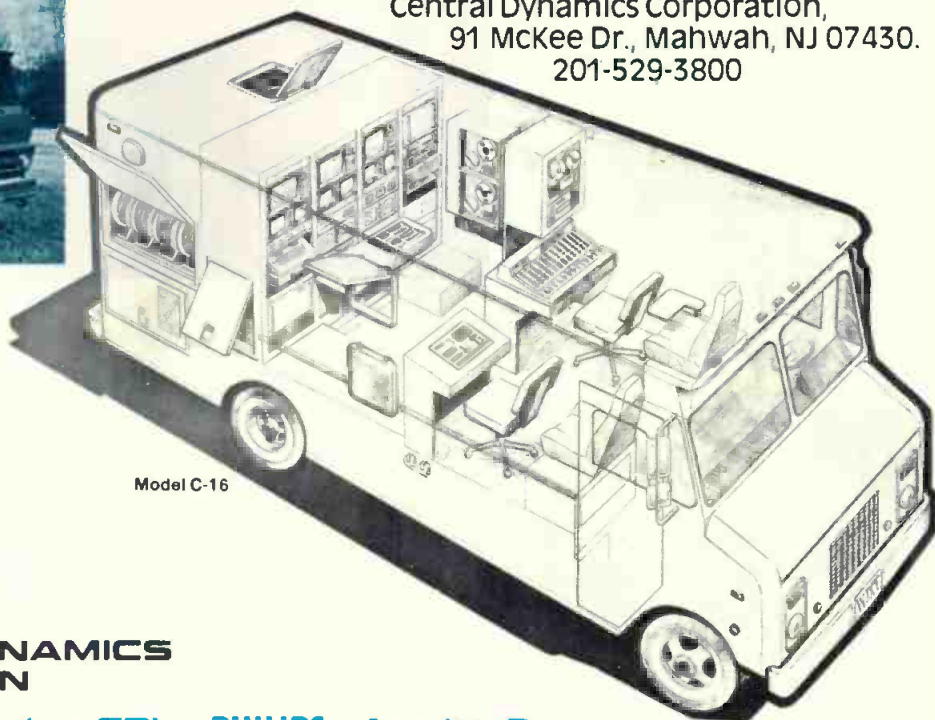
Central Dynamics Corporation,
91 McKee Dr., Mahwah, NJ 07430.
201-529-3800

A-10: 10-11' production area, 1-2 cameras, 1 portable VTR, audio mixer, video switcher, audio cart recorder, and ancillary equipment.

B-14: 12-14' production area, 2-3 cameras, 1 studio VTR, audio console, production switcher, audio cart and reel/reel recorder, intercom, and ancillary equipment.

C-16: See illustration to right. 16-18' production area, 2-4 cameras, 1-2 studio VTR's; other equipment similar to B-14.

D-22: 18-24' production area, 3-6 cameras, 1-3 studio VTR's, A/V routing switcher, 2 audio cart recorders, telephone system; other equipment similar to B-14.



Model C-16



CENTRAL DYNAMICS CORPORATION

The U.S. Broadcast Company for ■ **COL** ■ **PHILIPS** ■ **American Data**

DEDUCTING FOR LOBBYING

By Mark E. Battersby

Government, at all levels, can effect broadcast operations. Attempts to influence it by legal lobbying efforts can be frustrating but are never a waste of time — or money.

IT IS A SAD FACT that every broadcast manager must lobby merely to stay in business. That lobbying can be anything from providing support to local business associations to directly approaching local, state, or federal lawmakers to express your views. In fact, in light of recently proposed government budget and tax cuts, you may now wish to lobby Congressional committees or their members.

Although this lobbying process can be an expensive proposition, our tax laws fortunately provide a number of incentives that should encourage you to make your views and opinions known — so long as you do it legally. Of course, as with most areas of our tax law, the regulations governing lobbying expenses have more than their fair share of potential pitfalls.

Most broadcasters generally lobby in order to make their views on pending legislation known. It doesn't matter whether this lobbying is for or against a given proposal, a business or a group of businesses must usually spend money to present their views. In 1962, Congress provided some relief by allowing a tax deduction for those lobbying expenses — a tax deduction that had not existed prior to that time.

Although condemned by many political theoreticians as an evil, lobbying is a necessary and productive part of the American political process. After all, how else will a rural state legislator learn of the water problems of a large metropolitan district? Or, how else can our lawmakers hope to understand the problems these proposed tax and budget cuts will cause the broadcast industry?

Generally the facts and figures are presented to a key legislator, either personally or in committee, by the advocates of the various alternatives. Every time he receives a letter from a constituent supporting or opposing legislation, that legislator is being lobbied. Not only does the lawmaker need this assistance, in most cases he looks forward to receiving it.

Mark Battersby is a tax and financial consultant specializing in broadcast operations. He works in Ardmore, Penn.

The business person will say that he lobbies to stay in business. Most of us must be constantly alert to legislative activities that will affect either our present or contemplated projects. Whether it is a retailer who doesn't want a sales tax, or a manufacturer who is interested in union-related legislation, or the station that wants less regulation, there is one thing that we all have in common — we want to protect our operations as they are today.

As already mentioned, prior to 1962 there was no tax relief for the expenses incurred by presenting information to legislators. Congress, recognizing this inequality, granted limited relief, but restricted the tax deduction to the expenses of appearing before legislatures or their committees and for dues paid to organizations that actively lobbied on behalf of the business person.

Perhaps the most familiar type of lobbying is the appearance before Congressional committees. Fortunately, the tax law's description of lobbying goes much further. It includes, in addition to those personal appearances, the submission of statements and communications to the committees of Congress, as well as to the individual members. The same rules also apply on the state level, that is, for the state legislatures. Lobbying local town or county councils would also presumably qualify because they are subdivisions of the state.

Unfortunately, in giving relief to the business community, Congress did not write a blank check. For instance, there is no tax deduction available for lobbying expenses unless you can show that your business has a direct interest in the legislation. Fortunately, the tax rules take a fairly liberal approach in defining just what a so-called "direct interest" is.

For instance, any legislation (actual or proposed) that will have an impact on your trade or business is of direct interest to you and your station. And, going even further, if you can reasonably expect that at some time in the future, the present legislation will have an impact on your business activities, it will also meet the deductibility test. Naturally if the legislation's effect is remote, speculative, or personal, it fails.

Battles you can win

Some examples of the type of legislation that would generally meet the direct interest test are:

- A bill that would increase or decrease the taxes on your station, operating costs, earnings, or administrative burdens;
- A bill that would increase Social Security contributions

Deducting For Lobbying

or liberalize the right to receive them would be of interest to any employer;

- A bill that is favorable or unfavorable to competitors is of direct interest to any business;
- A bill that would improve the local school system is of interest to a community trade group;
- A bill creating a special tax credit or exclusion for shareholders is of direct interest to a corporation.

A bill is of direct interest to any business organization to which you may belong if the subject matter has a direct interest to the organization itself, or to any one of its members. Thus, it would seem that virtually every legislative proposal affecting businesses would be of direct interest to your local Chamber of Commerce or other similar broad-based organizations. This point is important since you can deduct the cost of providing your organization with information if the legislation is of direct interest to it.

The deductible expenses of lobbying are the actual costs of appearing before the legislative body, preparing the testimony or communications, and dues to organizations. Your traveling expenses that are directly connected to the legislative appearance are also tax deductible. This means that you must, in order to get the deduction, maintain a travel diary just as you do for regular business travel.

The income tax regulations tie deductibility directly to the stated activities of appearances or communications. This leaves unanswered the question of whether you can

legitimately claim a tax deduction for entertaining a lawmaker. By implication that is probably a reflection of the fear of potential wrong-doing being underwritten by a tax deduction and, thus, the costs are not specifically tax deductible.

The directly connected costs of preparing your presentation are deductible. If your employees prepare the material as part of their regular work schedule and no extra costs are incurred, no special tax deduction is needed or available. You can, however, deduct those expenses as a general business expense. You get the benefit of the lobbying deduction when you hire specialists, incur overtime work or other expenses that are specifically traceable to your lobbying activities. Thus, the cost of retaining a professional lobbyist or counsel or prepare and present your views is deductible.

Lobbying activities directed toward the appointment of an individual, a nomination to office, or the like are not tax deductible as lobbying expenses. According to the rules, a taxpayer cannot have a direct interest in such matters. Likewise, there can be no direct interest in matters concerning the actual operation of the legislature.

Deducting dues

Deducting dues as a lobbying expense is complex and often confusing. This complexity results, largely, from the tax law which covers not only lobbying expenses but also political campaign expenses and the cost of influencing the public on legislation.

Simply stated, you can legitimately deduct that portion of any dues you pay to any organization that are attributable to its lobbying activities regarding legislation or pro-

Why Your Radio Station Should Own An Eventide H949 Harmonizer.®

• IT'S A COMPLETE AUDIO TIME COMPRESSION SYSTEM AT A FRACTION OF THE PRICE

The \$3500* H949 gives you the same audio time compression and expansion capabilities of competitive single-purpose units costing well over twice as much. You get the power to control time itself...with no editing, no program material deleted and no abnormal pitch effects.

• IT'S A COMPLETE SPECIAL EFFECTS DEPARTMENT

The Eventide H949 Harmonizer® special effects unit gives you an almost endless variety of effects. There's variable delay, echo and reverb. Feedback level and equalization controls let you "custom-tune" the audio. Pitch change capability can create new voices. Mix input with pitch-changed output for chorus and harmony effects. Want the distinctive sound of flanging? The H949 offers the best flanging ever. There's time reversal and repeat too. For even more versatility, many more effects can be created from combinations of the basic effects.

WHAT CAN THIS MEAN FOR YOUR STATION?

• IT CAN HELP YOU MAKE MORE MONEY

Go after those co-op dollars! The H949 can easily compress an existing national spot to accommodate a local retailer tag. Local advertisers who deliver their own ad copy will love what the H949 can do. Endless retakes to correct

the non-professional's timing errors are eliminated. Use pitch-change to make that local retailer sound more like an announcer (He'll love that!) Time compression with the H949 can bring order out of chaos when running back-to-back religious or political programs which are often mistimed. And, you'll find yourself doing more and better station-produced local spots—with those special audio effects that

make for a more professional custom production. Your advertisers will notice and appreciate the difference.

• IT CAN GIVE YOUR STATION A MORE DISTINCTIVE, TIGHTER SOUND

The H949 Harmonizer can really make a difference. Use its special effects capabilities to produce really distinctive promos, intros and custom jingles. For a brighter, fast-paced sound, some stations choose to speed up their music by a few percent, utilizing the Harmonizer to maintain normal pitch. Using pitch-change, you can even create new voices to populate your air.

MOST EVENTIDE DEALERS HAVE EVALUATION UNITS AVAILABLE. CALL EVENTIDE TODAY FOR THE DEALER NEAREST YOU.



Eventide
the next step

265 West 54th Street
New York, N.Y. 10019
(212) 581-9290

*List price in domestic U.S.

posed legislation that is directly related to the organization or any one of its members. Any portion of the dues attributable to other activities covered in the tax regulations (politicking and the like) are not tax deductible.

Any portion of a special assessment by one of those organizations that meets the general dues deductibility test as outlined above, is also deductible. This provision could prove valuable since the cost of the lobbying presentation is rarely known at the time the dues for the year are levied.

As we've already pointed out, purely political type expenses are not deductible. This means that efforts to involve the public at large in supporting or defeating legislation in the state houses or at the polls will not produce a tax deduction. For example, if Able Broadcasting Company were to engage in any activity to make the public aware of any proposed legislation, this would be considered a nondeductible "grassroots" campaign.

Our tax rules specifically prohibit a deduction for any expense incurred to influence the general public with respect to legislative matters. Since our Able Broadcasting Company has an interest in the bill, its activities would be considered a "grassroots" campaign, even if its public statements appear neutral. In other words, no matter how devastating an effect any legislation may have on your station, any attempt to influence the public is a nondeductible expense.

The question of whether the expenses your station incurs in presenting public service announcements of general interest — but which urge the public to support or oppose pending legislation — remains unanswered in the tax law. Presumably, the expenses incurred in connection with public service announcements on non-related matters

would be ordinary and necessary business expenses and not subject to question by the ever-vigilant Internal Revenue Service.

The Internal Revenue's view of what constitutes a "grassroots" campaign is extremely broad. For instance, when a trade organization contacts its members about legislation affecting the industry, this is normally a deductible expense. If in its message, however, the association urges its members to engage in "grassroots" activity, then the association itself will be considered to have commenced a "grassroots" campaign.

Conversely, a tax-exempt trade association is not engaging in "grassroots" lobbying when it urges members to write or call their lawmakers to recommend support of legislation of direct interest to the association. But, then, should such action be directed at prospective members, it will be considered to be "grassroots" lobbying by a tough IRS.

Overall, however, the expenses you incur in expressing your views to our lawmakers on existing legislation or proposed legislation — such as the recently proposed budget and tax cuts — are tax deductible lobbying expenses. It is also obvious that attempts to educate the public on just what any given legislation will do to your business or operations will have to be financed without the help of a tax deduction.

The lobbying expense deduction rules are complex and narrowly defined as you have seen. But they should never be ignored. Expressing your views and opinions to lawmakers is never a waste of time and those tax rules can make certain that lobbying is not a waste of money — regardless of the outcome. **BM/E**

Now There's An Eventide Timesqueeze™ Time Compression System Priced For Every Television Facility.

● EVENTIDE'S NEWEST VIDEO TIMESQUEEZE SYSTEM COSTS JUST \$5000* COMPLETE

That's thousands less than any other T.V. time compression system. Eventide's Timesqueeze Jr.™ interfaces with virtually every variable-speed-capable VTR or film chain (and audio recorders too.) Compress or expand the running time of program material with no editing, no program material deleted and no abnormal pitch effects.

● WE CUT THE PRICE BY SIMPLIFYING THE CONTROLS

We've kept operating controls to a minimum. Just set the desired percentage change on four thumb-wheel switches. The resulting time change can easily be calculated to the fraction of a second.

● WE DIDN'T CUT BACK ON PERFORMANCE

Pitch normalization is the key to successful time compression. That's why the heart of every Eventide Timesqueeze System—regardless of price—is Eventide's fabulous H949 Harmonizer®. Eventide Harmonizers are the best selling, most trusted pitch changers in the world. Both Timesqueeze and Timesqueeze Jr. deliver the superior specs of the H949 Harmonizer—15kHz frequency response; 96dB dynamic range. And our modular approach gives you greater flexibility and economy. For stereo or multitrack operation for example, just add additional H949 Harmonizers at \$3500* each. No other time compression system can be expanded as economically.

*List price in domestic U.S.



● DOUBLE DUTY FOR GREATER VALUE

When not being used for time compression, Eventide Timesqueeze Systems can provide all the audio production effects that made the H949 Harmonizer an industry standard. You can read about all these effects on the facing page. Remember, only Eventide Timesqueeze Systems provide this versatility.

● EVENTIDE'S SUPER AUTOMATED SYSTEM

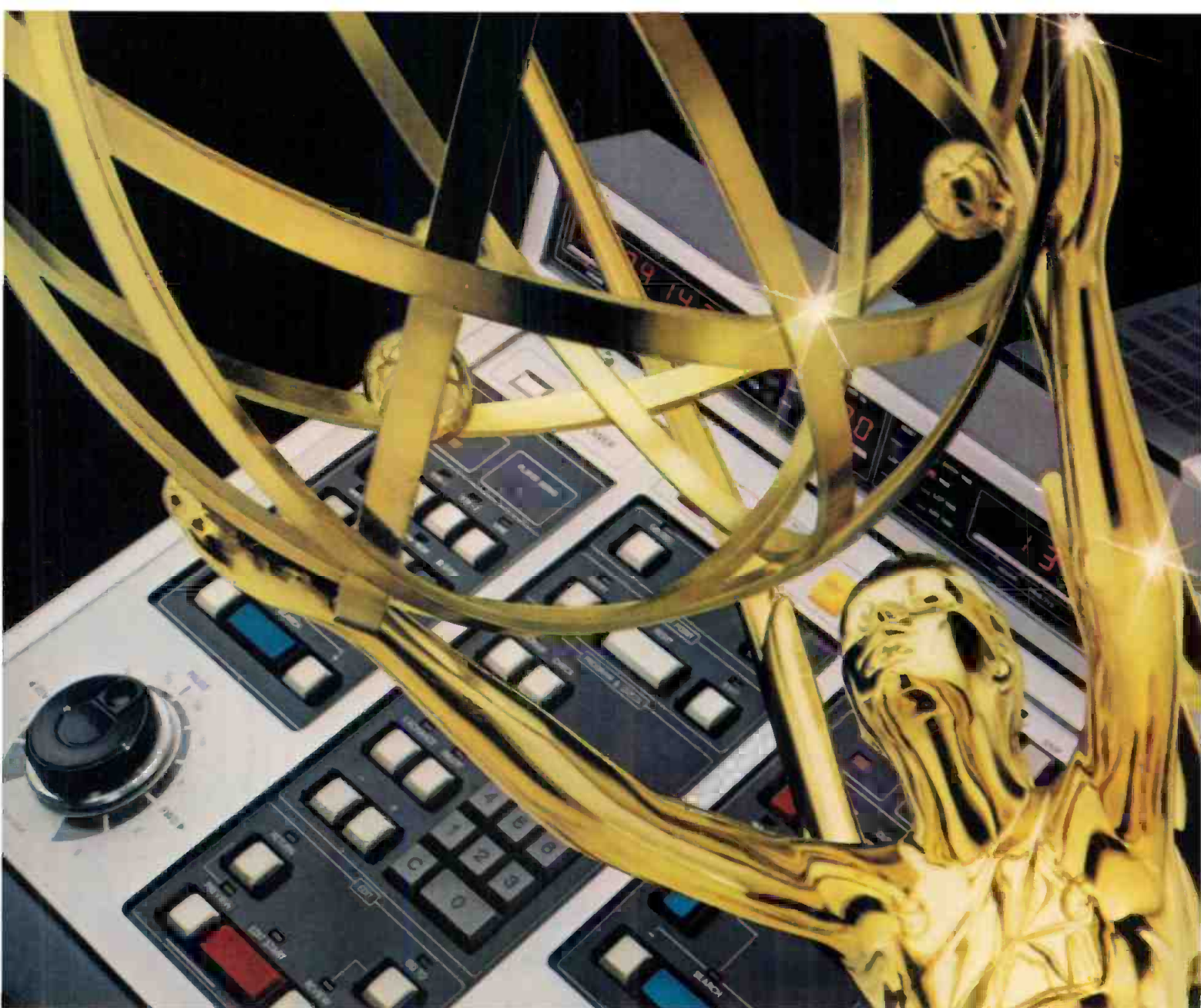
Now that you've read about the capabilities of our \$5000* economy Timesqueeze Jr., just imagine what our top-of-the-line system (shown here) can do. Incorporating a Hewlett Packard HP-85 (included in the \$8500* price,) this system offers totally automated control of all calculations and operations. There's a C.R.T. readout to keep you fully informed as to tape machine status, running speed, pitch ratio and other operational data. It's so smart it can even print out how-to-use info and interconnect diagrams.



SEE BOTH EVENTIDE TIMESQUEEZE SYSTEMS NOW. CALL EVENTIDE OR YOUR DEALER TO ARRANGE A DEMONSTRATION.

Eventide
the next step

265 West 54th Street,
New York, N.Y. 10019
(212) 581-9290



When you buy Panasonic broadcast equipment you're buying award-winning technology.

Panasonic was awarded a 1979-1980 Engineering Achievement Emmy for the introduction of digital techniques in video special effects production.



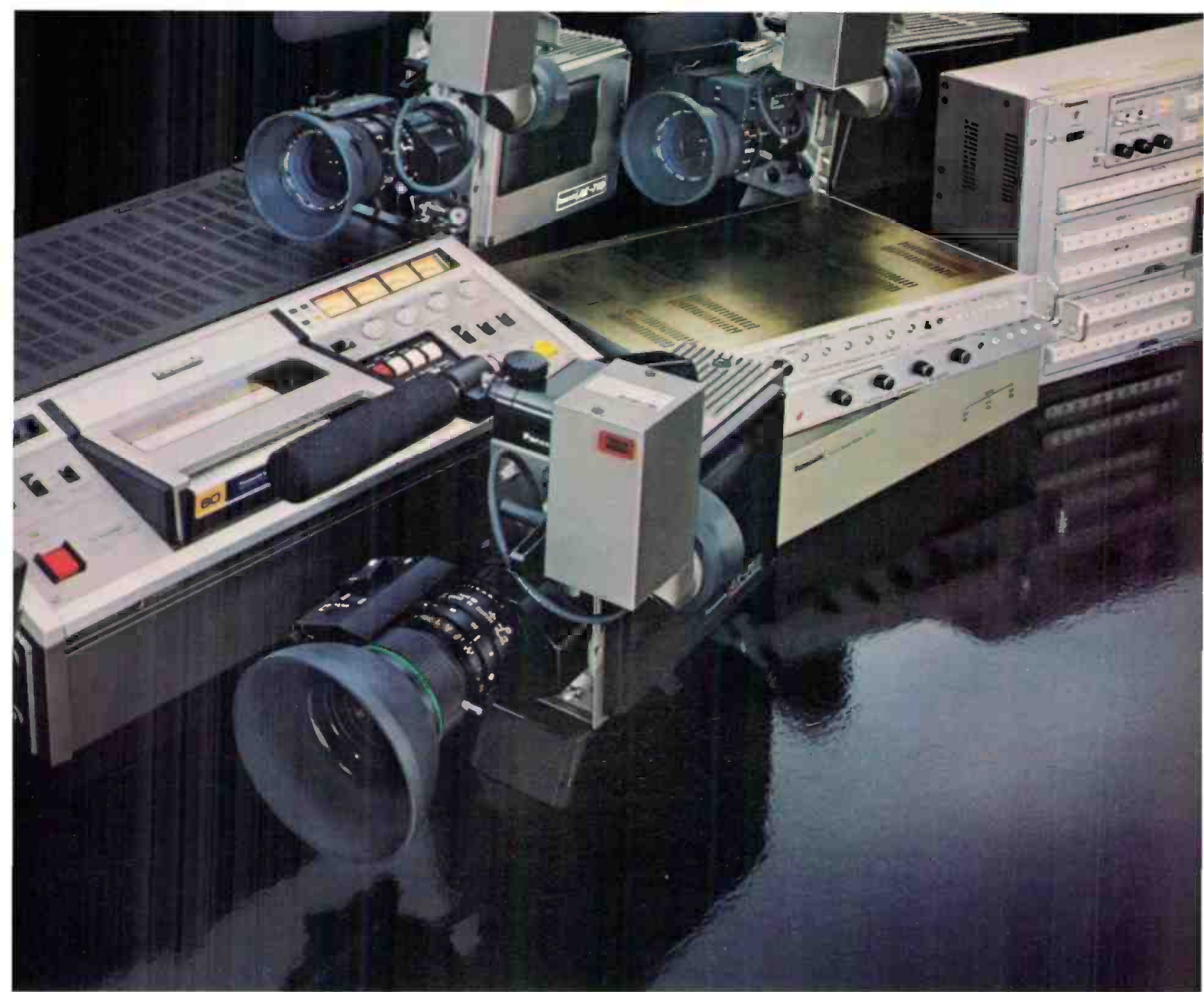
When one network executive first saw the special effects produced by the Panasonic AV-7000 video squeezer, he couldn't believe his eyes. But then he'd never seen a special effects generator that combines digital techniques with microprocessor technology. The members of the National Academy of Television Arts and Sciences were equally impressed. So impressed, they presented Panasonic with an Emmy.

The same innovative engineering that created the AV-7000 is available in a new line of Panasonic broadcast equipment.

Take the Panasonic 700 B-2 time-code editing system. The AU-700 editing recorder, the AU-A70 programmable editing controller and the AU-J10 multiple source adapter. Together they add speed and accuracy to 3/4" time-code editing by letting you do what other systems don't. Per-

form up to 20 automatic insert and assembly edits from multiple sources. How did we do it? By combining microprocessor technology with the precision of direct drive.

Another way Panasonic says innovation is with the AK-760 ENG/EFP camera. With its three diode-gun Plumbicon® tubes and built-in bias light, it offers incredibly high resolution (600 lines center) and extremely low lag. And with its feed-



back beam control, the AK-760 has the necessary beam current to stabilize scene highlights to the point where comet tailing is greatly reduced.

The Panasonic AK-750B also gives you three-tube Plumbicon performance along with a lot of extras that don't cost extra. Like two-line vertical enhancement, a \$2,000* option last year. Plus genlock, rechargeable battery with charger, microphone, and

VTR cable. All for \$16,000*.

When it comes to electronic news-gathering, the AK-710 offers broadcast quality at a good news price of \$10,950*. By adding three Saticon® tubes to a high-index prism optical system, the AK-710 achieves horizontal resolution of 500 lines center and a S/N ratio of 52dB.

Panasonic also says innovation with the AS-6100 special effects generator, the AS-2000

chroma key generator and the AS-1000 color sync generator. And, of course, you can look forward to even more Panasonic broadcast equipment in the future. But take a good look at Panasonic broadcast equipment now. After all, you never know: Maybe the same innovative engineering that won us an Emmy can help you win one.

To audition the complete line of Panasonic broad-

cast equipment, call your nearest Panasonic office for dealer locations.

Northeast—(201) 348-7620
 Southeast—(404) 923-9700
 Midwest—(312) 364-7936
 Southwest—(214) 258-6400
 West Coast—(213) 655-1111

Plumbicon is a registered trademark of N.V. Philips for TV camera tubes. Saticon is a registered trademark of NHK (Japan Broadcasting Corp.). *Manufacturer's suggested price. (Lenses not included.)

Panasonic
 VIDEO SYSTEMS DIVISION

Circle 148 on Reader Service Card

The New Benchmark Improved In Four Important Ways!

No. 1 Cart Machine

Today, one out of every two broadcast cartridge machines purchased worldwide is an ITC Premium Line machine.

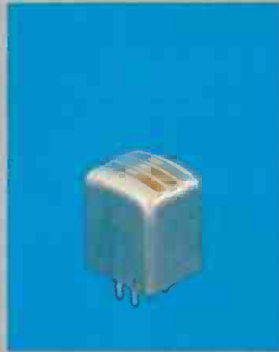
Now, four new features make this first-choice line an even greater value.

Improved Frequency Response

The head is new. The open-faced design is cylindrically shaped rather than hyperbolic. MuMetal laminations are surrounded by epoxy filler impregnated with aluminum oxide particles for shielding and durability. Core windows are wider than conventional designs. The end result is greatly improved frequency response without low end humps and bumps.



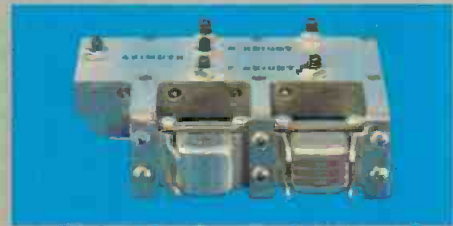
New Cart Hold Down



New Head Design



New Pressure Roller



New Removable Head Module

Removable Head Module

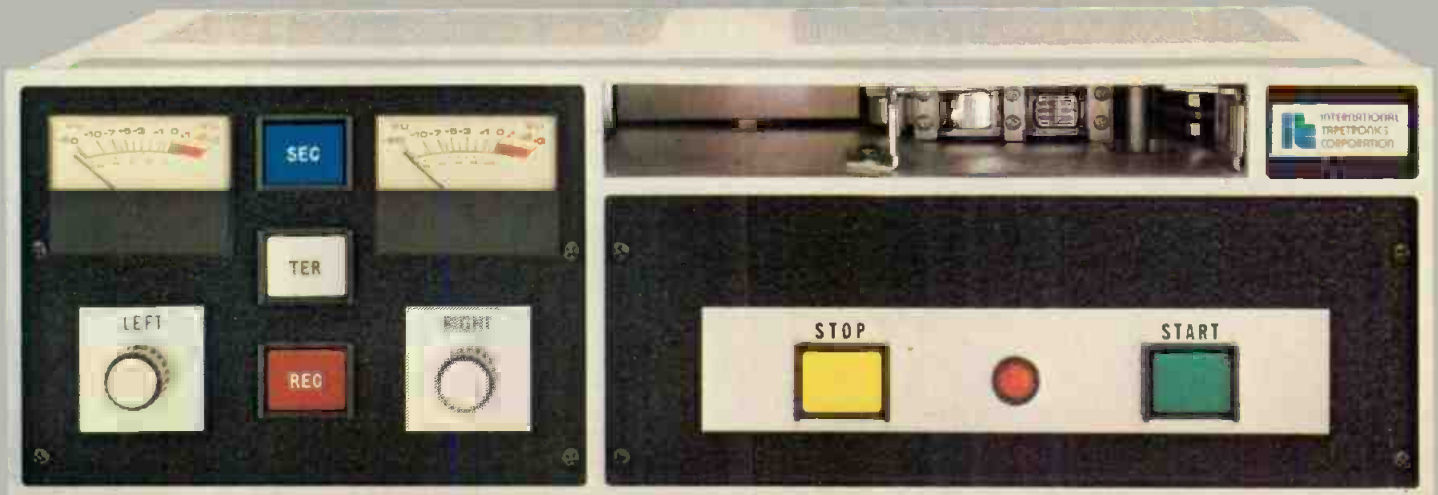
True center pivot design. Azimuth, zenith and height adjust independently. Locking one does not affect the others. Steel ball pivots and longer azimuth arms permit finer tuning.

Improved Tape-Head Alignment

New cartridge positioning system assures precise, rigid alignment of tape to head even when insertion is hurried or careless.

Long-Life Pressure Roller

The 525K pressure roller offers twice the pulling power and extended life. Tolerates common cleaning chemicals. Holds its durometer even in high humidity.



To place a no-risk order
CALL TOLL-FREE
800-447-0414
From Alaska, Hawaii, 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

THE SOURCE! BUYER'S GUIDE TO THE BROADCAST INDUSTRY

WELCOME TO THE SOURCE 1981! Just turn the page for the latest edition of the broadcast industry's most complete buyer's guide. *BM/E* has compiled the most current, accurate listing possible of manufacturers and independent broadcast representatives and distributors serving the broadcast industry — a useful everyday guide to the products and services essential to broadcasters.

This year *BM/E* continues to assure readers of the reliability of information in *The Source* with our VS — Verified Source — listing. Only those companies supplying *BM/E* with current product literature receive the VS designation, indicating that their products are in current production. This supporting information is on file at *BM/E*.

The Source appears in three sections: the Instant Source Locator, an alphabetical listing of manufacturers and suppliers, and a state-by-state guide to independent reps/distributors. The ISL, designed to help you quickly locate the exact product you need, is divided into nine broad

categories, each of which is subdivided into specific product types.

To use *The Source*, first look up the desired product in the ISL. If you need wireless microphones, for example, find the "microphone" category in the first section of the ISL, "Audio Equipment." Wireless mics are the fourth item under the mic heading. Look across to the list of companies, note each name followed by a 4, and locate these manufacturers in the alphabetical listing. If the description there refers you to the rep/distributor section, turn to the heading for your state and scan down the list for a boldfaced cross-reference to the manufacturer you are seeking.

The names of advertisers are highlighted in color, with a cross-reference to the page on which the company's ad appears. Consulting the ad can often provide useful information on a company or its products.

Whatever you're looking for in broadcasting, you'll find it in *The Source* 1981. Remember — the VS in the alphabetical listing or the ♦ in the ISL assures you that the products you're looking for are regularly available from the manufacturer. It's verified!

INSTANT SOURCE LOCATOR

I. Audio Equipment	80
II. Video Equipment	83
III. Film Equipment	87
IV. Lighting	87
V. RF/Transmitting/Receiving Equipment	88
VI. Antennas/Towers/Transmission Lines	90
VII. Test & Measurement/Monitoring/ Timing/Logging Equipment	90
VIII. Systems & Services	93
IX. Components/Hardware	94

I. AUDIO EQUIPMENT

Audio Amplifiers

1. preamps
2. line amps
3. monitor & power
4. distribution amps
5. power supplies for amplifiers

ADM 4*; Allied Broadcast 1,4; Altec 1,2*; American Data 4*; Applied Technology 1*; Arrakis 1-4; Ashly 1*; ATI 1-4*; Audio & Design 1,4*; Audionics 1,3,4; Audiotechniques 3; Audio Technology 1*; Auditronics 4*; Avab America 2,3*; AVL 3,4*; Bayly 1-4*; Bell Audio 1,3,4*; BGW Systems 1,3,4*; Bonneville 2,4*; Boston Sound & Power 1-4; Bozak 1,3; Broadcast Audio 1-3*; Broadcast Electronics 1-4*; Broadcast Technology 1-5; Central Dynamics 5*; Cetec Broadcast 1*; Channelmatic 4,5*; Clear-Com 5*; Conex 3*; Countryman 1*; Crown Intl 1-4*; Datatek 1-4*; Datatronix 1,2,4,5; D-B Electronics 1*; Delta (Long) 1-4; Di-Tech 4*; Dyma 1,3,4*; Dynair 1,4*; Eddor 1,2,4*; Eumig 1-3*; Fernseh 3,4*; Fisher Berkeley 5; Frequency Devices 5*; Grass Valley 4*; Harris 1-3*; Heath 1,3*; Hedco 2,4*; Holland 1-3; Image Video 3*; Intl Nuclear 1-4; ISI 4*; ITI 1-3,5*; Ivie 1,3*; Johnson 1*; Kahn 2; Kelcee 3,4; James B Lansing 1-4*; Lauderdale 1,4*; Lear Siegler 1,4*; Logitek 1,2,4*; LPB 4*; Marti 2,3*; McCurdy 2-5*; McMartin 1-3*; Merlin 3*; Micro-Trak 4*; Modular Audio 1-5*; Multidyne 2,4,5*; Rupert Neve 4*; Nikko 1,3*; Opamp Labs 1-5*; Pacific Recorders 4*; Panasonic 1,2*; Paso 1,2; Protech Audio 1-5*; Quad Eight 1-3*; Radio Systems 1,3,4*; Ramko 1-4*; RCA Broadcast 1,3,4*; Research Systems 1,2,5; Richmond Sound 1,2,4*; RMS 4*; ROH 1-4*; RTS Systems 1-4*; Russco 1,2,4*; SAE 1,2*; Sansui 1,3*; Scientific Systems 4*; Sescorm 1-4*; Sharp 3*; Shintron 4*; Shure 1,3*; Sigma 4*; Sontec 1,2,4; Sound Technology 1*; Spectra Sonics 1-5*; Soundmaster 3*; Sound Technology 1; Sphere 1,2,4*; Stanton 1*; Studer Revox 3,4*; Superscope 1; Taber 1,2,5*; Tandberg 1,3*; Tapco 3; Teac 1,5*; Technics 1,3*; Telemet 3*; Television Equipment 4*; Telex 1*; Thomson-CSF 4*; TM 2,3; Ultra Audio 3,4*; United Research 1*; United Recording 1-3,5*; US Pioneer 3*; Valley People 1*; Vamco 4; V.A.M.P. 3*; Versa Count 4*; Vidair 1,5*; Video Aids 3*; VIF Intl 3*; Vision Sound 3*; Vital Ind 4*; Ward Beck 1-5*; Wilkinson 2,4*; World Video 3*; Yamaha 3*

Audio Controls

1. rotary attenuators
2. slide attenuators

ADM 2*; Autogram 1*; Broadcast Electronics 1,2*; Datatronix 1,2; Duncan 2; ITI 1*; Kay Elemetrics 1*; Oak Switcher 1; Opamp Labs 2*; Protech Audio 2*; Sescorm 1,2*; Shallco 1; Spectra Sonics 1,2*; Tech Labs 1,2; Texscan 1*; Vidair 1*; Waters 1,2

Audio Processing Equipment

1. ALC and AGC amplifiers
2. compressor/limiters, AM
3. compressor/limiter/filters, FM
4. equalizers and filters, parametric
5. equalizers and filters, graphic

ADM 2*; Altec 2,3,5*; AP Circuit 4,5; Applied Technology 1-3*; Arrakis 5; Ashly 1-4*; ATI 1-5*; Audicon 4*; Audio & Design 1-5*; Audio Processing 4,5*; Audiotechniques 4,5; Audisar 4,5*; Avab America 5*; BEI 4,5*; Bozak 4,5; Broadcast Audio 5*; Broadcast Electronics 1-3*; Broadcast Technology 5; Circuit Research Labs 1,2,3*; Coherent 1-5; Crown Intl 4,5*; Datatronix 4,5; dbx 1-4*; Delta 1,2*; Dolby 3*; Dorrrough 2,3*; Dyma 1-5*; Elcom 1-3*; Eventide 2*; Fostex 2,5*; Frequency Devices 3,4*; Gotham Audio 2-4*; Gregg Labs 1-3*; Harris 1,3*; Inovonics 1-3*; Integrated Sound 5*; International Electromagnetics 5*; ITI 1*; Ivie 4,5*; Kahn 2; Klark-Teknik 5*; James B. Lansing 2,3*; Lauderdale 1,5*; Lear Siegler 2,3,5*; LPB 2,3*; Marti 1-3*; McCurdy 2,4*; McMartin 1-3,5*; Modular Audio 2,3,5*; Moseley 1-3*; MXR 5; Rupert Neve 2-4*; Nikko 4*; Opamp Labs 1*; Orange County 1-4*; Orban 1-5*; Pacific Recorders 1*; Protech Audio 1*; Pulse Techniques 4*; Quad Eight 3-5*; Ramko 1*; RCA Broadcast 1-3*; Research Systems 5; Richmond Sound 4,5*; SAE 4*; Sansui 5*; Sescorm 1,4*; Shure 2-5*; Sontec 2-5; Spectra Sonics 2,3,5*; Sphere 4,5*; Superex 4,5*; Superscope 4,5; Tapco 4,5; Teac 5; Technics 4,5*; Thomson-CSF 2,3*; Transist-O-Sound 1*; Trident 3,4*; TTE 3*; United Recording 2-5*; US Pioneer 4*; Valley People 1-4*; VIF Intl 1,5*; Ward Beck 2,4*; Wavetek Rockland 4,5; White 4,5; Wilkinson 2,3*; Yamaha 4,5*

Audio Special Effects/Reverb Units

1. delay systems
2. reverb, mechanical
3. other special effects

Advent 1*; AKG Acoustics 2*; Altec 1,3*; Audicon 2*; Audio & Design 3*; Bozak 1; Broadcast Electronics 1,2*; Coherent; Comex 1; dbx 3*; Dyma 2,3*; Eventide 1,3*; Fostex 1*; Gotham Audio 2,3*; Industrial Research; Kappa 1; Koss 1; Lexicon 1-3*; Marshall 2,3; Micmix 2,3*; MXR 1,3; Network 3; Opamp Labs 2*; Orange County 3*; Protech Audio 2*; Quad Eight 1-2*; Quintek 1,3*; SAE 1*; Sansui 2*; Ken Schaffer 1-3; Sony 2*; Spectra Sonics 1,3*; Tapco 2; Ursa Major 1,2,3*; US Pioneer 2,3*; Valley People 3*; Variable Speech 2,3; VIF Intl 2*; Yamaha 1,3*

Automation Equipment

1. sequencers, relay
2. sequencers, time insertion
3. controllers, computer/microprocessor
4. complete systems

Audi-Cord 1; Automated Broadcast 1-4; Automation Techniques 1,2,4*; Boston Sound & Power 3,4; Broadcast Electronics 1-4*; Cat Systems 3,4; Cavox-Tapeathon 1,2,4; Cetec Broadcast 3,4*; Channelmatic 3*; Computer Concepts 3*; Crown Intl 3*; Datacom 4*; Datatron 3,4*; Di-Tech 3*; Dyma 3*; Harris 4*; IGM 2-4*; Image Video 3,4*; Jenel 4*; Kaitronics 3*; Microprobe 3,4*; Microwave Assoc 3*; NEAS 4; Nidas 3,4*; Quad Eight 4*; Ritme CX 4; Rivers 1,2*; Soll 3,4*; Sono-Mag 3,4*; Sphere 3*; Telex 1,2*; Torpey 3,4; Trident 3*; UMC 1,3,4; United Media 3*; Valley People 4*; Video Specialties 3,4; VIF Intl 1,4*; Vital Ind 4*

Auto Time/Weather Announcers

Broadcast Electronics*; Cavox-Tapeathon; Dynatech; Hallikainen & Friends*; IBM*

Consoles	ADM 3,4,5*; Altec 1-4*; Ampro/Scully 3,4*; Applied Technology 2*; Arrakis 1,3-6; Audio Processing 2,4,6*; Audiotechniques 1; Audi- tronics 2-6*; Audy Instruments 3,4; Autogram 3-5*; Avab America 2*; Bayly 2*; Broadcast Audio 4-6*; Broadcast Electronics 1-5*; Broad- cast Technology 3-5; BSM Systems 2*; Cetec Broadcast 1-6*; Coherent 2-5; Continental Electronics 4*; Datatronix 2-6; Delta (Long) 1-6; Dyma 2-5*; Fostex 4*; Gregg Labs 3,4*; Hal- likainen 5*; Harris 1-5*; Harrison 2,4,6*; Heath 4*; Holland 1,5; Howe Audio 1,3,4; Image De- vices 2*; Industrial Research 1; Integrated Sound 4*; Intl Nuclear 1-3,5; ISI 5*; Jenel 5,6*; Johnson 1*; McCurdy 1,3-5*; MCI 2-4,6*; McMartin 1,2,4*; Micro-Trak 2-5*; Modular Audio 3-5*; Mondial 4*; Music Works 6; Nakamichi 1*; Rupert Neve 1-6*; Nikko 3,4*; Norcom 1,2*; Pacific Recorders 4*; Panasonic 1,2,4*; Protech Audio 2-5*; Quad Eight 4,6*; Quantum Audio 2-4*; Ramko 1-5*; RCA Broadcast 2-5*; Research Systems 3,4; Richmond Sound 2-5*; RTS Systems 1,2,5*; Russco 2,3; Sansui 2*; Shure 1,2*; Sontec 1; Sony 2*; Sound Dynamics 2*; Soundmaster 3-5*; Spectra Sound 1-5*; Sphere 2-6*; Studer-Revox 2-5*; Tangent 1-6; Tapco 3,4; Teac 4; Telfax 1; Theatre Techniques 1; Transist-O-Sound 1,2*; Trident 1-6*; Ultra Audio 1-3,5*; UMC 1,4,5*; United Recording 1,4,5*; VIF Intl 4*; Vision Sound 3-5; Ward- Beck 3-5*; Wilkinson; Yamaha 1,3,4,5*
-----------------	---

Digital Audio Recorders	3M 1*; Mitsubishi 1*; Sony 1*
1. fixed head, multichannel	
2. helical moving head type	

Disk Playing Equipment	AKG Acoustics 3*; AKG Sales 3*; Applied Technology 5*; Astatic 3; Audionics 5; Audio- Technica 3*; Audio Technology 5*; Broadcast Electronics 1-5*; Dyma 4*; Elpa 1; Fidelipac 3*; Fidelity Research 2,3*; Gotham Audio 1,3,4*; Harris 1-3*; Logitek 5*; LPB 1,2,5*; Micro Acoustics 3*; Micro-Trak 1,2,4,5*; Mondial 1*; Nikko 1*; Panasonic 1-5*; Ramko 1,5*; RTS Systems 5*; Russco 1; Sansui 1*; Sharp 1*; Shure 2,3*; Sound Technology 5; Stanton 1,2,5*; Studer Revox 1*; Superscope 1; Technics 1,2,4*; United Recording 5*; US Pioneer 1,3*; VIF Intl 3*; Yamaha 1*
1. turntables	
2. pickup arms	
3. pickup cartridges	
4. complete disk consoles	
5. phono preamps	

Headphones	AKG Acoustics*; AKG Sales*; Audiosears*; Audio-Technica*; Audiotechniques*; Beyer Dynamic*; David Clark; Clear-Come*; GC Elec- tronics; Harris*; Holland; Koss; Marcom*; Nakamichi*; Protech Audio*; R-Columbia*; SAE*; Sennheiser*; Setcom*; Sony*; Stan- ton*; Studer Revox*; Superex*; Television Equip*; Telex*; US Pioneer*; Vidair*; VIF Intl*; Yamaha*
-------------------	---

Intercom Systems	Altec 2*; Avab America 2*; Broadcast Technol- ogy 2; Cetec Vega 1*; David Clark 2; Clear- Com 2*; Comrex 1*; Countryman 1,2*; Dyma 1,2*; Fisher Berkeley 1,2; Harris 1*; HM Elec- tronics 1*; Holland 2; Lear Siegler 2*; McCurdy 2*; Rupert Neve 2*; Paso 2; Protech Audio 2*; R-Columbia 1,2*; ROH 1,2*; RTS Systems 2*; Ken Schaffer 1,2; Setcom 2*; Sharepoint 2*; Swintek 1*; Tangent 2; Television Equipment*; Telex 2*; Theatre Techniques 2; Vidair 1,2*; Video Aids 2*; Ward-Beck 2*
1. RF	
2. hardwired	

Microphones	Accurate Sound 7*; AKG Acoustics 1,2,5,6,7*; AKG Sales 1,2,4-7*; Altec 1,2,6,7*; Astatic 7*; Atlas Sound 7*; Audiosears 1; Audio-Technica 1,2,6,7*; Audiotechniques 1,2,6*; Beyer Dynamic 1-7*; Broadcast Electronics 1-7*; Bruel & Kjaer 2,7; Cetec Vega 4*; Clear-Com 1*; Coherent 2,4,6; Comrex 4*; Countryman 2,6*; Crown Intl 2; Dyma 1*; Ecor 4*; Electro-Voice 1,2,5-7*; GC Electronics 1,2,6,7; Alan Gordon 4,7*; Gotham Audio 2,5-7*; Harris 1,2,4,6,7*; Karl Heitz 7*; HM Electronics 4*; Image Devices 2,6*; Marti 1*; Micron 4; Nady 4*; Nagra 6*; Nakamichi 1,2,5*; Olesen 1,4,6,7; Panasonic
1. dynamic	
2. condenser/electret	
3. ribbon	
4. wireless	
5. shotgun	
6. lavalier	
7. stands, booms, dollies	

	1,2*; Paso 1,4,6,7; RF Technology 4*; R-Columbia 1,2*; RMS 1*; Sansui 1,2,7*; Ken Schaffer 4; Sennheiser 1,2,4-7*; Shure 1-3,6,7*; Sony 1,2,4-7*; Studer Revox 1,2*; Superscope 2; Swintek 4*; Taber 1,5-7*; Teac 1,2*; Technics 1,2*; Television Equip 1*; Telex 1,4,6*; Trident 2*; US Pioneer 1*; Vidair 1,2*; VIF Intl 1*
--	--

Music Synthesizers	ARP Instruments; Electronic Music Labs; Ionic Ind; Moog Music*; Yamaha*
---------------------------	--

Noise Reduction Systems	ADM*; AT*; Audio & Design*; dbx*; Dolby*; Frequency Devices; Gotham Audio; Harris*; Industrial Research; Inovonics*; MCI/Quantek*; Nakamichi*; Orange County*; Valley People*
--------------------------------	--

Patch Panels	ADM*; AT*; Audio Accessories; Audiotechniques*; Broadcast Electronics*; Broadcast Technol- ogy; Clear-Come*; Datatronix; Dielectric*; Dyma*; Harris*; Image Video*; McCurdy*; Potomac*; Tangent; Trompeter*; Wide Band
---------------------	--

Speakers	Acoustic Research; Advent*; Altec*; Atlas Sound*; Audicon*; Audio-Technica*; Audio- techniques; Audisar*; Auernheimers*; Aura- tone*; BGW Systems*; Broadcast Elec- tronics*; GC Electronics; Gotham Audio*; Harris*; Heath*; Integrated Sound*; Koss; James B. Lansing*; McKay Dymek*; Micro Acous- tics*; Panasonic*; Paso; Ramko*; Sansui*; Sharp*; Shure*; Spectra Sonics*; Superscope*; Tapco; Technics*; Telectro; United Recording*; US Pioneer*; V.A.M.P.*; Vidair*; VIF Intl*; Vi- sion Sound; Westlake; Yamaha*
-----------------	--

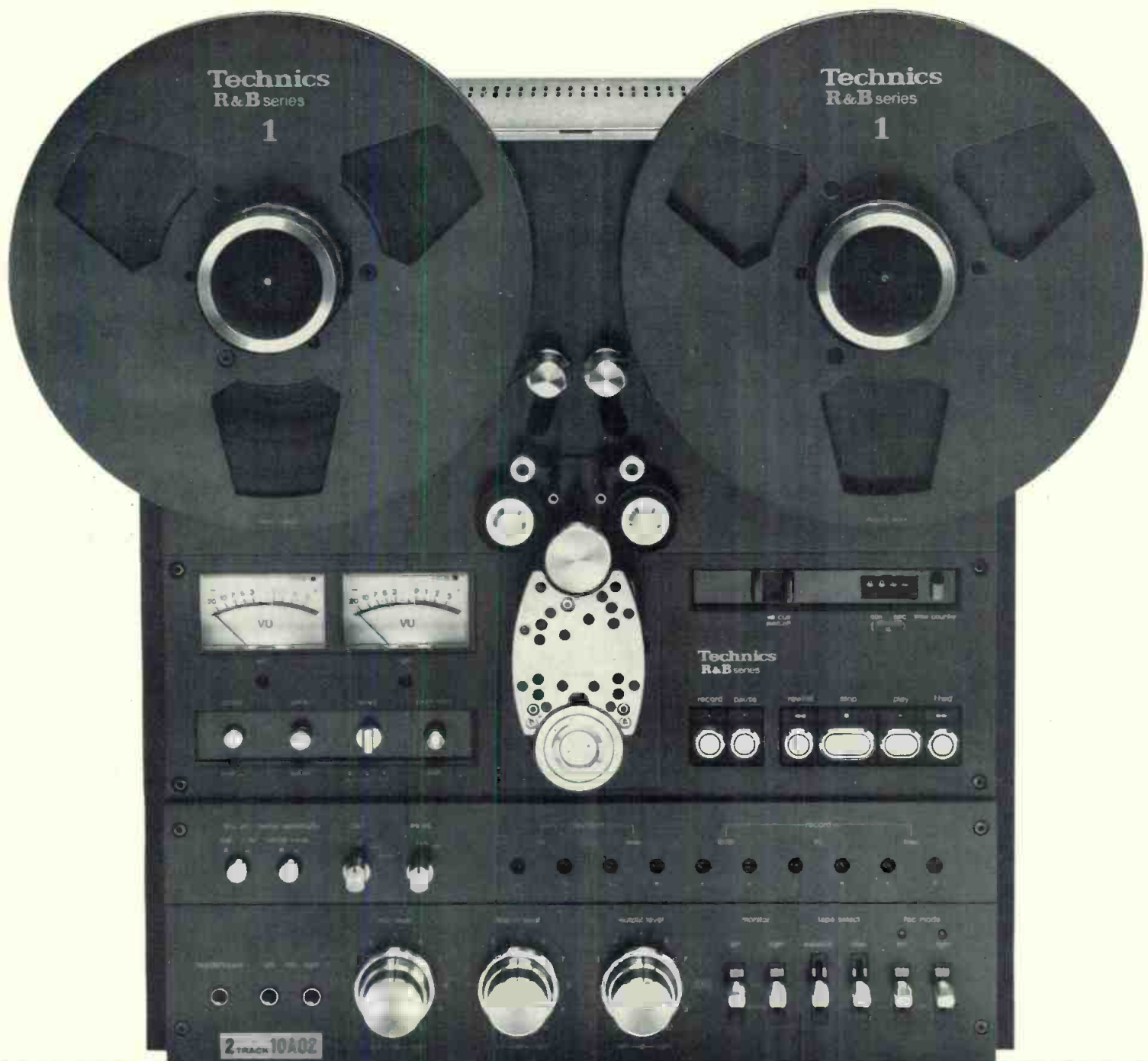
Synchronizing Equipment	Ampex 1*; Ampro/Scully 2*; BTX 1*; Control Video 1,2*; Convergence 1*; Datametrics 1*; Datatron 1*; EECO 1*; Electro & Optical*; Gray 1*; Harris 1*; MCI 1*; Quintek 1*; Sharepoint 2*; Skotel 1*; Studer Revox 1*; United Media 1*
1. SMPTE time code system	
2. other	

Tape, Magnetic	Agfa-Gevaert 1*; Ampex Magnetic Tape 1-3*; Aristocart 2,4*; BASF 1,3*; Broadcast Elec- tronics*; Capitol Magnetics 2,3*; DAK 1,2; Eumig 3*; Fidelipac 2,4*; Fuji 3*; Gruver 1,3; Harris 1,3,4*; Intl Audio 3; Kozin 3*; 3M*; Magnetic Reference 4; Maxell 3*; Memorex 2,3*; Nakamichi 3,4*; Network 1-4; Nortronics 4*; Studer Revox 1*; PD Magnetics 3; Procart 2; RKO Tape 1,3; Sony 1-3*; Sound Dynamics 1,4*; Standard Tape 4*; Taber 1,3,4*; Tapex 2-4; TDK 1-4*; Telectro 1-3; UMC 2*; VIF Intl 4*
1. open-reel tape	
2. cartridges	
3. cassettes	
4. test tapes	

Tape Accessories and Services	Allsop 9*; Ampex 1*; Ampex Magnetic Tape 1*; Aristocart*; Audico 6,9*; Broadcast Aids 3*; Broadcast Cartridge 1,9*; Broadcast Elec- tronics 1-4,6,8*; DAK 1,2; Electro Sound 9; Fidelipac 1,4,8,9*; Garner 8*; GC Electronics 1,4; Gotham Audio 3*; Gruver 1,6; Harris 1,2,8*; Inovonics 9*; KB Systems 6*; Kozin 1*; Magnesonics 6; Marathon 1,9*; Memorex 4*; Merlin 3,6,8*; Miller-Stephenson 4; Nagra 1,3*; Nakamichi 8*; Network 2; Neumade 1,6; Nor- tronics 4,5,8*; Plastic Reel 1*; Polyline 1*; Recortec 4,5*; Sharepoint 3*; Sony 4*; Standard Electric 3*; Studer Revox 1*; Taber 3,4,7,8*; Tapex 1,2,7,8; Telex 1*; Tentel 7,8; Texwipe 4,5,9*; VIF Intl 7*; Westlake 4
1. empty reels, carts, cassettes	
2. leader tape	
3. tape timers	
4. tape cleaners	
5. tape cleaning and evaluating services	
6. rewinders	
7. tension gauges	
8. alignment gauges	
9. other	

Cartridge Tape Player/Recorders	Amilon 1*; Ampro/Scully 1-3*; Audi-Cord 1,2,4; Bell Audio 1*; Broadcast Electronics 1-4*; Cetec Broadcast 3*; Contel 1*; D-B Electronics 1,2*; Harris 1-3*; IGM 1,3*; Intl Tapetronics 1-4*; Mackenzie Labs 1-3; Nakamichi 1*; Pacific Recorders 1*; Ramko 1-3*; Sono-Mag 1-4; Telectro 1,2; Telex 1*; UMC 1-3*
1. single	
2. dual or triple	
3. multiple (more than 3)	
4. time delay	

Cassette Player/Recorders	Amilon*; Audiotechniques*; Bell & Howell*; Eumig*; Nakamichi*; Neal Ferrograph*; Ram- ko*; H.H. Scott; Sharp*; Sony*; Superscope*; Tandberg*; Teac*; Technics*; US Pioneers*; Yamaha*
----------------------------------	---



The technology that made Technics turntables the No.1 choice will make this Technics deck your No.1 choice.

You'll choose Technics RS-10A02 tape deck for the same reason 85 of the top 100 radio stations choose Technics turntables: The performance and reliability of Technics' quartz-locked direct drive.

Like our turntables, the RS-10A02 gives you the precision of a quartz-locked direct-drive motor. But you also get Technics' isolated loop tape transport system which optimizes tape tension to virtually eliminate signal dropout while reducing modulation noise and wow and flutter.

Studio pros will appreciate the RS-10A02's full complement of ten front-panel controls. Like playback and recording EQ adjustments, bias controls, and playback and recording level calibrators. When used with the built-in test-tone oscillator, these controls will give you optimum recording performance no matter what kind of tape you use.

The RS-10A02 also has extremely durable SX Sendust heads, IC logic controls and just about everything else you could want in a professional 2-track deck.

So before you buy any reel-to-reel deck, audition the RS-10A02 and see why it's your No. 1 choice.

For more information on the Technics R&B Series, call 201-348-7470.

Technics
R&B series

Circle 150 on Reader Service Card

www.americanradiohistory.com

Source Locator: AUDIO cont.

Low Frequency Extenders Comrex*; dbx*; Kahn; McCurdy*; Multidyne*

Open-Reel Tape Player/Recorders
 1. portable
 2. studio systems
 3. time delay
 4. logging recorder

Accurate Sound 1,2*; Ampex 1-3*; Ampro/Scully 2*; Broadcast Electronics*; Cavox-Tapeathon 1,2; Dictaphone 4*; Dyma 3*; Electro Sound 1,2; Fostex 1,2*; Intl Tapetronics 1*; Lexicon 3*; Magna-Tech 2*; MCI 2*; Nagra 1*; Neal Ferrograph 1,2,4*; Otari 1,2*; Ramko 2*; RCA Broadcast 2*; Sony 1*; Sound Dynamics 2*; Soundscriber 1,2,4*; Stancil 4*; Tandberg 1,2*; Teac 2*; Technics 1,2*; Telex 1,2,4*; Trident 2*; United Research 2*; US Pioneer 2*; VIF Intl 2*

Tape Heads
 1. replacement
 2. rebuilt

Accurate Sound 1,2*; Audi-Cord 1; Broadcast Electronics*; Brush Magnetic 1*; Data Recording 1,2*; Forglio 1*; Intl Electromagnetics 1,2*; MagnaTech 1*; Michigan Magnetics 1*; Minneapolis Magnetics 1,2*; Saki Magnetics 1*; Sound Dynamics 2*; Studer Revox 1*; Taber 1,2*; Tapex 1; UMC 1*; Vikron 1

Tape Duplicators

Accurate Sound*; Audio Tek; Bonneville*; Cetec Gauss*; Electro Sound; Garner*; Gruver; Intl Audio; Magnefax*; Merlin*; Otari*; Pentagon*; RKO Tape; LJ Scully; Telectro*; Telex*

Tape Editing Equipment and Accessories
 1. splicing blocks & tape
 2. electronic editor
 3. digital audio editor

Broadcast Electronics 1*; BTX 2*; Convergence 2*; Datatron 2*; EECO 2*; Electro Sound 1; GC Electronics 1; Gotham Audio 1*; Harris 1*; Lauderdale 1*; 3M 3*; Marathon 1*; Mitsubishi 3*; Nortronic 1*; Sharepoint 2*; Studer Revox 2*; Taber 1*; United Media 2*; V.A.M.P. 2*; Westlake 1

◆ MEANS VERIFIED SOURCE

Tape and Head Erasers
 1. head degaussers
 2. bulk erasers
 3. conveyor erasers

R.B. Annis 1,2*; Broadcast Electronics*; Fidelipac 2*; Garner 3*; GC Electronics 1,2; Harris 1,2*; Lauderdale 2*; Magnesonics 1,2; Magnefax 2,3*; Marathon 1*; Microtran 1,2; Nakamichi 1*; Nortronic 1,2*; Optek 2; Taber 1,2*; Tapex 1,2; Teac 1*; UMC 1,2*; VIF Intl 2*; Wide Range 1,2*

Tape Storage
 1. open-reel
 2. cartridge
 3. cassette

Aristocart 3*; Broadcast Cartridge 2*; Broadcast Electronics*; Dyma 1-3*; Fidelipac 2*; Grinnan 1,2*; Harris 2*; Lauderdale 2*; Micro-Trak 2*; Neumade 1-3; Storeel 1-3*; Studer Revox 1*; Tapex 1-3; Wallach 1-3*; Winsted 1-3*

Telephone Coupling Equipment

Ampro Scully*; Broadcast Electronics*; Clear-Com*; Comrex*; D-B Electronics*; Gregg Labs*; Magnasync Moviola*; Rupert Neve*; Norcom*; Old Dominion; Protech Audio*; Redding Radio; RTS Systems*; Shure*; Studer Revox*; Telfax; Torpey

Audio Level Indicators
 1. VU
 2. PPM
 3. LED or other

ADM 1,2*; Applied Technology 1,2*; ATI 1,3*; Audio & Design 1-3*; Audio Processing 3*; Audio Technology 2*; Boston Sound & Power 3; Crompton 1,2; Dorrrough 3*; Electro & Optical 2*; ESE 3*; GC Electronics 1; Gotham Audio 1-3*; Heath 3*; Image Video 3*; Inovonics 2*; Intl Instruments 1,2; KB Systems 1*; Logitek 1-3*; McCurdy 2*; McMartin 1*; Quad Eight 1,3*; Sansui 1*; Scott Instruments 1,2; Spectra Sonics 1*; Superex 3*; Tangent 1-3; Technics 2*; Tektronix 2,3*; TM 1; Triplett 1; United Recording 1*; Weston 1*

II. VIDEO EQUIPMENT

Audio/Video Recorder Synchronizers
 1. SMPTE
 2. other

Ampex 1*; BTX 1*; Control Video 1,2; Datatron 1*; Dyma 1,2*; EECO 1*; Electro & Optical 1*; Skotel 1*; Studer Revox*; United Media 1*

Automated Cartridge/Cassette Players
 1. quad
 2. one-inch

Ampex 1*; Fernseh 2*; RCA Broadcast 1*

Cameras, TV, Color Studio
 1. over \$50,000
 2. \$25 - 50,000
 3. below \$25,000

Ampex 1*; Cinema Products 2*; Commercial Electronics 2*; Fernseh 1*; GBC 3; Harris 1,2*; Hitachi 2,3*; Ikegami 1-3*; Intl Video 1,2*; Marconi Elec 1,2*; Panasonic 2,3*; Philips Broadcast 1-3*; Nytone 3*; RCA Broadcast 1,2*; Sharp 3*; Sony 2,3*; Thomson-CSF 1-3*; Toshiba 1*; US JVC 3*

Cameras, TV Mono

Asaca*; Fernseh*; GBC; Hitachi*; Ikegami*; Javelin*; Panasonic*; Sharp*; Video Optics; Westinghouse*

Camera/VTRs, one-piece Panasonic*; RCA*; Sony*

Cameras, TV, Portable ENG/EPF/EC
 1. over \$20,000
 2. \$12 - \$20,000
 3. less than \$12,000

Akai America 3; Ampex 1*; Asaca 1*; Cinema Products 1*; Commercial Electronics 1-3*; Fernseh 1*; GBC; Hitachi 1,2*; Ikegami 1-3*; Intl Video 1*; Marconi Elec 1-3*; NEC 1*; Panasonic 1-3*; Philips Broadcast 1*; RCA Broadcast 1*; Sharp 1-3*; Sony 1-3*; Thomson-CSF 1-3*; Toshiba 1,2*; US JVC 3*; Video Optics 3

Camera Heads, Mounts, Dollies, etc.
 1. heads
 2. tripods
 3. pedestals
 4. stabilizing systems
 5. ENG camera braces
 6. cranes
 7. dollies
 8. other

Arriflex 1,2,4*; Bardwell & McAlister 2*; Birns & Sawyer 1,2,7; Cine 60 5*; Cinema Products 1,2,4*; ENG Helicopter Satellites 4,5*; F&B Ceko 2,8*; GBC 8; Alan Gordon 1,2*; Gruber 8*; Harris 1-3*; Karl Heitz 1,2,7*; Ikegami 1-5,7*; Image Devices 2,6*; Innovative 1-3,5,7,8*; K&H 5,7*; Lee-Ray 2-5,7*; Listec 1-3,5,7*; Matthews 7,8*; Microwave Assoc 4*; O'Connor 1,2*; Panasonic 2*; Power Optics 4; Quick-Set 1,2,3,7*; Sfena 4; Smith-Victor 2; Television Products 3*; Video Components 1-3,5*

Camera Optics
 1. lenses
 2. filters
 3. lens adapters
 4. extenders

AIC 1; Angenieux 1,3,4*; Ava 2-4*; Canon 1*; Century Precision 1,3,4*; Cinema Products 1*; Commercial Electronics 2-4*; F&B Ceko 1*; Fujinon 1,3,4*; Harris 1,3,4*; Karl Heitz 1,3*; Ikegami 1-4*; Javelin 1,4*; Lenzar 1*; Listec 1,3*; Panasonic 1*; Rank Precision 1*; Schneider 1-4*; Sharp 1-4*; Warren Smith 3*; Tele Cine 1-4*; Tiffen 2,3*; Zoomar 1

Camera Power Packs (batteries)

Anton/Bauer*; Cine 60*; Cinema Products*; Frezzolini*; Ikegami*; Media Concepts*; Panasonic*; Sony*; Video Components; Yardney*

Chroma Keys
 1. RGB
 2. encoded
 3. luminance

American Data 1*; Broadcast Video 1-3*; Crosspoint Latch 2*; Grass Valley 1,2*; Image Video 1-3*; Intl Nuclear 1; ISI 1,2*; Panasonic 1*; RCA Broadcast 1*; Shintron 2,3*; Siegel 1*; Telemet 1,2*; Vital 1,2*; Vlahos-Gottschalk 1,3*

Color Correctors

Ampex*; Broadcast Video*; Fernseh*; For-A*; Harris*; Ikegami*; RCA Broadcast*; Siegel*

Color Encoders

Broadcast Video*; Cohu*; Fernseh*; For-A*; Ikegami*; Lenco*; Philips T&M*; RCA Broadcast*; Siegel*

Digital Video Noise Reducer (standalone)

Digital Video*; Fernseh*; MCI/Quantel*; NEC*; Philips Broadcast*; Sony*; Thomson-CSF*

Dropout Compensators

Digital Video*; Edutron*; Merlin*; NEC*; RCA Broadcast*; Siegel*

Electronic Character/Graphics Systems
 1. titlers (only)
 2. full graphics systems

Ampex 2*; Aurora Imaging 2*; Barda 1; Beston 1*; Chyron 2*; Computer Video Systems 1,2*; EECO 1*; Fernseh 2*; For-A 1,2*; Interand 2; Kallman 1; Kelcee 1; Knox 1*; Laird 2*; 3M 1,2*; McInnis-Skinner 2*; MPB 2*; MSI 1; Multidyne 1*; QSI 1*; Ramtek 2; Reynolds Leteron 1,2*; Shintron 1*; System Concepts 1*; Thainer 1*; Thomson-CSF 2*; Torpey 1; Video Assoc 1,2; Video Data 1,2*; Videomedia 1*; Weathermatic 2*

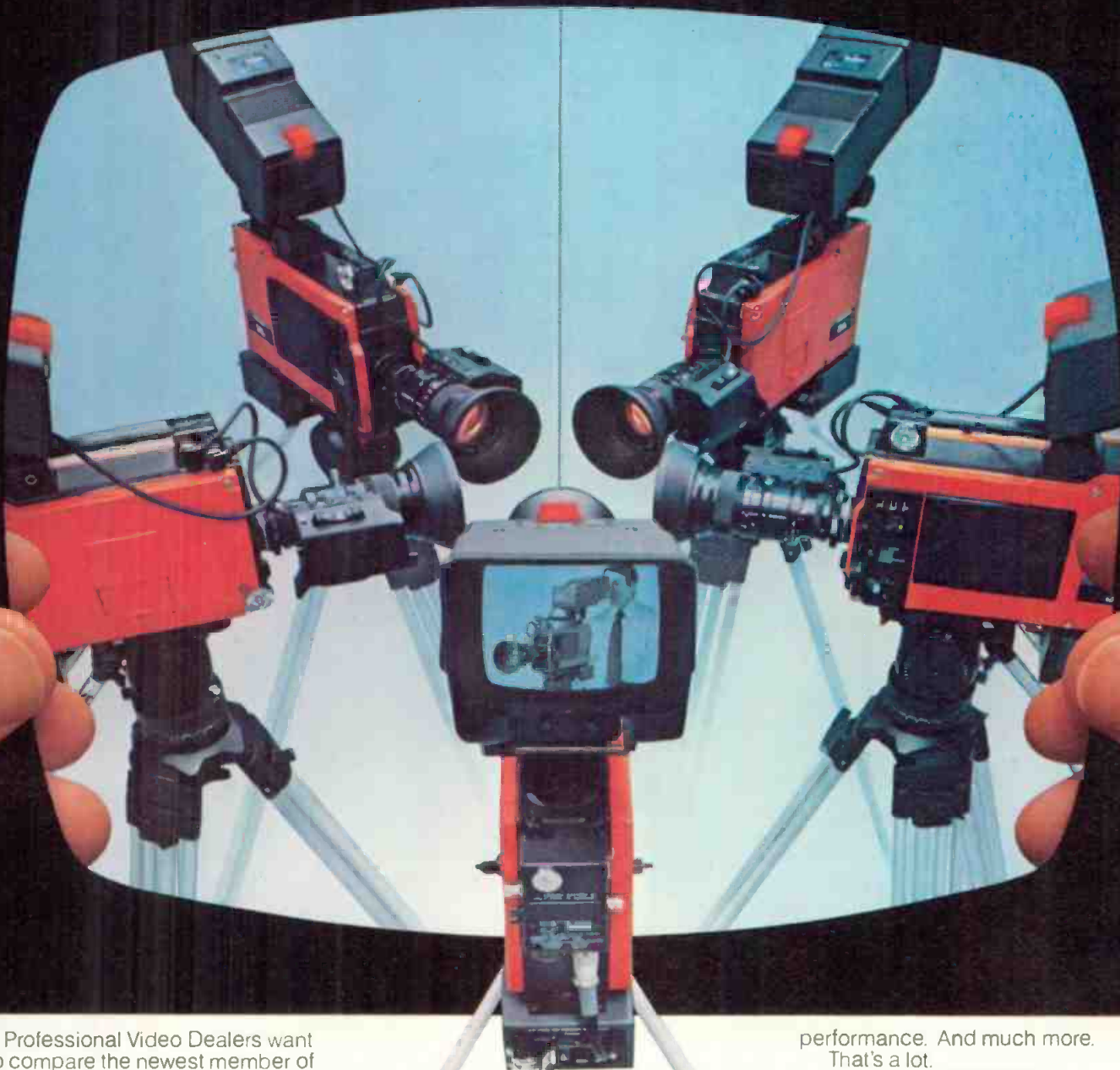
Source Locator: VIDEO cont.

Electronic Still Stores	ADDA*; Ampex*; Arvin/Echo*; Asaca*; Eigen*; Harris Video*; MCI/Quantel*; Oktel*
Film Telecine Equipment	Bell & Howell 1,2,5*; Beston 2*; Buhl 3,4*; Cohu 4,5*; Fernseh 4,5*; GBC 5; Ikegami 1-6*; Laird 2-5*; L-W Intl 2*; Magnasync/Moviola 5*; Marconi Elec 5*; Multi-Track 1,2*; WA Palmer 2*; Philips Broadcast 5*; Radmar 2,4; Ranger-tone 1,2,3,5*; Rank Precision 1,2*; Spindler & Sauppe 3*; Zei-Mark 2-5
Image Enhancers	Colorado Video*; Edutron*; Faroudja*; Fernseh*; Harris*; Harris Video*; Ikegami*; Kalart Victor*; MCI/Quantel*; Microtime*; Siegel*; Thomson-CSF*; Video Optics; Vidicraft*
Master Control Switchers	American Data 1,2*; Ampex 1,2*; Beaveronics 1*; Comad 1,2; Grass Valley 1,2*; Image Video 1-3*; Intl Nuclear 1; ISI 1,2*; Ross Video 1*; Viscount 1*; Vital 1-3*
Monitor Calibrator	Kallman; Philips T&M*; Power Optics; Television Equip*
Monitors, Picture	Amtron 2,3*; Asaca 1-3*; Audiotronics 1*; Audiotronics Video Display 1*; Canter-Redman 2*; Cohu 1*; Conrac 1,3*; Electrohome 1,2*; Faroudja 2*; Fernseh 1,2*; GBC; Hitachi 1,2*; Ikegami 1-3*; Image Devices 2*; Javelin 1*; Lectrotech 2*; Lenco 1,2*; Listec 1,2*; Merlin 2*; Motorola 1*; Panasonic 1-3*; Rhode & Schwarz 1,2*; Sony 1,2*; Tektronix 2*; Tritronics; US JVC 2,3*; V.A.M.P. 1-3*; Videotek 2,3*; World Video 2,3*
Processing Amplifiers	Automation Techniques*; Fernseh*; Grass Valley*; Harris*; Ikegami*; Leitch*; Lenco*; 3M*; NEC*; Sigma*; Tektronix*; Television Equip*; Versa Count*; Vital*
Production Switchers	American Data 1,2,4*; Ampex 1,2,4*; Asaca 3*; AVL 2,3*; Beaveronics 1-3*; Broadcast Video 2,3*; Central Dynamics*; Crosspoint Latch 1-3*; Echolab 1-3*; Grass Valley 1,2,4*; Ikegami 2,3*; Image Video 2*; Intl Nuclear 1,2; ISI 1,2,4*; Johnson 2*; Kaitronics 2,3*; NEC 1*; Philips Broadcast 2*; Ross Video 1,2*; Shintron 2*; Toshiba 3*; Viscount 2,3*; Vital 1-4*
Pulse and Distribution Amplifiers	American Data 1-3*; Ava 2*; AVL 2,4*; Broadcast Electronics 2*; Canter-Redman 2*; Central Dynamics 1,2*; Channelmatic 2*; Cohu 1,2,4*; Datatek 1-4*; Datatronix 2; Di-Tech 1,2*; Dynair 1-3*; Fernseh 1-3*; GBC 1,2; Graham-Patten 1-3*; Grass Valley 1-4*; Harris 1*; Hedco 1-3*; Image Video 2*; Intl Nuclear 1-3; ISI 1-4*; Javelin 2*; Kelcee 1,2,3; Leitch 1-4*; Lenco 1,2*; 3M 1-3*; Marconi Elec 1-3*; Multidyne 2,3*; NEC 1,2*; Opamp Labs 2*; QSI 2*; Shintron 1,3*; Sigma 1-3*; Telemet 1,2*; Television Equip 1,2*; Vamco 2; Video Aids 1,2*; Vidicraft 2*; Viscount 2*; Vital 1-3*
Remote Pan & Tilt Systems	American Laser*; Canon*; Harris*; Intl Video*; Javelin*; Listec*; Motorola*; Panasonic*; Power Optics
Routing Switchers	American Data*; AVL*; Comad; Datatek*; Datatronix; Di-Tech*; Dyma*; Dynair*; Fernseh*; Grass Valley*; Hedco*; Image Video*; Intl Nuclear; ISI*; Kelcee; Lenco*; 3M*; NEC*; Ramko*; Telemet*; Utah Scientific*; Varhco; Viscount*
SMPTE Time Code Equipment	Ampex 1-3*; BTX 1-3*; Cezar 1-3*; Chrono-Log 1,2*; Control Video 1-3*; Convergence 1*; Datametrics 1-3*; Datatron 1-3*; Dyma 3*; EECO 3*; Electro & Optical 1,2*; ESE 1*; For-A 1,2*; Gray 1,2*; Jatex 2,3*; Kaitronics 1-3*; Leitch 2*; Media Concepts 2*; Multidyne 1*; Multi-Track 2*; Panasonic 3*; QSI 3*; Quintek

1-3*; RCA Broadcast 1-3*; Shintron 3*; Skotel 1-3*; Unemco 1*; United Media 1-3*

Signal Equalizing Systems	Datatek*; Dynair*; Grass Valley*; Intl Nuclear; Leitch*; Lenco*; Orange County*; Orban*; Telemet*
Special Effects Generators	ADDA*; Asaca*; BJA*; Broadcast Video*; Colorado Video*; Convergence*; Crosspoint Latch*; Dynair*; GBC; Grass Valley*; Ikegami*; Intl Nuclear; MCI/Quantel*; NEC*; Panasonic*; Philips Broadcast*; Shintron*; Thainer*; Viscount*
Standards Converters	MCI/Quantel*; Okii*
Sync Generator Systems	American Data 3,7*; Asaca 1,2,4,5*; Automation Techniques 2,3*; AVL 4,5*; Canter-Redman 1-3,5*; CMC 7*; Cohu 1*; Crosspoint Latch 1-3*; Dynair 1,3,7*; Edutron 1*; Fernseh 1-3*; For-A 1-3*; GBC 1; Grass Valley 1,3,7*; Harris 1,2,6*; Ikegami 1-6*; ISI 1-3*; Jatex 2,3*; Kaitronics 2*; Kelcee 2,7; Leitch 1-5*; Lenco 1,3*; 3M 1,2*; Marconi Elec 1-3*; Multidyne 1-3,5*; Panasonic 1,2*; Philips T&M 1*; QSI 1,2*; Rohde & Schwarz 1-5*; Shintron 1-3*; Siegel 1*; Sigma 1-3*; Tektronix 1-5*; Video Aids 1,3*; Video Assoc 7; Viscount 1*; Visual Info 1,2,4,5
Synchronizers	ADDA 1*; Arvin/Echo 1,2*; Digital Video 1,2*; Grass Valley 1*; Harris Video 1,2*; MCI/Quantel 1,2*; Microtime 1*; NEC 1*; Thomson-CSF 1*; Video Assoc
Teleprompters	Harris*; Listec*; Q-TV*; Telescript*
Time Base Correctors	ADDA 1,2*; Ampex 1-3*; Automation Techniques 2*; Digital Video 1-3*; Edutron 1,2*; Harris Video 1-3*; MCI/Quantel 1-3*; Merlin 1,3*; Microtime 1-3*; NEC 1-3*; Philips Broadcast 1*; RCA Broadcast 1*; Thomson-CSF 1*
Video Action Recorders	Ampex 1,2*; Arvin/Echo 1-3*; Eigen*; Fernseh 1-3*; GYR 3; Javelin 3*; 3M 1,2*; Oktel 1-3*; Panasonic 3*; QSI 3*; Sony 1-3*
Video Art Systems	Ampex*; Animation Video*; Aurora*; Lyon Lamb*; McInnis-Skinner*
Video Delays, Filters	Allen Avionics 1,2*; Anders 1; Broadcast Video 1,2*; Fairchild 1*; Faroudja 2*; Kappa 1,2; Leitch 1*; Lenco 1*; NEC 1*; Television Equip 1,2*; TTE 2*
Video Effects Devices	ADDA 5*; Animation Video 6*; Aurora Imaging 2,6*; BJA 2,3,6*; Colorado Video 1,2,5*; Computer Image 6; Convergence 6*; Crosspoint Latch 2*; Digital Video 1*; Fernseh 4-6*; Grass Valley 1,2,5*; Harris Video 1,4,5*; Interand 1-4,6; Intl Nuclear 1,2; Listec 3*; Lyon Lamb 6*; MCI/Quantel 1,4,5*; Microtime 1*; NEC 1,4,5*; Power Optics 6; Warren Smith*; Vital 1*
◆ MEANS VERIFIED SOURCE	
Video Equipment, Misc.	Advent 6; Allen Avionics 4*; Anvil Cases 10*; 1. automatic telecine light control 2. video film noise reducers 3. comb decoders 4. equalizers 5. video slater 6. large screen projectors 7. rear screen projectors 8. video projectors 9. video lock to mag. film record 10. equipment carrying cases 11. video test charts and slides

Compare



The new KY-2700

COMPARE PERFORMANCE:

The KY-2700 holds registration specs to a tight 0.1, 0.2, and 0.4%, for crisp clean pictures. That's stability!

The KY-2700 has dual-edged vertical and horizontal contour correction for the detail and sharpness you require, 500 lines resolution, and for virtually noise-free video, 54db signal to noise. That's performance!

COMPARE FEATURES:

A fast, 14:1 Servo zoom lens, Automatic Beam Control (ABC), Automatic White Balance with memory, Automatic Black Stabilizer circuit (ABS), a low 18 watt power consumption for extended battery operation, "Instant On"

performance. And much more.
That's a lot.

COMPARE VALUE:

No other professional 3-tube color camera can match these specifications at a price even near the KY-2700.

That's a pleasure.

Compare it at your JVC Professional Video Dealer NOW!

For more information,

call toll-free 800-821-7700, Ext. 7005.

(in Missouri, 800-892-7655, Ext. 7005.)

Or write US JVC Corp., Dept. BME 9/81
41 Slater Drive, Elmwood Park, NJ 07407.

Available in Canada from JVC
Canada, Inc., Ontario.



Your choice. Now.

JVC®

US JVC CORP.

Circle 151 on Reader Service Card

Look into a JVC 3/4" TapeHandler. Now.



JVC has taken a close look at 3/4" Video Cassette Recording with an eye for what you've been looking for. Stability. Reliability. Gentle tape handling. Economy. The result is a full line of recorder/editors, full-function recorders, cost-efficient players, and microprocessor-based remote control units with utmost versatility, broad interfacing capability.

Take a look inside one of JVC's Tape-Handlers...the CR-8200U Recorder/Editor, the CR-6600U full-function Recorder with assemble-editing capability, or the CP-5500U Player with on-air quality...and you'll be amazed at what you don't see.

No pulleys. No belts. No idlers.

Instead, a 7-motor direct drive system that keeps tape tension constant for smooth and reliable tape transport, reliable tape shuttling. A simplified tape threading mechanism for gentle tape handling. Brushless DC motors that directly drive the capstan, head drum, and reels to give stability and reliability.

To go with them, there's a choice of compact control units: the easy-to-operate RM-88U Editing Controller for precise timing of machine functions, the low-cost RM-82U Editing Controller, and the RM-70U

US JVC Corp. Dept. 41 Slater Drive, Elmwood Park, NJ 07407

BM/E-9/81

- Please have a representative call.
 I don't want to talk yet. Just send literature.

Name _____
 Title _____
 Company _____
 City _____
 State _____ Zip _____
 Phone _____

full remote control unit with shuttle search function.

Get all the details. Send in the coupon, phone toll-free 800-821-7700, Ext. 7005 (In Missouri: 800-892-7655, Ext. 7005).

**Your choice.
 Now. JVC®**
 US JVC CORP.



©1980 US JVC Corp.

Circle 152 on Reader Service Card

Source Locator: VIDEO cont.

12. other era 9; Television Equip 4*; Thermodyne 10*; Winsted 10*

Video Source Identification Systems Channelmatic*; Datatek*; Di-Tech*; Fernseh*; Javelin*; Kaitronics*; Kelcee; Leitch*; Marconi Elec*; QS*; Thainer*; Torpey

Videotape
1. new tape Agfa-Gevaert 1*; Ampex 1*; Ampex Mag Tape 1*; Calico Video 1*; Fuji 1*; 3M 1*; Maxell 1*; Memorex 1*; Network 1; Panasonic 1*; PD Magnetics 1; Plastic Reel 1*; Sony 1*; Studio Film & Tape 1,2; Taber 1*; TDK 1*; Video Tape 1,2

Videotape Accessories
1. tape cleaners Allsop 9*; Ampex 3*; Ampex Mag Tape 3,5*; RB Annis 9*; Audico 7,9*; Calico Video 3*; Chyron 4*; Dyma 5*; Fidelipac 8,9*; Fuji 2*; Garner 8*; GC Electronics 2,8,9; Memorex 1-9*; Merlin 1,4,7; Neumade 5,7; Nortronics 2,8,9*; Nova 1,2; Optek 8,9*; Plastic Reel 3,5*; Polyline 3*; Recortec 1,4,7,9*; Research Technology 1,4,5*; RMS 2,9*; Sonar 8; Soundscribe 7,8*; Storeel 5*; Studio Film & Tape 4*; Taber 2,3,6,8*; Television Equip 1,2,4,7*; Tented 6,9*; Texwipe 2*; Wallach 5*; Winsted 5*

Videotape Editing
1. two-VTR editor/controller Ampex 1-3*; Cezar 1*; Cinema Products 1*; CMX/Orrox 2,3*; Control Video 3*; Convergence 1-3*; Datatron 1-3*; Delcom 3*; EECO 1-3*; Fernseh 1-3*; Harris Video 2,3*; Jatex 1-3*; Kaitronics 1*; Panasonic 1-3*; RCA Broadcast 1-3*; Sony 1-3*; Tech Electronics 1; Unemco 1-3*; United Media 1-3*; US JVC 1*; Videomedia 1-3*

Videotape Recorder/Players
1. quad Akai America; Ampex 1,2*; Canter-Redman 5*; Delcom 3*; Hitachi 2*; Intl Video 2,3*; 3M 2*; Marconi Elec 1,2*; Merlin 1-3*; NEC 3*; Panasonic 4,5*; RCA Broadcast 1,2*; Recortec 3,4*; Sharp 3*; Sony 2,4,5*

VTR Head and Machine Rebuilding
1. new VTR heads AF Assoc 3*; Ampex 1,2*; CMC 2*; Merlin 3*; RCA Broadcast 1-3*; Recortec 3*; Saki 1,2*; Spin Physics 1,2*; Taber 1-3*; Videomagnetics 1,2*

III. FILM EQUIPMENT

Cameras, Cine
1. 16 mm AIC; Arriflex 1,2*; Bach Auricon; Bell & Howell; Cinema Products*; Eastman Kodak*; Eumig*; Frezzolini 1*; General Camera; Karl Heitz 1*

Camera Lenses AIC; Angenieux*; Arriflex*; Bach Auricon; Bell & Howell*; Canon*; Century Precision*; Cinema Products*; Eumig*; F&B Ceco*; Frezzolini*; Fujinon*; Karl Heitz*; Rank Precision*; Schneider*

Camera Tripods and Accessories Arriflex*; Bach Auricon; Bardwell & McAlister*; Bell & Howell*; Canon*; Cinema Products*; F&B Ceco*; Frezzolini*; General Camera; Alan Gordone*; Karl Heitz*; Image Devices*; Innovative*; O'Connor*

Film Agfa-Gevaert*; Eastman Kodak*

Film Cases Excalibur*; Fiberbilt*; Neumade; Paulmar; Plastic Reel*; Research Technology*; Thermodyne*

Film Cleaners Kinetronics; Lipsner-Smith*; Multi-Track*; Neumade; Paulmar; Plastic Reel*; Research Technology*

Film Editing Equipment
1. flatbed editors Birns & Sawyer 1-3; Cinema Products 1*; Kalart Victor 1,3*; KB Systems 2*; Magnasync/Moviola 1-3*; Neumade 3; Paulmar 2,3; Plastic Reel 3*; Research Technology 2,3

Film, Misc.
1. pollution, control, silver recovery BTX 3*; CPAC 1; Houston Fearless 1; Magnasync/Moviola 4*; Magna-Tech 3*; Neumade 4; Pako 2; WA Palmer 5*; Paulmar 4; Research Technology 4,5*; Studer Revox 3*

Film Processors AIC; Eastman Kodak*; Filmline; Houston Fearless; Houston Photo; Jamieson; Kreonite; Pako; Paulmar; Treise

Film Projectors
1. motion picture Bell & Howell 1,2*; Kalart Victor 1*; Laird 1,2*; L-W Intl 1,3*; Mackenzie Labs 1,2; Magna-Tech 1,3*; Multi-Track 1,3*; WA Palmer 1*; Singer Education 1,2; Spindler & Sauppe 2*; Zei-Mark 2

Magnetic Film
1. recording Agfa-Gevaert 1,2*; Kalart Victor 1*; 3M 1*; Plastic Reel 1,2*; Standard Tape 2*; Studio Film & Tape 1*

Magnetic Recording Equipment and Accessories Frezzolini*; General Camera; Magna-Tech*; Magnasync/Moviola*; Multi-Track*; Ranger-tone*; RCA Broadcast*; Soundscribe*; Wide Range*

Optical Printer Wide Range*

IV. LIGHTING

Lamps Barbizon; Bardwell & McAlister*; Belden Comm*; Berkey Colortran*; Cool Light; GE Lighting*; Great American Markets; GTE Prode*; Harwood; Lowel-Light*; LTM; Olesen; Packaged Lighting; Panoak; Strand Century*; Swager

Lighting Control Systems
1. manual Avab America 1,3*; Belden Comm 1-3*; Berkey Colortran 1-3*; Electro Controls 1-3; Electronics Diversified 1-3; Great American Market 2*; Kliegl 1,2*; Lauderdale 2*; Mackenzie Labs 2; Mole-Richardson*; Olesen 1-3; Packaged Lighting 1,3; Panoak 1-3*; Rainbo 1*; Skirpan 2*; Strand Century 1-3*; Superior 1-3*; Theatre Techniques 1-3; Ultra Audio 1-3*

Lighting Hardware and Accessories
1. heads, stands and fixtures Anton/Bauer 1*; Arriflex 1*; Barbizon 3; Bardwell & McAlister*; Belden Comm 1-3*; Berkey Colortran 1,2*; Birns & Sawyer 1; Cine 60 1*; Cinema Products 1*; Cool Light 1; Electro Controls 1; Electronics Diversified 1; Frezzolini 1*; Great American Market 1*; Karl Heitz 1*; Kliegl 1*; Kreonite 1; Lowel-Light 1-3*; LTM 1; Matthews 1,2; Mole-Richardson 1,3*; Olesen 1-3; Packaged Lighting 1-3; Panoak 1-3*; Rainbo 1*; Rosco Labs 1-3; Smith-Victor 1,2; Strand Century 1-3*; Video Components 1

Patch Terminals Berkey Colortran*; Electro Controls; Electronics Diversified; Kliegl*; Olesen; Panoak*; Strand Century*; Theatre Techniques; Union Connectors*

Plugs and Connectors Barbizon; Berkey Colortran*; Dabum*; Electro Controls; Kliegl*; Olesen; Panoak*; Strand Century*; Union Connectors*; Vidair*



Source Locator: TRANSMITTING cont.

Scenery, Prefab	Great American Market*; Olesen
Seamless Materials	Janson; Olesen; Panoak*; Syracuse*
Set Design	Great American Market*; Rosco Labs

V. RF/TRANSMITTING/ RECEIVING EQUIPMENT

Demodulators	Belar*; Blonder-Tongue*; Cate*; Coastcom; Comark*; Continental Electronics*; Fung; Harris*; Lampkin; McMartin*; Microwave Assoc*; Phasecom*; Philips T&M*; Potomac*; QSI*; RHG Electronics; Rohde & Schwarz*; Tektronix*; Telemet*; TFT*; Townsend*; Videotek*; Wilkinson*
---------------------	--

Diplexers	Afford; Cetec Antennas*; Coastcom*; Comark*; Continental Electronics*; CSP; Dielectric; Harris*; Harris Farinon*; Micro Communications*; Mu-Del; Shively*; Television Technology*; Tennaplex*; Townsend*
------------------	--

Exciters	Acrodyne 3*; Bayly 2*; Belar 1*; Boonton 1,2*; 1. AM stereo 2. FM 3. TV Broadcast Electronics 2*; Comark 3*; Continental Electronics 1,2*; Elcom 2*; Harris 1-3*; Kahn 1; LPB 2*; Marti 3*; McMartin 1-3*; NEC 2,3*; Philips Broadcast 3*; QEI 2*; Singer Broadcast 2,3*; Solid Electronics 2*; Townsend 3*; Versa Count 2*; Wilkinson*
-----------------	--

Microwave Equipment	Afford 1; Cablewave 1*; Coastcom 5*; Comark 3*; Compact Video 5*; Eaton 3,5; ENG Helicopter Satellite 3,4,5; Gabriel 3*; GTE Lenkurt 1*; 1. intercity 2. portable 3. ENG 4. airborne 5. supports, portable equipment Harris 4*; Harris Farinon 1-4*; Hitachi 3*; Hughes Microwave 1*; Ikegami 3*; Intl Microwave 1-3; Marti 1,3*; Micro Communications 1-3*; Microwave Assoc 1-5*; Moseley 1-4*; NEC 2,3,4*; Nurad 4*; RF Technology 1-4*; RHG Electronics 3,4; Rockwell 1,2*; Soladyne; Systron Donner 1,5*; Systron Donner Microwave 1,5*; Tayburn 1-5*; Tennaplex 3*; Tepco*; Terracom 1-3*; Varian Electron 1,4*; Versa Count 1*
----------------------------	--

◆ MEANS VERIFIED SOURCE

Misc. RF Equipment	Andrew 5,7*; 1. program subcarrier 2. carrier current 3. phasing network 4. TV combiners 5. RF cables 6. FM processors 7. RF connectors 8. converters 9. other Athans Comm 1,2; Ava 4,5,7*; Cablewave 3,5,7*; Cambridge 5,7; Cate*; Cetec Antennas 4*; Coastcom 1*; Coaxial Dynamics 9; Comark 4,5,7*; Continental Electronics 3*; CSP 2,3; Dielectric 4; Elcom 1,6*; GTE Lenkurt 1*; Harris 3-7*; Intl Microwave 1; Kay Ind 9*; Kings 7*; LPB 2*; McMartin 1,2,6*; Micro Communications 4*; Microwave Assoc 1*; Moseley 1*; Mu-Del 4,8; NEC 4*; Orban 6*; Radio Systems 2*; Rivers 1*; RMS 5,7*; Sharepoint 6*; Shively 7*; Singer Broadcast 1,4*; SWR 5,7*; Television Technology 8*; Tennaplex 4,7*; TFT 1*; Trompeter 5,7*; Valley People 6*; Vidaire 7*; Whirlwind 5
---------------------------	--

Modulators	Belar*; Blonder-Tongue*; California Microwave*; Cate*; Coastcom*; Dynair*; Fung; Harris*; Javelin*; Marconi Elec*; McMartin*; Phasecom*; Philips T&M*; Potomac*; RHG Electronics; Rohde & Schwarz*; Telemet*; UHF
-------------------	---

Receivers, Comm and Monitor	California Microwave*; Eaton; Emergency Alert*; Gorman-Redlich*; GTE Lenkurt*; McMartin*; Monroe*; Motorola*; National Electrolab; RHG Electronics; Rockwell*; Scientific Radio*; Tepco*; US Pioneer*; Varian Electron*
------------------------------------	---

Remote Control Systems	American Laser*; Broadcast Electronics*; Cat Systems; Channelmatic*; Comark*; CSP; Delta*; Dyma*; Hallikainen*; Harris*; Marti*; McMartin*; Micro Communications*; Micro Control*; Microwave Assoc*; Monroe*; Moseley*; Nurad*; Sharepoint*; Soll*; Strand Century*; Tayburn*; TFT*
-------------------------------	---

Remote Pickup Equipment (broadcastable)	American Laser*; Broadcast Electronics*; Harris*; Marti*; McMartin*; Microwave Assoc*; Moseley*; Motorola*; Russco; Swintek*; Ultra Audio*
--	--

RF Amplifiers	Ava*; Bayly*; Belar*; Blonder-Tongue*; Continental Electronics*; CSP; Eaton; Elcom*; Gardiner; Harris*; Harris Farinon*; Intl Microwave; Marconi Elec*; McMartin*; Microwave Power; Moseley*; Mu-Del; National Electrolab; North Hills*; RF Technology*; Television Technology*; Townsend*; Varian Electron*; Versa Count*; Wide Band; Wilkinson*
----------------------	---

RF Attenuators	Ava*; Bird*; Comark*; CSP; Eaton; Electro Impulse*; Harris*; Kay Elemetrics; McGraw-Edison; Mu-Del; RHG Electronics; Television Technology*; Telonic/Berkeley; Texscan*; Varian Electron*
-----------------------	---

RF Converters	California Microwave*; CSP; Television Technology*; Varian Electron*
----------------------	--

RF Filters	Bird*; Blonder-Tongue*; Cate*; Coastcom; Coaxial Dynamics; Comark*; Continental Electronics*; CSP; ESC; Micro Communications; Mu-Del; Phelps Dodge*; Shively*; Television Technology*; Telonic/Berkeley; Texscan*; TTE; Varian Electron*; Wavetek Rockland; Wide Band
-------------------	---

RF Loads	Afford; Bird*; Blonder-Tongue*; Coaxial Dynamics; Comark*; Continental Electronics*; CSP; Dielectric; Elcom*; Electro Impulse*; Micro Communications; Shively*; Soll*; Varian Electron*
-----------------	---

RF Switchers	Coaxial Dynamics; Comark*; CSP; Delta*; Dielectric; Dyma*; Gardiner; ITT Jennings*; Kay Elemetrics; Kilovac*; Magnecraft; Micro Communications*; Shively*; Soll*
---------------------	--

SCA Equipment	Alden 3*; 1. FM 2. TV 3. terminals Belar 1,3*; Continental Electronics 1*; CSI 1; Elcom 1*; Emergency Alert 1*; Fixtune 3; Harris 1,2*; Johnson 1*; Marti 1,2*; McMartin 1-3*; Micro Control 1,2*; Moseley 1,2*; QEI 1*; Singer Broadcast 1*; Solid Electronics 1*
----------------------	--

STLs	Andrew 1*; 1. microwave 2. telco 3. optical fibers 4. waveguide Avantek 1; Bayly 2*; Cablewave 1,4*; Comark 1,4*; Comsearch 1*; Gabriel 4*; GTE Lenkurt 1-3*; Harris 1,3*; Harris Farinon 1*; Intl Microwave 1; LeCroy 3; Marti 1*; Micro Control 1*; Microwave Assoc 1,2*; Moseley 1*; Nurad 1*; Prodelin 4*; RF Technology 1*; RHG Electronics 1; Telemet 3*; Terracom 1*; TFT 1*; Times Wire & Cable 3; Valtec 3*; Versa Count 1*; Western Telecom 1,3*
-------------	---

Satellite Earth Stations	Alden 2*; 1. transmit/receive 2. receive only 3. mobile Andrew 1,2*; Anixter-Mark 1; Antennas for Communications 1*; Avantek 2; California Microwave 1-3*; Coastcom 1; Comark 1*; Compact Video 3*; Comsearch 1-3*; Comtech 1-3; Dexel 2*; Fort Worth Tower 2*; Gabriel 2*; Gardiner 2; GTE Lenkurt 1,2*; Harris 1-3*; Harris Satellite 1-3*; Hughes Microwave 2*; McMartin 1,2*; Microdyne 2; Microwave Assoc 1-3*; NEC 2*; Prodelin 2*; Rockwell 1,3*; Scientific-Atlanta 1,2*; Varian Electron 1-3*
---------------------------------	---

Stereo Generators	Continental Electronics*; CSI; Elcom*; Kahn; Marcom*; McMartin*; Orban*; QEI*; RE Instruments; Singer Broadcast; Sound Technology*
--------------------------	--

Translators	Acrodyne*; Coastcom; Comark*; Emcee*; Harris*; Kitchen Productions; McMartin*; NEC*; Rodelco*; Television Technology*; Tepco; Thomson-CSF*; Versa Count*
--------------------	--



In the Entertainment Capitol of the World Professional Broadcasters Agree on Stanton

With the modern sophistication embodied in cartridge development, both judgement and evaluation of the professional user is a critical landmark for every audiophile. When this acclamation comes from some of the most important professionals in the most important center of entertainment, it is even more significant. Broadcasters in the Los Angeles-Hollywood area endorse Stanton, joining the most important broadcasters around the world.

From the famous broadcast standard 500, 600 series to the sophisticated 800 series featuring the world-renowned 881S, all Stanton cartridges meet the most critical of professional standards. And the new 980LZS designed specifically for moving coil advocates who look for consistency only offered by moving magnet performance adds still another dimension to Stanton performance.

For further information write to:
Stanton Magnetics, Terminal Dr.,
Plainview, N.Y. 11803



Source Locator: ANTENNAS

Transmitters, AM Bayly*; Continental Electronics*; CSI; Elcome*; Harris*; Intl Microwave; LPB*; Marconi Elec*; McMartin*; NEC*; RCA Broadcast*; Scientific Radio*; Singer Broadcast*; Wilkinson*

Transmitters, FM Bayly*; Broadcast Electronics*; Canadian GE*; Continental Electronics*; CSI; Elcome*; Harris*; Intl Microwave; LPB*; Marconi Elec*; McMartin*; Microwave Power; NEC*; QEI*; RCA Broadcast*; Singer Broadcast*; Swintek*; Versa Count*; Wilkinson*

Transmitters, TV
 1. VHF
 2. UHF
 3. low-power UHF
 4. low-power VHF
 Acrodyne 1,2*; Bayly 1,2*; Canadian GE 1,2*; Comark 1-4*; Comsearch 2,3*; Emcee 1-4*; Harris 1,2*; Kitchen Productions 3,4; Marconi Elec 1,2*; McMartin 1-4*; Microwave Assoc 3,4*; Microwave Power 1; NEC 1,2*; Philips Broadcast 1,2*; RCA Broadcast 1,2*; Rohde & Schwarz 1*; Scientific Radio 1*; Singer Broadcast 1,2*; Thomson-CSF 1,2*; Townsend 1,2*; Varian Electron 1,2*

Two-Way Radio Communications Bayly*; Countryman*; Gruver; Motorola*; Phelps Dodge*; RCA Broadcast*; Rivers*; Swintek*

Weather Radar Systems
 1. radio
 2. TV
 Arvin/Diamond 1,2; Enterprise Electronics 1,2; Gorman-Redlich 1*; Information Processing 2; Technology Service 1,2*; Weathermation 1,2*

VI. ANTENNAS/TOWERS/TRANSMISSION LINES

Antennas, AM Andrews*; McKay Dymek*; McMartin*; Fred Nudd*; Old Dominion; RCA Broadcast*; Rex Rheostat*; Utility Tower*

Antennas, Communications Gabriel*; McKay Dymek*; McMartin*; Micron; Motorola*; Phelps Dodge*; Scala*; Telex*; Tennaplex*

◆ MEANS VERIFIED SOURCE

Antennas, FM Alford; Anixter-Mark; Blonder-Tongue*; Bogner*; Cetec Antennas*; Comark*; Continental Electronics*; Harris*; Johnson*; McMartin*; Micro Communications*; Phelps Dodge*; RCA Broadcast*; Scala*; Shively*; Singer Broadcast*; Solle*; Tennaplex*; Utility Tower*

Antennas, Microwave Andrew*; Anixter-Mark; Antennas for Communication*; Bogner*; Cablewave*; Comark*; Eaton; ENG Helicopter Satellites*; Gabriel*; Harris*; Ikegami*; Micro Communications; Microwave Assoc*; Nurad*; Prodelin*; Scala*; Terracom*; Utility Tower*

Antennas, TV
 1. HP
 2. CP
 Acrodyne 1,2*; Alford 1; Andrew 1*; Blonder-Tongue 1,2*; Bogner 1,2*; Canadian GE 1*; Cetec Antennas 1,2*; Comark 1,2*; Harris 1,2*; McMartin 1,2*; Micro Communications 2*; RCA Broadcast 1,2*; Scala 1*; Sitco 1,2; Soil 1,2*; SWR 1,2*; Tennaplex 1,2*

Antenna Tuning Units Comark*; Continental Electronics*; CSP; Harris*; McMartin*; Old Dominion

DA Equipment Continental Electronics*; CSP; Delta*; Gorman-Redlich*; ISI*; Lightning Elimination*

Transmission Line and Connectors Alford; Andrew*; Ava*; Belden Corp*; Cablewave*; Comark*; CSP; Delta*; Gabriel*; Harris*; McMartin*; Microflect; Micro Communications; Phelps Dodge*; Prodelin; RCA Dist & Special Products*; Shively*; Solle*; SWR*; Tennaplex*

Towers Advance Inds; Allied Tower; Andrews*; Athans Comm; Comark*; CSP; E-N-G*; E-Z Way*; Fort Worth Tower; GC Electronics; Grasis; Harris*; Harris Satellite*; High-Lite; Kline; McMartin*; Microflect; Fred Nudd*; Allen Osborne*; Soll*; Stainlesse*; Swager Tower; Tri-Ex; UNR-Rohn*; Up-Right*; Utility Tower*; Will Burt

Tower Hardware and Construction Equip Advance Inds; Allied Tower; Andrews*; Athans Comm; Copperweld*; CSP; Decca Austin*; Gabriel*; GC Electronics; Harris*; Kline; Kortick; Microflect; Norton; Fred Nudd*; Philadelphia Resins*; Polites; Tayburn*; Tri-Ex; UNR-Rohn*; Utility Tower*

Tower Lighting Advance Inds; Andrews*; Comark*; CSP; EG&G*; Elcome*; Flash Technology*; Grasis; Harris*; Hughey & Philips; Lauderdale*; Polites; UNR-Rohn*; Utility Tower*

VII. TEST & MEASUREMENT/MONITORING/TIMING/LOGGING EQUIPMENT

Antenna Monitors CSP; Delta*; Gorman-Redlich*; Harris*; Potomac*; Shively*

Automated Test & Measurement Systems Asaca*; Eaton*; Fluke*; Harris*; Hewlett-Packard*; Leaders*; Marconi Instr*; Microwave Assoc*; Nationwide; Potomac*; Tektronix*; Texscan*

Automatic TV Monitors Dyma*; TFT*; Video Aids*

Burst Phase Meters Dranetz; Video Aids*

Chart Recorders Bruel & Kjaer; United Recording*; Varian Electron*

Clocks, Time Systems
 1. digital clocks
 2. master clocks
 3. slave clocks
 4. timers
 5. time distribution sys.
 Automated Broadcast; Automation Techniques 1*; Beaveronics 2,3,5*; BI 4*; Broadcast Aids 1,4*; Broadcast Electronics 1,2,4*; Broadcast Services 4; Channelmatic 4*; Chrono-Log 1-3,5*; Dyma 2,3,5*; EEV 1*; EEV Canada 1*; ESE 1-5*; Frequency Control 2,3*; GC Electronics; Harris 1,2,4*; Image Video 1,4*; Lauderdale 1,4*; Leitch 1-3*; McCurdy 1-3*; Multidyne 1-5*; QSI 1-4*; Ramko 1,4*; Sharepoint 1-5*; Soundscriber 1-5*; Standard Electric 1-5*; Systron Donner 1,5*; Thalner 4*; Torpey 1,2,5; True Time 1-3,5*; United Systems 1,4; Vamco 1,4

Diff Phase-Gain Measurement Asaca*; Dranetz; Harris*; Hewlett-Packard*; Marconi Instr*; Tektronix*; Telemet*

Field Intensity Meters
 1. AM
 2. FM
 3. TV
 Broadcast Electronics 1-3*; Eaton 1-3*; Harris 1-3*; McMartin 2*; Potomac 1-3*; PTS 3; Rohde & Schwarz 1-3*; Sadelco 3*; Sequerra 2

Frequency Monitors and Counters Ballantine*; Belar*; James Biddle; Data Precision; Digimax*; Dranetz; Eaton*; EIP; Fluke*; GAW; Global Specialties*; Heath*; Hewlett-Packard*; Ivie*; Lampkin; Leaders*; Lectrotech*; McMartin*; Motorola*; RE Instruments; Sencore*; Systron Donner*; Tektronix*; United Systems; Wilkinson*

Generators, Audio Amberg*; Bald Mountain*; Boonton*; Bruel & Kjaer; California Instruments*; Dyma*; Frequency Devices*; GAW; Hewlett-Packard*; Ivie*; Lampkin; Leaders*; Marconi Instr*; Philips T&M*; Potomac*; Sencore*; Sescom*; Sound Technology*; Spectra Sonics*; Tektronix*; United Recording*; White

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.

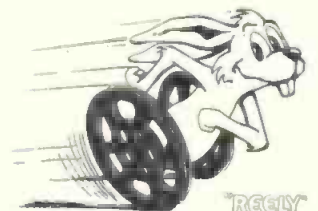


Illustrated catalog of Storeel's "confusion eliminators" available upon request. Write on your letterhead or telephone for your free copy.

STORREEL CORP.

**The
Space-Saving
Engineers**

2050-C Carroll Avenue • Atlanta, Georgia 30341 • Telephone (404) 458-3280



Circle 154 on Reader Service Card

www.americanradiohistory.com

A rising star in broadcast television.

Quietly and unobtrusively the Fernseh star is rising. More and more broadcasters are looking to Fernseh for innovation—innovation across a broad product line that may very well be the most comprehensive in the industry.

Here are eight specific product areas. Eight ways Fernseh can help you create better television pictures. So *your* star can rise with ours.

Editors. Our Mach One™ computer-assisted editor is easier to operate and provides more functions—including special effects and auto assembly—than any other editor in its class. *Circle item number 286.*

Graphics systems. The Compositor 1™ graphics system gives you dual-channel versatility, pushbutton access to over 100 type fonts, a larger memory than any comparable system, and modularity so you can add functions when you need them. *Circle item number 287.*

Cameras. Unsurpassed Bosch quality is designed into every model in the complete line, ranging from the economical KCP-60 studio camera to the exciting new KCA-100 EFP/ENG camera with available fiber optics link. *Circle item number 288.*

Videotape recorders. The superiority of our Bosch BCN units is universally acknowledged. Now you can have BCN quality for every one-inch requirement, whether you need the world's lightest one-inch portable, or the world's first automatic multi-cassette system, or the world's only operational high resolution system. *Circle item number 289.*

Automation systems. Our TVS/TAS-1000 distribution switcher and TCS-1 machine control system bring new levels of efficiency to automatic control. *Circle item number 290.*

Monitors. Fernseh is giving you a choice you never had before. Our full line of color monitors now includes the superb MC-37 15-inch and MC-51 20-inch series. *Circle item number 291.*

Noise reducers. You can improve signal-to-noise ratio up to 18dB with the new Fernseh TDF-2 digital noise filter. The TDF-2 also includes chroma-to-luminance delay correction and image enhancement. *Circle item number 292.*

Telecines. From the revolutionary FDL-60 digital CCD—the most advanced telecine ever made—to the economical TCF-3000/Plus, Fernseh can give you higher quality and more performance than anyone else. *Circle item number 293.*

Judge Fernseh's star quality for yourself. Just circle the item numbers for the product areas of your interest on the card in the back of this publication. We'll rush literature off to you.

If you can't wait, call right now, toll-free: 1-(800) 821-7700, Ext. 701 (In Missouri, 1-(800) 892-7655, Ext. 701.). Fernseh Inc., the Video Corporation of Bell & Howell and Robert Bosch, P.O. Box 15068, Salt Lake City, Utah 84115.

*From now on,
look to Fernseh.*

FERNSEH

© 1981 Fernseh Inc. All rights reserved.

Source Locator: TEST cont.

Generators, RF	Boonton•; Delta•; Eaton•; Fluke•; Global Specialties•; Harris•; Hewlett-Packard•; Lampkin; Leader•; Marconi Instr•; Motorola•; Philips T&M•; Potomac•; RE Instruments; Rohde & Schwarz•; Sencore•; Sound Technology•; Systron Donner•
Generators, Video 1. multiple output 2. cross pulse only	Grass Valley 1•; Harris 1•; Hickok 1•; Leader 1•; Leitch 1•; NTI 1; Rohde & Schwarz 1.2•; Video Aids 2•
Harmonic Distortion Meters	Amber•; Bruel & Kjaer; GAW; Heath•; Leader•; Marconi Instr•; Nakamichi•; Potomac•; RE Instruments; Sescor•; Sound Technology•
Impedance Bridges	Alford; James Biddle; CSP; Delta•; Delta (Long); Hewlett-Packard•; Leader•; Marconi Instr•; Telonic/Berkeley; Tennaplex; Texscan•; Wide Band
Intermodulation Meters	Amber•; Bruel & Kjaer; Heath•; Marconi Instr•; Potomac•; Sound Technology•
Loggers and Logger Equipment 1. tape loggers 2. log printers	Accurate Sound 1•; Fluke 1.2•; Gruver 1; Hallikainen 1•; Harris 2•; Nationwide 2; Neal Ferragraph 1•; Potomac 2•; QSI 1•; Soundscriber 1•; Stancil 1•; Telectro 1•; Telex 1•; TFT 2•
Logic Analyzers	Global Specialties•; Hewlett-Packard•; Philips T&M•; Tektronix•
Modulation Monitors	Boonton•; Harris•; Hewlett-Packard•; Marconi Instr•; McMartin•; Motorola•; QE•; RE Instruments; Sequerra; TFT•; Versa Count•; Wilkin-son•
Multitest Systems	Amber•; Canter-Redman•; Fluke•; Neal Ferragraph•; Potomac•; Sound Technology•; Systron Donner•; Tektronix•
Oscilloscopes	Ballantine•; Bruel & Kjaer; Harris•; Heath•; Hewlett-Packard•; Hickok•; Hitachi•; Leader•; Lectrotech•; Marconi Instr•; Motorola•; Philips T&M•; Sencore•; Tektronix•; Texscan•; Wavetek Indiana•
Phase Meters	Bruel & Kjaer; CSP; Delta•; Dranetz; Gorman-Redlich•; Harris•; Hewlett-Packard•; Leitch•; Micro Communications•; Potomac•; Video Aids•; Wavetek Indiana•
RF Wattmeters	Bird•; Boonton•; Coaxial Dynamics; Comark•; Dielectric; Electro Impulse•; Harris•; Leader•; Marconi Instr•; Micro Communications•; Motorola•
Sideband Analyzers	Hewlett-Packard•; Tektronix•; Telemet•; Wavetek Rockland
Spectrum Analyzers	Amber•; Applied Technology•; Bruel & Kjaer; Eaton•; Eventide•; Harris•; Hewlett-Packard•; Inovonics•; Kay Elemetrics•; Klark-Teknik•; Marconi Instr•; Motorola•; Ken Schaffer; Sound Technology•; Tektronix•; Telemet•; Texscan•; United Recording•; Wavetek Rockland; White
Status and Alarm Indicators	BI•; Coastcom; CSI; Delta•; Dyma•; Harris•; Image Video•; Potomac•; TFT•; Trepac•; United Systems
Vectorscopes	Broadcast Video•; Harris•; Heath•; Leader•; Lectrotech•; Marconi Instr•; Philips T&M•; Tektronix•; Ultra Audio•; Video Aids•; Videotek•
Video Noise Meters	Asaca•; Harris•; Lenco•; Marconi Instr•; Rohde & Schwarz•; Tektronix•
Video Test Generators	Canter-Redman•; D&S Corley•; Philips T&M•; Leader•; Leitch•; Lenco•; Rohde & Schwarz•; Tektronix•; Telemet•; Visual Info

◆ MEANS VERIFIED SOURCE

VITS, VIR Systems and Equipment Marconi Instr•; QSI•; Rohde & Schwarz•; Tektronix•; Telemet•; Video Aids•

Voltmeters, Multimeters, Etc.

Amber 3•; Audio Technology 3; Baid Mountain 3•; Ballantine 1.2•; James Biddle 2; Boonton 1.3•; Broadcast Technology 1,3; Bruel & Kjaer 1-3; Crompton 1,3; Data Precision 1,2; Dranetz 1,2; ESE 3•; Fluke 1-3•; GAW 1; GC Electronics 1,2; Harris 1-3•; Heath 1-3•; Hewlett-Packard 1-3•; Hickok 1,2•; Intl Instruments 1,3; ITT Jennings 1•; Ivie 1,3•; Leader 1-3•; Marconi Instr 3•; Motorola 1.2•; Nationwide 1,2; Philips T&M 1-3•; Potomac 1-3•; Sencore 1,2•; Sescor 1,3•; Systron Donner 1-3•; Tangent 3; Tektronix 1-3•; Telonic/Berkeley 3; TM 3; Trip-lett 1-3; United Systems 1; Vidair 2•; Weston 1-3•

Waveform Monitors and Analyzers Amber•; Amtron•; Broadcast Video•; Bruel & Kjaer; Colorado Video•; Global Specialties•; Harris•; Hitachi•; Ikegam•; Leader•; Marconi Instr•; Motorola•; Philips T&M•; Tektronix•; Ultra Audio•; Videotek•; World Video•

Wow and Flutter Meters Broadcast Electronics•; Bruel & Kjaer; Fidelipac•; Gotham Audio•; Leader•; Marconi Instr•; Nakamichi•; Potomac•; RE Instruments

VIII. SYSTEMS & SERVICES

Computer Services/Equipment
1. business, radio
2. business, TV
3. newsroom computers

Automated Business Concepts 1; Automation Electronics 1; Boston Sound & Power 1; Broadcast Center 1•; Cetec Broadcast 1•; Chase Media 1-3•; Clarcomputer 1; Columbine 1,2•; Computer Business 1,2; Computer Concepts 1•; Computer Management 1,2•; Cox Broadcast 2•; Custom Business Systems 1•; Data Communications•; Datatron 2•; ECCSYS 1-3•; Groton Computer 1,2•; Harris 1•; IGM 1•; Image Video 2•; Jefferson Data 1-3•; Jenel 2,3•; Kaman Sciences 1-3•; Marketron 1,2; Matrix 1•; McInnis-Skinner 3•; Microwave Assoc 2•; NEAS 2; Nidus 1,2•; Patrick Computer 1,2•; Register Data 1•; Research Technology 1,2•; Smoke Signal 1; Southwestern Programming 1; Station Business Systems 1-3•; System Concepts 3•; Telesource 3•; TvNS 3•

EBS Two-Tone System Broadcast Electronics•; Emergency Alert•; ESE•; GAW; Gorman-Redlich•; Harris•; Intl Nuclear; McMartin•; Rivers•; TFT•

Equipment Rental Services
1. production equipment
2. post-production equipment

Accurate Sound 1•; AF Assoc 1•; All Mobile 1,2•; Avonix 1,2; Belden Comm 1•; Best Audio 1,2•; Birns & Sawyer 1,2; Columbia Video 2; Compact Video 1•; Delcom 1,2•; Victor Duncan 1,2•; Dyma 1•; F&B Ceko 1,2•; General TV 1,2•; Alan Gordon 1•; David Green 1•; Image Devices 1•; Interface Video 1,2; Landy 1,2; Legal Tapes 2; Media Concepts 1,2•; L. Matthew Miller 1,2•; MPCs 1,2•; Power Optics 1; Sawyer Camera 2; Sullivan 1,2•; Technis-phere 1,2; Tele-Measurements 1,2; Television Graphics 2•; Television Productions 1; Tritronics 1,2; Videomedia 1,2•

Facility Turnkey Installation

Acrodyne•; AF Assoc•; Atlantic Research; Audicon•; Audisar•; Burdne•; Canter-Redman•; Centro•; Comark•; Compact Video•; Control Technology; Delta (Long); East Coast Video; Gabriel•; General TV•; Global Comm; Graham-Patten•; Grinnan•; Harris•; Jenel•; Lerro•; Long; Magna-Tech•; Microwave Assoc•; Multi-Track; Rupert Neve•; Nurad•; Old Dominion; Pacific Recorders•; Radio Systems•; Ramtek; RCA Broadcast•; Rosner•; Soll•; Station Business Systems•; Tele-Measurements; Television Engineering; Tritronics; Valley People•; Videomedia•; Vision Sound; Westlake

Source Locator: SYSTEMS cont.

Financial Services	Grinnan*; Vision Sound
Laboratories, Film	Bebell*; Color Film; WA Palmer*
Mobile Van Construction	AF Assoc*; Centro*; Compact Video*; Delcom*; Dyma*; E-N-G*; General TV*; Georgie Boy*; Grinnan*; Gruver; Harris*; High-Lite; Jenel*; Lerro*; Philips Broadcast*; RCA Broadcast*; Soll*; Tele-Measurements; Television Engineering; Tritronics; Vision Sound; Whirlwind; Wolf Coach*
Post-Production Services	Accurate Sound 2*; All Mobile 1; Emil Ascher 2; Avonix 1; Best Audio 2*; Columbia Video 1; Compact Video 1*; F&B Ceco 1-3*; General TV 1,2; Interface Video 1,3; McCurdy 2*; Media Concepts 1,2*; MPCS 1,2*; Multi-Track 3; WA Palmer 3*; RCA Americom 1-3*; Ritme CX 2; Sullivan 1*; Tritronics 1,2; Ultra Audio 1-3*; Vidtronic 1
Stage Rental	General TV; Sawyer Camera
Studio Design	1. radio 2. TV
	Accurate Sound*; Aderhold 1,2; Audicon 1,2*; Best Audio 1,2*; Burden 1*; Centro 2*; Delcom 2*; Delta (Long) 1,2; Dyma 1,2*; Electro Acoustic 1*; East Coast Video 2*; Imero Fiorentino 2*; General TV 2*; Global Comm; Graphic Express 2*; Grinnan 1*; Harris 1,2*; Jenel 1,2*; Long 1,2; McCurdy 1,2*; MPCS 2*; Newman/Lustig 2; Rupert Neve 1,2*; Olesen; Pacific Recorders 1*; Panoak 2*; Peirce-Phelps 2*; Radio Systems 1*; Rosner 1,2*; Sawyer Camera 2; Soll 1,2*; Strand Century 2*; Tele-Measurements 2; Television Engineering; Tritronics 1,2; Ultra Audio 1,2*; Uni-Set 1,2; Vision Sound 1; Westlake 1,2; Whirlwind 1,2
Syndicated Radio Programming Services	Bonneville Broadcast*; BPI*; Broadcast Center*; Cavox-Tapeathon; Century 21 Programming; Chase Media*; Concept Productions*; DeWolfe; Drake-Chenault; Gruver; Kalamusic*; Live Sound*; Master Broadcast; Radio Arts; Real Radio*; RPM
Videotape/Film Recording Transfer	Color Film; Columbia Video; General TV*; Image Transform*; Interface Video; Legal Tapes; Media Concepts*; MPCS*; WA Palmer*; Warren Smith*; Tritronics; Video Tape; Vidtronic
Weather Info. Service	Alden*; Beston*; Gorman-Redlich*; McInnis-Skinners*; Technology Service*; Weatherscan*; Weather Services Intl
Other	AF Assoc*; American Image; Aurora*; Best Audio*; Candex Pacific*; Coyne Assoc; CPAC; DAK; DeWolfe; Dynacom; Electro Acoustic*; Graphic Express*; Groton Computers*; Gruver; Image Resource*; Network; PTS; RCA Americom*; RCA Service*; Re-Play Video*; Rivers*; Warren Smith*; System Associates*; Television Production; Townsend*; Video Specialties; Video Tape; VIF Intl*; Western Telecom*; Western Union*; Westlake; Whirlwind

IX. COMPONENTS/ HARDWARE

Batteries	Advance Conversion 2; Alexander 1,2*; Anton/Bauer 1*; Birns & Sawyer 1,2; Clearcom 1*; Christie 1,2*; Cine 60 1*; Cinema Products 1*; Frezzolini 1*; Glassman High Voltage 2; G&M 1*; Gould 1,2; High-Lite; Ikegami 1*; Multiplier 1,2; North Wind 1,2; Perrott 1,2*; Video Components 1; Yardney 1,2*
1. supplies for production equipment	
2. batteries for emergency power	

Battery Chargers	Alexander*; Ampex*; Anton/Bauer*; Christie*; Cine 60*; Frezzolini*; Gould; Harris*; Ikegami*; Perrott*; Video Components; Yardney*
Cabinets, Enclosures	Allied Broadcast 2; Amco 1,2; Anvil Cases 1,2*; Bayly 1*; BSC 2; Cases 1-3; Centro 1-3*; Emcor 1,2; Enclosure 1,2*; GKM 1*; Grinnan 1,2*; Harris 1-3*; HSC 1,2; Ikegami 1*; Kreonite 2; Micro-Trak 2*; Neumade 2,3; Optima 1,2*; Pacific Recorders 1*; Panaok 1,2*; Research Systems 1; Research Technology 3*; Ruslang 1,2*; Sound Dynamics 2*; Stantron 1,2*; Star Case 2*; Storeel 3*; Wallach 3*; Westlake 2; Whirlwind 1; Winsted 1-3*; Yamaha 2*
1. 19-inch equipment racks	
2. cabinets/furniture	
3. storage shelves	
Camera Pickup Tubes	Amperex*; Calvert*; Ceco*; EEV*; EEV Canada*; Harris*; Hitachi*; Ikegami*; RCA Dist & Special Products*; RCA EO&D*; Thor
Connectors	ADC 1*; Audio Accessories 1; Ava 1,2*; Bardwell & McAlister*; BIW 3*; Cablewave 2*; Cambridge 1; Daburn 1-3; Electro-Voice 2*; GC Electronics 1,3; Ikegami 1-3*; Lemo 1-3*; Neutrik 1*; Panduit 3*; Panel Components 3; RMS 1*; SGL Waber 3; Strand Century 3*; Superior 3*; Switchcraft 1*; Trompeter*; Union Connector*; Vidair 1*; Whirlwind
1. audio	
2. radio	
3. electrical	
Emergency & Outboard Power	Advance Conversion 2; Caterpillar 1; Compact Video*; Centro 1*; North American Turbine 1; North Wind 1,2; Onan 1; Teledyne Energy 1*
1. generators	
2. inverters	
Hum Bucking Coils	Femseh*; Intl Nuclear; North Hills*
Quartz Crystals	EEV*; EEV Canada*; Eidson; Harris*
Rectifiers	Amperex*; Calvert*; Ceco*; Delta*; EEV*; EEV Canada*; Electronic Devices*; Intl Rectifier; Thor; Westinghouse*; Wilkinson*
RF Gaskets	Comark*; CSP
RF Inductors	CSP
RF Tubes	Amperex*; Calvert*; Ceco*; Comark*; EEV*; EEV Canada*; Eimac*; RCA Dist & Special Products*; RCA EO&D*; Thomson-CSF*; Thor; Westinghouse*
Shipping Cases	Anvil Cases*; Cases Inc; Excalibur*; Fiberbill*; K&H*; Olesen; Research Technology*; Star*
Solid State Components	Amperex*; Intl Rectifier; Thor; Varian Electron*
Surge Protectors	Bayly*; Delta*; Dyma*; EEV*; EEV Canada*; Intl Rectifier; Lightning Elimination*; MCG*; Siemens; Superior*; Thor; Wilkinson*
Tools	Cooper Group; Ideal; Olesen; Paladin*; Ripley; Trompeter*
◆ MEANS VERIFIED SOURCE	
Transformers	Altec*; Beyer Dynamic*; Comark*; Crompton; Peter W Dahl; Decca Austin*; Delta*; Gotham Audio*; Harris*; Jensen*; Microtran; North Hills*; Superior*; Topaz*; TTE*
Vacuum Tubes	Amperex*; Ceco*; Econco*; EEV*; EEV Canada*; Eimac*; Freeland; Harris*; RCA EO&D*; Thomson-CSF*; Thor; Vacuum Tube Ind; Varian Electron*; Westinghouse*
Wire and Cable	Alpha*; Beiden*; BIW*; Brand-Rex*; Cablewave*; Comark*; Copperweld*; Daburn*; GC Electronics; Ideal; Mohawk*; Olesen; Pace; Panaok*; Pyramid; Times; Whirlwind; Wireworks*

PEIRCE-PHELPS. FOR EVERYTHING FROM MINI-VANS TO MAXI-STUDIOS



We just supplied a compact news van to Warner Amex in Mesquite, Texas. And an on-air production studio to WWAC-TV in Atlantic City. Now we'd like to do something for you. Call or write and tell us what you need.

PEIRCE-PHELPS, INC. VIDEO SYSTEMS DIVISION

2000 N. 59th Street, Philadelphia, Pa. 19131, 800-523-4682. In Pennsylvania, call 215-879-7171.

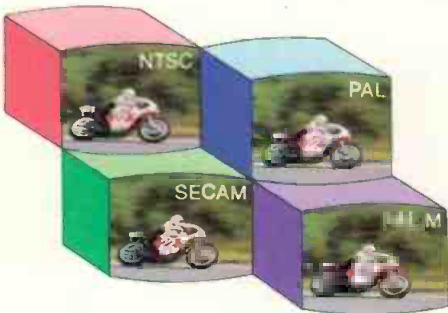
Circle 155 on Reader Service Card

Where You Need It, When You Need It.

Oki Portable Digital TV
Standards Converter
LT1200



The need for TV standards conversion doesn't stop at the studio door. That's why Oki developed the port-



able LT 1200 Digital TV Standards Converter. The cost performance of this system sets the industry standard. And its reliability in the field as well as in rugged use in broadcast stations has earned the LT 1200 a reputation for dependable performance. Operation is totally automatic and totally simple. For converting NTSC, PAL, SECAM, or PAL M, leave it to the LT 1200. Wherever you are.

Oki also produces the high-end LT 1015Σ and LT 1100Σ Digital TV Standards Converters.



In the U.S.A. and Canada, contact:

OKI Electric Overseas Corp.
Two University Plaza,
Hackensack, New Jersey
07601 U.S.A.
Tel: 201-646-0011—0015
TWX: 7109905004 OKI ELEC HAK

In Europe and Africa, contact:

Technology Resources S.A.
27-29 Rue Des Poissonniers
92200 Neuilly-sur-Seine, France
Tel: 747-4717, 747-7051
Telex: 42610657 TERES

Head Office: (International Division)
10-3, Shibaura 4-chome,
Minato-ku, Tokyo 108, Japan
Tel: (03) 454-2111
Telex: J22627
Cable: OKIDENKI TOKYO

OKI
electric
industry
company, Ltd.

Agent or Distributor inquiries invited.

Circle 156 on Reader Service Card

EQUIPMENT MANUFACTURERS

Hundreds of broadcast equipment manufacturers responded to BM/E's extensive Source questionnaire. Here they are—in alphabetical order, with addresses, telephone numbers, and product lines. The VS listing designates those companies that provided current supporting literature for their lines. Field office addresses and telephone numbers for some companies follow their product listings. Advertisers' names appear in blue, with a cross reference to their ad and the rep/dist section.

A

ABC BROADCAST CONTROLS — See Automated Broadcast Controls

ACCURATE SOUND CORP
3515 Edson Way Menlo Pk CA 94025
415 365-2843

Mic booms & dollies; open reel player/recorders; replacement & rebuilt tape heads; tape duplicators; production equip rental; complete audio studio construction; tape loggers; post-production service VS

See ad pg 236

ACOUSTIC RESEARCH
10 American Dr Norwood MA 02062
617 769-4200
Speakers

ACRODYNE INDUSTRIES
516 Township Line Rd Blue Bell PA 19422
215 542-7000

Demodulators; diplexers; TV exciters; RF TV combiners; modulators; TV translators; VHF & UHF TV transmitters; HP & CP TV antennas; facility turnkey installation VS

ADC PRODUCTS
4900 W 78 St Minneapolis MN 55435
612 835-6800
Audio connectors VS

ADDA CORP
1671 Dell Av Campbell CA 95008
408 379-1500

Electronic still stores; special effects generators; frame synchronizers; helical capstan servo and non-servo TBCs; compressors; digital video processors VS

See ad pg 229
GA 2693 Twigg Circle Marietta 30067 404 953-1500
MI 30310 Woodgate Dr Southfield
48076 313 642-4668
NY 1966 E 38 St
Brooklyn 11234 212 375-4064

ADERHOLD CONSTRUCTION CO
3384 Peachtree Rd NE Atlanta GA 30326
404 233-5413
TV and radio facility construction

ADM TECHNOLOGY INC
16005 Sturgeon St Roseville MI 48066
313 778-8400

Audio preamps, line & dist amps; slide attenuators; audio consoles (mono, stereo, audio for TV, production); active equalizers & filters; noise reduction systems; patch panels VS

See ad pg 9—refer to rep/dist section

ADVANCE CONVERSION DEVICES CO
109 Eighth St Passaic NJ 07055
201 778-0707
Emergency power supplies; uninterruptible power systems; inverters; power line frequency converters

ADVANCE INDUSTRIES INC
2301 Bridgeport Dr Sioux City IA 51102
712 252-4101
Antenna towers, tower hardware and lighting

ADVENT CORP
195 Albany St Cambridge MA 02139
617 661-9500
Speakers, audio delay lines, large screen video projectors

AEL CATV COMM DIV — See Winegard Co

AF ASSOCIATES INC
100 Stonehurst Court Northvale NJ 07647
201 767-1000
One-inch VTRs (Marconi); VTR rebuilding; mobile van construction, facility turnkey installation; production equip rentals; color framer editing aid device; gated video circuits; standards conversion services; videotape duplication services VS

See ad pg 60

AGFA-GEVAERT INC
275 North St Teterboro NJ 07608
201 288-4100
Open-reel audio tape; new videotape; cine camera film VS

AIC PHOTO INC (ALLIED IMPEX CORP)
168 Glen Cove Road Carle Place NY 11514
516 742-7300
Lenses; film and TV (Soligor); film cameras and accessories (Bauer), film processors (JOBO)

AILTECH — See Eaton Corp

AKAI AMERICA LTD
800 W Artesia Compton CA 90220
213 537-3880
Portable video cameras & recorders

AKG ACOUSTICS INC
77 Selleck St Stamford CT 06902
203 348-2121
Reverb units; stereo pickups; headphones; mics (dynamic, condenser, shotgun, lavalier); mic booms & accessories VS

AKG SALES DIV CANADA PHILIPS
105-200 Consumers Rd #105 Willowdale Ont
M2J 4R4
416 494-1453
Reverb units; stereo pickups; headphones; mics (dynamic, condenser, wireless, shotgun, lavalier); mic booms and dollies, accessories VS

ALCO PRODUCTS INC
1551 Osgood St No Andover MA 01845
617 685-4371
Machined aluminum knobs

ALDEN ELECTRONIC & IMPULSE RECORDING EQUIPMENT CO INC
1 Washington St Westboro MA 01581
617 366-8851
Fax recording systems; weather data systems, satellite earth station receivers; analog & digital facsimile weather chart scanners & recorders; remote weather radar recorders; weather satellite

picture receiving systems, marine radio facsimile weather chart recorders; facsimile communications equip VS

ALEXANDER MFG CO
PO Box 1645 Mason City IA 50401
515 423-8955

Batteries, portable power packs, emergency power equip VS

See ad pg 134

FL Alexander 409 SE 28 Ave PO Box
1053 Pompano Beach 33061 305 781-1181
IL Alexander 425 S Elm St Palatine
60067 312 359-1153
NJ Alexander NE 47 Lenape Dr
Montville 07045 201 263-1888

ALFORD MFG CO
15 Sixth Rd Woburn MA 01801
617 935-8610

Antennas, FM, TV, microwave; diplexers, RF loads; microwave units; transmission line & line accessories; impedance bridges

ALLEN AVIONICS INC
224 E 2 St PO Box 350 Mineola NY 11501
516 248-8080
Video delay lines & filters; video equalizers VS

See ad pg 248—refer to rep/dist section

ALLIED BROADCAST EQUIP
635 South E St Richmond IN 47374
317 962-8596

Audio dist amps, preamps; studio cabinets & furniture

ALLIED TOWER CO INC
12450 Old Galveston Rd Webster TX 77598
713 486-7691

Antenna towers & accessories; tower design, construction, erection

ALL MOBILE VIDEO INC
630 9 Av New York NY 10036
212 757-8919

Equip rental services including mobile units; post-production services

ALLSOP INC
4201 Meridian Bellingham WA 98225
206 734-9090

Cassette deck cleaners; video recorder cleaners VS


ALPHA WIRE CORP
711 Lidgerwood Ave PO Box 711 Elizabeth NJ
07207
201 925-8000
Wire & cable; cable connectors; tubing VS

ALTEC LANSING
1515 S Manchester Av Anaheim CA 92803
714 774-2900
Audio preamps, line amps; AM & FM compressor/limiters; graphic equalizers & filters; audio delay systems & special effects; audio consoles (one-output mic mixers, portable, mono & stereo multi-output studio); hardwired intercoms; mics (dynamic, condenser/electret, lavalier); mic stands, booms & dollies; audio speakers; transformers VS

LGT: 25 YEARS EXPERIENCE IN PROFESSIONAL TELEVISION

The 200 W. UHF television transmitter
is the latest in the range of LGT Equipment (100 mW à 2 × 1 kW)

Intermodulation < - 60 dB
Crossmodulation < 2%
Compact design
Advanced technology
Reduced radiated heat
Fuse protection on all power transistors
LED indication on all fuses
Visual indication for correct functioning
Ease of control and maintenance



LGT deals with 85 countries
throughout the world.



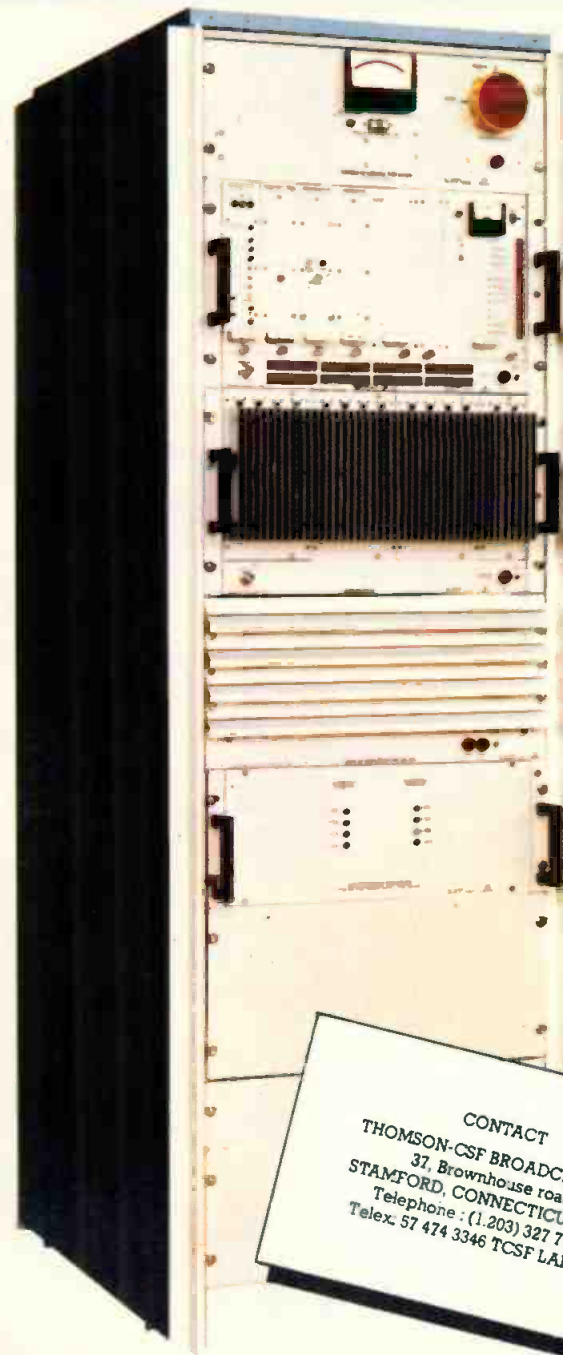
LGT

Circle 157 on Reader Service Card

**laboratoire général des
télécommunications**

51, bd de la république. BP n 17
78400 Chatou (FRANCE)

Téléphone : (3) 071.92.60 - Télex : 696 833 F



CONTACT
THOMSON-CSF BROADCAST INC
37, Brownhouse road
STAMFORD, CONNECTICUT 06902
Telephone : (1.203) 327 77 00
Telex: 57 474 3346 TCSF LAB STD

The Source '81

AMBER ELECTRO DESIGN LTD
4810 Jean Talon West Montreal Canada H4P 2N5
514 735-4105

Audio generators; harmonic distortion meters; intermodulation meters; multitest systems; spectrum analyzers, dB meters; waveform monitors & analyzers **VS**

AMCO ENGINEERING CO
3801 N Rose St Schiller Pk IL 60176
312 671-6670

Cabinets, enclosures; 19-inch equipment racks

AMERICAN DATA
DIV CENTRAL DYNAMICS CORP
401 Wynn Dr Huntsville AL 35805
205 837-5180

Production switchers; master control switchers; routing switcher systems; distribution amps; audio & video pulse & subcarrier; RGB chroma keyers; black burst & color background generators; downstream keyers **VS**

See ad pg 28

AL	B Munzer 401 Wynn Dr Huntsville 35805.....	205 837-5180
CA	D Cadora/M Hartt 3760 Cahuenga Blvd W N Hollywood 91604.....	213 766-8184
GA	J Sims 3300 Northeast Expy Ste 1G Atlanta 30341.....	404 458-0171
IN	J Gardner PO Box 27324 Indianapolis 46227.....	317 784-3000
MD	B Mahoney 801 Howard Grove Rd Davidsonville 21035.....	301 956-3065
MN	J Clarine 15611 Fish Pt Rd Prior Lake 55372.....	612 447-6036
NJ	R Blair 33 Benson Rd Glen Rock 07452.....	201 447-3415
NY	L Barreca/D DeBeradinis 10 W Man St PO Box 98 Elmford 10523.....	914 592-5440
TX	M Mackin Rt 2 801 E Woodglen Lewisville 75067.....	817 455-2214

AMERICAN IMAGE PRODUCTIONS INC
PO Box 23355 Nashville TN 37202
800 251-2058/615 329-1988
Sales/production library services; syndicated image campaigns for radio and TV

AMERICAN LASER SYSTEMS INC
106 James Fowler Rd Goleta CA 93017
805 967-0423

Infrared video transmission systems; remote control systems **VS**

AMERICAN MICROSIGNAL CORP
8431 Monroe Av Stanton CA 90680
714 761-1222

Tone generators, encoders & decoders; land mobile communications systems

AMERICAN MODEM CORP
160 Wilbur Pl Bohemia NY 11716
516 567-7887

Satellite, microwave & industrial data modems

AMERICAN QUOTATION SYSTEMS
SUBSIDIARY COMMODITY NEWS SVCS INC
PO Box 6053 Leawood KS 66206
913 642-7373/800 255-6490

Market info service; complete FM SCA data broadcast service

AMILON CORP
49-12 30 Av Woodside NY 11377
212 274-1794

Analog & digital audio cassette transports; endless loop tape transports; cassette data logging transport **VS**

AMNET — See American Quotation Systems

AMPEREX ELECTRONIC CORP
Providence Pike Slatersville RI 02895
401 762-3800

RF tubes; vacuum tubes; camera pickup tubes; rectifiers; solid state components **VS**

See ad pg 46

CA	T Marchner 3000 Scott Blvd Santa Clara 95050.....	408 727-6132
CO	J Burrell 3110 S Wadsworth Blvd Ste 302 Denver 80227.....	303 989-7310
GA	T Seaton 3300 NE Expy Ste 1G Atlanta 30341.....	404 458-2519

IL	R Johnson 360 Belnoris Dr Wood Dale 60191.....	312 860-7373
NY	K Rabbitt 230 Duffy Av Hicksville 11802.....	516 931-6200
TX	G Gambill 13773 N Central Expy Ste 1228 Dallas 75234.....	214 231-3481

AMPEX CORP
401 Broadway Redwood City CA 94063
415 367-2011

SMPTTE time code synchronizing system; audio tape, cartridges & cassettes; open-reel audio tape players/recorders (portable, studio, time delay); audio/video SMPTTE recorder synchronizers; automated quad cassette/cart players; color studio TV cameras; color ENG/EFP cameras; color correctors; dropout compensators; video art systems; electronic still stores; large & small studio production switchers; SMPTTE time code readers, generators; helical capstan servo & quad TBCs; slow motion & variable speed video action recorders; new videotape & reels; two-VTR editor/controllers; multi-source editors; computerized auto assembly editors; quad & one-inch helical VTRs; new VTR heads & head refurbishing; battery chargers **VS**

See ad pg 191

Amplex is also exclusive distributor of EECO products (see listing)

CA	Tom Nielsen 500 Rodier Dr Glendale 91201.....	213 240-5000
	Russ Ide 10435 N Tantau Ave Cupertino 95014.....	408 255-4800
GA	Paul Hansil 3135 Chestnut Suite 101 Atlanta 30340.....	404 451-7112
IL	Mike D'Amore 719 W Algonquin Rd Arlington Hts 60005.....	312 593-6000
MD	Frank Rush 10215 Fernwood Rd Bethesda 20034.....	301 530-8800
NJ	Al Slater 75 Commerce Way Hackensack 07601.....	201 489-7400
CAN	Jean-Louis Major 132 East Dr Bramalea Ont.....	416 791-3100
MEX	Miguel Hernandez Apartado Postal # 13-615 Division del Norte # 1832.....	539-6870

AMPEX CORP MAGNETIC TAPE DIV
401 Broadway Redwood City CA 94063
415 367-4463

Open-reel magnetic audio tape & cassettes; empty reels, carts & cassettes; new videotape; videotape reels and cassettes; videotape storage **VS**

See ad pg 158

AMPRO/SCULLY
2693 Philmont Av Huntingdon Valley PA 19006
215 947-7000

Stereo & mono multi-output studio consoles; synchronizing equipment; single, dual & multiple cart player/recorders; open-reel studio recorders; telephone coupling equipment **VS**

See ad pg 16

AMTRON CORP
PO Box 1150 Aptos CA 95003
408 688-8155

Color & dc portable monitors; vectorscopes; waveform monitors & analyzers **VS**

ANDERS INC
77 Wolcott Rd Simsbury CT 06070
203 658-7666

Video delay lines and modules

ANDREW CORP
10500 W 153 St Orland Park IL 60462
312 349-3300

Helix coaxial cables & connectors; UHF TV transmitting antennas; STL microwave antenna systems **VS**

ANDREWS TOWER INC
1420 Layton Av Ft Worth TX 76117
817 831-1222

AM antennas; antenna towers, tower accessories; tower lighting

ANGENIEUX CORP OF AMERICA
120 Derry Rd Hudson NH 03051
603 880-1710

Video camera lenses, lens adapters, extenders; film camera lenses **VS**

VS MEANS IT'S VERIFIED

ANIMATION VIDEO DIV CONVERGENCE CORP
1315B E St Andrews Pl Santa Ana CA 92705
714 549-3146

Video art systems; video animation **VS**
See ad pg 18—refer to rep/dlst section

ANIXTER-MARK
2180 S Wolf Rd Des Plaines IL 60018
312 298-9420

Microwave antennas & accessories; point-to-point antennas, two-way antennas; earth station antennas

ANN ARBOR TERMINALS INC
6175 Jackson Rd Ann Arbor MI 48103
313 663-8000

CRT displays and controllers **VS**

R.B. ANNIS CO
1101 N Delaware St Indianapolis IN 46202
317 637-9282

Tape cleaners & equipment demagnetizers; head degaussers; bulk erasers; magnetic recording equipment & accessories **VS**

ANTENNAS FOR COMMUNICATIONS INC
Silver Springs Shores Industrial Pk 486 Cypress Rd Ocala FL 32670
904 687-4121

Conical horn microwave antennas; satellite earth station antennas; waveguide and subsystem components; field installation, testing, servicing & tower rework **VS**

ANTON/BAUER
66 Center St Shelton CT 06484
203 735-3305

Camera power packs; lighting power packs; lighting heads, stands & fixtures; battery supplies for production equipment; battery chargers **VS**
See ad pg 140

ANVIL CASES INC
4128 Temple City Blvd Rosemead CA 91770
213 575-8614

Racks, cabinets, shipping cases & transit cases **VS**

AP CIRCUIT CORP
865 West End Av New York NY 10025
212 222-0876

Equalizers, filters (active)

APPLIED TECHNOLOGY CORP
27106 46 Av S Kent WA 98031
206 854-4486

Audio preamps; ALC & AGC amps; AM & FM compressor/limiters; portable consoles; phono preamps; VU & PPM audio level indicators; spectrum analyzers; discriminate audio processors; peak limiters **VS**

ARISTOCART DIV OF WESTERN
BROADCASTING LTD
1960-505 Burrard St Vancouver BC V7X 1M6
604 687-2844

Tape cartridges, test tapes; cartridge racks **VS**
See ad pg 152

ARP INSTRUMENTS INC
45 Hartwell Av Lexington MA 02173
617 861-6000

Music synthesizers

ARRAKIS SYSTEMS
PO Box 296 Bollivar MO 65613
417 756-2850

Audio amps (preamps, line & distribution amps, monitor & power); graphic equalizers & filters; audio consoles (one-output mic mixers, mono & stereo multi-output studio, audio for TV, automated); audio routing switchers

ARRIFLEX CORPORATION
500 Route 303 Blauvelt NY 10913
914 353-1300

Camera heads, tripods, stabilizing systems; 16 & 35 mm cine cameras & lenses; lighting heads, stands & fixtures **VS**

ARVIN/DIAMOND
4465 Coonpath Rd Carroll OH 43112
614 756-9222

Radio & TV weather radar systems; weather satellite receivers

The Source '81

ARVIN/ECHO

485 E Middlefield Rd Mountain View CA 94035
415 961-7145
Electronic cassette disk; frame & field synchronizers; disk VTRs; video action recorders (disk; slow mo, variable speed, time lapse); electronic still stores VS

ASACA/SHIBASOKU CORP

1277 Rand Rd Des Plaines IL 60016
312 298-4380
Portable ENG/EFP/EC cameras; mono cameras; electronic still stores; picture monitors (b&w, color, dc portable); portable production switchers; SEGs; sync generator systems (sync, color bar, staircase/ramp, multiburst); automated test & measurement systems; diff phase-gain measurement; video noise meters VS
See ad pg 160-161—refer to rep/dist section

GA	L Radford 3203 Lanier Dr Atlanta 30319	404 237-6097
MD	J Wellman 2066 Whitney Ln Bel Air 21014	301 879-1794
MI	M Dyer 31185 Ten Mile Rd Farmington Hills 48024	313 478-2157
NH	C Miller PO Box 333 Londonderry 03053	603 434-0890
NJ	C Barlow 377 Rt 17 Hasbrouck Hgts 07604	201 288-6862
TN	R Hucaby 1331 Otter Creek Rd Nashville 37215	615 373-0231
TX	G Sudduth 845 39 St SE Paris 75460	214 785-5764
WI	R Shult PO Box 115 Ashippun 53003	414 474-4112

EMIL ASCHER MUSIC INC

630 Fifth Av New York NY 10022
212 581-4504
Recorded background and production music & sound effects library

ASHLY AUDIO

100 Fernwood Av Rochester NY 14621
716 544-5191
Audio preamps; ALC, AGC amps; AM & FM compressor/limiters/filters; automatic crossover units; active equalizers & filters

ASTATIC CORP

Box 120 Conneaut OH 44030
216 593-1111
Pickups; mics, mic stands

ATHANS COMMUNICATIONS INC

Rt 4 Box 94 Granbury TX 76048
817 573-8807
Towers & tower hardware

ATI — AUDIO TECHNOLOGIES INC

328 W Maple Av Horsham PA 19044
215 443-0330
Audio preamps, line, dist, monitor & power amps; ALC & AGC amps; AM & FM compressor/limiter/filters; parametric & graphic equalizers & filters; audio noise reduction systems; patch panels; VU & LED meters VS
See ad pg 141—refer to rep/dist section

ATLANTIC RESEARCH CORP

5390 Cherokee Av Alexandria VA 22314
703 642-4000
Facility turnkey installation, consulting

ATLAS SOUND

10 Pomeroy Rd Parsippany NJ 07054
201 887-7800
Mic stands, booms & dollies; speakers VS

AUDICO INC

219 Crossen Av Elk Grove IL 60007
312 640-1030
Audio and videotape cassette loaders; cassette timers and rewinders; impulsers & cassette labels VS

AUDICON INC

1200 Beechwood Av Nashville TN 37212
615 256-6900
Parametric equalizers & filters; mechanical reverberation units; speakers; facility turnkey installation; radio & TV studio design VS

AUDI-CORD CORP

1845 West Hovey Av Normal IL 61761
309 452-9461

Automation sequencers; tape cartridge player/recorders (single, dual, time delay)

AUDIO ACCESSORIES INC

Mill St Marlow NH 03456
603 446-3335
Patch panels, plugs, jacks, audio connectors

AUDIO & DESIGN RECORDING INC (ADR)

PO Box 786 Bremerton WA 98310
206 275-5009/800 426-6170
Audio dist amps, preamps, ALC & AGC amps, parametric & graphic equalizers & filters; special effects units; AM & FM compressor/limiters; noise reduction; VU, PPM & LED level indicators VS
See ad pg 173

AUDIONICS OF OREGON

5687 SE International Way Ste F Milwaukie OR 97222
503 652-1854
Audio dist, power & monitor amps; preamps; opamp modules; quad matrix equip; turntable preamps & controls

AUDIO PROCESSING SYSTEMS INC

40 Landsdowne St Cambridge MA 02139
617 354-1144
Parametric & graphic equalizers & filters; stereo multi-output audio consoles; portable & automated consoles; LED level indicators VS

AUDIOSEARS CORP

21 South St Stamford NY 12167
607 652-7305
Headphones, dynamic mics

AUDIO-TECHNICA US

1221 Commerce Dr Stow OH 44224
216 686-2600
Headphones; mics (dynamic, electret/condenser, lavalier); mic stands, booms & dollies; speakers; audio cartridges VS

AUDIOTECHNIQUES INC

652 Glenbrook Rd Stamford CT 06906
203 359-2312
Audio amps (monitor, power, public address); equalizers & filters (active & passive); mixers; mic booms & dollies; speakers; tape recorders

AUDIO TECHNOLOGY

1169 Tower Rd Schaumburg IL 60195
312 885-0066
Audio preamps; turntable preamps and controls; PPM level indicators; dB meters

AUDIO/TEK INC

502 D Van Dell Way Campbell CA 95008
408 378-5586
Audio tape duplicators

AUDIOTRONICS

7428 Bellair Av N Hollywood CA 91605
213 765-2645
Headphones; dynamic, condenser, lavalier mics, audio cassette player/recorders; monochrome picture monitors VS
See ads pp 123, 125, 127

AUDIOTRONICS VIDEO DISPLAY DIV

8299 Central Av NE Spring Lake Pk MN 55432
612 780-1840
B&W video monitors; data display monitors VS

AUDISAR

Box 1561 Bellevue WA 98009
206 454-2040
Audio repeat coils; transformers; loudspeaker systems; equalizers and filters (graphic & parametric); facility turnkey installation VS
See ad pg 250

AUDITRONICS INC

3750 Old Getwell Rd Memphis TN 38118
901 362-1350
Mono, stereo, quad, audio for TV, portable, mixing & automated consoles; distribution amps; patch panels VS
See ad pg 123,125,127—refer to rep/dist section

AUDY INSTRUMENTS

35 Congress St Salem MA 01970
617 744-5320
Audio consoles (mono & stereo studio multi-output)

AUERHEIMER LABS & CO

4561 E Florence Av Fresno CA 93725
209 442-1048
Speakers VS

AURATONE CORP

PO Box 698 Coronado CA 92118
714 297-2820
Speakers VS

AURORA IMAGING SYSTEMS

185 Berry St San Francisco CA 94107
415 777-2288
Video graphics systems; animation effects devices; video art systems; colorizers; video graphics production service VS
See ad pg 170

AUTOGRAM CORP

631 J Place PO Box 456 Plano TX 75074
214 424-8585
Audio consoles (stereo & mono multi-output studio, audio for TV); rotary attenuators VS

AUTOMATED BROADCAST CONTROLS

9155 Brookville Rd Silver Spring MD 20910
301 587-3505
Full line radio automation equipment; digital clocks

AUTOMATED BUSINESS CONCEPTS DIV

CETEC CORP
7204 Clairemont Mesa Bl San Diego CA 92111
714 560-1647
Radio computer business services VS

AUTOMATION ELECTRONICS INC

DIV HARRIS CORP
1001 South St Lafayette IN 47905
317 423-2572
Radio business automation systems

AUTOMATION TECHNIQUES INC

1846 N 106 E Av Tulsa OK 74116
918 836-2584
Audio automation systems; relay & time insertion sequencers; video processing amps; color bar & black burst generators; helical non-servo capstan TBCs; digital clocks VS

AVAB AMERICA INC

967 Howard St San Francisco CA 94103
415 421-3562
Manual & lighting control systems; digital dimmer packs; infrared wireless remote control; lighting instruments; power dist equip; audio line amps; graphic equalizers & filters; portable audio consoles; hardwired intercoms VS

AVA ELECTRONICS

4000 Bridge St Drexel Hill PA 19026
215 284-2500
Distribution amps, line extenders; coaxial connectors for instrumentation, CATV, CB, video, audio & high frequency; camera & lens accessories; RF amps, attenuators and filters, cables and connectors, video attenuators, transmission lines and connectors; TV combiners VS

AVANTEK INC

3175 Bowers Av Santa Clara CA 95051
408 727-0700
Microwave STLs; earth station LNAs

AVL DIGITAL LTD

70 Milner Ave Unit 5 Scarborough ONT M1S 3P8
416 298-6220
Audio monitor & distribution amps; video production switchers (small studio, & portable); dist & clamp amps; routing switchers; staircase/ramp & multiburst generators; equalizers & video slaters VS

AVONIX VIDEO SYSTEMS INC

PO Box 505 Brookfield WI 53005
414 784-1800
Video systems for production, post-production, ENG/EFP; automated video programming system; studios

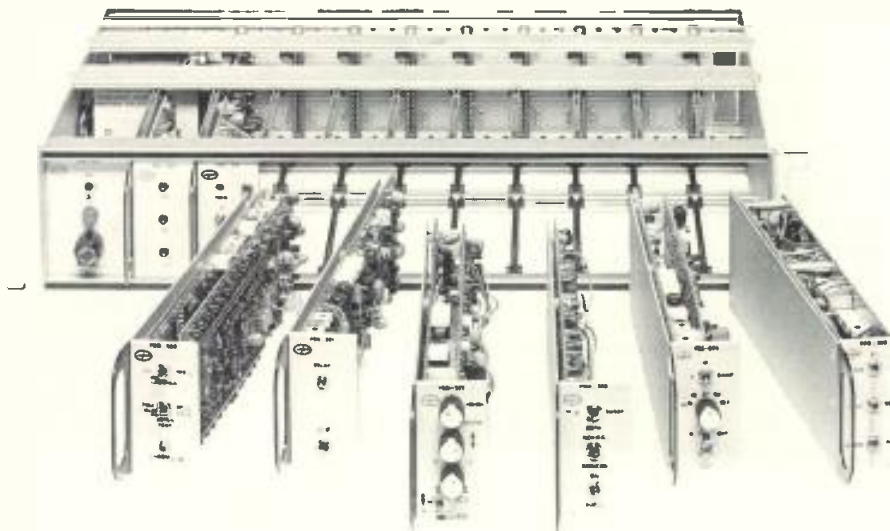
B

BACH AURICON INC

6950 Romaine St Hollywood CA 90038
213 462-0931
Heads, mounts & dollies; cine cameras & lenses

THE PROFESSIONAL'S VIDEO TEST SET CHOICE

**MORE STANDARD FEATURES TO BEGIN WITH
MORE OPTIONS TO GROW WITH**



This totally integrated modular video test set is designed for you, the discriminating professional. The Lenco 300 System lets **you** specify video test signals to meet **your** system requirements, rather than the manufacturer's requirements.

For versatility, use the Lenco PSG-310 Digital Color Sync Generator or the PMG-312 RS-170A Generator with any one or a combination of all the test modules. Mix them or match them any way that you can imagine. There are 29 test signals available to answer all of your system test specifications.

THE AFFORDABLES — You get a lot more for a lot less with the Lenco 300 System. For example, all of our test signal modules have

composite video delay. This allows you to **individually** time each test signal module to your system. Moreover, we are the first American manufacturer to supply a color bar generator with the SMPTE alignment test signal (reverse bars).

Join the many professionals now using the flexible Lenco 300 test system. We are so sure of your acceptance of Lenco equipment, that we offer a two-year warranty on all parts and labor. This warranty also includes freight to and from our factory.

Call or write for a demonstration today. You will find the Lenco 300 System to be your professional video test set **now** and as you grow.



LENCO, INC., ELECTRONICS DIVISION

300 N. Maryland St., Jackson, MO 63755, (314) 243-3147

The Professional's Choice

Circle 158 on Reader Service Card

www.americanradiohistory.com

The Source '81

BALD MOUNTAIN LAB

230 Bellevue Rd Troy NY 12180
518 279-9753

Audio generators; dB meters VS
See ad pg 252—refer to rep dist section

BALLANTINE LABORATORIES INC

PO Box 97 Boonton NJ 07005
201 335-0900

Frequency counters; voltmeters; multimeters; VS
oscilloscopes; digital panel meters

BARBIZON ELECTRIC CO INC

426 W 55 St New York NY 10019
212 586-1620

Lamps; lighting gels, sockets & accessories

BARDA ELECTRONIC INC

5180 Queen Mary St Rm 410 Montreal Que H3W
3E7
514 486-1186

Character generators; videotex & teletext systems

BARDWELL & McALISTER INC

7051 Santa Monica Blvd Hollywood CA 90038
213 466-9361

Camera tripods & accessories; lamps & lighting VS
hardware; lighting plugs & connectors

BARKER & WILLIAMSON INC

10 Canal St Bristol PA 19007
215 788-5581

RF amps; audio test equip, RF coils; TVI filters, VS
antenna switching unit, filament & plate chokes

BASF SYSTEMS CORP

Crosby Dr Bedford MA 01730
617 271-4000

Audio tape (open reel, cartridges, cassettes); VS
calibration tape; video cassettes

BAYLY ENGINEERING LTD

(AEG-TELEFUNKEN)
167 Hunt St Ajax Ontario L1S 1P6
416 683-8200

Audio preamps, line & distribution amps, monitor & VS
power supplies; portable audio consoles; RF amps; telco STLS; AM, FM, VHF & UHF transmitters; two-way radio communications; FM exciters; 19-inch equipment racks; surge protectors

BEAVERONICS INC

8 Haven Av Port Washington NY 11050
516 883-4414

Large, small & portable production switchers; VS
manual master control switchers; master & slave clocks; time dist systems

See ad pg 164—refer to rep/dist section

BEBELL INC

416 W 45 St New York NY 10036
212 245-8900

16 mm film lab services; 35 mm title photography; VS
title cards; 35 mm slide programs & duplicators in TV proportion

BEI ELECTRONICS

11312 S Pipeline Rd Euless TX 76039
817 267-8191

Audio processing equip, equalizers and fitters VS
(active)

BELAR ELECTRONICS LABORATORY INC

119 E Lancaster Av Devon PA 19333
215 687-5550

Modulators; RF amps; demodulators; AM stereo VS
exciters; FM & TV SCA equip; frequency monitors & counters

See ad pg 251

BELDEN COMMUNICATIONS INC

534 W 25 St New York NY 10001
212 691-1910

Lamps; manual & automated lighting control VS
systems; dimmer packs; lighting heads, stands & fixtures; diffusion material; gels & filters; production equipment rental services

BELDEN CORP (ELECTRONIC DIV)

PO Box 1980 Richmond IN 47374
317 983-5200

RF cable; audio cable; wire; transmission lines; VS
coaxial cable

BELL & HOWELL (AV PRODUCTS DIV)

7100 McCormick Rd Chicago IL 60645
312 262-1600

Audio cassette recorders; 16 mm & film strip VS
projectors; RingMaster slide sound projectors; overhead projectors; microcomputer systems & software

BELL & HOWELL MAMIYA CO

1 Mamiya Dr Kensington Ctr Mt Prospect IL
60056
312 635-5000

Film cameras & lenses; camera accessories

BELL AUDIO SYSTEMS INC

994 Freeway Dr N Columbus OH 43229
614 846-2766

Audio amps (dist, preamps, power, public address); VS
cartridge tape player/recorders (single)

BELL HELICOPTER TEXTRON

PO Box 482 Ft Worth TX 76101
817 280-2011

Helicopters VS

BERKEY COLORTRAN INC

1015 Chestnut St Burbank CA 91502
213 843-1200

Lamps; heads, stands, and fixtures; diffusion VS
material; plugs & connectors; light control systems (manual, auto, dimmer packs); patch terminals

BEST AUDIO

5422 Fair Av N Hollywood CA 91601
213 763-2378

Production & post-production equipment rental; VS
audio post-production services; radio & TV studio design; motion picture and TV remote audio mobile units

BESTON ELECTRONICS INC (BEI)

Box 937 Olathe KS 66061
913 764-1900

Electronic titlers; teleprompters; automatic telecine VS
light controls; video slaters; weather info services; 16 mm telecine projectors; production character generators

See ad pg 227

BEYER DYNAMIC INC

5-05 Burns Av Hicksville NY 11801
516 935-8000

Headphones; full line mics, stands, booms & dollies; VS
transformers

BGW SYSTEMS INC

13130 S Yukon Hawthorne CA 90250
714 973-8090

Audio preamps, monitor, power & dist amps; VS
speakers (Tannoy); Emilar transducers

JAMES G BIDDLE COMPANY

510 Township Line Rd Blue Bell PA 19422
215 646-9200

Frequency meters; impedance bridges; multimeters

B I ELECTRONICS

128 Donaldson Center Greenville SC 29065
803 277-5985

Teletype alarm systems; timers; status and alarm VS
indicators

BIRD ELECTRONIC CORP

30303 Aurora Rd Cleveland (Solon) OH 44139
216 248-1200

RF wattmeters; RF loads; RF filters; RF attenuators; VS
RF power monitor/alarms

BIRNS & SAWYER INC

1026 N Highland Av Los Angeles CA 90038
213 466-8211

Camera heads, tripods, dollies; camera & lens VS
accessories; film editing equip; lights & light stands; batteries; equip rental

BIW CABLE SYSTEMS INC

65 Bay St Boston MA 02125
617 265-2102

Connectors; wire & cable VS

BJA SYSTEMS INC

666 Davisville Rd Willow Grove PA 19090
215 659-4141

Color video synthesizer; colorizer; animation equip; VS
SEGS

BLONDER-TONGUE LABORATORIES INC

One Jake Brown Rd Old Bridge NJ 08857
201 679-4000

RF amps, loads, filters; FM & TV antennas; pay-TV, VS
CATV, MATV systems; TV demodulators; dist amps; modulators (TV receiving)

BOGNER BROADCAST EQUIP CORP

401 Railroad Av Westbury NY 11590
516 997-7800

FM, microwave & TV (HP & CP) transmitting VS
antennas; microwave receiving antennas

BONNEVILLE BROADCAST CONSULTANTS

DIV
274 County Rd Tenafly NJ 07670
201 567-8800/800 631-1600

Syndicated radio programming services via tape & VS
satellite

BONNEVILLE PRODUCTIONS

130 Social Hall Av Salt Lake City UT 84111
801 237-2400

Audio dist & line amps; high speed tape VS
duplication

See ad pg 139

BOONTON ELECTRONICS CORP

499 Pomeroy Rd PO Box 122 Parsippany NJ
07054
201 887-5110

AM stereo & FM exciters; RF generators; VS
impedance bridges; dB meters; RF wattmeters; voltmeters; modulation monitors; AM, FM signal generators

BOSTON INSULATED WIRE & CABLE CO

See BIW Cable Systems Inc

BOSTON SOUND AND POWER SYSTEMS

3 Fredith Rd Weymouth MA 02189
617 335-8709

Audio line, dist, monitor & preamps; amp power VS
supplies; automation controllers & systems; LED audio level indicators; radio computer business services

BOZAK INC

587 Connecticut Ave S Norwalk CT 06854
203 838-6521

Amps (preamps, monitor, power, public address); VS
equalizers & filters (passive); delay lines

BPI AUDIO TEST EQUIP

7853 Balboa Av San Diego CA 92111
714 279-3344

Voltmeters; dB meters; harmonic distortion meters; VS
audio generators; load banks; intermodulation meters; wow & flutter meters

BPI BROADCAST PROGRAMMING INTL

PO Box 547 Bellingham WA 98227
206 676-1400/800 426-9082

Syndicated radio programming services VS
See ad pg 209

BRAND-REX CO ELECTRONIC & IND

CABLE/DIV
PO Box 498 Willimantic CT 06226
203 423-7771

Flexible transmission line, coaxial cable, wire & VS
cable

BRETFORD MFG CO

9715 Soreng Av Schiller Pk IL 60176
312 678-2545

Mobile audio equipment stands; audio tape, cart & VS
cassette storage; videotape storage; VTR security centers, cabinets & stands; cabinets & furniture

BROADCAST AIDS INC

20 Red Rose Dr Levittown PA 19056
215 547-7133

Digital clocks; timers VS

VS MEANS IT'S VERIFIED



Cherokee Studios, Hollywood, California.

JBL 4313 Studio Monitor. It flattens the competition.



Introducing the 4313.

Fiat frequency response. It means accuracy. Naturalness. Reality.

JBL gives it to you without the bigger box that you'd expect along with it, since the 4313 only measures about 23" x 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 a smoother transition to the midrange than most larger-cone speakers.

The 4313's edge-wound voice coil midrange accurately reproduces strong, natural vocals and powerful transients.

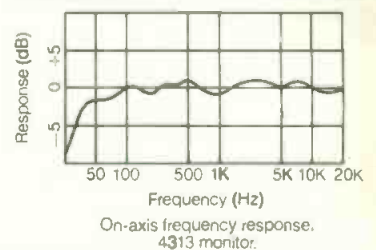
Up top, a dome radiator provides high acoustic output with extreme clarity and wide dispersion. A large 1" voice coil gives it the ruggedness needed in

professional use. Working together, these precision matched speakers offer superb stereo imaging, powerful sound levels and wide dynamic range.

Audition the 4313 soon.

We think you'll agree that its combination of flat response, power and moderate size flattens the competition.

Available in Canada through Gould Marketing, Montréal, Québec.



James B. Lansing Sound, Inc.,
8500 Balboa Blvd.,
Northridge, California 91329.

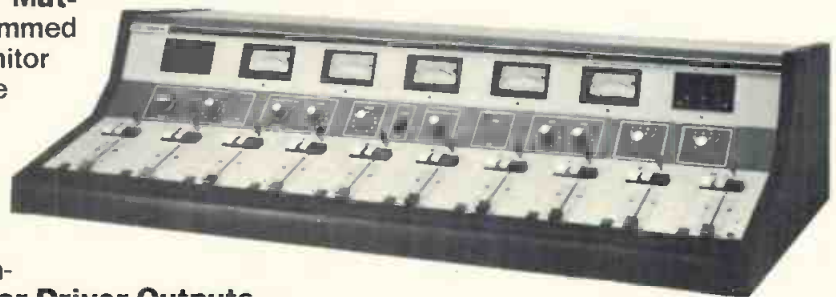
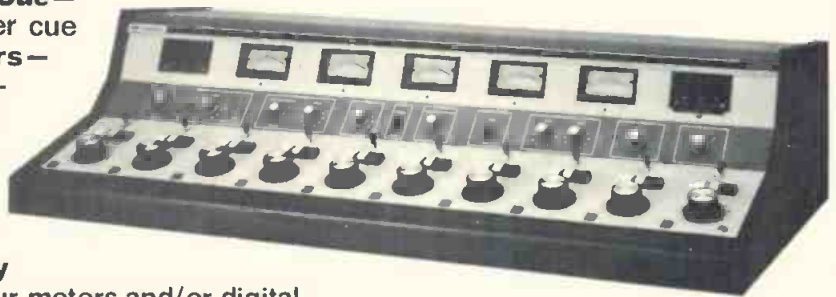
JBL First with the pros.

Circle 159 on Reader Service Card

©1980 James B. Lansing Sound, Inc.

Everything you want in an audio console:

4 Models—8 and 10 mixer dual stereo with rotary or linear faders • **Transformer Balanced Inputs and Outputs** • **3 Inputs Per Mixer**—internal pads allows mic/line selection on the same mixer • **Two 4-Input Auxiliary Input Selectors**—may be assigned to any mixer • **Pre-fader Pushbutton Cue**—in addition to normal CCW fader cue position • **LED Status Indicators**—color coded to aid in instant identification of function selectors • **Momentary or Continuous Remote Control Contacts**—internally selectable, also controls optional digital timer reset/start • **Full Metering Capability**—two meters standard, up to four meters and/or digital clocks and timers optionally available, all meters provided with LED peak indicators • **Gain Selectable Microphone Preamps**—provided with center tap access for phantom condenser microphone power, processor input/output port with buffer amplifier for outboard compressors, limiters, etc. • **Programmable Muting Logic**—internal pin-programmed matrix allows any selection of monitor and cue muting for the first five mixer positions • **Pushbutton Aural Phase Test** • **Announcer's Microphone Intercom-Air Selector** • **Full Dual Channel Operation**—independent program and audition assignment pushbuttons • **Five Monitor Driver Outputs**—four muted, one non-muted • **All Mixers Switch Selectable to Mono or Stereo** • **Ground-Plane Techniques Used Throughout for Increased RF Immunity** • **Selectable Internal or External Master Level Controls** • **Accessories and Options**—mono mixdown, high impedance (cassette) line input plug-ins, reference oscillator/line input plug-in, additional microphone input plug-ins, digital clock, digital timer, linear faders.



LPB® **citation** series
LPB Inc. • 28 Bacton Hill Road • Frazer, PA 19355 • (215) 644-1123
Manufacturers and Distributors of Broadcast Equipment since 1960
© 1981 LPB Inc.

The Source '81

BROADCAST AUDIO CORP

11355 Pyrites Way Rancho Cordova CA 95670
916 635-1048
Audio line, monitor & preamps, power supplies;
graphic equalizers & filters; audio consoles (stereo
multi-output studio, audio for TV, automated) VS
See ad pg 193

BROADCAST CARTRIDGE SERVICE

15131 Triton Ln Ste 108 Huntington Beach CA
92649
714 898-7224
Tape cartridges; empty reels, carts, cassettes;
cartridge tape storage; tape cleaning & evaluating
service VS

BROADCAST CENTER

325 John Knox Rd # F-160 Tallahassee FL 32303
904 385-6161
Radio business computer services; syndicated
radio programming services VS

BROADCAST ELECTRONICS INC

4100 N 24 St PO Box 3606 Quincy IL 62305
217 224-9600
Audio line, distribution, monitor & preamps; rotary &
slide attenuators; ALC & AGC amps; AM & FM
compressor/limiters; audio delay systems; reverb
units; relay & time insertion sequencers; computer
automation controllers; complete automation
systems; consoles (one-output mic mixers,
portable, mono & stereo multi-output studio, audio
for TV); turntables; pickup arms and phono
cartridges; disk consoles; turntable preamps &
controls; speed controls; mics (dynamic,
condenser/electret, wireless, shotgun, lavalier);
mic stands, booms & dollies; patch panels;
speakers; studio cabinets & furniture; open-reel
audio tape, carts & cassettes; empty reels, leader
tape, tape timers, tape cleaners, rewinders;
alignment gauges; cart player/recorders (single,
dual, multiple, time delay); open-reel recorders
(portable, studio, time delay); replacement tape
heads; splicing blocks & tape; head degaussers;
bulk & conveyor erasers; cart storage; telephone
coupling equip; video distribution amps; FM
exciters; remote control systems; remote pickup
equip; FM transmitters; digital clocks; master &
slave clocks; FM, AM, TV field intensity meters; wow
& flutter meters; EBS two-tone systems VS

BROADCAST MGT CONCEPTS — See Automated Business Concepts

BROADCAST SERVICES CO

PO Box 85 Selma NC 27576
919 284-2102
Digital timers; radio equip sales

BROADCAST TECHNOLOGY INC

1324 Motor Pky Hauppauge NY 11788
516 582-6788
Audio preamps; line, monitor, & dist amps; power
supplies for amplifiers; graphic equalizers & filters;
studio consoles (mono & stereo multi-output, audio
for TV); hardwired intercom systems; patch panels;
large & small audio production switchers;
voltage & dB meters

BROADCAST VIDEO SYSTEMS LTD

1050 McNicoll Av Toronto ONT M1W 2L8
416 497-1020
RGB, luminance & encoded chroma keyers; color
correctors; color encoders; production switchers
(small, portable); special effects gens; video delay
lines & filters; comb decoders; vectorscopes;
waveform monitors; safe area generators; pulse
width test set; line selector; color signal monitor VS
See ad pg 250

BRUEL AND KJAER INSTRUMENTS INC

185 Forest St Marlborough MA 01752
617 481-7000
Condenser/electret mics; mic stands, booms &
dollies; chart recorders; audio generators; harmonic
distortion meters; intermodulation meters;
oscilloscopes; phase meters; spectrum analyzers;
voltage meters; dB meters; waveform
monitors & analyzers; wow & flutter meters

BRUSH MAGNETIC HEADS
PO Box 638 Sunbury PA 17801
717 286-5611
Magnetic recorder heads VS

BSC INC

2932 River Road River Grove IL 60171
312 452-5551
Cabinets VS

BSM SYSTEMS

Box 8081 Manito Spokane WA 99203
509 448-0697
Portable mixing consoles VS
See ad pg 193

BTX CORP

12 Huron Dr Natick MA 01760
1 800 225-2253
SMPTE/EBU time code synchronizing systems;
computer-automated ATR/VTR editors &
controllers; SMPTE time code readers, generators,
& jam-sync generator/readers; intelligent media
transport interface for audio, video & film production VS

BUHL OPTICAL

1009 Beech Av Plltsburgh PA 15233
412 321-0076
Film telecine slide projectors & multiplexers VS

BULOVA WATCH CO INC AM TIME PRODUCTS DIV — See Frequency Control Products

BURDEN ASSOCIATES

20944 Sherman Way Canoga Pk CA 91303
213 340-4590
Facility turnkey installation; radio studio design VS

C

CABLEWAVE SYSTEMS INC

60 Dodge Av N Haven CT 06473
203 239-3311
ENG microwave; RF phasing networks; RF cables;
RF connectors; RF switchers; microwave STLs;
microwave antennas; transmission line &
connectors VS

CALICO VIDEO CO INC

8955 Thornton Rd Stockton CA 95209
209 952-3333
Videotape; reels; cartridges; reloaded carts VS

CALIFORNIA INSTRUMENTS

5150 Convoy St San Diego CA 92111
714 279-8620
Audio generators; ac power converters; frequency
changers VS

CALIFORNIA MICROWAVE INC

990 Almanor Av Sunnyvale CA 94086
408 732-4000
Transmit/receive, receive-only & mobile satellite
earth stations; RF modulators; receivers, comm &
monitor; RF converters VS

CALVERT ELECTRONICS INC

1 Branca Rd E Rutherford NJ 07073
201 460-8800/800 526-6362
Camera pickup tubes; rectifiers; power tubes; RF
tubes; transmitter tubes; camera tripods &
pedestals (Quick-Set); microphones (Sennheiser);
battery belts & packs (Frezzolini) VS

CAMBRIDGE PRODUCTS CORP

244 Woodland Av Bloomfield CT 06002
203 243-1761
RF and audio connectors

THE CAMERA MART

456 W 55 St New York NY 10019
212 757-6977
TV production equipment rentals and sales VS
See ad pg 142-143

CANADIAN GENERAL ELECTRIC CO LTD

396 Attwell Dr Rexdale Ont M9W 5C3 Canada
416 675-7500
HP TV antennas; translators; VHF & UHF TV
transmitters VS

VS MEANS IT'S VERIFIED

CANON USA INC

One Canon Plaza Lake Success NY 11042
516 488-6700
Video camera lenses, cine camera lenses, camera
controls and accessories VS
See ad pg 153
CA Canon USA 123 Paularino Av E Costa
Mesa 92626..... 714 979-6000
IL Canon USA 140 Industrial Drive
Elmhurst 60126..... 312 833-3070

CANDEX PACIFIC INC

693 Veterans Blvd Redwood City CA 94063
415 364-8427
Design custom electronic equip

CANTER-REDMAN TECHNOLOGIES CORP

321 W 44 St New York NY 10036
212 245-5505
Video dist amps; sync, color bar, black burst, &
multiburst generators; multi-standard color picture
monitors; chroma frequency converters; half-inch
VCRs; multi-standard VTRs; multitest systems;
video test generators; facility turnkey installation VS

CAPITOL MAGNETIC PRODUCTS DIV OF CAPITOL RECORDS

6902 Sunset Blvd Hollywood CA 90028
213 461-2701
Audio cartridges & cassettes; bulk tape VS
See ad pg 186
CA 6902 Sunset Blvd Hollywood
90028..... 213 461-2701
GA 1670 NE Freeway Access Rd
Atlanta 30329..... 404 321-5441
IL 6401 Gropp Point Rd Niles
60648..... 312 775-7101
NY 1370 Av of the Americas NY
10019..... 212 757-7470
TX 6730 Pakbrook Blvd Dallas
75235..... 214 637-1890

CASES INC

1745 W 134 St Gardena CA 90249
213 770-4444
Racks, cases (shipping, storage & carrying);
cabinets

CATEL DIV UNITED SCIENTIFIC CORP

1400 D Stierlin Rd Mountain View CA 94043
415 969-9400
FM modulators & demodulators; FM microwave
subcarrier systems; TV modulators; filters; video
FM link VS

CATERPILLAR TRACTOR

100 NE Adams Peoria IL 61629
309 675-1000
Emergency power generators

CAT SYSTEMS

401 E 74 St New York NY 10021
212 988-0658
Automation controllers, computer/microprocessor;
complete automation systems; remote control
systems; process control with color graphics display

CAVOX-TAPEATHON CORP

502 S Isis Av Inglewood CA 90301
213 776-6933
Automation sequencers, relay & time insertion;
complete automation systems; auto time/weather
announcers; tape duplicating services; portable &
studio open-reel tape player/recorders; syndicated
radio programming services

CBS TECHNOLOGY CENTER

227 High Ridge Rd Stamford CT 06905
203 327-2000
Test records VS

CCA ELECTRONICS CORP — See Singer Broadcast Products

CECO COMMUNICATIONS INC

2115 Av X Brooklyn NY 11235
800 221-0860
RF tubes, vacuum tubes; semiconductors; camera
tubes; power tubes; rectifiers; related broadcast
equip VS
See ad pg 51

The Source '81

CENTRAL DYNAMICS CORP

900 Corporate Dr Mahwah NJ 07430
201 529-1550

Large & small production switchers; master control switchers (manual, auto, business auto interface); station automation systems; machine assignment & pulse distribution systems; audio amps; video pulse & dist amps; digital sync decoders; video equalizers VS

See also listings for American Data and Phillips Broadcast

See ads pp 72, 175

CAN	147 Hymus Blvd Pointe Claire/Quebec H9R 1G1	514 697-0810
AL	B Munzer 401 Wynn Dr Huntsville 35805	205 837-5180
CA	D Cadora/M Hart 3760 Cahuenga Blvd W N Hollywood 91604	213 766-8184
GA	J Sims 3300 Northeast Expy Ste 1G Atlanta 30341	404 458-0171
IN	J Gardner PO Box 27324 Indianapolis 46227	317 784-3000
MD	B Mahoney 801 Howard Grove Rd Davidsonville 21035	301 956-3065
MN	J Clarine 15611 Fish Pl Rd Prior Lake 55372	612 447-6036
NJ	R Blair 33 Benson Rd Glen Rock 07452	201 447-3415
NY	L Barreca/D DeBeradinis 10 W Main St PO Box 98 Elmsford 10523	914 592-5440
TX	M Mackin Rt 2 801 E Woodglen Lewisville 75067	817 455-2214

CENTRO CORP

9516 Cheapsake Dr San Diego CA 92123
714 560-1578

TV studio design; mobile van construction, facility turnkey installation; equip racks, cabinets, furniture, storage shelves; generators VS

CENTURY PRECISION CINE/OPTICS

10661 Burbank Blvd N Hollywood CA 91601
213 766-3715

Wide-angle & telephoto lenses for 16 mm & 35 mm cine use; motion picture accessories; adapters & special modifications, cine & video; one-inch & 2/3-inch video lenses VS

CENTURY 21 PROGRAMMING INC

4340 Beltwood Pky Dallas TX 75234
800 527-5959/in TX 214 934-2121

Syndicated radio programming services

CETEC ANTENNAS

6939 Power Inn Rd Sacramento CA 95828
916 383-1177

Diplexers; TV combiners; FM antennas; HP & CP TV antennas VS

CETEC BROADCAST GROUP

1110 Mark Av Carpinteria CA 93013
805 684-7686

Audio preamps; computer/microprocessor automation controllers; complete automation systems; one-output mic mixers; mono & stereo multi-output studio consoles; audio for TV consoles; automated consoles; complete disk consoles; phono preamps; turntables; phono pickups & cartridges; multiple audio cart player/recorders; radio business computer services VS

CETEC GAUSS

9130 Glenoaks Blvd Sun Valley CA 91352
213 875-1900

High-speed audio tape duplicators

CETEC VEGA

PO Box 5348 El Monte CA 91731
213 443-0782

Wireless mic & RF intercom systems & accessories VS
See ad pg 117—refer to rep/dist section

CEZAR INTERNATIONAL LTD

1026 West Maude Av Sunnyvale CA 94086
408 733-1436

Audio/video micro-locs; two-VTR editor/controllers; SMPTE time code readers, generators, readers/generators VS

CHANNELMATIC INC

2232 Lindsay Michelle Dr Alpine CA 92001
714 445-2691

Audio distribution amps; amp power supplies; computer/microprocessor automation controllers; video distribution amps; video message generators; video source ID systems; timers; time-date generators; custom remote control, switching & automation systems for CATV; automatic VCR commercial insert systems for satellite sources; commercial verification systems; time/tone switching systems; satellite receiver controllers; VCR sequencers; seven-day clock controllers VS

CHASE MEDIA INC

5284 S 320 West Ste C266 Salt Lake City UT
84107

801 261-1383

Radio & TV computer business services; newsroom computers; syndicated radio programming services VS

CHRISTIE ELECTRIC CORP

20665 Manhattan Pl Torrance CA 90501
213 320-0808

Battery supplies for production equip & emergency power; battery chargers; camera-mounted ac-to-dc power supplies VS

See ad pg 179

CHRONO-LOG CORP

2 W Park Rd Havertown PA 19083
215 853-1130

Digital clocks & calendars; time-code generators & readers; master & slave clocks; time distribution systems VS

CHYRON CORP

265 Bethpage-Spagnoli Rd Melville NY 11747
516 249-3296

Full video graphic systems; videotape evaluators VS
See ad pg 39

CINE 60 INC

630 9 Av New York NY 10036
212 586-8782

ENG camera braces; power packs for portable cameras; lighting heads, stands & fixtures; battery chargers; battery supplies for production equipment VS

See ad pg 118

CA 6430 Sunset Blvd Hollywood
90028 213 461-3046

CINEMA PRODUCTS CORP

2037 Granville Av Los Angeles CA 90025
213 478-0711

TV color studio cameras; ENG/EFP cameras; camera heads, tripods & stabilizing systems; camera lenses & power packs; video edit/controller; camera co-ax remote control; camera prompting system; 16 & 35 mm cine cameras; cine tripods & accessories; flatbed film editors; lighting heads, stands & fixtures VS
See ad pg 119

CIRCUIT RESEARCH LABS

3204 S Fair Ln Tempe AZ 85282
602 894-0077

ALC & AGC amps; AM & FM compressor/limiters VS
See ad pg 247—refer to rep/dist section

CLARCOMPUTER SERVICES

PO Box 100 111 S 5 St Vandalia IL 62471
618 283-2325

Radio business computer services

DAVID CLARK CO INC

360 Franklin St Worcester MA 01604
617 756-6216

Headphones, intercom systems

CLEAR/COM INTERCOM SYSTEMS

759 Harrison St San Francisco CA 94107
415 989-1130

Headphones; portable and rackmount hardwired intercom equip; amplifier power supplies; dynamic mics; telephone coupling equip; battery supplies for production equip VS
See ad pg 218—refer to rep/dist section

CMC TECHNOLOGY CORP

733 N Pastoria Av Sunnyvale CA 94086
408 245-3342

Video equalizers; refurbished quad video heads; velocity error corrector for quad VTRs; VCR auto equalizer; channel amp; videotape leader generator VS

CMX SYSTEMS DIV OF ORROX CORP

3303 Scott Blvd Santa Clara CA 95050
408 988-2000

Videotape multi-source editors; computerized auto assembly editors; small-aperture earth stations VS
See ad pg 3—refer to rep/dist section

CA Darrel Vincent 915 San Marcos Cir
Mt View 94043 415 967-2780

CT Frank Bayers 17 Point Beach Dr
Milford CT 06460 203 878-6223

IL Douglas Hutton 1301 W 22 #501
Oakbrook 60521 312 325-8488

PA Murray Bevtz PO 355 Springhouse
19477 212 371-1122

COASTCOM

2312 Stanwell Dr Concord CA 94520
415 825-7500

Demodulators; diplexers; microwave supports & portable equip; RF program subcarrier; modulators; RF filters; transmit/receive satellite earth stations; translators; status & alarm indicators

COAXIAL DYNAMICS INC

13110 Enterprise Av Cleveland OH 44135
216 267-2233

RF filters, RF loads, RF switchers, directional power detectors, couplers, RF wattmeters, adjustable-tap RF sampler

COHERENT COMMUNICATIONS CO

13756 Glenoaks Blvd Sylmar CA 91342
213 362-2566

Distributor ALC & AGC amps, AM & FM compressor/limiters, equalizers & filters, spec effects units (Audio Developments); PA stabilizer; distributor of mono, stereo, quad, audio for TV, portable mixers (Audio Developments); distributor of condenser, wireless, lavalier mics (Artech); mic power supplies; digital footage counter, blooper for cine cameras; induction receivers; location equipment cart; distributor of mic windscreens (Rycote)

COHU INC ELECTRONICS DIV

PO Box 623 San Diego CA 92112
714 277-6700

Video color encoders; telecine multiplexers & complete systems; b & w picture monitors; pulse, distribution & equalizer amps; sync generator systems; automatic telecine light control; video equalizers, equalizing amps VS

COLOR FILM CORP VIDEO DIV

98 Commerce Rd Stamford CT 06904
203 327-7270

Videotape/film recording transfer; film laboratory

COLORADO VIDEO INC

PO Box 928 Boulder CO 80306
303 444-3972

Image enhancers; special effects gens; sync generator systems; digital video effects; colorizers; video compressors; waveform monitors & analyzers VS

COLUMBIA VIDEO SYSTEMS

Laurel and Second Highland Park IL 60035
312 433-6010

Post-production equipment rentals; video post-production services; videotape/film recording transfer

COLUMBINE SYSTEMS INC

1301 Arapahoe PO Box 740 Golden CO 80401
303 279-4000

Computer business systems for radio, TV VS

COMAD COMMUNICATIONS LTD

91 Keffield St Unit 5 Rexdale ONT M9W 5A3
416 245-1734

Video master control switchers; automated master control systems; routing switchers

COMARK COMMUNICATIONS INC

Southwick Ind Pk Southwick MA 01077
413 569-5939

Demodulators; diplexers; TV exciters; ENG microwave; TV combiners; RF cables & connectors; remote control systems; RF attenuators, filters, loads & switchers; microwave & waveguide STLs; transmit/receive satellite earth stations; translators; VHF, UHF & low power UHF & VHF TV transmitters; two-way radio com; FM & microwave antennas; HP & CP TV antennas; antenna tuning units; transmission line & connectors; towers; tower lighting; RF wattmeters; facility turnkey installation; RF gaskets & tubes; transformers; wire & cable VS

VS MEANS IT'S VERIFIED



“DME IS THE MOST COST-EFFICIENT VIDEO EFFECTS SYSTEM WE FOUND.”

That's the bottom-line of KOMO's NEC Digital Mix Effects System, according to Bob Plummer, Director of Engineering, Fisher Broadcasting.

“Costs have come down so rapidly and quality is so high that we believe DME is really a money-saving investment,” Bob said. “You could pay more but you'd only get minor additional benefits.”

Important as it is, economy is only part of NEC's total capability story.

KOMO uses the complete DME system, together with NEC frame synchronizers, on network feeds and satellite signals, for nightly news and live feed from Washington.

“Signals are integrated as fully as any other source in the house,” Bob said. “We use DME for holding random still pictures—that's very important—for on-air as well as post-production operations. It gives us another transition and better effects.”

The effects Bob mentioned include split, horizontal and vertical flips, tumble, spin and a new mosaic pattern for a very dramatic look at any video scene.

Sophisticated digital video effects, complete frame synchronization and intelligent digital control are just a few of the features of NEC's extensive family of DME products—all in a simplified, cost-efficient package. It's a highly flexible, modular component system. And you can expand its functions as your broadcast needs expand.

Find out how NEC can help you put more excitement into your programming with maximum cost-efficiency. Call today for a hands-on demonstration of DME.

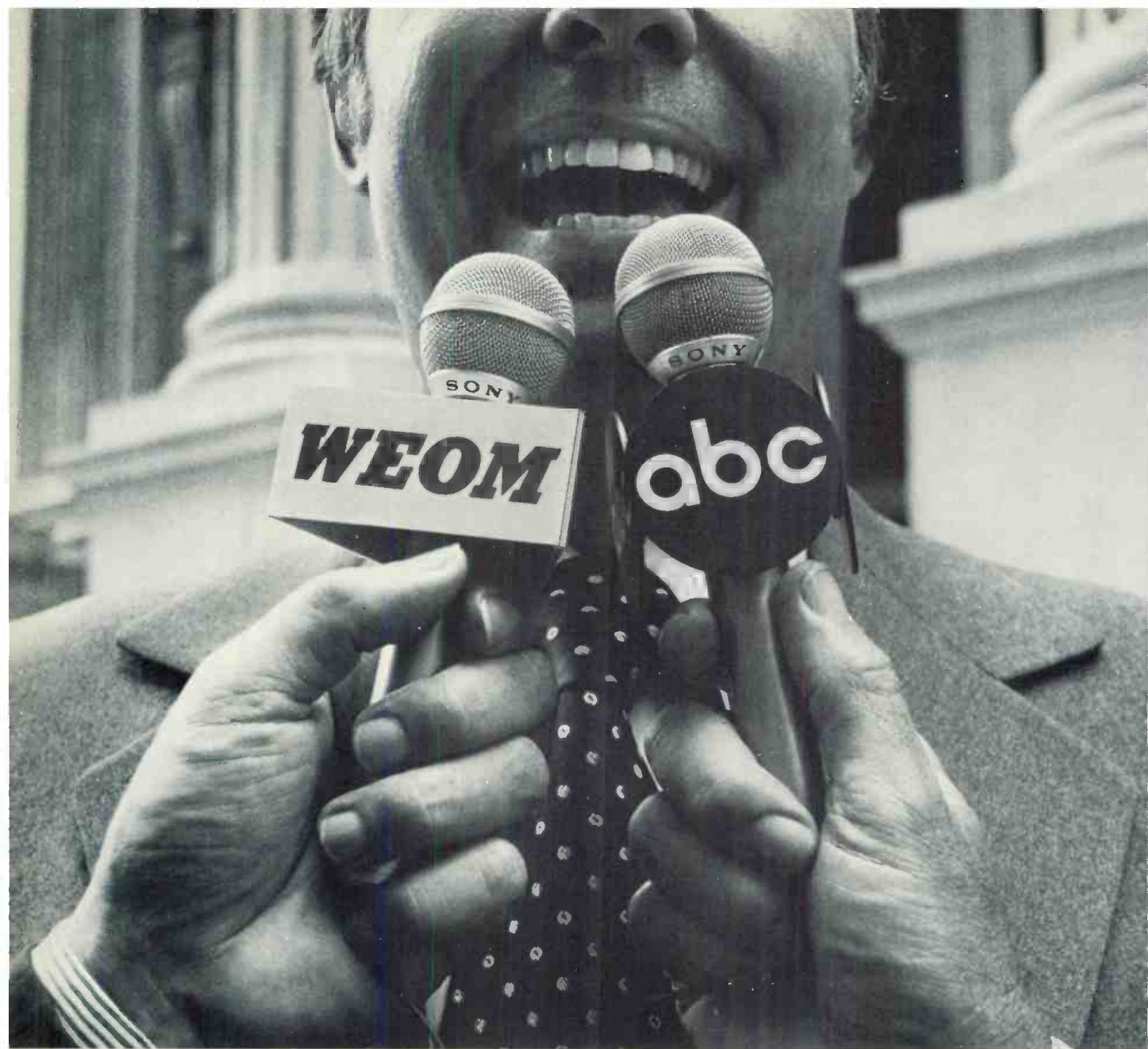
Pictured:
Fisher Broadcasting's Director of Engineering Bob Plummer.

NEC

NEC America, Inc.
Broadcast Equipment Division
130 Martin Lane
Elk Grove Village, Illinois 60007

Call Toll Free 800-323-6656
In Illinois call 312-640-3702

Circle 160 on Reader Service Card



YOU DON'T HAVE TO BE THE NATION'S #1 NETWORK TO SOUND LIKE IT.

The Republican National Convention, the Democratic National Convention, the Winter Olympics—three of the most important and prestigious media events in the last four years were all covered by ABC with wireless microphone systems from Sony.

If you want your station to sound like a leader, take a tip from the Number One name in broadcasting.

Include a wireless system from the Number One name in electronics.

SONY

© 1980 Sony Industries, a Division of Sony Corporation of America, 9 West 57th Street, New York, N.Y. 10019.
Sony is a registered trademark of the Sony Corporation.

Circle 161 on Reader Service Card

www.americanradiohistory.com



WHERE TO FIND SONY WIRELESS SYSTEMS.

ROH'S INC./ARIZONA
Tucson, AZ
Bill Roh (602) 795-8573

AUDIO SERVICES CO./CALIFORNIA
N. Hollywood, CA
Mark Chatinsky (213) 980-9891

HOFFMAN VIDEO SYSTEMS
Los Angeles, CA
Ken Williamson (213) 749-3311

SOUND GENESIS
San Francisco, CA
Dave Angress (415) 285-8900

FUTURE VIDEO SYSTEMS INC./FLORIDA
St. Petersburg, FL
Joe Ryan (813) 577-7759

HARRIS AUDIO SYSTEMS
No. Miami, FL
Mike Harris (305) 944-4448

FALCONE INTERNATIONAL INC./GEORGIA
Marietta, GA
Fred Orton (404) 427-9496

ROSCOR CORP./ILLINOIS
Morton Grove, IL
Steve Gillette (312) 966-3010

NICHOLS ELECTRONICS/KANSAS
Overland Park, KS
Grady Golden (913) 492-2151

PIERCE PHELPS/MARYLAND
Bethesda, MD
Fred Bergstrasser (301) 530-9580

TECHNIARTS
Silver Springs, MD
Bill Moore (301) 585-1118

CRAMER VIDEO INC./MASSACHUSETTS
Needham Heights, MA
Dan Mulheen (617) 449-2100

GENERAL TV NETWORK/MICHIGAN
Oak Park, MI
Doug Mumly (313) 548-2500

WESTERN MEDIA ENTERPRISES/NEVADA
Las Vegas, NV
Pete San Filipo (702) 871-4295

ALTEL SOUND/NEW YORK
New York, NY
Ozzie Reiter (212) 889-9700

CAMERA MART
New York, NY
Jeff Wohl (212) 757-6977

MARTIN AUDIO VIDEO
New York, NY
Mike Bogen (212) 541-5900

MASQUE SOUND
New York, NY
Jack Schering (212) 245-4623

PIERCE PHELPS/PENNSYLVANIA
Philadelphia, PA
Frank Brady (215) 879-7000

RIO RADIO/TEXAS
McAllen, TX
Mark Garcia (512) 682-5224

AVEC ELECTRONICS CORP./VIRGINIA
Richmond, VA
Lee Merritt (804) 359-6071

CUSTOM VIDEO SYSTEMS/WASHINGTON
Seattle, WA
Al Harwood (206) 365-5400

FULL COMPASS INC./WISCONSIN
Madison, WI
Jonathan Lipp (608) 271-1100

SONY

©1981 Sony Corp. of America, 9 West 57th St., N.Y., N.Y. 10019. Sony is a registered trademark of the Sony Corp.

The Source '81

COMEX SYSTEMS
Executive Dr Hudson NH 03051
603 889-8564
Audio delay systems

COMMERCIAL ELECTRONICS INC (CEI)
880 Maude Av Mountain View CA 94043
415 969-1910
Studio cameras; studio/field convertible cameras;
ENG/EFP cameras; camera accessories VS

COMMUNICATION TECHNIQUES INC
36 Route 10 E Hanover NJ 07936
201 884-2580
RF & microwave phase-locked oscillators

COMPACT VIDEO SALES INC
1104 W Chestnut Burbank CA 91506
213 843-3232
Complete audio studio construction; portable
microwave equip & supports; production equip &
post-production service: radio & TV studio design;
videotape/film recording transfer; emergency power
equip; mobile van construction; facility turnkey
installation; mobile satellite earth stations VS
See ad pg 15

IL	Washington Exec Plaza 522 Washington Ste 101 Naperville 60540	312 369-0714
NY	1700 Broadway 38 Floor New York 10019	212 265-6203
TX	Keystone Pk 13773 N Central Expy Ste 1230 Dallas	214 783-0044

COMPREHENSIVE VIDEO SUPPLY CORP
148 Veterans Dr Northvale NJ 07647
201 767-7990/800 526-0242
Audio dist amps; headphones; hardwired intercom
systems; condenser/electret, shotgun, lavalier
mics; mic stands, booms & dollies; magnetic tape
cartridges & cassettes; tape timers; tape editing &
splicing blocks & tape; tape head degaussers & bulk
erasers; tape cassette storage; video camera heads
& tripods; ENG camera braces & dollies; video
camera lenses & power packs; video dist amps;
sync, color bar, blackburst & staircase/ramp
generator systems; video equipment carrying
cases, test charts & slides; new videotape; VTR
head cleaners & bulk erasers; cine camera tripods &
accessories; lamps; lighting hardware &
accessories; video connectors; prefab scenery;
seamless materials; RF cables & connectors; digital
clocks & timers; oscilloscopes; battery supplies for
production equipment; battery chargers; cabinets &
enclosures; audio & radio connectors; wire &
cable VS
See ad pg 211

COMPUTER BUSINESS SYSTEMS INC
167 Moore Rd Weymouth Ind Pk Weymouth MA
02189
617 337-7799
Radio and TV business computer
services/equipment

COMPUTER CONCEPTS
8001 W 63 St Shawnee Mission KS 66202
913 677-4000
Computer automation controllers; business
computer services/equip for radio VS

COMPUTER IMAGE CORP
2475 W 2 Av Ste 4 Denver CO 80223
303 934-5801
Electronic animation

COMPUTER LABS DIV ANALOG DEVICES INC
505 Edwardia Dr Greensboro NC 27409
919 292-6427
Video A/D & D/A converters

COMPUTER MANAGEMENT SYSTEMS INC
6610 N Shadland Av Indianapolis IN 46220
317 846-1830
Business computer services/equipment for radio,
TV & networks VS

COMPUTER VIDEO SYSTEMS INC
3678 W 2150 S Unit 2 Salt Lake City UT 84120
801 974-5380/800 453-8822
Electronic character generators, titlers, & full

graphics systems VS
See ad pg 206

COMQUIP INC
630 9 Av New York NY 10036
212 582-1520
Distributor of studio cameras, ENG/EFP cameras,
camera lenses and accessories, tripods and dollies,
telescope equipment, monitors, video processing
equip, small production switchers, SEGs; VTRs;
film equip; lighting equipment

COMREX CORP
PO Box 269 Sudbury MA 01776
617 443-8811
Frequency extenders; studio/telephone interface
system; ENG wireless microphones; TV aural
monitors; RF IFB system VS
See ad pg 136

COMSEARCH INC
7633 Leesburg Pike Falls Church VA 22043
703 356-9470
Interference analysis service for satellite earth
stations, STLs and low power TV services VS
See ad pg 130

COMTECH ANTENNA CORP
3100 Communications Rd St Cloud FL 32769
305 892-6111
Satellite earth stations (transmit/receive,
receive-only, mobile); options on polar or E/Az
mounts; programmable controllers

CONCEPT PRODUCTIONS
801 D Riverside Av Roseville CA 95678
916 782-7754
Syndicated radio programming services VS

CONEX ELECTRO SYSTEMS
PO Box 1342 Bellingham WA 98227
206 734-4323
Audio monitor & power amps; 25 Hz tone
generators VS

CONRAC CORP
600 N Rimsdale Av Covina CA 91722
213 966-3511
TV monitors VS
See ad pg 65

CA	W Eims 600 N Rimsdale Ave Covina 91722	213 966-3511
IL	J Keenan 627 N York Rd Eimhurst 60126	312 833-3310
NJ	R Sanford 85 Orient Way Rutherford 07070	201 939-8444
CAN	B Mitchell 345 Kingston Rd Ste 210 Pickering Ontario L1V 1A1	416 281-3215

CONRAC CORP SYSTEMS EAST DIV
32 Fairfield Pl W Caldwell NJ 07006
201 575-8000
Large screen projectors VS

CONTINENTAL ELECTRONIC (CONTEL)
1620 W 32 Pl Hialeah FL 33012
305 822-1421
Tape cartridge single player/recorders

CONTINENTAL ELECTRONICS MFG CO
PO Box 270879 Dallas TX 75227
214 381-7161
Studio, stereo, multi-output audio consoles;
diplexers; AM stereo & FM exciters; phasing
networks; RF amplifiers, filters & loads; FM SCA
equip; stereo generators; AM & FM transmitters; FM
antennas; antenna tuning units; DA equip VS
See ads pp 188, 200, 204, 220, 249, 251

CONTINENTAL PLASTIC CARD CO
PO Box 8408 Coral Springs FL 33065
305 753-0670
Plastic listener/advertiser discount card promotions
for radio stations VS

CONTROL TECHNOLOGY INC
991 SW 27 Av Ft Lauderdale FL 33312
305 587-2716/800 327-4121
Facility turnkey installation; distributor of full line
audio equip VS

VS MEANS IT'S VERIFIED

The Source '81

CONTROL VIDEO CORP

578 Division St Campbell CA 95008
408 866-7447

SMPTÉ audio/video recorder synchronizers; full line SMPTÉ time code equip; computerized auto assembly editors **VS**

CONVERGENCE CORP

1641 McGaw Irvine CA 92714
714 549-3146

SMPTÉ time code synchronizing systems; electronic audio tape editors; SMPTÉ time code readers; video special effects gens; video animation; two-VTR editor/controllers; multi-source video editors; computerized auto-assembly editors; list management editing system; editing mix/effects

system; Command generator; single & dual disk drive for list storage **VS**
See ad pg 242—refer to rep/dist section

COOL LIGHT COMPANY INC

5723 Aukland Av N Hollywood CA 91601
213 761-6116

Lamps, lighting heads, stands & fixtures

COOPER GROUP ELECTRONICS DIV

PO Box 728 Apex NC 27502
919 362-7511

Soldering guns, wire stripping tools, hardware; hand tools

COPPERWELD BIMETALLICS GROUP

Robinson Plaza II Pittsburgh PA 15205
412 777-3000

Wire & cable **VS**

D & S CORLEY LTD

80 Galaxy Blvd Unit 3 Rexdale Ontario M9W 4Y8
416 675-3511

Telecine test materials, video test generators; live camera test slides **VS**

COUNTRYMAN ASSOCIATES INC

417 Stanford Av Redwood City CA 94063
415 364-9988

Audio preamps; RF & hardwired intercom systems; condenser/electret & lavalier microphones; two-way radio communications **VS**

COX BROADCAST DATA SERVICES

5600 Roswell Rd NE Suite 100 Prado North
Atlanta GA 30342

404 256-5200

Computer systems for TV sales, traffic, programming, financial & control room **VS**

COYNE ASSOC

1010 Sherbrook St W Ste 307 Montreal Que
H3A 2R7 Canada

514 282-8027

Computer aided systems design for CATV; broadband consulting service

CPAC INC

2364 Leicester Rd Leicester NY 14481
716 382-3223

Silver recovery and pollution control systems

CROMPTON INSTRUMENTS INC

2763 Higgins Rd Elk Grove Village IL 60007
312 593-1107

VU & PPM audio level indicators; voltmeters; dB meters; transformers

CROSSPOINT LATCH CORP

95 Progress St Union NJ 07083
201 688-1510

Encoded chroma keys; production switchers; special effects generators; sync, color bar, black burst generator systems; colorizers; computer-controlled effects systems; portable switcher in a case; monitor packages; custom-built switchers **VS**

See ad pg 57

CROWN INTL INC

1718 W Mishawaka Rd Elkhart IN 46517
219 294-5571

Audio preamps, line, monitor, power & dist amps; equalizers & filters, parametric & graphic; automation controllers, computer/microprocessor; condenser/electret mics **VS**

CSI ELECTRONICS INC

18248 E Rogers Cir Boca Raton FL 33431
305 994-6511

Transmitters (AM, FM, carrier current); status and alarm indicators; stereo and SCA generator **VS**

CSP INC

203 Airport Rd Doylestown PA 18901
1 800 523-6010

Diplexers; RF phasing networks; RF amps, attenuators, converters, switchers, loads & filters; antenna tuning units; DA equip; transmission line & connectors; towers; tower hardware & construction equip; tower lighting; antenna monitors; impedance bridges; phase meters; RF gaskets & inductors; insulation coils, RF contactors; capacitors; static drain chokes; antenna loops & sampling systems

CUSTOM BUSINESS SYSTEMS INC

Box 67 Reedsport OR 97467
503 271-3684

Business computer services for radio **VS**

D

3D VIDEO CORP

10999 Riverside Dr N Hollywood CA 91602
213 769-6752

3D cameras & display systems; 3D programming & 3D TV glasses

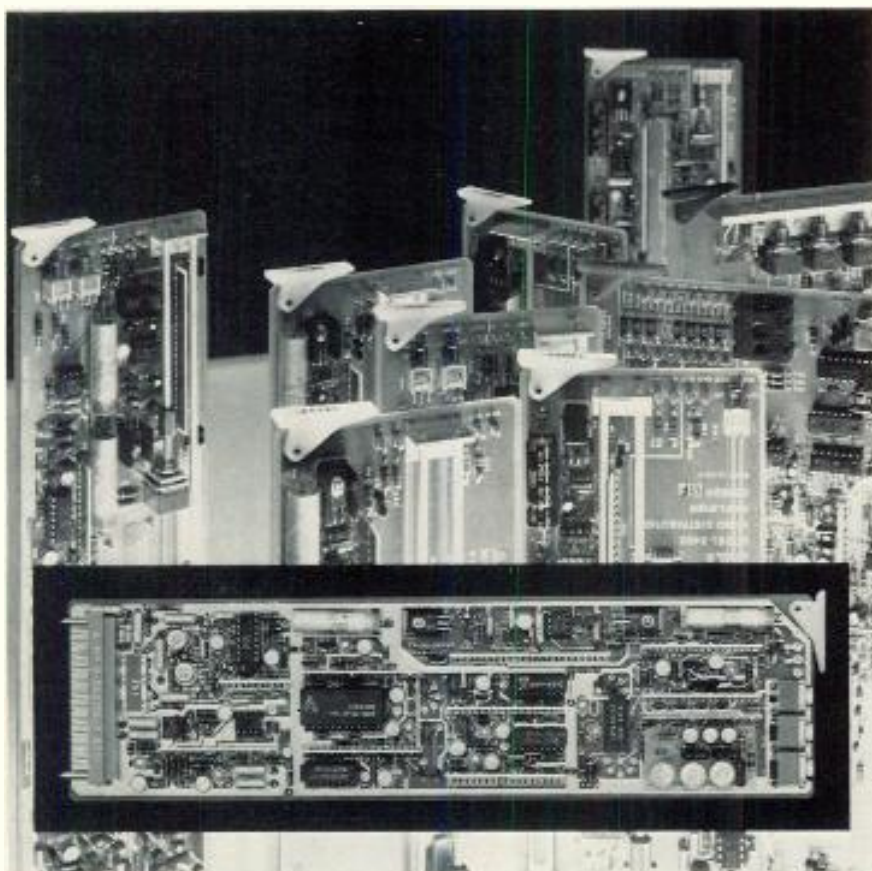
DABURN ELECTRONICS & CABLE CORP

70 Oak St Norwood NJ 07648
201 768-5400

Wire and cable; audio, radio & electrical connectors; shrink tubing & sleeving; terminals; lighting plugs & connectors; RF cables **VS**

NEW!

A High Performance VIDEO DELAY D.A.!



Introducing a GVG™ video distribution amplifier flexible enough to provide *adjustable delay from 65nsec to 550nsec!* Also; six outputs and optional cable equalization, all in **ONE COMPACT PACKAGE, THE MODEL 3430V!**

THE GRASS VALLEY GROUP, INC.®

P.O. BOX 1114 GRASS VALLEY CALIFORNIA 95945 USA

Circle 162 on Reader Service Card

**When it comes to automation,
we mean BUSINESS...**



HARRIS AUTOTRON™ STAR SYSTEM!

Harris now offers the most versatile, complete and expandable business automation system specifically designed for radio broadcasters. Four years of intensive field use prove that the Autotron™ Star System consistently performs a multitude of everyday station operations:

- Sales
- Traffic
- Accounts payable and receivable
- Payroll
- General ledger
- Sales scheduling
- Music library
- Depreciations

All these functions and more are available in Harris Business Automation Systems.

The Autotron Star System and Harris 9000 Program Automation System are made for each other. Together, they represent the most effective business/program control combo available—totally interactive...totally reliable...totally Harris! For more information on the Autotron Star System, contact Harris Corporation, Broadcast Products Division, P.O. Box 4290, Quincy, Illinois 62301. 217/222-8200.



HARRIS
COMMUNICATION AND
INFORMATION PROCESSING

Circle 163 on Reader Service Card

www.americanradiohistory.com

The Source '81

PETER W DAHL CO INC
4007 Fort Blvd El Paso TX 79930
915 566-5365
Transformers

DAK INDUSTRIES INC
10845 Vanowen St N Hollywood CA 91605
213 984-1559/800 423-2636
Audio tape (open reel, cartridges); empty reels,
carts & cassettes; leader tape; new videotape;
audio tape duplication services

VS MEANS IT'S VERIFIED

DATA COMMUNICATIONS CORP BROADCAST DIV
3000 Directors Row Memphis TN 38131
901 345-3544
Computer service for sales, traffic, operations &
accounting (TV & radio) (BIAS); complete
automation systems VS

DATAMETRICS INC
340 Fordham Rd Wilmington MA 01887
617 658-5410
SMPTE time code gens/readers VS
See ad pg 000

DATA PRECISION CORP
Electronics Av Danvers MA 01923
617 777-1401
Frequency monitors and counters; voltmeters;
multimeters; capacitance meters; ohm meters;
thermometers VS

DATA RECORDING HEADS INC
690 Mendelssohn Av Minneapolis MN 55427
612 545-1166
Replacement & rebuilt tape heads; cleaning
supplies VS

DATATEK CORP
1121 Bristol Rd Mountainside NJ 07092
201 654-8100
Audio line, monitor, dist & preamps, power supplies;
video pulse, dist, subcarrier & time code amps;
routing switchers; signal equalizing systems; video
equalizers; video source identification systems VS

DATATRON INC VIDEO SYSTEMS DIV
2942 Dow Av Tustin CA 92680
714 544-9970
Audio automation equip; complete systems,
controllers, computer/microprocessor; SMPTE time
code synchronizing systems; electronic editors;
audio/video SMPTE recorder synchronizers;
SMPTE time code readers, generators,
reader/generators; two VTR editor/controller,
multi-source editors & computerized auto assembly
editors VS

See ad pg 34

DATATRONIX INC
2100 Reston Av Reston VA 22091
703 833-0365
Audio preamps, line, dist amps & power supplies for
amps; slide & rotary attenuators; graphic &
parametric equalizers & filters; portable consoles;
mono & stereo multi-output studio consoles; audio
for TV & automated consoles; patch panels; video
dist amps; routing switchers

D-B ELECTRONICS INC
7851 Airpark Dr #201 Gaithersburg MD 20760
301 977-7048
Audio preamps, single, dual & triple cartridge tape
player/recorders; telephone coupling equip VS

dbx INC
71 Chapel St Newton MA 02195
617 964-3210
ALC & AGC amps; AM & FM compressor/limiters;
parametric equalizers; audio special effects; noise
reduction systems; low frequency extenders; dB
meters VS

See ads pp 113, 220—refer to rcp/dist section

DECCA AUSTIN INSULATORS
71 Selby Rd Brampton ONT L6W 1K5
416 457-8722
Insulators, lighting transformers; static drain
resistors for towers & antennas VS

DELCOM CORP
6019 S 66 E Av Tulsa OK 74145
918 494-9500
Computerized auto assembly editors; U-type VCRs;
production & post-production equip rentals; facility
turnkey installation; mobile van construction; TV
studio design VS

DELTA ELECTRONICS INC
5730 General Washington Dr Alexandria VA
22312
703 354-3350
ALC and AGC amplifiers; compressor/limiters, AM;
coaxial transfer switches; control panels; RF
switchers; DA equipment; ATS equipment; meter
jacks and plugs; remote sample rectifier circuits;
antenna monitor sampling transformers; antenna
monitors; RF generators; impedance bridges;
status and alarm indicators; common point bridges;
modulation controller; power controller; base
current and common point RF metering; remote
control systems; pulse reflectometers VS
See ad page 219

DELTA ELECTRONICS INC DIV LONG ENGINEERING
961 Burke St Winston-Salem NC 27101
919 725-2306
Audio distribution & line amps; preamps, monitor
amps; audio consoles (mixers, mono, stereo, quad,
audio for TV, portable); complete audio studio
construction; impedance bridges; radio & TV studio
design; facility turnkey installation

**When It Comes to Tubes,
TWO NAMES STAND OUT...**

JSH ELECTRONICS, INC.
World's Largest Distributor of Electron Tubes

RCA

The Industry's Leader for Over a Half Century

**What Better Combination for
ALL Your Tube Requirements?**

JSH has established for itself a worldwide reputation as "the tube supplier," and proudly features a complete line of RCA Electron Tubes for the commercial broadcasting, television, military communications, telecommunications, and amateur radio communities. If it's tubes you need, call

JSH
"TOLL-FREE"
NOW!

"The Tube Specialists"

Order Desk Numbers:

Outside Calif. (800) 854-7651 Los Angeles, 213 Area (213) 598-9633
Within CA ex. 213/714 (800) 472-8441 Orange/S. Diego Counties . . (714) 898-1171



JSH ELECTRONICS, INC.

A Member Company of VSI Electronics International
15682 Producer Lane • Huntington Beach Calif 92649
Tel (714) 895-2298 • TELEX: 683316 • TWX: 910-596-1813
Cable Address: JASHELEC • Ans Back JSH Int'l HTBH

Circle 164 on Reader Service Card

DBX HELPS KMJQ WORK MAJIC.

Majic. It's a black format that's living up to its name in several markets across the country. And perhaps the biggest success story is Houston's KMJQ. Back in 1977, KMJQ adopted the Majic format and went from near bottom to #1 in just 2 short Arbitrons.



Yet KMJQ was the softest station on the dial.

"To achieve our goal," explains Chief Operator Leroy Dietrich, "we placed a lot of emphasis on the quality of the sound. By the day we started the Majic format, we had built a technical ability that we think is probably one of the best in the country.

"We hired an audio consultant to get us started," continues Dietrich. "He installed P 303 pre-amps and MC20 moving coil cartridges on SL-1100A turntables.



Then he recommended dbx equipment for definition and dynamics."

KMJQ installed dbx tape noise reduction on all their cart machines. Not just for their program material, but for their commercials, too.

"That keeps our advertisers happy because their commercials sound as clean as our music," says Dietrich. "And



we use a dbx Model 500 subharmonic synthesizer to restore the low end.

It makes the station sound especially well balanced. Even at low listening levels."

KMJQ also needed a compressor/limiter - but they didn't want to ruin the sound quality they had worked so



hard to get. "After hearing how smooth the dbx 165 compressor/limiter works, there is no doubt in my mind that it's the best limiter I've ever heard in my life. We use it on voices, and it gives us the control we need without sounding like we have any control."



As you'd expect, KMJQ has constantly been making subtle technical changes to maintain their leadership position. "Due to competitive forces in the market, we've had to crank our signal up louder. Without dbx tape noise reduction on our carts, the noise would have been cranked up, too. Now I'm happier than ever that we're fully dbx'ed," says Dietrich. "We not only get the sound we want, but the whole system is incredibly reliable - bulletproof."

Dietrich summarizes his feelings about KMJQ's technical product by saying, "A lot of this is subtle stuff, psycho-acoustics. But people comment to us that our station sounds more like the record they bought than the other stations do. A psychological thing, agreed. But it all adds up when you start reading the Arbitrons."



For more information on dbx's complete line of equipment for the broadcast industry, write Professional Products Division, dbx, Incorporated, 71 Chapel St., Newton, Mass., 02195, USA. Tel. (617) 964-3210. Telex: 92-2522. Distributed in Canada by BSR (Canada) Ltd., Rexdale, Ontario.

dbx[®]

Circle 165 on Reader Service Card

SOLID, SMOOTH, RELIABLE!

THE P-80

The All New
P-80 Pneumatic
Camera
Pedestal—



**21"-58"
HEIGHT
RANGE**
Compares
with
any unit
available.

UNPARALLELED STABILITY

Each column guided
by large, precision ball
bearings on four hardened-steel tracks.

**SMOOTH, EFFORTLESS CAMERA
MOVES** 8" Gimbal-mounted wheels
and a single steering and lifting ring.

LONG-TERM RELIABILITY Designed
without compromise for durability, easy
maintenance, and minimum down-time.



**30-5/8" -
50-5/8"
HEIGHT
RANGE**

THE P-25

Based on our
workhorse P-20,
improved with
features from our
larger
models.

ALL WELDED STEEL CONSTRUCTION

Provides rugged stability,
carries loads up to 270 lbs.

EASY ROLLING 8" WHEELS

Come standard with Gimbal-mounting.

Manufacturers of Pneumatic
Camera Pedestals since 1952



TELEVISION PRODUCTS CO.

9016 Aviation Blvd., Inglewood, CA 90301
(213) 776-3276

The Source '81

DE WOLFE MUSIC LIBRARY INC
25 W 45 St New York NY 10036
212 586-6673
Production music library & sound effects

DEXCEL INC
2285C Martin Av Santa Clara CA 95050
415 727-9833
TVRO earth station systems; LNAs; LNA down
converters **VS**
See ad pg 40

FR DICKINSON JR INC
9 Westinghouse Plaza Bloomfield NJ 07003
201 429-8996
Audio tape recorder motor and drive rebuilding

DICTAPHONE CORP
120 Old Post Rd Rye NY 10580
914 967-7300
Logging recorder; telephone answering equip **VS**

DIELECTRIC COMM
Tower Rd Raymond ME 04071
207 655-4555
Patch panels; duplexers; TV combiners, RF loads
and switchers; RF wattmeters

DIGIMAX INSTRUMENTS CORP
5625 Kearny Villa Rd San Diego CA 92123
714 565-6582
Frequency counters **VS**

DIGITAL VIDEO SYSTEMS
716 Gordon Baker Rd Willowdale Ontario
M2H 3B4
416 499-4826
Time base correctors (helical capstan servo &
non-servo, quad); frame & field synchronizers;
digital noise reducers, dropout compensators,
digital video effects devices; comb decoders; A/D,
D/A converters; phasers **VS**
See ad pg 137—refer to rep/dist section

DI-TECH INC
48 Jefryn Blvd Deer Park NY 11729
516 667-6300
Audio dist. amps; automation controllers,
computer/microprocessor; video pulse & dist.
amps; video source identification systems; video
equalizers; routing switchers **VS**
See ad pg 233

DOLBY LABORATORIES INC
731 Sansome St San Francisco CA 94111
415 392-0300
Noise reduction systems, FM
compressor/limiter/filters; audio signal processing
equip **VS**

DORROUGH ELECTRONICS
5221 Collier Place Woodland Hills CA 91364
213 999-1132
AM & FM compressor/limiters/filters; LED audio
level indicators

DRAKE-CHENAULT
PO Box 1629 Canoga Park CA 91304
213 883-7400
Syndicated radio programming services

DRANETZ ENGINEERING LABS
1000 New Durham Rd Edison NJ 08817
201 287-3680
Frequency monitors & counters, burst phase
meters, voltmeters, multimeters, phase meters, diff
phase-gain measurement

VICTOR DUNCAN
2659 Fondren Dallas TX 75206
214 369-1165
Production equipment rental, post-production
services. Distributors of video equipment **VS**

DUNCAN ELECTRONICS INC
2865 Fairview Rd Costa Mesa CA 92626
714 545-8261
Audio slide attenuator controls

DURNELL ENGINEERING INC
PO Box 60 Hwy 4 S Emmetsburg IA 50536
712 852-2611
Aerial personnel lift trucks

DYMA ENGINEERING
PO Box 1697 Taos NM 87571
505 758-8686
Preamps; dist, line, monitor & power amps; ALC &
AGC amps; AM compressor/limiters; FM
compressor/limiters/filters; active equalizers &
filters; special effects; reverb units;
computer/microprocessor controllers; mono,
stereo, quad, audio for TV & portable mixing
consoles; complete disc consoles; intercom
systems; dynamic mics; patch panels; complete
studio construction; time-delay open reel
player/recorders; routing switchers; videotape
storage; time code gens/readers; audio/video
recorder synchronizer; open-reel, cartridge &
cassette storage; remote control systems; RF
switchers; master & slave clocks; time dist systems;
audio generators; status & alarm indicators; auto TV
monitors; equip rental; radio & TV studio design;
surge protectors; mobile van construction **VS**

DYNACOM ELECTRONICS LTD
590 Commerce Pk Dr Ste 125 Marietta GA 30060
404 428-3100
Video scrambling for over-the-air STV/MDS/LPTV

DYNAIR ELECTRONICS INC
5275 Market St San Diego CA 92114
714 263-7711
Audio preamps & dist amps; video pulse, dist &
subcarrier amps; routing switchers; video special
effects generators; sync & black burst generator
systems; video equalizers; signal equalizing
systems; modulators; remote control systems **VS**

DYNATECH DATA SYSTEMS
7644 Dynatech Ct Springfield VA 22153
703 569-9000
Coaxial & twin axial patching equip

E

EAST COAST VIDEO SYSTEMS INC
548 Broadway New York NY 10012
212 431-7453
TV studio design; facility installation

**EASTMAN KODAK CO MOTION PICTURE &
AUDIOVISUAL MARKETS DIV**
343 State St Rochester NY 14650
716 724-4000
Motion picture cameras; motion picture film;
projectors for TV; film processors **VS**
See ad pg 32-33

EATON CORP
5340 Alla Rd Los Angeles CA 90066
213 822-3061
ENG microwave equip; microwave supports,
portable equip; receivers, comm & monitor; RF
amps & attenuators; microwave antennas;
automated test & measurement systems; AM, FM &
TV field intensity meters; frequency monitors &
counters; RF generators; spectrum analyzers

ECCSYS CORP
934 Pearl Suite B Boulder CO 80302
303 442-8785
TV & radio business computer services; newsroom
computers **VS**

ECHOLAB INC
175 Bedford Rd Burlington MA 01803
617 273-1512
Production switchers (small, portable & large
studio); special effects generators **VS**

ECONCO BROADCAST SERVICE
1302 Commerce Av Woodland CA 95695
916 662-6031
Vacuum tube repair **VS**

EDCOR
16782 Hale Av Irvine CA 92714
714 556-2740
Audio amps (distribution, line, preamps, public
address); wireless microphones; headphone amps;
multiplex snake **VS**
See ad pg 212—refer to rep/dist section

Circle 166 on Reader Service Card

Circle 167 on Reader Service Card ▶

Exclusive full-line
representative in
the Midwest.

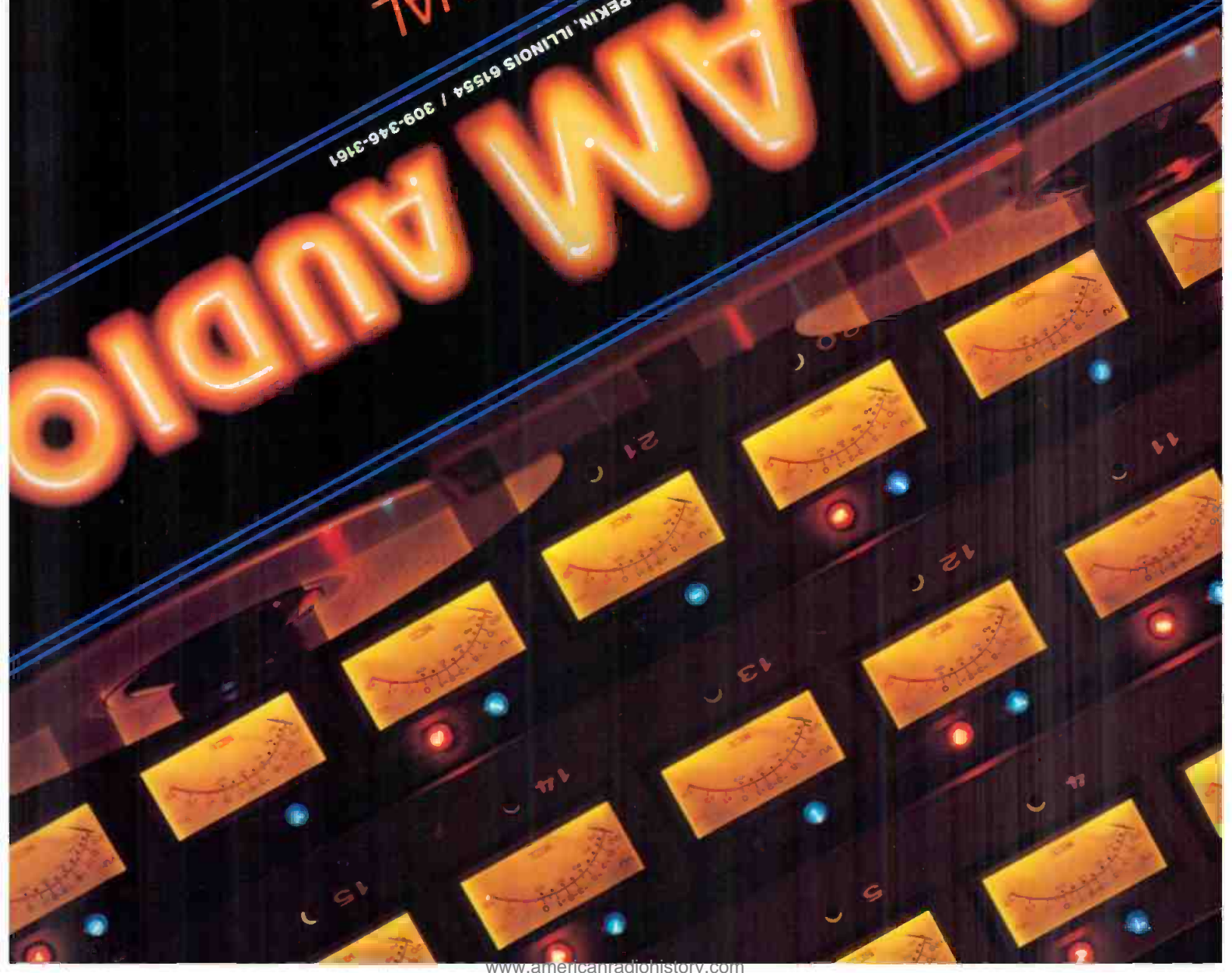


DESIGN & EQUIPMENT STUDIO IN AMERICA.

THE PROFESSIONAL SOURCE FOR RECORDING / BROADCAST

1504 NORTH 8TH STREET / PEKIN, ILLINOIS 61554 / 309-346-3161

MILWAUKEE AUDIO



MILAM AUDIO IS WHERE YOU'LL FIND **MCI**
AND ALL THE FINEST NAMES IN THE BUSINESS.

TAPE RECORDERS AND REPRODUCERS

MCI

BIC
OTARI
REVOX
TASCAM
TEAC
TECHNICS
TELEX

CONSOLES AND MIXERS

MCI

AUDITRONICS
AUDIOARTS
ELLA
INTERFACE
NEOTEK
QUANTUM
SOUNDCRAFT
SHURE
TANGENT
TAPCO
TASCAM
UREI
YAMAHA

SPECIAL EFFECTS

MCI

SMPT E / EBU SYSTEM
AUDIO & DESIGN RECORDING
AUDIOARTS
BTX SYSTEMS
DELTA-LAB
EVENTIDE
LEXICON
MARSHALL ELECTRONICS
MXR
OMNI-CRAFT
ORBAN
PULTEC
SCAMP SYSTEM
VALLEY PEOPLE (ALLISON)
WHITE

PHONO

PHASE LINEAR
QRK
REVOX
SHURE SME
SHURE CARTRIDGES
STANTON PRE-AMPS
STANTON CARTRIDGES
TECHNICS

REVERB SYSTEMS

AKG
ECHO-PLATE
EMT
LAWSON INC.
LEXICON DIGITAL
MIC-MIX
ORBAN
TAPCO
THE PLATE

SPEAKER SYSTEMS

AURATONE
BIG RED / SUPER RED
DAHLQUIST
ELECTRO-VOICE
JBL
KLIPSCH
REVOX
SHURE
UREI
YAMAHA

MICROPHONES

AKG
AUDIO-TECHNICA
BEYER
CROWN PZM
ELECTRO-VOICE
HME WIRELESS
NEUMAN
SENNHEISER
SHURE

HEADPHONES

AKG
BEYER DYNAMIC
KOSS
SENNHEISER
TECHNICS
TELEX

STUDIO ACCESSORIES

ANNIS DEGAUSSER
ATLAS STANDS
AX-MAX DIRECT BOX
BEYER STANDS
CUSTOM CUE SYSTEMS
CUSTOM DIRECT BOXES
ROBINS
TABER
MRL ALIGNMENT TAPES
STL ALIGNMENT TAPES
XEDIT SPLICE BLOCKS
AMPEX TAPE
3M TAPE
REELS
BOXES
BULK PRODUCTS

POWER AMPS

BGW
CROWN
JBL
PHASE LINEAR
REVOX
TAPCO
TECHNICS
UREI
YAMAHA

LIMITERS

AUDIO & DESIGN RECORDING
DBX
EVENTIDE
ORBAN
SCAMP SYSTEM
UREI
VALLEY PEOPLE (ALLISON)

GRAPHIC EQUALIZERS AND FILTERS

AUDIOARTS
AUDIO & DESIGN RECORDING
CROWN
SCAMP SYSTEM
SOUNDCRAFT
TAPCO
UREI
WHITE
YAMAHA

NOISE REDUCTION

DBX
DOLBY
TTM-TELEFUNKEN

HARDWARE

WIRED PATCH BAYS
MICROPHONE PANELS
CUSTOM CABLING
SWITCHCRAFT PRODUCTS
WEST PENN WIRE
BELDEN WIRE
CUSTOM RACKS AND CONSOLES
OMNI-CRAFT CUSTOM DESIGNS
ITT CANNON CONNECTORS
RUSS LANG CONSOLES

THE CHOICE OF THE PROS SINCE 1967
FOR COMPLETE SALES, INSTALLATIONS AND SERVICE.

MILAM AUDIO

1504 NORTH 8TH STREET / PEKIN, ILLINOIS 61554 / 309-346-3161

The Source '81

EDUTRON INC

6649-A Peachtree Industrial Blvd Norcross GA 30092
404 447-4422

Dropout compensators; image enhancers; sync generator systems; TBCs (helical capstan servo & helical non-servo capstan) VS

See ad pg 124—refer to rep/dist section

ECCO INC

1601 E Chestnut Av Santa Ana CA 92701
714 835-6000

SMPTE time code audio systems; electronic audio editors; SMPTE A/V recorder synchronizers; SMPTE time code readers/gens; two-VTR editor/controllers; multi-source & computerized video editors; character generators VS

See ad pg 154—refer to rep/dist section

Products distributed by Ampex

EEG ENTERPRISES INC

1 Rome St Farmingdale NY 11735
516 293-7472

Encoders and decoders for closed caption video transmission in line 21 VS

EEV INC

7 Westchester Plaza Elmsford NY 10523
914 592-6050

RF tubes; vacuum tubes; camera pickup tubes; rectifiers; surge protectors; vacuum capacitors; klystrons, digital clocks; quartz crystals VS

See ad pg 187

GA	H Kozicki 15 Dunwoody Park Ste 100E Atlanta 30338	404 394-9201
IL	C Bocan Z073 Arleen Ct Schaumburg 60194	312 843-8417
NY	R Bossert 250 Hamilton Dr Snyder 14226	716 839-5959
TX	R Knowles Rt 1 Anna 75003	214 837-2464
WA	D Rose 19001 40 PINE Seattle 98155	206 363-2200

EEV CANADA LTD

67 Westmore Drive Rexdale Ontario M9V 3Y6
416 745-9494

RF tubes; vacuum tubes; camera pickup tubes; rectifiers; surge protectors; vacuum capacitors; klystrons; digital clocks; quartz crystals VS

EG&G

35 Congress St Salem MA 01970
617 745-3200

Obstruction lighting; tower lighting VS

See ad pg 168

EIDSON ELECTRONIC CO

PO Box 3751 Temple TX 76501
817 773-3901

Quartz crystals for frequency control

EIGEN VIDEO

PO Box 1027 Grass Valley CA 95945
916 272-3461

Electronic still stores, slow motion video action recorders VS

EIMAC DIV OF VARIAN

301 Industrial Way San Carlos CA 94070
415 592-1221

Complete line of broadcast-quality power grid tubes (triodes, tetrodes, pentodes) VS

See ad pg 208

AL	500 Wynn Dr NW Ste 301F Huntsville 35805	205 837-9225
AZ	7117 3 Av Ste 107 Scottsdale 85251	602 947-5461
CA	375 Distel Cir Ste C4 Los Altos	415 968-7630
	2901 Wilshire Blvd Ste 205 Santa Monica 90403	213 828-5588
FL	314 S Missouri Ste 307 Clearwater 33516	813 446-8513
GA	United Finance Bldg Ste 4 1600 Watson Blvd Warner Robins 31093	912 922-2202
IL	205 W Touhy Av Pk Ridge 60068	312 825-6686
MA	83 2 Av Burlington 01803	617 272-8532
MD	4701 Lydell Rd Cheverly 20781	301 773-7010
NJ	25 Commerce DR	

	Cranford 07106	201 276-9050
	304 Harper Dr Moorestown 08057	609 235-6800
NY	6489 Ridings Rd Syracuse 13206	315 437-2568
OH	4134 Linden Av Ste 101 Dayton 45432	513 258-3930
TX	13531 N Central Expwy Ste 2343 Dallas 75243	214 235-2385
CAN	45 River Dr Georgetown Ont L7G 2J4	416 457-4130

EIP MICROWAVE

2731 N First Santa Clara 95134
408 946-5700

Microwave and FM frequency counters and monitors

ELCOM-BAUER

2810 Redding Av #E Sacramento CA 95820
916 453-0859

ALC & AGC amps; AM & FM compressor/limiter/filters; AM combiners, 1-1000 kW (ferrite); RF loads; tower lighting; FM exciters; program subcarriers, FM processors, RF amps; FM SCA equip; stereo generators; AM & FM transmitters VS

See ads pg 133, 135

ELECTRO ACOUSTIC DESIGNS INC

Ridley Creek Plaza 5131 W Chester Pike
Edgemont PA 19028

215 356-4700
Studio design; audio system design and installation; acoustical design and construction; satellite downlink installation VS

ELECTRO CONTROLS INC

2975 S 300 West Salt Lake City UT 84115
801 487-9861

Lighting heads, stands & fixtures; manual & automated lighting control systems & dimmer packs; patch terminals, plugs and connectors

ELECTROHOME LTD

809 Wellington St N Kitchener ONT N2G 4J6
519 744-7111

Color & high-resolution monochrome monitors; large screen projectors VS

See ad pg 48—refer to rep/dist section

ELECTRO IMPULSE INC

116 Chestnut St Red Bank NJ 07701
201 741-0404

RF attenuators, loads, wattmeters VS

See ad pg 249

ELECTRONIC DEVICES INC

21 Gray Oaks Av Yonkers NY 10710
914 965-4400

Rectifiers; solid state components VS

ELECTRONIC MUSIC LABORATORIES

PO Box H Vernon CT 06066
203 875-0751

Music synthesizers

ELECTRONICS DIVERSIFIED

1675 NW 216 St Hillsboro OR 97123
503 645-5533

Lighting control systems (manual, automated, dimmer packs); lighting heads, stands & fixtures; patch terminals

ELECTRO & OPTICAL SYSTEMS LTD

31 Progress Ct Scarborough ONT M1G 3V5
416 439-9333

SMPTE time code synchronizing system; PPM audio level indicators; SMPTE audio/video recorder synchronizers; SMPTE time code readers & generators VS

ELECTRO & OPTICAL SYSTEMS LTD US

5128 Calle del Sol Santa Clara CA 95050
408 727-1506

SMPTE time code synchronizing system; PPM audio level indicators; SMPTE audio/video recorder synchronizers; SMPTE time code readers & generators VS

ELECTRO SOUND INC

160 San Gabriel Dr Sunnyvale CA 94086
408 245-6600

Tape auto loaders, splicing blocks, open-reel tape recorders (portable and studio), tape duplicators

VS MEANS IT'S VERIFIED



The Professional's Choice in Wireless Microphones

- Wide frequency response
- Low noise and distortion
- Latest compacted technology
- Built-in level indicator
- VHF high band for less interference
- Attractive, non reflective finish

Cetec Vega

Division of Cetec Corporation

P.O. Box 5348 • El Monte, CA 91731
(213) 442-0782 • TWX: 910-587-3539

Circle 168 on Reader Service Card

Circle 167 on Reader Service Card

The Source '81

ELECTRO-VOICE INC

600 Cecil St Buchanan MI 49107
616 695-6831

Mics (dynamic, condenser, shotgun, lavalier); mic booms and dollies; audio connectors VS
See ads pp 22, 120

CA E-V West 7473 Av 304 Visalta
93277..... 209 625-1330
CAN E-V 345 Herbert St Gananoque
Ontario..... 613 382-2141

ELPA MARKETING INDUSTRIES INC

Atlantic & Thorens Avs New Hyde Park NY 11040
516 746-3002
Turntables (Thorens)

EMCEE BROADCAST PRODUCTS

PO Box 68 White Haven PA 18661
800 233-6193

Translators; VHF & UHF TV transmitters; low power UHF & VHF TV transmitters VS
See ad pg 68

EMCOR PRODUCTS

1600 4 Av NW Rochester MN 55901
507 289-3371

Racks and cabinets

EMERGENCY ALERT RECEIVER INC

1 W 30 St New York NY 10001
212 695-4761

EBS two-tone systems; receivers, comm & monitor; FM SCA equip VS

EMS UNEMCO INTL INC — See Unemco

ENCLOSURE CORP

4529 Adams Cir Cornwells Hts PA 19020
215 638-9550

19-inch equip racks; cabinets & furniture VS

VS MEANS IT'S VERIFIED

E-N-G CORPORATION

1009 A Shary Cir Concord CA 94518
415 798-4060

Mobile van construction; antenna towers VS

ENG HELICOPTER SATELLITES LTD

9919 Carter Rd Bethesda MD
301 469-8109

ENG camera mounts, cockpit consoles, camera operator instrument panels, microwave systems, communication systems, microwave antenna mounting VS

ENTERPRISE ELECTRONICS CO

PO Box 1216 Ind Blvd Enterprise AL 36330
205 347-3478

Weather radar systems

ESC ELECTRONICS

534 Bergen Blvd Palisades Pk NJ 07650
201 947-0400

Delay lines, RF filters

ESE

142 Sierra St El Segundo CA 90245
213 322-2136

LED audio level indicators; SMPTE time code readers; digital clocks; master & slave clocks; timers; time distribution systems; EBS two-tone systems; dB meters VS

See ad pg 225—refer to rep/dlst section

EUMIG (USA) INC

Lake Success Business Pk 225 Community Dr
Great Neck NY 11020

516 466-6533

Audio preamps, line amps, monitor & power supplies; audio cassettes; computer-controlled audio cassette deck; 16 mm cine cameras & lenses VS

EVENTIDE CLOCKWORKS INC

265 W 54 St New York NY 10019
212 581-9290

AM compressor/limiters; audio delay systems & special effects; digital reverb; pitch change spectrum analyzers VS

See ad pg 74-75

EXCALIBUR INDUSTRIES

12427 Foothill Blvd Lake View Terr CA 91342
213 899-2547

Video equip carrying cases; film cases; shipping cases VS

E-Z WAY PRODUCTS INC

PO Box 22845 Tampa FL 33622
813 677-7144

Towers

F

FAIRCHILD CAMERA & INSTRUMENT CORP CCD IMAGING DIV

4001 Miranda Av Palo Alto CA 94304
415 493-3100

Video delay lines VS

FARINON VIDEO — See Harris Farinon Video

FAROUDJA LABS

946 Benicia Av Sunnyvale CA 94086
408 245-1492

Image enhancers; color monitors; video filters; video film noise reducers; comb decoders VS
See ad pg 69—refer to rep/dlst section

F&B CECO INC

315 W 43 St New York NY 10036
212 974-4600

Camera lenses, video & cine; tripods & accessories; Hajnal snorkel lens systems; production & post-production equip rentals; post-production services (audio, video, film) VS

FERNSEH INC

PO Box 15068 Salt Lake City UT 84115
801 972-8000

Audio dist & monitor amps, power supplies; one-inch automated VCRs; TV cameras (color studio, mono, ENG/EFV); color correctors; color encoders; digital video noise reducer; full electronic

CINE 60
NEW YORK
... The Original

The Total VTR Battery System

- Power-packed, higher performance Nicad Cells deliver more VTR running time, longer life, never need maintenance, fast charge in one hour.
- Exclusive electronic circuitry and quality construction provides the identical total reliability of Cine 60 Powerbelts... standard of the industry.
- "Total Charge Capability, anywhere..."
- On location, fast charge from any 12 Volt car system — unattended, in one hour, with our 3 lb. Car Fast Charger — no heavy inverter needed.
- From A.C., one hour fast charge with our 3 lb. Universal Model 9400 or BP 2500.
- Fast Charge four batteries — automatically and unattended — with our new, multiple, High Frequency, Regulated Fast Charger, one per hour, four in 4 hours.
- Standard charge 2 batteries overnight, with our two channel, regular Charger.
- Directly replaces original VTR batteries — Sony BP-20, BP-20A, BP-50, BP-60, BP-80, BP-90 and JVC/Panasonic PBP-1.
- See your local authorized Cine 60 Dealer. Ask about the Total VTR Battery System you need.

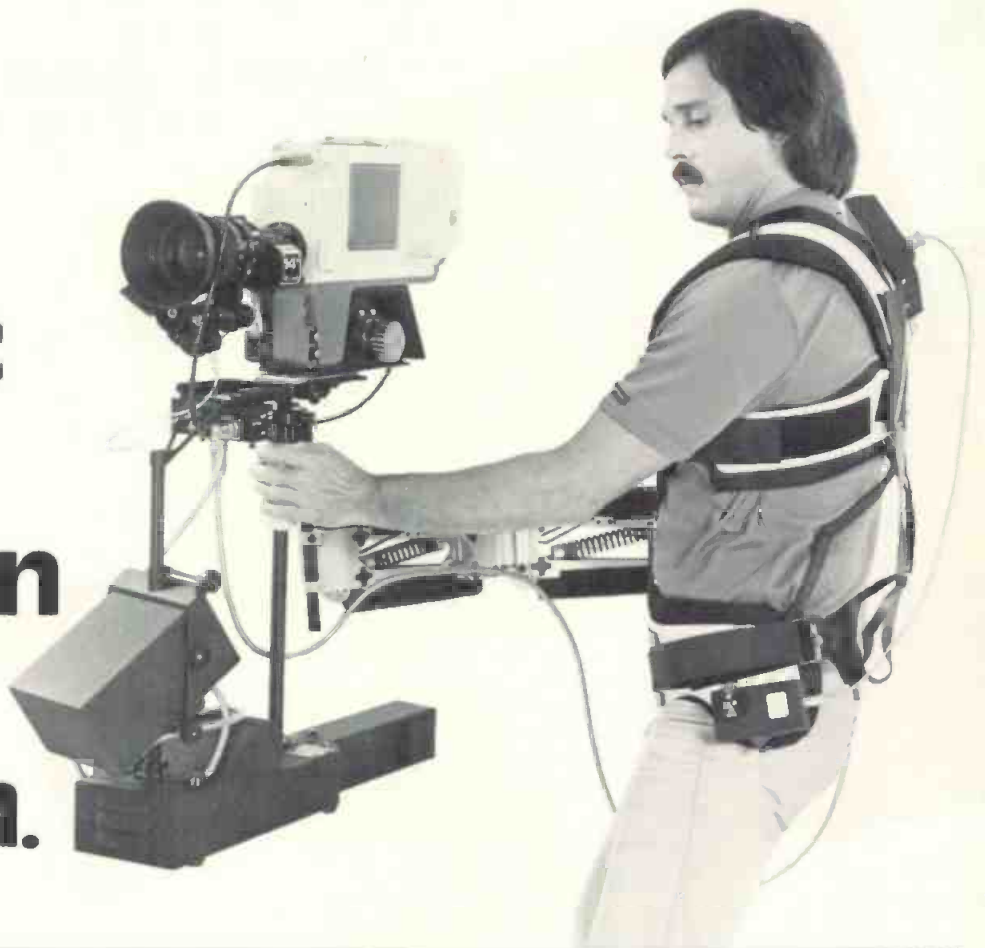
There's Always Something New From Cine 60

CINE 60

630 Ninth Ave. New York, N.Y. 10036 (212) 586-8782
6430 Sunset Blvd. Hollywood, Ca. 90028 (213) 461-3046
TWX: 710-581; TELEX: 645-647

Circle 169 on Reader Service Card

Support your Electronic Field Production with Steadicam.



Our Oscar-winning Steadicam video/film camera stabilizing system is a practical all-purpose production tool of enormous versatility. Not at all restricted to running shots or esoteric effects.

On the contrary. Its widespread use on numerous TV specials, documentaries and commercials indicates that Steadicam is now becoming a standard, basic production tool. As elementary as a tripod or a dolly. But with far greater universal applications.

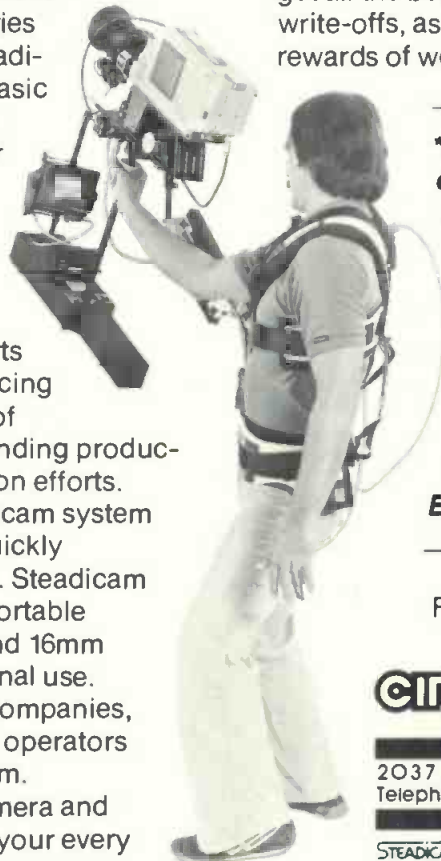
Turning virtually anything that moves into a stable camera platform, Steadicam lets you be wherever the action is—be it the White House, a rock concert, a sports event, or even a used car lot! Enhancing the scene with a heightened sense of fluidity and realism. Lending outstanding production values to all your field production efforts.

And, of course, our unique Steadicam system remains a relative constant in the quickly changing world of video equipment. Steadicam accepts—interchangeably—most portable video cameras* (as well as 35mm and 16mm film cameras) currently in professional use. Which is why so many production companies, television stations and independent operators prefer to own their Steadicam system.

We offer complete Steadicam/camera and accessories package deals to meet your every

requirement. And our exciting "state-of-the-art" lease/upgrade program is custom-tailored to suit your financial needs.

Don't delay. Buy or lease your Steadicam now. And get all the benefits of equipment ownership and tax write-offs, as you enjoy the convenience and immediate rewards of working with your own Steadicam system.



***Our Steadicam system accepts, interchangeably, most portable broadcast-quality video cameras such as: RCA TK-76B, TK-76C and TK-86; Ikegami HL-77 and HL-79A; Philips LDK-14; Hitachi SK-70, SK-80, and SK-90; Toshiba PK-39; Sony BVP-300 and BVP-330; CEI 310; Thomson-CSF MC-601 and MC-701; NEC MNC-71CP and MNC-81A; as well as most of the newest, recently introduced ENG/EFP cameras. Please Inquire.**

For full details, call toll-free: 800-421-7468

cinema E products
CORPORATION

Technology In The Service Of Creativity

2037 Granville Avenue, Los Angeles, California 90025
Telephone: (213) 478-0711 • (213) 477-1971 • Telex: 69-1339

STEADICAM® is covered under U.S. Patent No. 4,017,168 and under foreign patents abroad.

The Source '81

graphics systems; multiplexers & complete telecine systems; image enhancers; color & monochrome picture monitors; video proc amps; video pulse, dist & subcarrier amps; routing switchers; sync generator systems (sync, color bar, black burst); video action recorders (slow mo, variable speed, time lapse); video effects synthesizers, repositioners, compressors; video source identification systems; two-VTR editor/controllers; multi-source editors; computerized auto assembly editors; one-inch segmented helical VTRs; hum bucking coils VS

See ad pg 92
 CA Anthony J. Magliocco 3391 Robertson Pl
 Los Angeles 90034 213 649-4330
 IL Dave Spindle 3436 N Kennicott Dr

Arlington Hts 60004 312 577-9780
 NJ John D. Webb 279 Midland Av
 Saddle Brook 07662 201 797-7400
 TX Lee Caput 13620 Littlecrest Dr
 Dallas 75234 214 247-3306
 VA Alan Schoenberg 7921 Jones Branch Dr Suite 275
 McLean 22102 703 790-5570

FIBERBILT DIV OF IKELHEIMER-ERNST
 601 W 26 St New York NY 10001
 212 675-5820
 Cases for video & broadcast equipment VS

FIDELIPAC CORP
 PO Box 808 Moorestown NJ 08057
 609 235-3511
 Audio carts & test tapes; alignment gauges; cart equip test system; splicing blocks & tape; bulk erasers; cart storage; video bulk erasers & cleaning

fluid; wow & flutter meters; on-air and recording studio warning lights; ATP phono cartridges VS
 See ad pg 172

FIDELITY RESEARCH DIV OF AUDEL INC
 PO Box 5242 Ventura CA 93003
 805 642-9277
 Phono pickup arms & cartridges VS

FILMLINE CORP
 43 Erna St Milford CT 06463
 203 878-2433
 Film processors

IMERO FIORENTINO ASSOC INC
 44 W 63 St New York NY 10023
 212 246-0600
 TV studio design; set design; also provides a wide range of facility & production services VS

FISHER BERKELEY CORP
 5800 Christie Av Emeryville CA 94608
 415 655-9696
 Intercom systems; PA amplifiers, power supplies

FISHER-BURKE
 PO Box 2468 Phoenix AZ 85003
 602 257-0225
 Complete line of audio products

FIXTUNE ELECTRONICS INC
 1 W 30 St New York NY 10001
 212 695-4767
 One-station crystal-controlled FM receivers; SCA receivers

FLASH TECHNOLOGY CORP OF AMERICA
 55 Lake St Nashua NH 03060
 603 883-6500
 High-intensity beacons for towers VS

JOHN FLUKE MFG CO
 PO Box C9090 Everett WA 98206
 800 426-0361
 Digital frequency counters; microwave counters & generators; RF sources & digital multimeters; dB meters; data loggers; IEEE bus systems; digital printers; computer/microprocessor automation controllers; automated test & measurement systems; RF generators; tape loggers & log printers; voltmeters VS

FOR-A CORP OF AMERICA
 1680 N Vine St Los Angeles CA 90028
 213 467-8412
 Color correctors; titlers; full electronic graphics systems; SMPTE time code readers & generators; color encoders; sync, color bar, & black burst generators VS

FORGFLO CORP BRUSH MAGNETIC HEADS DIV
 Third & Regan St Sunbury PA 17801
 717 286-5611
 Magnetic recorder heads VS

FORT WORTH TOWER CO INC
 PO Box 8597 Fort Worth TX 76112
 817 457-3060
 Towers, prefab bldgs, earth stations

FOSTEX CORP OF AMERICA
 15431 Blackburn Av Norwalk CA 90650
 213 921-1112
 AM compressor/limiters; graphic equalizers & filters; audio delay systems; stereo multi-output studio consoles; portable & studio open reel tape player/recorders VS

FREELAND PRODUCTS CO
 Rt 7 Box 628 Covington LA 70433
 504 822-9222
 Rebuilt vacuum tubes

**FREQUENCY CONTROL PRODUCTS INC
 AMERICAN TIME PRODUCTS DIV**
 61-20 Woodside Av Woodside NY 11377
 212 335-6000
 Studio clock systems & frequency standards VS

Case History #437

Electronic News Gathering is one of the toughest environments a microphone will ever encounter. Every mike we've seen has compromised the demand for low handling noise, fine audio quality and virtual indestructibility.

Credit the NBC Electronic Journalism Department/Operations and Engineering in New York for putting the Electro-Voice DO56 shock-mounted omni in the field. Although originally designed as an on-camera entertainment and MC's microphone, NBC found the DO56 to be the microphone that provides an audio signal commensurate with video in real-life crisis situations. In these situations audio often takes a back seat to video,

Electro-Voice DO56 Shock-Mounted Omnidirectional Microphone

pushes, the shoves, the rubs and finger taps in stride. And when handling *really* gets rough, the DO56's unique internal shock mount virtually eliminates the bell-like clang transmitted by other shock-mounted mikes.

Congratulations to the NBC Electronic Journalism Department in New York. You found the solution – the DO56.

For an in-depth description of this and other case histories, get on the Electro-Voice "Mike Facts" mailing list. Write on your letterhead to Mike Facts, c/o Electro-Voice, 600 Cecil Street, Buchanan, MI 49107.

resulting in a final product that doesn't accurately reflect the broadcaster's professional standards. NBC discovered that the DO56 takes the

EV Electro-Voice
 a gulton company



Circle 170 on Reader Service Card

VS MEANS IT'S VERIFIED

BANK ON US.

In the Rack or out of the Rack, Videotek products are a wise investment.

And for good reason. Videotek concentrates only on monitors; the most comprehensive line of rackmount and tabletop professional color monitors. In addition, Videotek is emerging as a leading manufacturer of Broadcast Test Equipment.

We are committed to provide quality products,

personalized service and excellence in field back-up. Large impersonal corporations sometimes forget the Human Factors in conducting customer relations on a day to day basis. We don't!

Videotek products represent a solid capital investment. One you can bank on year after year.



The same Videotek monitor bank whose color pictures are shown in the photograph above.



Videotek

125 North York Street, Pottstown, Pennsylvania 19464 • 215/327-2292
9625 North 21st Drive, Phoenix, Arizona 85021 • 602/997-7523

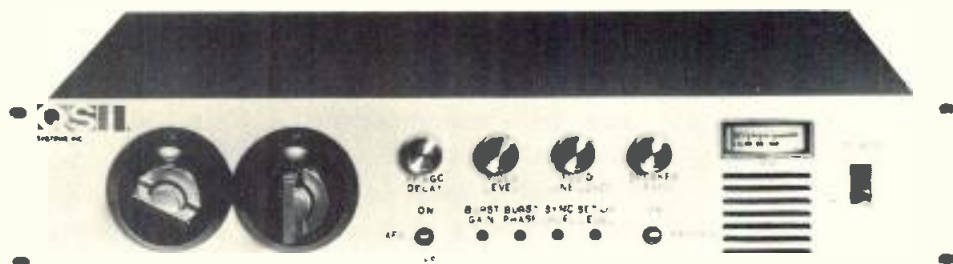
Circle 171 on Reader Service Card

QSI DEMOD-400 AND VT-7

Here are two new units from QSI, the Television Demodulator DEMOD-400, and the Video Leader Countdown Generator VT-7.

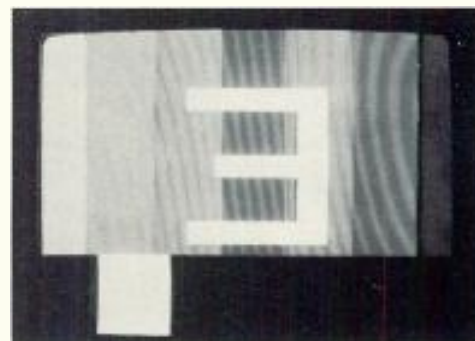
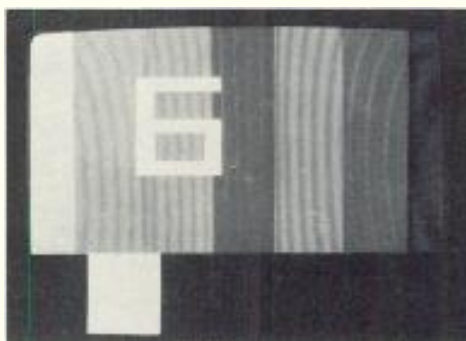
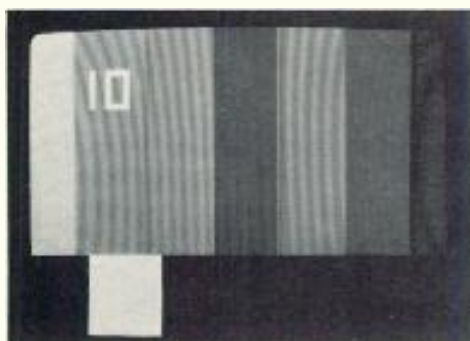
QSI DEMOD 400

DEMOD-400 uses a QSI designed sync generator with switch selected original or replacement sync, burst and blanking. You have full control of burst gain and phase, sync level and setup level in the process mode.



- Vertical blanking ends at line 10 to save test signals or data
- Original or replacement sync
- AGC and AFC
- Sharp response ceramic filters
- UHF and VHF bands with equal selectivity and sensitivity
- 75 ohm video, 600 ohm audio outputs

QSI VT-7



VT-7 7 Segment Video Leader Countdown Generator

VT-7 provides video and audio tape cueing for the head of each program segment. Expanding character size is switch selectable along with flashing and 8 fixed character sizes.

- Selectable expanding video numerals
- Selectable character flashing
- Selectable character height
- Output pulse at "5", "3" and terminal count
- 400 Hz counting audio, 200 Hz terminal count
- SET, COUNT, HOLD, front panel and remote



These are two more samples from QSI's extensive line of Broadcast equipment

QSI systems, inc.

For more information on QSI Systems' full line of broadcast equipment, call or write:
QSI Systems, Inc., 12 Linscott Road, Woburn, MA 01888 Phone: (617) 938-1403

Circle 172 on Reader Service Card

www.americanradiohistory.com

The Source '81

FREQUENCY DEVICES INC

25 Locust St Haverhill MA 08130
617 374-0761

Audio amplifier power supplies, active equalizers & filters; tone generators; noise reduction systems; audio generators VS

FREZZOLINI ELECTRONICS

7 Valley St Hawthorne NJ 07506
201 427-1160

16 mm cine cameras, lenses, tripods & accessories; magnetic recording equipment & accessories; lighting heads, stands & fixtures; battery supplies for production equip; battery chargers VS

See ad pg 251 — refer to rep/dist section VS

FUJI PHOTO FILM MAGNETIC TAPE DIV

350 Fifth Av 68 Floor New York NY 10118
212 736-3335

Audio cassettes; videotape (open-reel, 3/4-inch cassettes, VHS & Beta); VHS & Beta head cleaners VS

See ad pg 151

CA	1211 E Artesia Bl Carson 90246	213 636-0101
GA	3300 Buckeye Rd Atlanta 30341	404 451-0886
IL	1000 Pratt Bl Elk Grove 60007	312 569-3500
TX	3500 Garden Brook Dr Dallas 75234	214 243-2537

FUJINON OPTICAL

672 White Plains Rd Scarsdale NY 10583
914 472-9800

Television and film camera lenses, filters, lens adapters, extenders VS

See ad pg 165

FUNG ENGINEERING CO

PO Box 1082 San Carlos CA 94070
415 592-8434

RF demodulators and modulators; FM stereo modulator

G

GABRIEL ELECTRONICS INC

PO Box 626 Scarborough ME 04074
207 883-5161

ENG microwave equip; waveguide STLs; receive-only satellite earth stations; microwave and communications antennas; transmission line & connectors; tower hardware & construction equipment; facility turnkey installation VS

GARNER INDUSTRIES

4200 N 48 St Lincoln NE 68504
402 464-5911

Tape duplication systems; conveyor-type tape erasers; bulk erasers VS

GARDINER COMMUNICATIONS CORP

1980 S Post-Oak Rd Ste 2040 Houston TX 77056
713 961-7348

Receive-only satellite earth stations; low-noise amps, receivers, switches

GAW CO INC

53 S Jefferson Rd Whippany NJ 07981
201 887-7210

Frequency monitors and counters, audio generators, voltmeters, harmonic distortion meters, EBS two tone systems

GBC CLOSED CIRCUIT TV CORP

315 Hudson St New York NY 10013
212 989-4433

TV cameras, studio & portable (b&w & color); camera mounts; telecine chains; monitors; sync gens; spec effect gens; coaxial connectors; video distribution amps, pulse distribution amps

GC ELECTRONICS

400 S Wyman St Rockford IL 61101
815 968-9661

Headphones; mics (dynamic, condenser/electret, lavalier); mic stands, booms & dollies; speakers; empty audio tape reels, carts & cassettes; tape

cleaners; splicing blocks & tape; head degaussers & bulk erasers; VU meters; VTR head cleaners; replacement VTR & VCR drive belts & wheels; towers; tower hardware & construction equip; digital clocks; voltmeters & multimeters; audio & electrical connectors; wire & cable

GENERAL CAMERA CORP

530 W 36 St New York NY 10018
212 594-8700

Cine cameras; camera accessories; film magnetic recording equip

GENERAL ELECTRIC CO LIGHTING BUSINESS GROUP

Nela Park Cleveland OH 44112
216 266-2092

Stage/studio lamps for TV production VS

GENERAL ELECTRIC CO VIDEO DISPLAY EQUIP OPERATION

Electronics Pk 6-206 Syracuse NY 13221
315 456-2152

Large screen video projectors VS
See ad pg 224

GENERAL TELEVISION NETWORK

13225 Capital Av Oak Park MI 48237
313 668-2500

Production & post-production equip rentals; facility turnkey installation; mobile van construction; audio & video post-production services; stage rental; TV studio design; videotape/film recording transfer VS

GEORGIE BOY MFG INC

PO Drawer H Edwardsburg MI 49112
616 663-3835

Mobile van construction VS

GKM MFG CORP

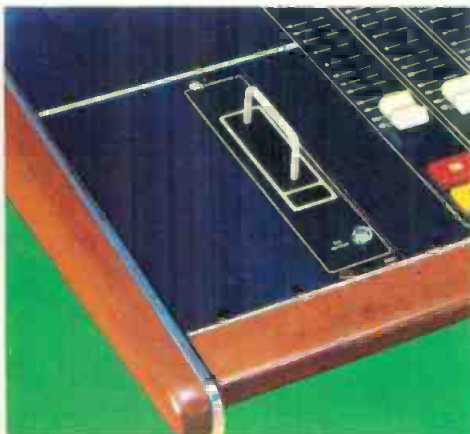
47 Bridgewater St Brooklyn NY 11222
212 388-4114

19-inch equipment racks VS

DEEJAYS LOVE IT!

DeeJays love Auditronics' 200 Series on-air console because it has a slot to plug in their own custom-tailored voice EQ module. They love the 200's variable-threshold compressor/voice-actuated noise gate that allows hands-off processing of live announce or remote signals. DeeJays love the 200's self-contained logic system that starts carts, reel recorders and turntables and permits simple one-button two-way communication between control room and Studios A and B. To learn what else DeeJays love about Auditronics' 200 Series on-air consoles, circle reader service number or call

 **auditronics, inc.**
3750 Old Getwell Road
Memphis, TN 38118/(901) 362-1350



Circle 173 on Reader Service Card

BM/E's ENG/EFP/EPP HANDBOOK

THE MOST AUTHORITATIVE, COMPREHENSIVE GUIDE TO THE TECHNOLOGY AND TECHNIQUES OF THE 80'S.

THE DEFINITIVE SOURCE for video equipment evaluation selection and acquisition. Published by BM/E — Broadcast Management/Engineering, this guidebook is designed to be the authoritative text on the entire subject of electronic journalism, field production and post-production in the 80's. A primer for newcomers, and advanced report for professionals, the Handbook is organized to allow you to select the proper equipment for any operation — from the simplest to the most complex — and plan for expansion as your production requirements grow.

FACTUAL. In 570 fact-filled pages, liberally illustrated with photos, diagrams and charts, the Handbook offers detailed analysis of existing equipment and systems, probing strengths and shortcomings of current product design and covering key parameters for product comparison. It offers guidance in long range organization and systems planning, as well as predictions about emerging technology and trends. Authored by C. Robert Paulson, this video production handbook is written in an informal style that satisfies the needs of both the technical and non-technical reader.

ESSENTIAL. With constant changes in technology and the proliferation of products, there are no "simple" purchasing decisions in the ENG/

EFP/EPP market. With each buying decision impacting on plans for the future, you need all the help and advice you can get. Now. Whether you're technical or non-technical, operations or management, this book is your required reference for coping with the "digital decade," for assuring productivity and profitability in your operations, now and in the future.

CONTENTS

Part I — Overview

- Chapter 1. What's Happening in TV Communication
- Chapter 2. Communication System Organization
- Chapter 3. Trends in Communication Systems

Part II — Electronic Field Production

- Chapter 4. Cameras, Lenses and Lighting
- Chapter 5. Video and Audio Recorders
- Chapter 6. Field System Accessories
- Chapter 7. Planning & Acquiring ENG/EFP Systems

Part III — Electronic Post-Production

- Chapter 8. Editing Systems and Controllers
- Chapter 9. Video Signal Processing — Switchers
- Chapter 10. Video Signal Processing — TBC's/Quantels
- Chapter 11. Audio Signal Processing — Studio Audio/PCM/etc.
- Chapter 12. EPP System Accessories
- Chapter 13. Planning & Acquiring EPP Products

Appendices

- A. Public Policy & Technological Developments
- B. TV Standards
- C. Bibliography & Reference Section

ORDER NOW. LIMITED EDITION.

PLEASE SEND _____ COPIES OF BM/E's ENG/EFP/EPP HANDBOOK @ 39.95 EACH.
IF CHECK ACCOMPANIES ORDER, PUBLISHER PAYS POSTAGE AND HANDLING.

CHECK ENCLOSED \$ _____ NAME _____
EXP. DATE _____ TITLE _____
 CHARGE TO MY — BANKAMERICARD
VISA — MASTERCARD COMPANY _____
_____ CITY _____ STATE _____ ZIP _____

Make check payable to Broadcast Management/Engineering

NY State Residents add 8% sales tax

BM/E — 295 Madison Avenue, New York, N.Y. 10017

The Source '81

GLASSMAN HIGH VOLTAGE INC
PO Box 551 Whitehouse Sta NJ 08889
201 534-9007
DC power supplies, power displays, flying spot scanners

GLOBAL COMM & ENGINEERING
914 White Plains Rd Trumbull CT 06611
203 261-2068
Facility turnkey installation: radio and TV design

GLOBAL SPECIALTIES CORP
70 Fulton Terr New Haven CT 06509
203 623-3103
Frequency monitors & counters; RF generators; waveform monitors & analyzers; logic analyzers VS

G&M POWER PRODUCTS
6500 Santa Monica Blvd Los Angeles CA 90038
213 465-8236 VS
Batteries
See ad pg 212

GOLDMARK COMMUNICATIONS CORP — See Color Film Corp

ALAN GORDON ENTERPRISES INC
1430 N Cahuenga Blvd Hollywood CA 90028
213 466-3561 VS
Dist of full line cine production equip; tripods (FOBA); RF mics (Swintek); director's viewfinder; animation motors (NCE); grip equip; film projectors
See ad pg 218

GORMAN-REDLICH
6 Curtis St Athens OH 45701
614 593-3150 VS
Antenna monitors, phase meters, EBS two-tone systems; DA equipment; radio weather systems; receivers, comm & monitor; weather info service
See ad pg 174

GOTHAM AUDIO CORP
741 Washington St New York NY 10014
212 741-7411
AM & FM compressor/limiters; parametric equalizers & filters; mechanical reverb & audio special effects; turntables; phono cartridges; complete disc consoles; mics (condenser, shotgun, lavalier); mic stands, booms & dollies; noise reduction systems; speakers; tape timers; splicing blocks & tape; VU, PPM & LED audio level indicators; wow & flutter meters; transformers VS

GOULD INC IND BATTERY DIV
2050 Cabot Blvd W Langhorne PA 19047
215 752-0555
Batteries, battery chargers; emergency power supplies for production equip

GRAHAM-PATTEN SYSTEMS
PO Box 1960 Grass Valley CA 95945
916 273-8412 VS
Audio & video signal failure detectors; pulse, distribution & subcarrier amps; video equalizers; facility turnkey installation
See ad pg 61

THE GRAPHIC EXPRESS
7969 Engineer Rd Ste 201 San Diego CA 92111
714 565-2146 VS
News set design & construction; news graphics slide service; animation design & production; station image design

GRASIS CORPORATION
PO Box 1039 Kansas City MO 64141
816 483-1100
Towers; tower lighting

THE GRASS VALLEY GROUP INC
PO Box 1114 Grass Valley CA 95945
916 273-8421 VS
Digital audio multiplexer; RGB & encoded chroma keyers; manual & automated master control switchers; video proc amps; large & small production switchers; video amps (pulse, dist,

subcarrier, isophasing & equalizing, delay); fiber optic video link; routing switchers; signal equalizing systems; video special effects gens; sync generator systems (sync, black burst, single-line); frame syncs; digital video effects; colorizers; repositioners; compressors; video generators VS
See ads pp 7, 110

CA	Suite 206 21243 Ventura Blvd Woodland Hills 91364	213 999-2303
GA	Suite 102 1644 Tullie Cir NE Atlanta 30329	404 321-4318
IN	810 West Bristol St Elkhart 46514	219 264-0931
MN	Suite 238 3585 North Lexington Av Arden Hills 55112	612 483-2594
NJ	499 Thornall St Metro Park II Edison 08817	201 549-9600
TX	316 Seminary Office Bldg Fort Worth 76115	817 921-9411

GRAY ENGINEERING LABS
504 W Chapman Av Suite P Orange CA 92668
714 997-4151 VS
SMPTE time code synchronizers, readers & generators
See ad pg 202 — refer to rep/dist section

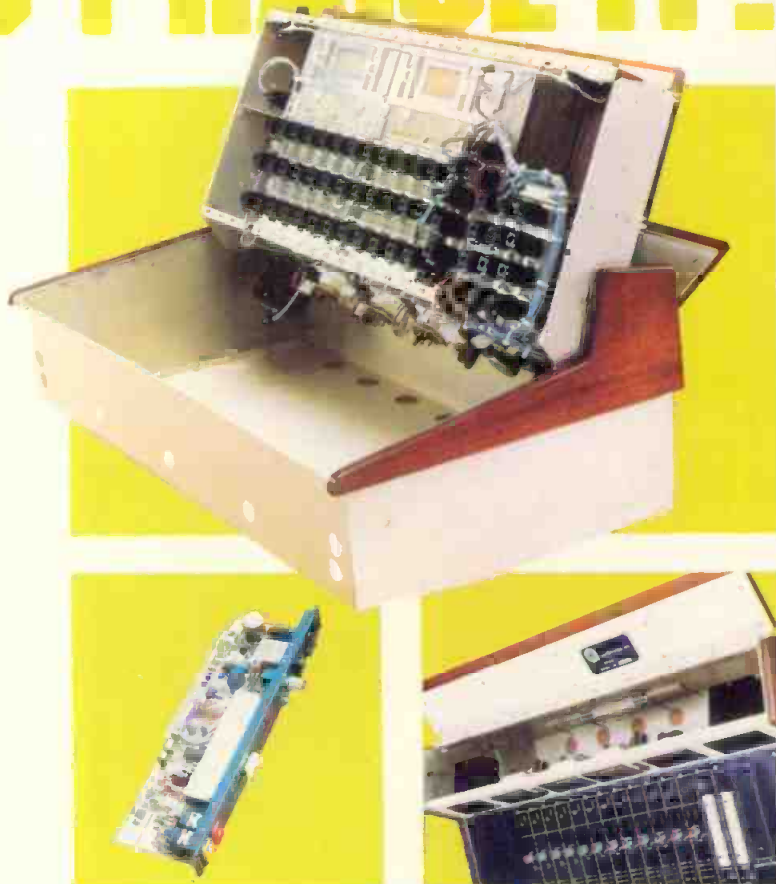
THE GREAT AMERICAN MARKET
PO Box 178 Woodland Hills CA 91364
213 883-8182 VS
Large screen projectors; rear screen projectors; equipment carrying cases; lamps; automated lighting control systems; lighting heads, stands & fixtures; prefab scenery; set design

DAVID GREEN BROADCAST CONSULTANTS CORP
Box 590 Leesburg VA 22075
703 777-8660 VS
Production equip rental
See ad pg 216

GREGG LABORATORIES
2120 E Howell #505 Anaheim CA 92806
714 937-1100 VS
AM/FM/TV compressors/limiters; ALC & AGC amps; audio consoles; telephone interface equip

ENGINEERS PRAISE IT!

Engineers praise Auditronics' 200 Series on-air console because it's built like a military computer with a module/motherboard design that eliminates unreliable point-to-point wiring. They praise the 200 because they can install and maintain it while comfortably seated. They praise its +30 dBm output capability. They praise its Hall-effect/CMOS silent switching that reduces failures to virtually zilch. And they praise its drop-in design that makes module replacement a two-minute pleasure. If you'd like to know what else engineers praise about the Auditronics 200 Series on-air console, circle reader number or call



 **auditronics, inc.**
3750 Old Getwell Road, Memphis, TN 38118
(901) 362-1350

Circle 175 on Reader Service Card

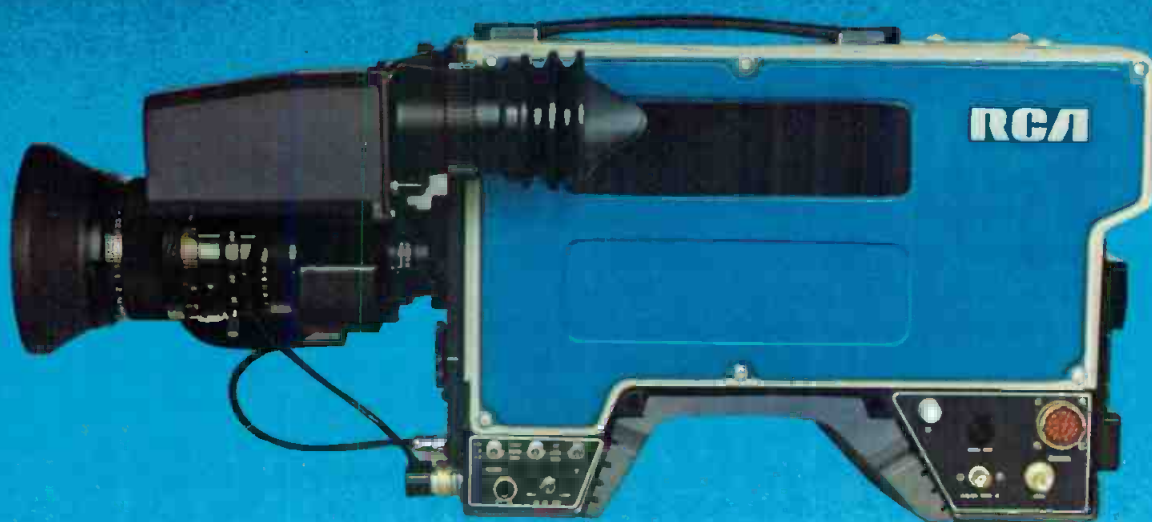
Look good in bad light



Actual unretouched photograph showing TK-86 picture without Contrast Compression.



The same unretouched scene showing the TK-86 picture with RCA Contrast Compression.



Getting the right light on a scene isn't always possible or desirable when you're chasing fast breaking news or capturing that creative look. But the final result must be a pleasing, usable picture. With its effective Contrast Compression and capability for virtually noise-free video at +9 and +18 dB gain, the RCA TK-86 delivers pictures in demanding light conditions that are subjectively pleasing and economically exceptional.

High contrast conditions no longer automatically mean loss of subject detail to the darkness. RCA's Contrast Compression pulls out those details while maintaining full color fidelity.

A valuable TK-86 feature because Contrast Compression works in RGB, not just luminance.

When the light fails you, a TK-86 won't. Utilizing special circuits, RCA has designed +9 and +18 dB gains that deliver visibly quiet pictures. You will get a picture suitable for use from light levels as low as one footcandle.

The TK-86 is a camera for professionals who perform in the best and the worst conditions. Professionals who require a dependable camera that is sealed against RFI and the elements, that offers full-feature VTR interface, that sits comfortably on the shoulder or

stands upright on the ground, and has complete remote control capabilities.

With a reduced price and immediate availability, the TK-86 begins the end of your wait for the right light. For an immediate hands-on TK-86 demonstration at your facility, contact your RCA sales representative. Or, write to: RCA Broadcast Systems, Building 2-2, Camden, NJ 08102.



The Source '81

GRINNAN FIXTURE CO

16041 Georgetown St NE Minerva OH 44657
216 862-2323

Studio cabinets & furniture; complete studio construction; open reel & cartridge tape storage; racks & cabinets; finance services; mobile van construction; facility turnkey installation; building & remodeling plans VS

GROTON COMPUTER INC

19 Fort Hill Rd Groton CT 06340
203 445-2213

Radio & TV computer business services/equipment VS

GRUBER PRODUCTS CO

PO Box 7350 Toledo OH 43615
419 531-4900

Mobile ENG carts, projection tables VS

GRUBER RECORDING & SERVICE CO

214 N Chestnut St Palmyra PA 17078
717 838-6973

Open-reel audio tape & cassettes; empty reels, carts & cassettes; tape rewinders; audio tape duplicators; two-way radio communications; tape loggers; mobile van construction; syndicated radio programming services; rebuilding broadcast studio equip VS

GTE LENKURT INC

1105 Country Rd San Carlos CA 94070
415 595-3000

Intercity microwave equip; RF program subcarrier; receivers, comm & monitor; microwave & telco STLs; satellite earth stations (transmit/receive, receive-only); fiber optics video transmission systems VS

GTE PRODUCTS CORP SYLVANIA IND/COMM LIGHTING

100 Endicott St Danvers MA 01923
617 777-1900

Lamps

GYR PRODUCTS/OETICS INC

1335 S Claudina St Anaheim CA 92805

714 772-1000

Time lapse VTR

H

HALLIKAINEN & FRIENDS

101 Suburban Road San Luis Obispo CA 93401
805 541-0200

Auto loggers; auto time/weather announcers; audio consoles for TV; remote control systems; automatic transmitter control logging VS

HARRIS CORP BROADCAST PRODUCTS DIV

PO Box 4290 Quincy Il 62301
217 222-8200

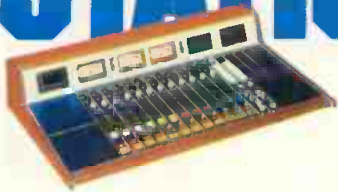
Audio preamps, line amps, monitor & power supplies; ALC & AGC amps; FM compressor/limiter/filters; complete automation systems; audio consoles (portable, mono & stereo multi-output studio, audio for TV); one-output mic mixers; turntables; phono arms & cartridges; headphones; RF Intercoms; mics (dynamic, condenser/electret, wireless, lavalier); mic stands, booms & dollies; noise reduction systems; patch panels; speakers; SMPTE time code synchronizing systems; audio open-reel tape, cassettes & test tapes; empty reels, carts & cassettes; leader tape; tape alignment gauges; single, dual & multiple audio cart player/recorders; portable open-reel player/recorders; splicing blocks & tape; head degaussers & bulk erasers; cart storage; color studio cameras; camera heads, tripods, pedestals & dollies; video camera lenses, adapters & extenders; camera power packs; color correctors; electronic still stores; image enhancers; video proc amps; production switchers, large & portable; video pulse amps; remote pan & tilt systems; sync generator systems (sync, color bar); digital sync decoder; frame syncs; teleprompters; TBCs (helical capstan servo, helical non-servo capstan); video film noise reducers; video test charts & slides; multi-source

video editors; computerized auto assembly editors; 16 mm cine cameras; slide projectors; magnetic recording equip & accessories; dimmer packs; demodulators; duplexers; AM stereo & FM exciters; TV exciters; microwave equip (intercity, portable, ENG, airborne); microwave supports & portable equip; RF phasing network; RF cables; FM processors; RF connectors; modulators; remote control systems; remote pickup equip; RF amps & attenuators; FM & TV SCA equip; microwave & optical fiber STLs; satellite earth stations (transmit/receive, receive-only); translators; AM, FM, VHF & UHF transmitters; FM & microwave antennas; HP & CP TV antennas; antenna tuning units; transmission line & connectors; towers; tower hardware & construction equip; tower lighting; antenna monitors; automated test & measurement systems; digital clocks; master & slave clocks; timers; diff phase-gain measurement; AM, FM & TV field intensity meters; audio generators; RF generators; multiple-output video generators; log printers; modulation monitors; oscilloscopes; phase meters; RF wattmeters; spectrum analyzers; status & alarm indicators; vectorscopes; video noise meters; voltmeters; waveform monitors & analyzers; radio business computer systems; EBS two-tone systems; facility turnkey installation; mobile van construction; radio & TV studio design; battery chargers; 19-inch equip racks; cabinets & furniture; storage shelves; quartz crystals; transformers; vacuum tubes VS

See ads pp 24, 111, 167

AL	W Bone Pike Road.....	205 277-4377
CA	D Hill Burlingame.....	415 591-1300
	S Lane/T O'Hara	
	Culver City.....	213 642-0052
CAN	Don Mills Ont.....	416 441-2400
	Pointe-Claire Que.....	514 694-3371
FL	G Hassinger Longwood.....	305 862-1812
	I Raulerson Macclenny.....	904 259-6475
IL	C Coyle Indianhead Pk.....	312 246-0666
KY	W Rice Prospect.....	502 228-3333
MD	S Hawkins Jr Baltimore.....	301 444-2772
MD	G Bidun Columbia.....	301 730-4373
MI	W Schuler Brighton.....	313 227-9675
	T Schoonover Holt.....	517 694-1223

STATION OWNERS BUY IT!



Station owners
buy Auditronics'
200 Series on-air
console because they

know over 99% of all Auditronics broadcast consoles ever built are still in active, every-day service. Owners buy Auditronics because they know they can hire better on-air people if they give them state-of-the-art equipment to work with. They buy Auditronics consoles because we can ideally equip everything from a 250-watt daytimer to a

major network facility, including on-air, production and remote truck models. They buy Auditronics because they know the 200 Series console will outlast its competitors and be worth more at resale. If you'd like to know more about why station owners buy Auditronics, circle reader service number or call

 **auditronics, inc.**
3750 Old Getwell Road, Memphis, TN 38118
(901) 362-1350



Circle 177 on Reader Service Card

**PROOF OF
PERFORMANCE**



**MORE THAN
4000 OF OUR
NTSC OR PAL
SYNC GENERATORS
ARE NOW IN USE
IN FORTY-SIX
COUNTRIES AROUND
THE WORLD**



LEITCH

Progressive Concepts in Television Technology

Leitch Video of America, Inc., 825K Greenbriar Circle, Chesapeake, VA 23320
Tel.: (804) 424-7920

Leitch Video Ltd., 705 Progress Avenue, Scarborough, Ontario, Canada M1H 2X1
Tel.: (416) 438-5060 Telex: 065-25420

Circle 178 on Reader Service Card

The Source '81

NC	N Davis Four Oaks.....	919 934-6869
NH	V Russel Brookline.....	603 673-5700
NM	M Bredemeier	
	Albuquerque.....	505 293-4707
NY	R Hallenbeck Latham.....	518 785-9144
OH	J Marwood Westerville.....	614 882-8506
OK	C Lutz Broken Arrow.....	918 251-8808
SC	E Lowder Columbia.....	803 776-2059
SD	D Kelly Sioux Falls.....	605 335-1970
TX	L England/V Killion	
	Houston.....	713 977-2411
WI	R Gorjance Racine.....	414 639-3367

HARRIS CORP SATELLITE COMM DIV ANTENNA OPERATIONS

2600 N Longview St Kilgore TX 75662
214 984-0555

Satellite earth stations (transmit/receive, receive-only, mobile); earth station antennas VS

HARRIS CORP SATELLITE COMMUNICATIONS DIV

PO Box 1700 Melbourne FL 32901
305 724-3000

Satellite earth stations (transmit/receive, receive-only) VS

HARRIS FARINON VIDEO

1680 Bayport Av San Carlos CA 94070
415 595-3500

Diplexers; microwave equip (ENG, intercity, portable, airborne); RF amps; microwave STLs; ENG central receiver VS

HARRIS VIDEO SYSTEMS

1255 E Arques Av Sunnyvale CA 94086
408 737-2100

Electronic still stores; frame & field syncs; TBCs (helical capstan servo, helical non-servo capstan, quad); video compressors; multi-source video editors; computerized auto assembly editors; video repositioners; image enhancers; video-assisted film editors VS

See ad pg 44-45—refer to rep/dist section

HARRISON SYSTEMS

Box 22964 Nashville TN 37202
615 834-1184

Audio consoles (portable, stereo studio multi-output, automated); LED and 10 level indicators VS

HARWOOD MFG CO

1800 W Fullerton Chicago IL 60614
312 929-1100

Photographic & electronic lighting equip, portable lighting bars

HEATH CO

Benton Harbor MI 49022
616 982-3200

Audio preamps, monitor & power supplies; stereo multi-output studio consoles; speakers; LED audio level indicators; video projectors; frequency monitors & counters; harmonic distortion meters; IM meters; oscilloscopes; vectorscopes; voltmeters; multimeters; dB meters; computers, peripherals & software; computer & electronics courses; digital weather computer; battery chargers VS

HEDCO

PO Box 1985 Grass Valley CA 95945
916 273-9524

Audio line & dist amps; audio & video routing switchers; video pulse, dist & subcarrier amps; 75 ohm terminations; return loss bridges; electrical terminations VS

KARL HEITZ INC

979 3 Av New York NY 10022
212 421-5220

Mic stands, booms & dollies; camera heads, tripods & dollies; lenses & lens adapters; 16 mm cine cameras; cine camera lenses; cine camera tripods & accessories; lighting heads, stands & fixtures VS

HEWLETT-PACKARD CO

1501 Page Mill Rd Palo Alto CA 94304
415 857-1501

Automated test & measurement systems; diff phase-gain measurement; frequency monitors and

counters; audio and RF generators; impedance bridges; logic analyzers; modulation monitors; oscilloscopes; phase meters; sideband analyzers; spectrum analyzers; voltmeters; multimeters; dB meters; TV and computer equipment; audio preamps & line amps VS

HICKOK INSTRUMENT CO

10514 DuPont Av Cleveland OH 44108
216 541-8060

Voltmeters, multimeters; oscilloscopes; video test generators for servicing

HIGH-LITE CORP

23 Selwyn Dr Greenville SC 29615
803 268-7702

Towers; emergency power equipment; mobile van construction

HITACHI DENSHI AMERICA LTD

175 Crossways Park West Woodbury NY 11797
516 921-7200

Studio & portable color & mono video cameras; video monitors; one-inch Type C VTRs; ENG microwave equip; oscilloscopes; waveform monitors and analyzers; camera pickup tubes VS

See ad pg 4-5

CA	21015 S Figueroa St Carson 90745.....	213 328-2110
CO	3538 Peoria Bldg 3 Ste 505 Aurora 80010.....	303 344-3156
GA	3610 Clearview Pkwy Doraville 30340.....	404 451-9453
IL	1725 N 33 Av Melrose Pk 60160.....	312 344-4020
MD	4720 P Boston Way Lanham 20801.....	301 459-8262
OH	11250 Cornell Pk Dr Cincinnati 45252.....	513 489-6500
TX	14169 Proton Rd Dallas 75240.....	214 233-7623
WA	1051 Andover Pk W Tukwila 98188.....	206 575-1680

HM ELECTRONICS INC

6151 Fairmont Av San Diego CA 92120
714 280-6050

Wireless mic systems; RF intercoms VS

HOLLAND ELECTRONICS INC

970 E 92 St Brooklyn NY 11236
212 649-7330

Audio amps (line, monitor, power); preamps; op-amp modules; consoles (mixers, quad, audio for TV); headphones; intercom systems

HOUSTON FEARLESS 76 INC

833 E Walnut St Carson CA 90746
213 770-4715

8, 16, 35, 70 mm film processors

HOUSTON PHOTO PRODUCTS INC

655 E 20 St Yuma AZ 85364
602 782-3677

Film processors

HOWE AUDIO MARKETING

3085A Bluff St Boulder CO 80302
303 442-3231

Mixing consoles

HSC INC

2932 River Rd PO Box 155 River Grove IL 60171
312 452-5551

19-inch equip racks; cabinets & furniture

HUGHES MICROWAVE COMM PRODUCTS

3060 W Lomita Blvd PO Box 2999 Torrance CA 90509
213 517-6100

Intercity microwave equip; receive-only satellite earth stations VS

HUGHEY & PHILLIPS INC

3050 N California St Burbank CA 91505
213 849-1104

Tower lighting, beacons, de-icers

IDEAL INDUSTRIES

1780 Becker Pl Sycamore IL 60178
815 895-5181

Wire, cable stripping equip; wire connectors; electricians' tools; lugs

IGM COMMUNICATIONS

4041 Home Rd Bellingham WA 98225
206 733-4567

Time insertion sequencers; computer/microprocessor automation controllers; complete automation systems; auto time/weather announcers; single & multiple audio cart player/recorders; computer business services for radio VS

IKEGAMI ELECTRONICS (USA) INC

37 Brook Av Maywood NJ 07607
201 368-9171

Full line TV color studio, portable ENG/EFP/EC cameras; monochrome cameras; camera heads, tripods, pedestals, stabilizing systems, ENG braces, dollies; camera lenses, filters, lens adapters, extenders; camera power packs; color correctors; color encoders; telecine equipment (16 mm projectors, slide projectors, multiplexers, complete systems, film cart players); image enhancers; monochrome, color & dc portable picture monitors; video proc amps; small & portable prod switchers; special effects generators; sync generator systems; videotape/film recording transfer; equipment carrying cases; video test charts & slides; ENG microwave equip; microwave antennas; waveform monitors & analyzers; VS

batteries for production equip; battery chargers; 19-inch equipment racks; camera pickup tubes; connectors (audio, radio, electrical) VS

See ads pp 54, 156, 185, 192—refer to rep/dist section

CA	19164 Van Ness Av Torrance 90501.....	213 328-2814
GA	522 S Lee St Americus 31709.....	912 924-0061
MO	1411 Shady Creek Apt C St Louis 63141.....	314 878-6290
TX	330 N Belt E Ste 228 Houston 77060.....	713 445-0100

IMAGE DEVICES INTL

1825 NE 149 St Miami FL 33181
305 945-1111

EFP/ENG and cine camera rentals; documentary news tripod; lighting & grip rentals & sales; camera cranes & generators; 16 mm and 35 mm film & tape; underwater cameras and lights; video monitors, portable video test rigs; portable audio mixer; lavaliere condenser mics VS

IMAGE MAGNIFICATION INC

739 Airway Cir New Smyrna Beach FL 32069
904 427-5294

Large screen TV projection systems

IMAGE RESOURCE

2260 Townsgate Rd Westlake Vill CA 91361
805 496-3317

Video to slide, print or transparency hardcopy systems VS

IMAGE TRANSFORM INC

4142 Lankershim Blvd N Hollywood CA 91602
213 985-7566

Videotape film transfers, scene by scene video correction, standards conversions VS

IMAGE VIDEO LTD

700 Progress Av Unit 16 Scarborough ONT M1H 2Z7
416 438-3940

Audio monitor & power supplies amps; automation controllers, computer/microprocessor; complete automation systems; patch panels; LED audio level indicators; RGB, encoded & luminance chroma keyers; manual, automated, & business auto interface master control switchers; small production switchers; video dist. amps; routing switchers; digital clocks; timers; status & alarm indicators; TV business computer services/equip VS

INDUSTRIAL ELECTRIC REELS INC

10102 F St Omaha NE 68127
402 339-9300

Cable reels & collector rings

INDUSTRIAL RESEARCH PRODUCTS INC

321 N Boro St Elk Grove Vill IL 60007
312 439-3600

Audio delay systems; mic mixers; noise reduction systems

The Source '81

INDUSTRIAL SCIENCES INC

PO Box 1495 Gainesville FL 32602
904 373-6783/800 874-7590

Audio for TV consoles; audio dist amps; RGB & encoded chroma keyers; manual & automated master control switchers; video pulse, dist, subcarrier & processing amps; large, small & automated production switchers; routing switchers; sync, color bar & black burst generator systems; video automated telecine light control: DA equip VS
See ad pg 176—refer to rep/dist section

INFORMATION PROCESSING SYSTEMS OF CALIFORNIA INC

70 Glenn Way Suite 2 Belmont CA 94002

415 592-1742

TV weather satellite recorders: color graphics system

INNOVATIVE TELEVISION EQUIP (ITE)

Box 681 Woodland Hills CA 91365
213 888-9421

Camera heads, tripods, dollies, ENG braces, pedestals; microwave supports & portable equip VS

INOVONICS INC

503-B Vandell Way Campbell CA 95008
408 374-8300

ALC & AGC amps; AM compressor/limiters; FM compressor/limiter/filters; noise reduction systems; replacement audio recorder electronics; reel tension servo kit; spectrum analyzers; Gordon headroom meter, PPM VS

See ad pg 226 — refer to rep/dist section

INSTRUMENT LABORATORIES CORP

350 N Eric Dr Palatine IL 62067
312 358-4622

Test equip; cable locators; fault finders

INTEGRATED SOUND SYSTEMS GLI DIV

29-50 Northern Blvd LIC NY 11101
212 729-8400

Graphic equalizers & filters; multi-output stereo studio consoles; speakers; broadcast audio time compressor VS

INTERAND CORP

666 North Lake Shore Dr Chicago IL 60611
312 943-1200

Electronic video graphic systems; full line video effect devices; scan converters (from X-Y or Y-T to video); Telestrator video production systems

INTERFACE VIDEO SYSTEMS

1333 New Hampshire Av NW Wash DC 20036
202 861-0500

Full one-inch Type C video & film production facilities & services; computer-managed videotape editing; film-to-tape recording transfer

INTERNATIONAL AUDIO INC

2934 Malmo Dr Arlington Heights IL 60005
312 956-6030

Audio cassette tape duplicators; audio cassettes

INTERNATIONAL ELECTRO-MAGNETICS

350 N Eric Dr Palatine IL 60067
312 358-4622

Graphic equalizers & filters; replacement & rebuilt audio tape heads VS

INTERNATIONAL INSTRUMENTS DIV SIGMA INSTRUMENT INC

88 Marsh Hill Rd Orange CT 06477
203 795-4711

Analog, VU & peak indicators, voltmeters, dB meters

INTERNATIONAL MICROWAVE CORP

33 River Rd Cos Cob CT 06807
203 661-6277

Intercity, portable & ENG microwave equip; RF program subcarrier; RF amps; microwave STLs; AM & FM transmitters

INTERNATIONAL NUCLEAR CORP

608 Norris Av Nashville TN 37204
615 254-3365

Audio amps (distribution, line, preamps, monitor); tone generators; consoles (mixer, mono, audio for TV, portable); RGB chroma keyers; video amps (pulse, distribution, subcarrier); production switchers (large & small); master control switchers, post prod. & routing switchers; SEGs; signal equalizing systems; digital video effects & colorizers; equalizers, presence detectors; hum bucking colls; EBS two-tone systems

INTERNATIONAL RECTIFIER CORP

233 Kansas St El Segundo CA 90245
213 322-4987

High power cartridge rectifier columns; solid state tube replacements; rectifiers, surge protectors

INTERNATIONAL TAPETRONICS CORP

PO Box 241 Bloomington IL 61701
309 828-1381

Audio cart player/recorders (single, dual, multiple, time delay); portable open-reel tape player/recorders VS

See ad pg 78

INTERNATIONAL VIDEO CORPORATION (IVC)

455 W Maude Av Sunnyvale CA 94086
408 738-3900

Color studio cameras; studio/field convertible cameras; ENG/EFP cameras; remote control mounts; helical & segmented-helical VTRs VS

IONIC INDUSTRIES INC


128 James St Morristown NJ 07960
201 539-1040

Music synthesizers, sound effects

ITI ELECTRONICS INC

PO Box 260 369 Lexington Av Clifton NJ 07011
201 546-3900

Audio preamps, line, monitor & power amps; amp power supplies; rotary attenuators; ALC & AGC amps VS



COMSEARCH WILL CLEAR THE WAY...

for Satellite Earth Station and Terrestrial Microwave Systems with our wide spectrum of communications engineering services:

- Satellite earth station interference studies and site selection
- RFI measurements
- Terrestrial frequency planning (for common carrier, private, CARS and STL microwave)
- Path survey
- Coverage patterns for MDS
- Consulting services
- Low power broadcast TV
- Radiation hazard testing
- RF MIL-standard testing
- Computer time-sharing

COMSEARCH

INCORPORATED

7633 Leesburg Pike/Falls Church, Virginia 22043
Contact: Harry Stempis, President
703/356-9470

Circle 179 on Reader Service Card



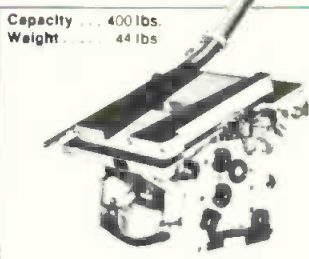
LISTEC TELEVISION EQUIPMENT CORP.

- VINTEN CAMERA MOUNTING
- DIGIVISION MONITOR PROMPTING
- REMOTE AUDIO MIXING CONSOLES



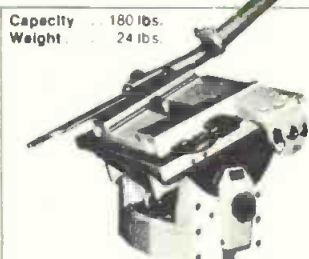
Capacity ... 200 lbs.
Weight ... 33 lbs.

3084 Mark VII L.F. Cam Head shown with optional 3084/14 Female Wedge Adaptor



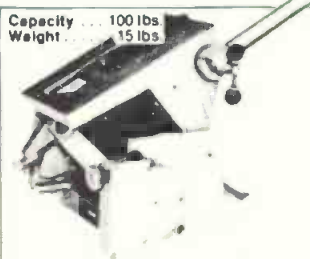
Capacity ... 400 lbs.
Weight ... 44 lbs.

717 Mark IIIA Cam Head with 506/6A optional Female Wedge Adaptor Assembly



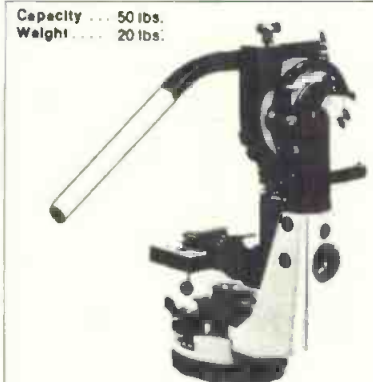
Capacity ... 180 lbs.
Weight ... 24 lbs.

716 Mark V Cam Head with 716/13 optional Female Wedge Adaptor Assembly



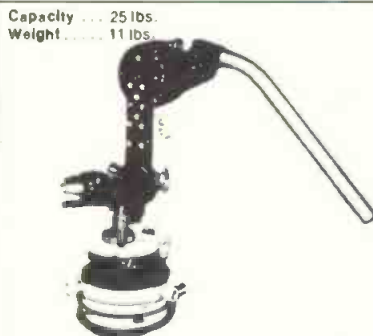
Capacity ... 100 lbs.
Weight ... 15 lbs.

76 Petrel Mark II L.F. Pan and Tilt Head



Capacity ... 50 lbs.
Weight ... 20 lbs.

3078/3C Post Pen and Tilt Head shown with "L" bracket and Quick Release Wedge Adaptor



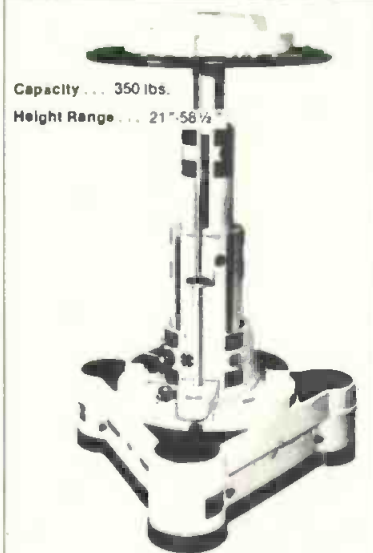
Capacity ... 25 lbs.
Weight ... 11 lbs.

3089 Cygnet L.F. Mini-Post shown with optional Female Wedge Adaptor Assembly



MONITOR PROMPTING

DIGIVISION MONITOR PROMPTING SYSTEM offers lightweight, through the lens prompting with high readability and easy mounting to all Vinten heads and simple adaptation to other heads. System is also available with dramatic enhancement keyer with reverse polarity.



Capacity ... 350 lbs.
Height Range ... 21"-58 1/2"

702 FULMAR EXTENDED RANGE PNEUMATIC PEDESTAL supplied with single combined lifting steering ring, pedal-operated change over from crab to tricycle steering, adjustable cable guards, dual wheels, 15lb. total trim weights, pressure gauge and wheel cut-outs for visual inspection



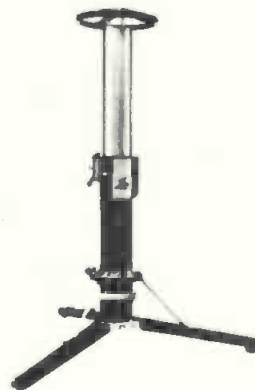
741 TERN PNEUMATIC PEDESTAL supplied with single lifting steering ring, pedal-operated change over from crab to tricycle steering, adjustable cable guards, 7" dual duthane wheels, 20lb. total trim weights.

Capacity ... 290 lbs. Height Range ... 33"-54"



3068 THE PLOVER THREE STAGE TRANSPORTABLE PEDESTAL allows wide range elevation with a "break down" into two parts for easy transport. 50-200 lbs. can be counterbalanced without changing gas pressure with Vinten's multi-ram system.

Capacity ... 110 lbs.
Height Range To Pan Head Mounting
Low Level (Legs Horizontal) ... 27"-45"
High Level (Legs in Tripod Mode) ... 37"-55"



56 PortaPed PORTABLE PNEUMATIC PEDESTAL supplied complete with Pro Jr. Top, "THREE WAY" Adjustable legs for both height and direction, lifting ring, carrying handle, column lock and adjustable drag controls. Options include simple Type 71 PortaSkid castoring Dolly or Type 64 TriTrack Crabbing Base.

WE STOCK AND SERVICE A COMPLETE INVENTORY OF EQUIPMENT OFFERING PROMPT, ACCURATE DELIVERY.



LISTEC TELEVISION EQUIPMENT CORP.

39 CAIN DRIVE / PLAINVIEW, NEW YORK 11803 / (516) 694-8963 / TELEX: 640470

(WEST COAST SUBSIDIARY)

LISTEC (WEST) CORP.

4529 SAN FERNANDO ROAD / UNIT A / GLENDALE, CALIFORNIA 91204 / (213) 247-9247 / TELEX: 182686

The Source '81

ITT JENNINGS

970 McLaughlin Av San Jose CA 95122
408 292-4025

Coaxial switchers, variable vacuum capacitors; RF voltmeters; vacuum relays, coaxial relays & switchers; RF switchers VS

ITT SUPRENANT

172 Sterling St Clinton MA 01510
617 365-6331

Coaxial cables, instrumentation cable, high temperature wire, control cable

IVIE ELECTRONICS INC

500 W 1200 S Orem UT 84057
801 224-1800

Audio amps (preamps, power, public address);

active equalizers and filters; frequency monitors & counters; audio gens; voltmeters; dB meters; spectrum analyzers VS

J

JAMIESON FILM COMPANY

6901 Forest Park Rd Dallas TX 75235
800 527-2298

Color film processors; film processor accessories

THE JANSON INDUSTRIES

1200 Garfield Av SW Canton OH 44706
216 455-7029

Seamless lighting materials

JATEX INC

2626 Freewood Dallas TX 75220
214 358-0200

SMPTE time code generators, reader/generators; color bar, black burst sync generator systems; two-VTR editor/controllers; multi-source editors; computerized auto assembly editors VS

JAVELIN ELECTRONICS INC

19831 Magellan Dr Torrance CA 90502
213 327-7440

TV mono cameras; camera lenses & extenders; monochrome picture monitors; video dist. amps; remote pan & tilt systems; time lapse video action recorders; video source ID systems; modulators VS

JEFFERSON DATA SYSTEMS

Executive Plaza 501 Archdale Dr Charlotte NC 28210

704 374-3631

Business data systems for radio & TV; newsroom computers VS

JENEL CORP

9550 Forest Ln Dallas TX 75243
214 343-1229

Facility turnkey installation; mobile van construction; radio & TV studio design VS

JENSEN TRANSFORMERS

10735 Burbank Blvd N Hollywood CA 91601
213 876-0059

Transformers VS

JOHANSON MFG CO

Rockaway Valley Rd Boonton NJ 07005
201 334-2676

Variable capacitors

JOHNSON ELECTRONICS INC

62 South Hwy 17-92 Casselberry FL 32707
305 339-2111

FM SCA tuners, receivers; audio amps; data transmission input terminals; peripheral equip

K

K&H PRODUCTS LTD

PO Box 246 N Bennington VT 05257
802 442-9118

ENG camera mounting braces, dollies, ENG equip carts, shipping cases VS

See ad pg 247

KAHN COMMUNICATIONS INC

839 Stewart Av Garden City NY 11530
516 222-2221

Audio line amps; AM compressor/limiters; low frequency extenders; AM stereo exciters; stereo generators

KAITRONICS CORP

1540 Gilbreth Rd Burlingame CA 94010
415 697-9102

ENG video/audio switchers; source ID/color bar generators; machine control systems; SMPTE edit code readers, generators, controllers; custom computer systems VS

KALAMUSIC

600 ISB Bldg Kalamazoo MI 49007
616 385-5110

Syndicated radio programming services VS

KALART VICTOR CORP

Hultenius St Plainville CT 06062
203 747-1663

TV image enhancer; film editing equip, image enhancers; flatbed film editors; film splicing equip; motion picture projectors; magnetic recording film VS

KALLMAN ASSOCIATES INC

2525 Hyperion Av Los Angeles CA 90027
213 660-4900

Character/graphics and alphanumeric generator systems, monitor calibrators

KAMAN SCIENCES CORP/BCS

1500 Garden of the Gods Rd PO Box 7463
Colorado Springs CO 80933
303 599-1601

Radio and TV computer business services, newsroom computers; financial services VS

Go anywhere super-rugged SMPTE/EBU Edit Code Generator and Companion Reader that will give you an instant shot list.



The only portable SMPTE/EBU Edit Code Generators.

- Goes anywhere with your ENG crew. 2.0mA max. battery drain.
- Very light and rugged. It attaches to your VTR and produces accurate edit code as you shoot an important scene. More than 500 units in use worldwide.
- Model 640 for SMPTE, Model 641 for both SMPTE/EBU with LCD constant display and user code capability.



Model 644 Edit Code Reader plus off-line editing printer.

When Shintron builds a new product, we think of our customers' convenience first. Good Edit Code Readers are a dime a dozen today, but which one can generate an instant shot list? The only one is Model 644 Edit Code Reader/Raster Display and Shot List printer.



SHINTRON

Worldwide

Cambridge, MA 02142 USA
Telephone (617) 491-8700
Telex 921497

Circle 181 on Reader Service Card

**FROM THE FROZEN
WASTELANDS OF THE
ANTARCTIC,**

**TO THE SEARING
DESERTS OF KUWAIT,
AND**

1,700 +

**BROADCAST
TRANSMITTERS
LATER...**

The Source '81

KAPPA NETWORKS INC
165 Roosevelt Av Carteret NJ 07008
201 541-1600/213 626-1600
Audio & video delay lines; video filters

KAY ELEMETRICS CORP
12 Maple Av Pine Brook NJ 07058
201 227-2000

Audio spectrum analyzers; rotary attenuators, slide attenuators; RF generators; programmable attenuators; bench & OEM attenuators; pulse generators; toggle switches

KAY INDUSTRIES INC
604 N Hill St South Bend IN 46617
219 234-0171
Rotary phase converters (single phase to three phase)

KB SYSTEMS
10407 62 P1 W Everett WA 98204
206 355-8740
Tape rewinders; VU meters; vertical film editors VS

KELCEE COMMUNICATIONS
7171 Torbram Rd Missisauqua Ont L4T 3W4
416 677-2232
Audio dist & power amps; character generators; standby power supplies; color background generators; color bar generators; pulse distribution amps; pulse delay amps; subcarrier dist amps; video presence detectors; video equalizing amps; sync generator; source identifier; tone detector; video dist amp; video & audio routing switchers

KILOVAC CORP
PO Box 4422 Santa Barbara CA 93103
805 684-4560
RF switchers VS

KINETRONICS CORP
42 Sherwood Terr Lake Bluff IL 60044
312 295-5600
Film cleaners

KINGS ELECTRONICS
40 Marbledale Rd Tuckahoe NY 10707
914 793-5000
Video patch panels; RF coaxial & triaxial connectors VS

KITCHEN PRODUCTIONS
619 W Ridgecrest Blvd Ridgecrest CA 93555
714 375-2753
FM & TV translators; low power UHF & VHF transmitters

KLARK-TEKNIK ELECTRONICS INC
262A Eastern Pky Farmingdale NY 11735
516 249-3660
Graphic equalizers & filters; audio delay systems, mechanical reverb, special effects; spectrum analyzers VS

KLIEGL BROS INC
32-32 48 Av Long Island City NY 11101
212 786-7474
Lighting hardware, heads, stands and fixtures; automated and manual controls; patch terminals, plugs & connectors; lighting kits VS

KLINE IRON & STEEL CO INC
PO Box 1013 Columbia SC 29202
803 779-7080
Towers, tower hardware & construction equip

KNOX VIDEO PRODUCTS
5001J Forbes Blvd Lanham MD 20801
301 459-2106
Graphic art character generators VS
See ad pg 30—refer to rep/dist section

KOLLMORGEN CORP PHOTO RESEARCH DIV
3000 N Hollywood Way Burbank CA 91505
213 843-6100
Exposure meters; color temperature meters; spot brightness meters; screen brightness meters VS

KORTICK MFG CO
5600 Third St San Francisco CA 94124
415 822-6660
Pole line hardware

KOSS CORP
4129 N Washington St Milwaukee WI 53212
414 964-5000
Headphones, dynamic & electrostatic; speakers; digital delay systems; portable AM/FM stereophonic receiver

KOZIN INTERNATIONAL
836 Greenwood Ct Carpentersville IL 60110
312 428-2495
Audio cartridges; empty reels, carts & cassettes; distribute open-reel tape, leader tape, tape timers, alignment gauges, tape duplicators VS

KREONITE INC
715 E 10 St PO Box 2099 Wichita KA 67201
316 263-1111
Film lab and graphics studio design; film processors; studio cabinets and furniture; lighting stands and fixtures

L

LAIRD TELEMEDIA INC
2424 S 2570 W Salt Lake City UT 84119
801 972-5900
Character generators; full electronic graphics systems; telecine multiplex equip; 16 mm & slide projectors; automatic telecine light control; complete telecine systems; motion picture projectors VS
See ad pg 245

LAMPKIN LABS INC
PO Drawer 9048 Bradenton FL 33506
813 792-5566
Demodulators; frequency monitors & counters; audio & RF generators

Introducing "RIDE BEHIND" Alexander's New

Battery System for Portable Cameras and VTR's

Alexander's new 7600 Ride Behind is a rechargeable nickel-cadmium 14.4v, 4AH replacement battery pack. But the big news — the pack comes with three studs for snap-on mounting on any camera equipped with a keyhole mounting bracket. Just attach a standard or short power cable for camera or VTR connection.

Mounts Like This

We have also developed a special 10-hour charger for the Ride Behind — our new CR7600-2 charger. Handles two packs at once.



And Look at our Deal!

7600 Ride Behind Battery Pack just **\$175** CR7600-2 10-hour charger. just **\$60**

Freight prepaid on orders of \$100 or more



Alexander Manufacturing Co.
Box 1645 1511 So. Garfield Pl.
Mason City, IA 50401 515-423-8955

Circle 183 on Reader Service Card

PAUL GREGG AND JOE NOVIK KNOW WHAT IT TAKES TO DELIVER A TRANSMITTER SYSTEM THAT CUTS IT!



INTRODUCING
ELCOM/BAUER.
REINTRODUCING
THE BAUER,
GRANGER,
SPARTA/CETEC
RADIO
TRANSMISSION
PRODUCT LINE.

It's a whole new game from an experienced team that have gathered the industry people, engineering expertise and back-up products and spare parts inventory to take care of all past and future business.

Give Paul or Joe a call at their new 22,000 square foot manufacturing facility in Sacramento—that is, if you're interested in getting on the waiting list for a new AM or FM transmitter system from one of the newest, oldest names in the business:



(916) 381-3750

Elcom/Bauer Broadcast Products □ 6199 Warehouse Way □ Sacramento, CA 95826 □ (916) 381-3750 Telex: 377-331

AM Transmitters from 250 to 25,000 watts, FM from 250 to 50,000, and a line of indispensable audio processing equipment.

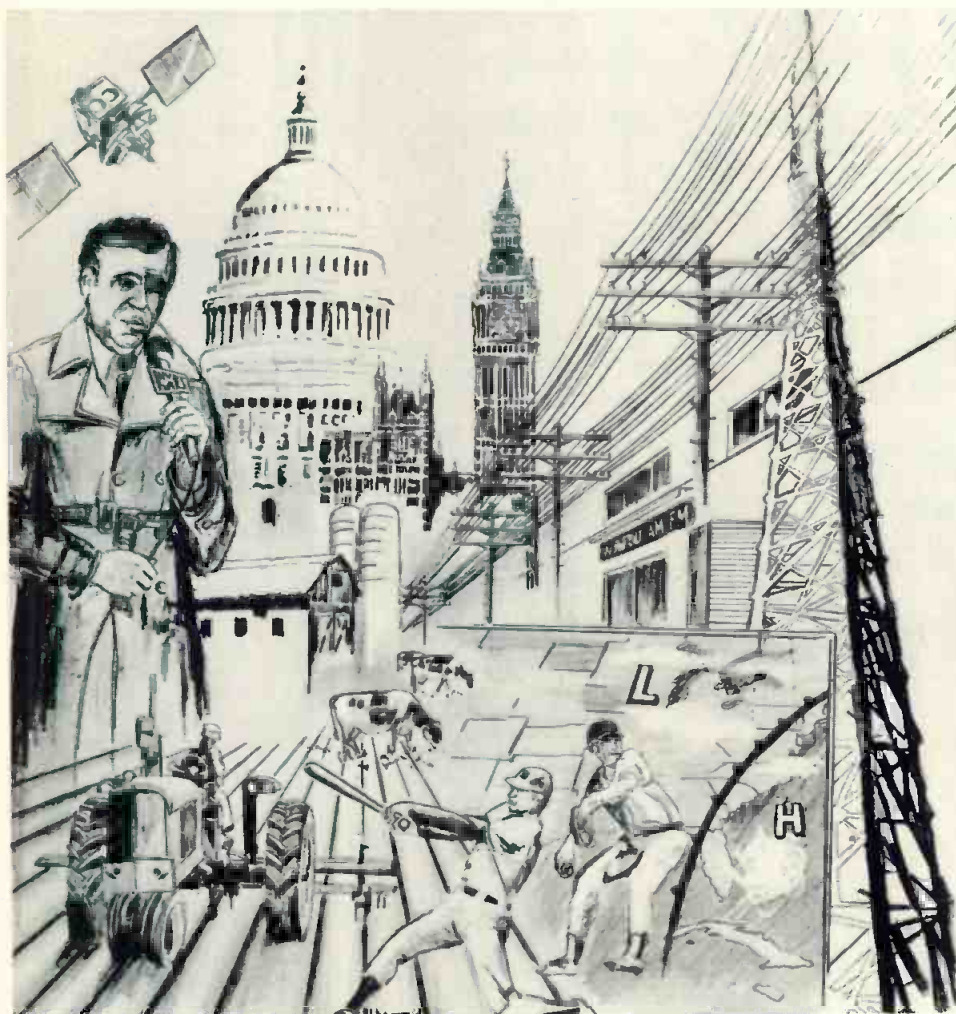
Nationwide and worldwide representatives names may be obtained from the factory.

Circle 182 on Reader Service Card

www.americanradiohistory.com

MAYBE YOU ARE MISSING SOMETHING...

IF YOU ARE NOT ONE OF THE 400 STATIONS USING THE COMREX FREQUENCY EXTENDER



More and more stations are joining the major networks and expanding their remote broadcasting and networking capabilities. Now you can broadcast news, sports, weather, on-location events...as they happen, from where they happen. And your transmission will be professional broadcast quality, not the telephone quality you expect when using dial telephones, cable circuits and other voice-grade facilities. The Comrex frequency extension system filters out hum and restores the frequency range lost by using low grades of audio service.

New programming possibilities with broadcast quality sound — for program gathering, network distribution and STL backup.

No wonder so many stations are asking about our 10-day free trial.

COMREX

Specialists in Remote Broadcast Audio Transmission/Communications/Control

P.O. Box 269, 60 Union Avenue, Sudbury, Massachusetts 01776 TEL. 617/443-8811 TWX: 710-347-1049

Circle 185 on Reader Service Card

The Source '81

LANDY ASSOCIATES INC
1890 E Marlton Pike Cherry Hill NJ 08003
609 424-4460

Rental service; distributor of full line of audio and video production equipment; equipment racks

JAMES B. LANSING SOUND INC (JBL)
8500 Balboa Blvd Northridge CA 91329
213 893-8411

Audio amps (line, preamps, monitor, power, public address); speakers; audio monitors; electronic crossover units; audio compressors VS

See ad pg 103—refer to rep/dist section

LAUDERDALE ELECTRONIC LABS
16 SW 13 St Ft Lauderdale FL 33315
305 764-7755

Audio preamps, dist amps, ALC & AGC amps; graphic equalizers & filters; splicing blocks & tape; bulk erasers; cart storage; automated lighting control systems; digital clocks; timers; tower-lighting VS

LEADER INSTRUMENTS CORP
380 Oser Av Hauppauge NY 11788
516 231-6900

Automated test & measurement systems; frequency monitors & counters; audio & RF generators; multiple output video generators; harmonic distortion meters; impedance bridges; oscilloscopes; RF wattmeters; vectorscopes; video test generators; voltmeters; multimeters; dB meters; waveform monitors & analyzers; wow & flutter meters VS

See ad pg 144

LEAR SIEGLER INC BOGEN DIV
Box 500 Paramus NJ 07652
201 343-5700

Audio preamps, line amps, monitor amps, power amps; audio compressor/limiter/filters; graphic equalizers & filters; hardwired intercoms VS

LEASAMETRIC INC
1164 Triton Drive Foster City CA 94404
800 447-4700

Telecommunications test equip rentals VS

LEE-RAY INDUSTRIES INC
38 E 1 Av Mesa AZ 85202
602 962-6806

Video equipment carriers VS

LE CROY RESEARCH SYSTEMS
700 S Main St Spring Valley NY 10977
914 425-2000

Fiber optic video transmitters/receivers; optical fibers

LECTROTECH INC
5810 N Western Av Chicago IL 60659
312 769-6262

Color picture monitors; oscilloscopes; vectorscopes; frequency monitors and counters VS

LEGAL TAPES INC
22530 West Eight Mile Rd Southfield MI 48034
313 353-3355

Post production service; video tape/film recording transfer

LEITCH VIDEO LTD
705 Progress Av Scarborough Ont M1H 2X1
416 438-5060/804 424-7920

Video proc amps; video pulse, dist, subcarrier, clamp amps; SMPTE time code generators; signal equalizing systems; sync generator systems (sync, color bar, black burst, stairstep/ramp, multiburst); video delay lines; video equalizers; video source identification systems; digital clocks; master & slave clocks; multiple-output video generators; phase meters; video test generators VS

See ad pg 128

VA Leitch 825K Green Briar Cir
Chesapeake 23320 804 424-7920

LEMO USA INC
PO Box 6626 Santa Rosa CA 95406
707 523-0600

Audio, radio & electrical connectors VS



THE FINEST FRAME SYNCHRONIZER EVER MADE. IN STOCK FOR UNDER \$10,000.

Digital is on the move. Dramatically. With Phaser IV.

Not satisfied with making the best synchronizer available, we've just taken the whole technology of our industry a step beyond.

This new microprocessor design is what the competition will be chasing for the next few years. And the breakthrough in technology allows us to offer you a breakthrough in price.

You get automatic memory fault diagnostics and concealment. Precision synchronization of noisy off-air signals. 1.5 million bit RAM field memory or optional frame store.

An internal digital test/calibration generator. And more.

Phaser IV is the most reliable product we've ever made. We aren't just saying that. We know. Because we've made every Phaser IV survive our new torture chamber tests. They're cooked, frozen, shaken and dropped to prove manufacturing and component reliability.

If it fails in your plant, we'll replace the whole system, or any faulty module, within 24 hours anywhere in North America.

Order them from stock. You'll have your Phaser IVs at work in 30 days or less.



Head Office:
Digital Video Systems Inc.
716 Gordon Baker Rd., Toronto, Ont. M2H 3B4
Tel.: 416-499-4826 Telex: 06-966686



Service Center:
Digital Video Systems, Inc.
869 Delaware Ave., Buffalo, N.Y. 14209
Tel.: 716-885-4234 Telex: 06-966686

Cut this out and cut the cost of your new frame synchronizers.

Mail to the address below, and we'll supply you with more information or a demonstration of our Phaser IV. Under \$10,000.

Name _____
Company _____
Address _____
City _____ State _____
Zip _____ Phone _____

Circle 186 on Reader Service Card

SYNCHRONIZED STABILITY

The MICROTME 2525 Video Signal Synchronizer



Process any video source with this cool-running synchronizer that stays on the job longer. The 2525 synchronizes the broadest range of input signals and provides optimum time base correction of signals from any VTR source. The latest in digital video processing technology at a surprisingly affordable price.

- Synchronizes any video source
- Passes VITS, VIRS and Teletex with vertical blanking adjustable to line 10
- Superior "hot switch" performance
- Direct or heterodyne TBC
- Field 1, Field 2 or full frame freeze
- Auto Freeze or black on last valid frame of video
- Independent, continuously variable H-phase correction
- RS-170A sync generator

Plus the 2525 SP, an optional processing amplifier with multiple inputs, allows presetting of video parameters for each input. The addition of this "Smart Proc" extends the capability of the basic 2525 to form the highly versatile 2525 SP System.

For full information, contact: MICROTME, 1280 Blue Hills Avenue, Bloomfield, CT 06002. Tel. (203) 242-4242. TWX 710-425-1165.



Circle 187 on Reader Service Card

The Source '81

LENCO INC ELECTRONICS DIV

300 N Maryland St Jackson MO 63755
314 243-3147

Color encoders, processing amps; pulse distribution amps; sync generators; black burst generators; video presence detector; video noise meters, test generators; b&w & color picture monitors; delay amps; routing switchers; signal equalizing systems; video delay lines; comb encoders; video equalizers **VS**

See ad pg 101

CA	R Wells 5456 Blossom Acres Dr San Jose 95124.....	408 356-0221
GA	T Sabiston Box 4042 Albany 31706.....	912 436-4927
KS	M Knold 1120 S 4 St Atchison 66002.....	913 367-1146
MD	T Mattia 7303 Poplar Ln Middletown 21769.....	301 371-5588
TX	R Thalacker PO Box 613 319 N Wood McKinney 75069.....	214 548-1253

LENZAR OPTICS CORP

1006 W 15 St Riviera Beach FL 33403
305 844-0263

Camera lenses **VS**

LERRO ELECTRICAL CORP

COMM SYSTEMS DIV

3125 N Broad St Philadelphia PA 19132
215 223-8200

Mobile van design & construction; facility turnkey installation **VS**

See ad pg 199

LEXICON INC

60 Turner St Waltham MA 02154
617 891-6790

Audio digital delay system; variable speed tape recorder; speech compressor/expanders; digital reverberation systems; audio time compressors **VS**

LIGHTNING ELIMINATION ASSOC

12516 Lakeland Rd Santa Fe Springs CA 90670
213 944-0916

Surge protectors; electronic filtering systems; dissipation arrays; surge & transient eliminators **VS**

See ad pg 182 — refer to rep/dist section

LIPSNER-SMITH CO

4700 Chase Lincolnwood IL 60646
312 675-8473

Film cleaners **VS**

LISTEC TELEVISION EQUIPMENT CORP

39 Cain Dr Plainview NY 11803
516 694-8963

Camera heads, tripods, pedestals, ENG braces, cranes & dollies; camera lenses & lens adapters; mono & color picture monitors; remote pan & tilt systems; teleprompters; video effects synthesizers **VS**

See add pg 131—refer to rep/dist section

CA	4529 San Fernando Rd Glendale 91204.....	213 247-9247
----	---	--------------

LIVE SOUND INC

1741 N Ivar St Suite 118 Hollywood CA 90028
213 462-3351

Syndicated radio programming services **VS**

LOGITEK ELECTRONIC SYSTEMS INC

3320 Bering Dr Houston TX 77057
713 782-4592/800 231-5870

Mono and stereo audio consoles for radio and TV; balanced-input phono preamps; audio power & dist amps; program timers; LED audio level displays (peak & average); quiz show equip; weather data display systems; custom audio equip **VS**

LONG ENGINEERING CO

961 Burke St Winston Salem NC 27101
919 725-2306

Multi-media; radio & TV studio design, facility turnkey installation; custom mixers and consoles (Deltronix); amp modules, transformers (Deltronix); intercom systems (Deltronix)

LOWEL-LIGHT MANUFACTURING INC

421 W 54 St New York NY 10019
212 245-6744

Lighting heads, stands & fixtures; portable lighting kits; diffusion material; gels & filters **VS**

LPB INC

28 Bacton Hill Rd Frazer PA 19355
215 644-1123

Audio dist amps; AM & FM compressor/limiter/filters; audio consoles (one-output mic mixers, mono & stereo studio multi-output, audio for TV); turntables, pickup arms & phono preamps; FM exciters; RF carrier current; AM & FM transmitters **VS**

See ad pg 104 — refer to rep/dist section

CA	Richard W. Burden 20944 Sherman Way Canoga Park 91303.....	213 340-4590
----	---	--------------

LTM CORP OF AMERICA

1160 N Las Palmas Av Hollywood CA 90038
213 460-6166

HMI fixtures; portable lighting systems; incandescent fresnels

See ad pg 209

L-W INTERNATIONAL

6416 Varlei Av Woodland Hills CA 91367
213 348-8614

16 mm telecine projectors; motion picture projectors; flickerless film projectors; 16 mm film chain projectors **VS**

LYON LAMB VIDEO ANIMATION SYSTEMS

8255 Beverly Bl Ste 202 Los Angeles CA 90048
213 655-0606

Video art systems; video animation **VS**

M

3M CO MAGNETIC AUDIO/VIDEO PRODUCTS DIV

3M Center Bldg 223-5N St Paul MN 55101
612 733-3742

Full line of audio & video recording tape; magnetic film; accessories **VS**

See ad pg 201

3M MAGNETIC AUDIO/VIDEO PRODUCTS DIV

PROFESSIONAL AUDIO/VIDEO EQUIP PROJECT

3M Center Bldg 223-5E St Paul MN 55144
612 733-8132

Digital audio recorders (fixed head, multichannel); digital audio editor; titlers; full electronic graphics systems; video proc amps; pulse, dist & subcarrier amps; routing switchers; sync & color bar generators; video action recorders (slow mo & variable speed); manual & auto machine control; one-inch helical VTRs **VS**

See ads pp 52-53, 244

CA	M Dombey 300 S Lewis Rd Camarillo 93010.....	805 482-1911
	B Hahn 688 Wasatch Dr Fremont 94536.....	415 791-8344
	J Kirkeby 8308 Balboa St Ventura 93003.....	805 647-7570
GA	R Harvey 3981 Centre Ct Norcross 30071.....	404 499-0397
IL	P Halter 6723 Meadow Dr Crystal Lake 60014.....	815 455-0202
MD	B Weston 10033 Waterford Dr Ellicott City 21043.....	301 948-0460
NJ	J Frederick 217 Spring Valley Rd Paramus 07652.....	201 265-4198
NY	C Tate 60 E 55 St #4R New York 10022.....	212 581-6470
TX	C Frazier 3708 Walnut Dr Bedford 76021.....	817 267-4344
	B McNutt 9736 Broken Bow Rd Dallas 75238.....	214 348-2728

MACKENZIE LABS INC

5507 Peck Rd Arcadia CA 91006
213 579-0440

Single, dual, multiple tape, continuous loop cartridge player/recorders; film projectors (motion pic, slide); automatic light dimmer control

MAGNASYNC/MOVIOLA CORP

5539 Riverton Av N Hollywood CA 91603
213 763-8441

Film editing equip; magnetic film recorders & accessories; telephone coupling equip; complete film telecine systems; film inspection equip; Videola film-to-video transfer system **VS**

THE BONNEVILLE DA's

- Bridging (20k) Inputs
- Transformers In & Out
- Up to 30 dB of gain
- +24 dBm Outputs
- Over 80 dB s/n at +4 dBm Out

THE DA-6

1x6 expandable to 1x10



- General-purpose audio DA
- Continuous-short-circuit protection
- 600 or 150 ohm systems
- >60 dB isolation over 20-20 kHz
- Less than .5% THD, 30-20K, +24 dBm
- Self-contained power supply

THE DA-10

Media Coverage/
Convention DA



- XLR Connectors—in and out
- Six line outputs plus four mic/line-selectable outputs
- Perfect for last-minute feeds at press conferences
- Other features as DA-6 above

THE PC-1

Press Corps
Distribution Amplifier



- Transformer Isolation
- Line Input
- 16 Line/Microphone Outputs
- Backup power supply
- XLR Connectors—in and out

OTHER MODELS AVAILABLE



BONNEVILLE PRODUCTIONS
A DIVISION OF
BONNEVILLE INTERNATIONAL CORPORATION

130 SOCIAL HALL AVENUE
SALT LAKE CITY, UTAH 84111
(801) 237-2400
TELEX/TWX 910-925-5266

Circle 188 on Reader Service Card



BRILLIANT

The New Anton/Bauer LG-30 Lighting Head

Anton/Bauer, the recognized leader in portable battery systems, has done it again with their new LG-30 "Black Beauty" Lighting Head, the ultimate in portable lighting.

This unique unit offers professional features not found in any other light — a spring loaded, captive, swing-away dichroic filter; integral one hand on-off and focusing; extra heavy duty



The perfect companion for the LB-300 Battery Belt.



The LG-30 mounts easily to any ENG camera.

cable and strain relief; a standard handle with spare bulb storage (removable for camera mounting); brackets for custom mounting on all ENG cameras; and an improved lamp socket that accepts standard 12v and 30v bulbs. The LG-30 "Black Beauty", the first truly heavy duty professional portable light.

**anton
bauer**

For further information call or write:
ANTON/BAUER, INC.

66 Center Street, Shelton, CT. 06484

(203) 735-3305

Circle 189 on Reader Service Card

The Source '81

MAGNA-TECH ELECTRONIC CO INC

630 Ninth Av New York NY 10036
212 586-7240

Audio mixing consoles; open-reel player/recorders, studio systems; tape head replacement; film projectors (motion picture & flickerless); magnetic recording equip & accessories; video-motion picture interlock equip; vidmag recorders; telecine equip VS

See ad pg 113

MAGNECRAFT ELECTRIC CO

5575 N Lynch Chicago IL 60630
313 282-5500

Coaxial and RF switches/relays

MAGNEFAX INTERNATIONAL INC

Rt 1 Box 764 Rogers AR 72756

Conveyor erasers; high-speed tape duplicators VS

MAGNESONICS SALES & MFG CO

3740 B Transport Ventura CA 93003
805 642-3092

Audio tape rewinders; head degaussers; bulk erasers

MAGNETIC REFERENCE LAB

229 Polaris Av Suite 4 Mountain View CA 94043

415 965-8187

Test tapes

MARATHON PRODUCTS CORP

334 W Boylston St W Boylston MA 01583
617 853-0988

Tape cartridges; head cleaners; torque & speed indicators; head degaussers; splicing blocks VS

MARCOM

PO Box 66507 Scotts Valley CA 95066
408 438-4273

Headphones; receive-only earth stations; stereo generators VS

MARCONI ELECTRONICS INC

BROADCAST & COMM DIV

100 Stonehurst Court Northvale NJ 07647
201 767-7250

TV color studio cameras; ENG/EFP cameras; video pulse, dist & subcarrier amps; sync generator systems (sync, color bar & black burst); video equalizers; video test charts & slides; video source identification systems; one-inch helical VTRs; modulators; RF amps; AM, FM, VHF & UHF transmitters; complete telecine system VS

See ad pg 66

MARCONI INSTRUMENTS DIV

100 Stonehurst Ct Northvale NJ 07647
201 767-7250

Automated test & measurement systems; diff phase-gain measurement; audio & RF generators; harmonic distortion meters; impedance bridges; IM meters; modulation monitors; oscilloscopes; RF wattmeters; spectrum analyzers; vectorscopes; video noise meters; VITS, VIR systems & equip; dB meters; waveform monitors & analyzers; wow & flutter meters VS

See ad pg 207 — refer to rep/dist section

MARKETRON

2180 Sand Hill Rd Menlo Park CA 94025
415 854-2767

Business computer services for radio and TV

MARSHALL ELECTRONICS INC

1205 York Rd Lutherville MD 21093
301 484-2220

Reverb units; special effects systems

MARTI ELECTRONICS INC

1501 N Main PO Box 661 Cleburne TX 76031
817 645-9163

Audio line, monitor & power amps; ALC & AGC amps; AM & FM compressor/limiters; dynamic mics; intercity & ENG microwave; remote control systems; FM SCA equip; microwave STLs; TV exciters; film; remote pickup equip; TV SCA equip VS

professional cabling systems
wireworks microphone cable
tester wireworks professional
microphone cables wireworks
lineboxes wireworks multitails
wireworks linetails wireworks
hardwired microphone multi
cables wireworks multitunks
wireworks multicable splitting
systems wireworks multitracks
wireworks mic cable jumper
sets wireworks microphone
multicable components group

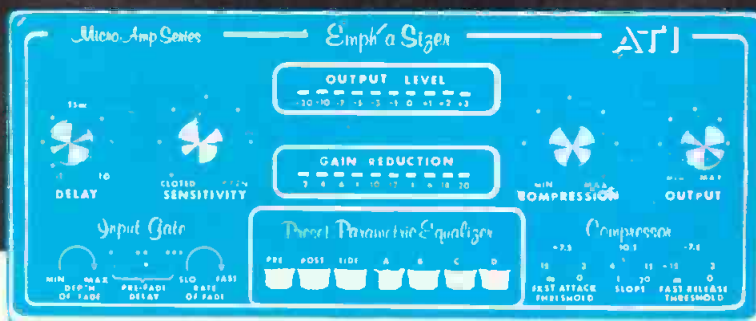
wireworks

the source for all your audio
cabling needs

Wireworks Corporation 380 Hillside Ave. Hillside, NJ 07205 (201) 686-7400 TWX: 710-985-4675

Circle 190 on Reader Service Card

AUDIENCE BUILDER!



EMPH-A-SIZE your audio. Personalize your sound. Make it unique and exciting. Control dynamics. Enhance loudness. Minimize noise buildup.

EMPH-A-SIZER from ATJ does it all. A3-in-1 audio processing system that's powerful enough to use in your studio—simple enough to take on remotes.

EMPH-A-SIZER includes an intelligent, program-controlled input gate. Personalized, parametric equalizers; and a wide-range, transparent, gated, compressor-limiter. Simplified operating controls with dual bar-graph displays and status indicators assure easy on-air or production use.

EMPH-A-SIZE according to Webster, means to give special stress and importance where you want it. Intensity. Expression. Prominence. Isn't that what your station needs? Circle the number, call, or write for details.

ASK ABOUT THESE ATJ MICRO-AMP PROBLEM SOLVERS:

- P1000 Precision Turntable Amplifier
- MA1000 Stereo 10W/Ch Power Amplifier
- M1000 Precision Dual Microphone Amplifier
- L1000 Precision Dual Line Amplifier
- DA1008 (1 in, 8 out) and DA2016 (dual—2 in, 16 out) Distribution Amplifiers
- DA1000 Mass Feed Distribution Amplifier

Dedicated to sound engineering

**AUDIO
TECHNOLOGIES
INCORPORATED**



328 W. Maple Avenue
Horsham, PA 19044
(215) 443-0330

Circle 191 on Reader Service Card

The Source '81

MASTER BROADCAST SERVICES INC
6 E Trenton Av Morrisville PA 19067
215 736-0211
Syndicated radio programming services

MATRIX INFORMATION SYSTEMS
PO Box 8099 Dallas TX 75205
214 826-8331
Radio business computer services/equip VS

MATTHEWS STUDIO EQUIP INC
2405 Empire Av Burbank CA 91504
213 843-6715
Cine & video camera dollies, cranes & support equip; lighting stands, heads & fixtures; diffusion material; full line grip equip VS

MAXELL CORPORATION OF AMERICA
60 Oxford Dr Moonachie NJ 07074
201 440-8020
Audio & video tape VS
See ad pg 163

McCURDY RADIO
1711 Carmen Dr Elk Grove Village IL 60007
312 640-7077
Audio line, monitor, power & dist amps; amp power supplies; AM compressor/limiters; parametric equalizers & filters; audio consoles (mic mixers, mono & stereo studio multi-output, audio for TV); turntables; hardwired intercoms; audio patch panels; low frequency extenders; PPM meters; digital clocks; master & slave clocks; audio post-production services; radio & TV studio design VS
See ad pg 11—refer to rep/dist section

MCG ELECTRONICS INC
160 Brook Av Deer Park NY 11729
516 586-5125
Surge protectors VS

VS MEANS IT'S VERIFIED

McGRAW-EDISON DIV EDISON ELECTRONICS
Grenier Ind Air Park Manchester NH 03103
603 669-0940
RF attenuators

MCI INC
1400 W Commercial Blvd Fort Lauderdale FL 33309
305 491-0825
Audio consoles (mono & stereo studio multi-output, automated); open-reel studio tape player/recorders; SMPTE time code synchronizing systems VS
See ad pg 82

MCI/QUANTEL
PO Box 50810 Palo Alto CA 94303
415 856-6226
Electronic still stores; frame & field synchronizers; digital video effects; noise reduction systems; special effects generators; standards converters; helical capstan servo, non-servo capstan & quad TBCs; video effects repositioners & compressors; time base correctors; digital effects systems; image enhancers; digital noise reducers/filters VS
See ad pg 237

CA	C Martin PO Box 612 Reseda 91335.....	213 999-5947
	D Prather PO Box 50810 Palo Alto 94303	
CT	D Dever 300 Broad St Ste 500 Stamford 06901.....	203 348-4104
GA	P Fletcher 2971 Flowers Rd Ste 106 Atlanta 30341.....	404 457-1266
MI	L Blech 33701 Oak Point Circle Farmington Hills 48018.....	313 553-2360

McINNIS-SKINNER & ASSOC
6529 Classen Blvd Oklahoma City OK 73116
405 848-4246
Full electronic graphics systems; video art systems; newsroom computers; weather information service VS

McKAY DYMEK
PO Box 5000 Claremont CA 91711
714 621-6711
Shielded loop antenna; all-wave receiving antenna; communication receivers; RF preselectors VS

McMARTIN INDUSTRIES INC
4500 S 76 St Omaha NE 68127
402 331-2000
Audio preamps, line amps, monitor & power amps; ALC & AGC amps; AM & FM compressor/limiter/filters; graphic equalizers & filters; one-output mic mixers; audio consoles (portable, stereo studio multi-output); VU meters; RF demodulators; exciters (AM stereo, FM, TV); RF program subcarrier & carrier current; FM processors; RF modulators; comm & monitor receivers; remote control systems; remote pickup equip; RF amps; SCA equip (FM, TV, terminals); satellite earth stations (transmit/receive, receive only); stereo generators; translators; transmitters (AM, FM, VHF, UHF, low-power VHF & UHF); antennas (AM, FM, communications, HP & CP TV); antenna tuning units; transmission line & connectors; towers; FM field intensity meters; frequency monitors & counters; modulation monitors; EBS two-tone systems VS

MEDIA CONCEPTS INC
559 49 St S St Petersburg FL 33707
813 821-2122
Camera power packs; SMPTE time code generators; production & post-production equip rental services; video & audio post-production services; videotape/film recording transfer VS

MEMOREX CORP
PO Box 988 Santa Clara CA 95052
208 987-1343
Audio tape cartridges & cassettes; tape head cleaners; new video tape VS

MERLIN ENGINEERING WORKS INC
1880 Embarcadero Rd Palo Alto CA 94303
415 856-0900
Rebuilt VTR machines; audio monitor & power amps; tape duplicators; quad TBCs; videotape evaluators & rewinders; quad VTRs; VTR machine rebuilding; custom VTR design & manufacture VS
See ad pg 10—refer to rep/dist section

We've been big in video



We've believed in video from the beginning. Just like many of the producers we service today. And as they've grown, we've grown. Because we always had the best equipment, and the guys who could help you work it right. And maintain it to keep it working right.

Today, nothing's changed. Except now we have over 100 helpful pros and the most complete line of equipment available anywhere. Everything including video cameras, lenses and accessories, terminal equipment, processing equipment, switchers, video

MICHIGAN MAGNETICS
203 W 3 St Vermontville MI 49096
517 726-0590
Replacement tape heads

MICMIX AUDIO PRODUCTS INC
2995 Ladybird Ln Dallas TX 75220
214 352-3811
Reverberation units; audio, special effects units VS

MICRO ACOUSTICS CORP
8 Westchester Plaza Elmsford NY 10523
914 592-4014
Pickup cartridges; speakers VS

MICRO COMMUNICATIONS INC
PO Box 4365 Grenier Field Manchester NH
03108
603 624-4351
RF diplexers; microwave equip (intercity, portable, ENG); TV combiners; remote control systems; RF filters; RF switchers; antennas (FM, microwave, CP TV); transmission line & connectors; phase meters; RF wattmeters VS

MICRO CONTROL ASSOCIATES
PO Box 694 Cleburne TX 76031
817 295-7771
STL, remote control and SCA subcarrier equip VS

MICRODYNE CORP
PO Box 7213 Ocala FL 32672
904 687-4633
Satellite receive only earth stations

MICROFLECT CO INC
3575 25 St SE Salem OR 97302
503 363-9267
Transmission line and connectors; towers, tower hardware & construction equip

MICRON AUDIO PRODUCTS
210 Westlake Dr Valhalla NY 10595
914 761-6520
Wireless mics & antenna systems

MICROPROBE ELECTRONICS INC
Suite 1532A 875 N Michigan Av Chicago IL 60611
312 440-3111
Automation controllers, computer/microprocessor; complete automation systems VS

MICROTIME INC
1280 Blue Hills Av Bloomfield CT 06002
203 242-4242
Digital video and video processing equip; time base correctors; image enhancers; frame synchronizers; automatic programmers; video scramblers & descramblers VS
See ad pg 138

CA	G Armour El Cajon 92021.....	714 444-8747
FL	W Baird Brandenton 33506.....	813 792-2609
IN	A Kartes Noblesville 46060.....	317 776-0079
NY	D Leeson Liverpool 13088.....	315 457-9405

MICRO-TRAK CORP
620 Race St Holyoke MA 01040
413 536-3551
Audio dist amps; audio consoles (mono, stereo, audio for TV); portable & sportcaster consoles; audio cart storage; racks, turntables, pickup arms; turntable preamps & controls; complete remote systems VS

MICROTRAN CO INC
145 E Mineola Av POB 236 Valley Stream NY
11582
516 561-6050
Audio tape bulk erasers & head degaussers; full line transformers

MICROWAVE ASSOC COMM CO
63 Third Av Bldg 5 Burlington MA 01803
617 272-3000
Computer/microprocessor automation controllers; camera stabilizing systems; demodulators; microwave equip (intercity, portable, ENG, airborne); microwave supports & portable equip; RF program subcarrier; remote control systems; remote pickup equip; microwave & telco STLs; satellite earth stations (mobile, transmit/receive, receive-only); low-power VHF & UHF transmitters; microwave antennas; automated test & measurement systems; TV business computer services/equip; facility turnkey installation VS

MICROWAVE ASSOCIATES INC (LAND MOBILE COMMUNICATIONS DIV)
1362 Borregas St Sunnyvale CA 94086
408 734-4220
UHF/VHF transmitter combiners, receiver combiners, isolators, circulators; RF filters, loads, terminations, power meter panels VS

MICROWAVE POWER DEVICES INC
330 Oser Av Hauppauge NY 11787
516 231-1400
Microwave power amps; RF amps; FM, TV transmitters

L MATTHEW MILLER ASSOC LTD
48 W 21 St New York NY 10010
212 741-8011/800 221-9328
Video production & post-production equipment rental & sales VS
See ad pg 000

MILLER-STEPHENSON CHEMICAL CO INC
Bacchas Av Danbury CT 06810
203 743-4447
Degreaser, head cleaner; contact cleaner

MINNEAPOLIS MAGNETICS INC
7178 Shady Oak Rd Eden Prairie MN 55344
612 944-7660
Replacement & rebuilt audio tape heads; new VTR heads; VTR head refurbishing VS

VS MEANS IT'S VERIFIED

since it was small.



projectors, videocassette recorders, editing systems, etc. We carry virtually every important equipment name you could name. And all at competitive prices, whether you buy, lease or rent. After all, we didn't get big by being small.

The Camera Mart, Inc.
456 West 55th St., NY, NY 10019 (212) 757-6977 Telex: 1-2078
Sales • Service • Rental

Circle 192 on Reader Service Card

BM/E SEPTEMBER, 1981 143

VS MEANS IT'S VERIFIED

MITSUBISHI ELEC SALES AMERICA INC
7045 N Ridgeway Av Lincolnwood IL 60645
800 323-4216

Fixed head, multichannel digital audio recorders;
digital audio editors VS

MODULAR AUDIO PRODUCTS

50 Orville Dr Bohemia NY 11716
516 567-9620

Audio dist, line, monitor & power amps; preamps;
amplifier power supplies; AM & FM
compressor/limiters; graphic equalizers & filters;
audio consoles (stereo & mono studio multi-output;
audio for TV) VS

See ad pg 228

MOHAWK WIRE & CABLE CORP
PO Box 707 Leominster MA 01453
617 537-9961

Wire and cable VS

MOLE-RICHARDSON CO
937 N Sycamore Av Hollywood CA 90038
213 851-0111

Lighting fixtures; lighting kits, stands, hangers &
adapters; pattern lights; grip equip; special effects;
Molecolor filters; cyc lights; softlights VS

**MONDIAL ELECTRONIC USA c/o WESTERN
EQUIP CORP**

19 W 44 St New York NY 10036
212 997-1960

Studio stereo multi-output consoles; turntables VS

MONEY MACHINE — See American Image
Productions

VS MEANS IT'S VERIFIED

MONROE ELECTRONICS INC
100 Housel Av Lyndonville NY 14098
716 765-2254

Unattended phone answering devices, tone signal
generators, detectors, timers, comm & monitor
receivers; remote control & monitoring systems VS

MOOG MUSIC INC
2500 Walden Av Buffalo NY 14225
716 681-7200

Music synthesizers

MOSELEY ASSOCIATES INC

111 Castilian Dr Goleta CA 93117
805 968-9621

ALC & AGC amps; AM & FM compressor/limiters;
microwave equip (intercity, portable, ENG &
airborne); RF program subcarrier; remote control
systems; remote pickup equip; RF amps; FM & TV
SCA equip; microwave STLs VS

See ad pg 31—refer to rep/dist section

MOTOROLA COMM AND ELECTRONICS INC
1301 E Algonquin Rd Schaumburg IL 60196
312 397-1000

Monochrome monitors; remote pan & tilt systems;
receivers, comm & monitor; remote pickup equip;
two-way radio communications; communications
antennas; frequency monitors & counters; RF
generators; modulation monitors; oscilloscopes; RF
wattmeters; spectrum analyzers; voltmeters,
multimeters; waveform monitors & analyzers VS

MPB TECHNOLOGIES INC
PO Box 160 Ste Anne de Bellevue Que H9X 3L5
514 457-2035

Character/graphics systems; software VS

MPCS VIDEO IND INC

514 W 57 St New York NY 10019
212 586-3690

Production equip rental; post-production services;
TV studio design; video tape/film recording transfer;
video camera & monitor modification; distributor of
full line of video equip VS

See ad pg 166

MSI TELEVISION DIV OF COM TEL INC
3855 S 500 W Salt Lake City UT 84115
801 262-8475

Alphanumeric generators; microprocessor memory
controller systems; slide & card advertising systems

MU-DEL ELECTRONICS INC
2426 Linden Ln Silver Spring MD 20910
301 587-6087

RF amps; RF attenuators; diplexers; RF converters;
TV combiners; RF filters

MULTIDYNE ELECTRONICS
PO Box 528 Locust Valley NY 11560
516 671-7278

Audio line & dist amps, power supplies; low
frequency extenders; titlers; video dist & subcarrier
amps; SMPTE time code readers; sync, color bar,
black burst & multiburst generator systems; video
equalizers; digital clocks; master & slave clocks;
timers; time dist systems VS

MULTIPLIER INDUSTRIES CORP
464 S 10 Av Mt Vernon NY 10550
914 699-0990

Battery supplies for production equip.; batteries for
emergency power; instrument protection cases;
rechargeable Ni-cad transceiver batteries for
portable two-way radios

MULTI-TRACK MAGNETICS INC
3 Industrial Av Upper Saddle River NJ 07458
201 327-9400

SMPTE time code generators; motion picture &
flickerless film projectors; magnetic recording equip
& accessories; facility turnkey installation; film
post-production services

MUSIC WORKS INTL/SSL
2352 Wisconsin Av NW Washington DC 20007
202 333-1500

Computerized recording consoles



- * Studio systems & accoustical design
- * Installation, construction & turnkey facilities regardless of location
- * Dependable technology & equipment from world class manufacturers
- * Talk to us about your specific broadcast problems (Large or Small) or objectives. You'll discover so many good reasons why

WE ARE THE:

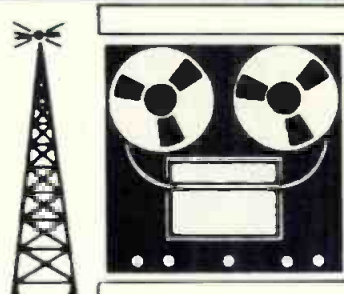


FOR BETTER AUDIO

Leader Broadcast System Inc.
15707 2nd Place West
Alderwood Manor, WA. 98036

195 West 7th Avenue
Vancouver, B.C.
V5Y 1L8
(604) 685-6043
CABLE: Leadertape VCR.

Circle 193 on Reader Service Card



AMPEX
NORTRONICS
STANTON
THE CHOICE OF THE PROFESSIONAL

SPENCER BROADCAST

Sales/Engineering

Offering
AMPEX thru XEDIT
30 major lines for the
Broadcaster

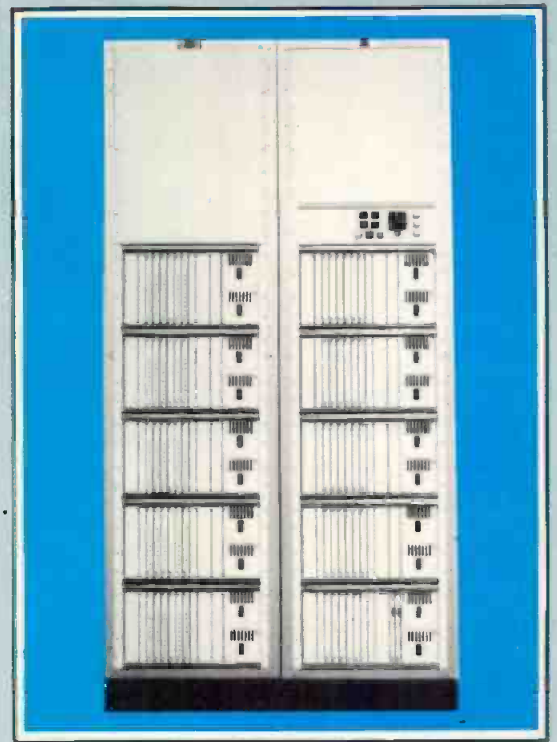
For further information, send
for our direct line card

SPENCER BROADCAST
316 E. El Camino Dr., Phoenix, AZ 85020
(602) 242-2211

Circle 194 on Reader Service Card

OUR SWITCHER SPECS SPEAK FOR THEMSELVES

Following is a summary of test data compiled from the final test measurements made on a 50-input by 50-output audio/video switching matrix sold to Capital Cities' Houston outlet KTRK-TV. We invite comparison of these test results with our published specs and with the published specs of routing switchers manufactured by others.



50 x 50 KTRK MATRIX

KTRK TEST DATA BREAKDOWN

	Worst	Mean	95th Percentile	Published Spec
VIDEO				
Crosstalk @ 3.58 MHz	-63	71.1	65	-60 dB
Diff Gain	.05	.042	.05	0.1%
Diff Phase	0.1	.056	.08	0.12°
Diff Delay	1.0	.89	.95	± 1°
Freq Response	.05	.02	.05	± 1.2 dB
Hum & Noise	-79	-84.6	-80	-75 dB
Gain Uniformity, All Paths	.017	.006	.017	±.07 dB
Input Return Loss	46	51.2	46	40 dB
Output Return Loss	45	48.8	46	40 dB
AUDIO				
Crosstalk @ 20 KHz	-80	-84.7	-81	-75 dB
Hum & Noise	-88	-91.8	-90	-85 dBm
THD 30 Hz - 20 KHz				
@ 0 dBm	.017	.011	.015	0.1%
@ +24 dBm	.24	.13	.17	0.5%
Gain Uniformity, All Paths	0.1	.044	.09	0.2 dB
Common Mode Rejection	80	88.3	83	70 dB

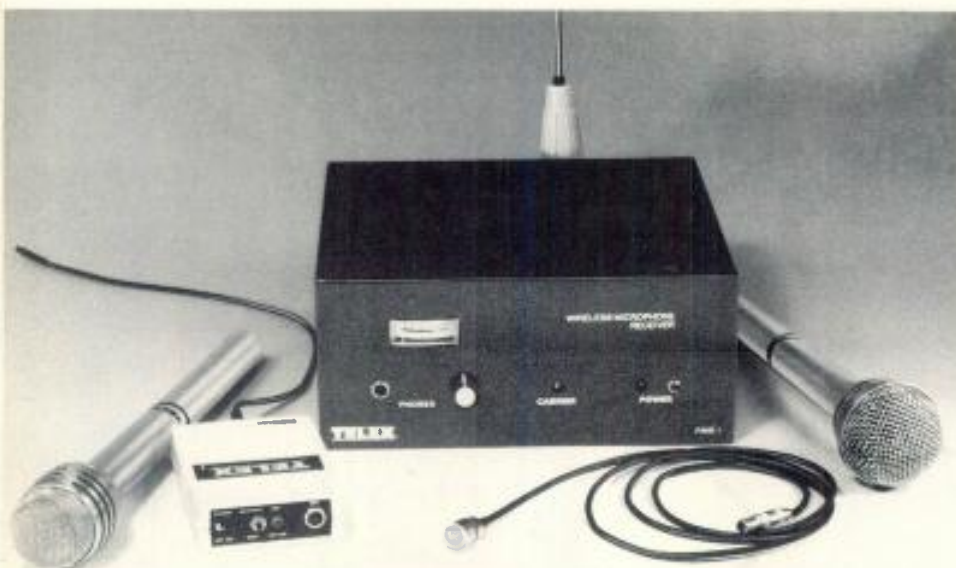
Our routing switcher specs are the best in the industry—we test each matrix for conformity and we beat our own specs by comfortable margins.

TRY THAT ON YOUR GRASCOMFERNSAM DYNATEK SWITCHER!

US UTAH SCIENTIFIC
THE ROUTING SWITCHER PEOPLE.

2276 SOUTH 2700 WEST, SALT LAKE CITY, UTAH 84119
PHONE (801) 973-6840
TWX: 910-925-4037

TOLL-FREE
IN U.S.A.
(800) 453-8782



All Wireless Microphones Are Not Created Equal

This One is a
Telex

Wireless mics aren't new, and sometimes it seems as if all systems are basically the same. However, Telex and its Turner and Hy-Gain divisions have combined their 100 years of cumulative experience in microphone, antenna and rf development to produce a DUAL DIVERSITY WIRELESS SYSTEM THAT COSTS AS LITTLE AS SINGLE ANTENNA INSTALLATIONS. The FM receiver can be operated with one or two antennas. When two antennas are used, a unique automatic phase summation network (patent applied for) provides superb dual diversity reception.

The Telex wireless sounds as good as a hard wired mic, offers plenty of options and is economically priced. If you're interested in a wireless system that is *more* than equal—write us today for full specifications.

Quality products for the audio professional



TELEX®

TELEX COMMUNICATIONS, INC.

*9600 Aldrich Ave. So., Minneapolis, MN 55420 U.S.A.
Europe: 22, rue de la Légion-d'Honneur, 93200 St. Denis, France.

Circle 196 on Reader Service Card

The Source '81

MXR INNOVATIONS INC PROFESSIONAL PRODUCTS GROUP
740 Driving Park Av Rochester NY 14613
716 254-2910

Digital audio delay system; pitch shifting device and flanging/doubling device for special effects; graphic equalizers; dual limiter

N

NADY SYSTEMS INC
1145 65 St Oakland CA 94608
415 652-2411
Wireless mics

VS

See ad pg 236—refer to rep/dist section

NAGRA MAGNETIC RECORDERS INC
19 W 44 St New York NY 10036
212 840-0999

Miniature open-reel audio/cine recorders; hand-held mixers; lavalier mics, tape reels, tape timers; portable open-reel tape player/recorders VS

NAKAMICHI USA CORP
1101 Colorado Av Santa Monica CA 90401
213 451-5901

One-output mic mixers; headphones; mics (dynamic, condenser/electret, shotgun); noise reduction systems; audio cassettes & test tapes; tape alignment gauges; single audio cart player/recorders; head degaussers; harmonic distortion meters; wow & flutter meters

VS

NATIONAL ELECTROLAB DIV TELE-RADIO SYSTEMS LTD
1536 Columbia St No Vancouver BC V7J 1A4
604 985-0511

Audio monitor, RF receivers, comm & monitor, RF amps

NATIONWIDE ELECTRONIC SYSTEMS INC
1536 Brandy Parkway Streamwood IL 60103
312 289-8820

Automated test & measurement systems; digital clocks; master & slave clocks; timers; time distribution systems; log printers; voltmeters & multimeters

NEAL FERROGRAPH USA INC
652 Glenbrook Rd Stamford CT 06906
203 348-1045

Audio tape recorders, open-reel & cassette, variable speed 1/4-in audio recorders, metal tape cassette recorders, 3-4 channel cassette player/recorders; tape logging equip; multitest audio sets

VS

NEAS
Wilkes-Barre/Scranton Airport Avoca PA 18641
717 826-1616

Complete automation systems; TV business computer services/equip

NEC AMERICA INC BROADCAST EQUIP DIV
130 Martin Lane Elk Grove Village IL 60007
312 640-3792

ENG/EFP cameras; digital video noise reducer; dropout compensators; video proc amps; large production switchers; video pulse & dist amps; routing switchers; special effects gens; frame synchronizers; TBCs (helical capstan servo, helical non-servo capstan, quad); video delay lines; digital video effects; repositioners; compressors; one-inch segmented helical VTRs, FM & TV exciters; portable, ENG & airborne microwave equip; TV combiners; receive-only satellite earth stations; translators; AM, FM, VHF & UHF transmitters; telephone video system for teleconferencing VS

See ad pg 107

CA Hugh Gillogly 17206 Pinot Pl Poway
92064.....714 485-9501

VS MEANS IT'S VERIFIED

SAVE A BUCK!

ECONOMY MEANS THOMSON-CSF UHF-TV TETRODES



By now, the soaring cost of electrical energy isn't news to anyone. And the situation isn't likely to improve in the near future. For UHF-TV transmitters and translators, there is a way to save, though – with THOMSON-CSF's advanced-design, Pyrobloc®-grid tetrodes. Featuring the best available electrical efficiency, remarkably high gain and superior linearity, these new tubes in your TV-transmitter are just like money in your pocket!

The outstanding THOMSON-CSF UHF-TV tetrode family presently includes a 5-kW* tube, the TH 393, a 10-kW* model, the TH 382, and the TH 582, which delivers up to 20 kW*. Check'em out. The sooner you install THOMSON-CSF tetrodes, the sooner your savings will start.

* Values for video-carrier amplification.



THOMSON-CSF
COMPONENTS

THOMSON-CSF COMPONENTS CORPORATION ELECTRON TUBES DIVISION
750 BLOOMFIELD AVENUE / CLIFTON NJ 07015 / TEL.: (1.201) 779.10.04 / TWX.: 710 989 7149

BRAZIL
SÃO PAULO
THOMSON-CSF
COMPONENTES
DO BRASIL LTDA
TEL.: (11) 542 4722

FRANCE
BOULOGNE-BILLANCOURT
THOMSON-CSF
DIVISION TUBES
ÉLECTRONIQUES
TEL.: (1) 604 81 75

GERMANY
MÜNCHEN
THOMSON-CSF
BAUELEMENTE
TEL.: (89) 75 10 84

UNITED KINGDOM
BASINGSTOKE
THOMSON-CSF
COMPONENTS
AND MATERIALS LTD
TEL.: (256) 29 155

ITALY
ROMA
THOMSON-CSF
COMPONENTI
TEL.: (6) 638 14 58

SPAIN
MADRID
THOMSON-CSF
COMPONENTES Y
TUBOS S.A.
TEL.: (1) 419 88 42

SWEDEN
STOCKHOLM
THOMSON-CSF
KOMPONENTER &
ELEKTRONRÖR AB
TEL.: (8) 225815

JAPAN
TOKYO
THOMSON-CSF
JAPAN K.K.
TEL.: (3) 264 63 46

CG 4469

FREE BROCHURE!

If you think that's an offer of dubious value, just wait till you read about the innovation of the Century, the fabulous new Mantrix/CD80 Pack portable dimming system by Strand Century.

■ Read all about the most versatile and economical control system to be introduced in the theatrical and television field in many years. ■ Learn how the compact new CD80 Pack dimmers are compatible with the Mantrix as well as LIGHT PALETTE and miniPALETTE systems. ■ Update your technical knowledge of manual control systems by becoming familiar with many new features unique to Mantrix.

■ Discover how Strand Century has utilized plug-in modules to permit expansion of the Mantrix and CD80 Dimmer Systems.

■ Become aware of how multiplexing permits wiring simplicity in locating CD80 Packs either in stacks or remote from each other.



MANTRIX™ CD80 PACK

STRAND CENTURY

A Subsidiary of Rank Industries America Inc.

• 20 Bushes Lane, Elmwood Park, New Jersey 07407, Tel: (201) 791-7000 (212) 564-6910, Telex: 130322 • 5432 West 102nd Street, Los Angeles, California 90045, Tel: (213) 776-4600, Telex: 653508 • 6520 Northam Drive, Mississauga, Ontario, Canada L4V1H9, Tel: (416) 677-7130, Telex: 06968646

INFO-REQ

MAIL TO L.A. ADDRESS

Mantrix CD80 Pack

BM/E 981

NAME _____

POSITION _____

COMPANY _____

STREET _____

CITY _____ STATE _____ ZIP _____

The Source '81

NETWORK PRODUCTION MUSIC & RECORDING PRODUCTS
4429 Morena Blvd San Diego CA 92117
714 272-2011

Production music library; audio special effects; open-reel audio tapes, carts, cassettes & test tapes; empty reels, carts & cassettes; leader tapes; new videotape

NEUMADE PRODUCTS CORP
720 White Plains Rd Scarsdale NY 10583
914 725-4900

Storage & filing cabinets for tape reels, cassettes, carts, rewinder; film cases, cleaners & editing equip; film inspection equip; racks, cabinets & shipping cases

NEUTRIK PRODUCTS
77 Selleck St Stamford CT 06902
203 348-2121

Audio connectors

VS

RUPERT NEVE INC
Berkshire Ind Park Bethel CT 06801
203 744-6230

Audio dist amps; AM & FM compressor/limiters; parametric equalizers & filters; full line audio consoles (one-output mic mixers, portable, studio mono & stereo multi-output, audio for TV, automated); hardwired intercom systems; telephone coupling equip; facility turnkey installation; radio & TV studio design

See ad pg 13

VS

CA 7533 Sunset Los Angeles 90046..... 213 874-8124
TN PO Box 120907 Nashville 37212..... 615 385-2090
CAN 2721 Rena Rd Malton ONT L4T 3K1..... 416 677-6611

NEWMAN/LUSTIG & ASSOC
1050 N State St Chicago IL 60610
312 642-5364
TV studio design

NEWSCAN — See McInnis-Skinner & Assoc

NIDUS BROADCAST SYSTEMS
11465 W 48 Av Wheat Ridge CO 80033
303 422-6889

Computer/microprocessor automation controllers; complete automation systems; radio & TV business computer systems

VS

NIKKO AUDIO
320 Oser Av Hauppauge NY 11787
516 231-8181

Audio preamps & power amps; passive equalizers & filters; mono, stereo & quad consoles; turntables

VS

NORCOM MANUFACTURING
PO Box 804 Brainerd MN 56401
218 829-9675

Audio consoles (one-output mic mixers, portable); telephone coupling equip; remote telco interface

VS

NORTH AMERICAN TURBINE CORP
PO Box 40510 11500 Charles St Houston TX 77040
713 466-6200

Emergency generator systems

NORTH HILLS ELECTRONICS INC
Alexander Pl Glen Cove NY 11542
516 671-5700

RF amps; hum bucking coils; RF & video isolation transformers

VS

NORTH WIND POWER CO INC
PO Box 315 Warren VT 05674
802 796-2955

Battery supplies for production equip & emergency power; wind-driven power generators; remote power system design

VS

NORTON CO AIR SPACE DEVICES
PO Box 7500 Cerritos CA 90701
213 926-0545

Tower accessories; safety devices; climbers

NORTRONICS INC RECORDER CARE DIV
8101 Tenth Av N Minneapolis MN 55427
612 540-8680

Magnetic test tapes; tape cleaners, cleaning evaluating services; replacement audio tape heads; splicing blocks & tape; head degaussers & bulk erasers; VTR head cleaners; alignment gauges

NOVA CORP
5801 Uplander Way Culver City CA 90230
213 641-2046

Videotape cleaner attachment for VTR

NTI AMERICA INC
1680 N Vine St Suite 202 Los Angeles CA 90028
213 462-8945

Digital signal generators for color & mono video; color time coder

FRED A NUDD CORP
1743 Route 104 Ontario NY 14519
315 524-2531

AM antennas, towers; tower hardware & construction equip

VS

NURAD INC
2165 Druid Park Dr Baltimore MD 21211
301 462-1700

Quad polarized antennas for remote TV broadcasting; helical and parabolic ENG transmit antennas; airborne microwave links; complete microwave TV system design and turnkey installations; remote control systems

VS

NYTONE ELECTRONICS CORP
2424 S 900 W Salt Lake City UT 84119
801 973-4090

Color studio cameras; flying spot scanner systems

VS

0

OAK COMM INC CATV DIV
100 S Main Crystal Lake IL 60014
815 459-5000

Decoders, converters & addressable systems for STV and cable & pay TV

OAK INDUSTRIES INC SWITCHER DIV
100 S Main Crystal Lake IL 60014
815 459-5000

Rotary and pushbutton switchers

O'CONNOR ENGINEERING LABS INC
100 Kalmus Dr Costa Mesa CA 92626
714 979-3993

Camera tripods and heads

VS

See ad pg 214

OKI ELECTRIC INDUSTRY CO LTD
2 University Pl Hackensack NJ 07601
201 646-0011

TV standards converter

VS

See ad pg 96

OKTEL CORP
490 Division St Campbell CA 95008
408 374-1811

Slow mo, variable speed & time lapse video disk recorders; electronic still stores

VS

OLD DOMINION BROADCAST ENG SVCE
1101 Front St Richmond VA 23222
804 321-4506

Telephone coupling equip; AM antennas; antenna tuning units; facility turnkey installation

VS

OLESEN
1535 Ivar Av Hollywood CA 90028
213 461-4631

Dynamic, wireless & lavalier mics; mic stands, booms & dollies; lamps; manual & automated lighting control systems; dimmer packs; lighting heads, stands & fixtures; diffusion material; gels & filters/special effects; patch terminals; plugs & connectors; prefab scenery; seamless materials; TV studio design; shipping cases; tools; wire & cable

VS MEANS IT'S VERIFIED

"FOR SHOOTING IN LOW LIGHT, SHARP'S XC-700 BEATS ANYTHING IN IT'S CLASS."

—SUE HARTUNG, CHIEF PHOTOGRAPHER
WLUK-TV (ABC'S GREEN BAY AFFILIATE).

"Some of my best stories have been shot under the worst possible conditions. But with Sharp's XC-700, the last thing I worry about is the light. I've covered warehouse fires and a bombing at night, with nothing but police lights or an occasional street light to shoot by. I've gotten shots of children touring a hospital, where the lights were kept low enough to read X-rays by. I even photographed an operation for the removal of a brain tumor. And in every case, the Sharp® XC-700 really showed me something.

It also surprised a few of my colleagues at the station, because we've all had bad experiences with cheaper cameras in the past. So it's refreshing to find a camera in the \$12,000 range* that's loaded with features and that has one other important thing going for it. Dependability. In our business, that's the name of the game. Because our territory is 20 counties and our average story is an hour away, so I usually only get one shot at stories I've worked on for hours. And if I don't get it with the camera, I don't get it on the air."



SHARP

For more information, contact your local dealer, or write,
Sharp Electronics Corp., Professional Products Dept. BME-8,
10 Keystone Place, Paramus New Jersey 07652.

*Manufacturer's Suggested Retail Price \$12,600, Less Lens.

Circle 198 on Reader Service Card

www.americanradiohistory.com

"No-Stretch"
Phillystran® HPTG

**the only
flexible
FIELD
PROVEN
electrically
transparent
tower-guy system**

1. eliminates EMI and RFI
at broadcast sites

2. simplifies installation of
AM, FM, AM directional and TV
towers. Lightweight, flexible, yet
as strong as extra-high-strength
galvanized steel* . . . negligible
creep, negligible elongation
with new HPTG* for tension-
once and walk-away
installations.

3. maintenance free. Non-
conducting, non-corroding,
nonmetallic. No internal
corrosion. No white-noise
arcing across insulators. No
insulators required.

4. no more expensive re-
guying.

*Comparative stress-strain data and
information about other physical
properties available on request.

Call/write for:
**10 REASONS WHY
YOUR BEST BUY IS
PHILLYSTRAN®
and the new
PHILLYSTRAN® HPTG**



**PHILADELPHIA
RESINS CORP.**

20 Commerce Drive
Montgomeryville, PA 18936
(215) 855-8450

*an uncommon
organization
doing big things worldwide
in a quiet way.*

The Source '81

OMNI SPECTRA INC
21 Continental Blvd Merrimack NH 03054
603 424-4111

Microwave connectors & components; cable
assemblies

ONAN CORP
1400 73 Av NE Minneapolis MN 55432
612 574-5000
Emergency stand-by power generators

OPAMP LABS INC
1033 N Sycamor Av Los Angeles CA 90038
213 934-3566
Full line audio amps, power supplies, slide
attenuators; ALC & AGC amps, active equalizers &
filters, reverb units; video dist amps

OPTEK
1390 N McCan St Anaheim CA 92806
714 630-8280
Bulk tape degausser; video head alignment gauge

**OPTIMA ENCLOSURES DIV
SCIENTIFIC-ATLANTA INC**
2166 Mountain Industrial Blvd Tucker GA 30084
404 939-6340
Racks, equip enclosures, cabinets VS

ORANGE COUNTY ELECTRONICS INTL INC
534 Berry St Winnipeg MAN R3H 0R9 Canada
204 774-3413
ALC & AGC amps; AM & FM compressor/limiters;
parametric equalizers & filters; audio special
effects; noise reduction systems; signal equalizing
systems; aural exciters VS

ORBAN ASSOCIATES INC
645 Bryant St San Francisco CA 94107
415 957-1067/800 227-4498
ALC & AGC amps; AM & FM compressor/limiters;
graphic & parametric equalizers & filters;
mechanical reverb & audio special effects; FM
processors & stereo generators VS
See ad pg 180-181. Contact main office for nearest dealer.

ALLEN OSBORNE ASSOC
5195 N Douglas Flr Rd Calabasas CA 91302
213 888-2772
Towers VS

OTARI CORPORATION
2 Davis Dr Belmont CA 94002
415 592-8311
Open-reel audio tape player/recorders (portable &
studio systems); tape duplicators VS

P

PACE WIRE AND CABLE CORP
3590 Oceanside Rd Oceanside NY 11572
516 678-2275
Wire and cable

PACKAGED LIGHTING SYSTEMS INC
PO Box 285 Grant St Walden NY 12586
914 778-3515
Lamps; lighting hardware & accessories; manual
lighting control systems; dimmer packs; lighting
heads, stands & fixtures

PACIFIC RECORDERS & ENGINEERING CORP
11100 Roselle St San Diego CA 92121
714 453-3255
Audio dist amps; ALC & AGC amps; multi-output
stereo studio consoles; single cart
players/recorders; facility turnkey installation;
cabinets & furniture; radio studio design VS

PAKO CORP
6300 Olson Memorial Hwy Minneapolis MN
55410
612 540-6300
Film processors; slide mounting systems

PALADIN CORP
31332 Via Colinas Westlake CA 91362
213 991-4970
Tools VS

WA PALMER FILMS INC
611 Howard St San Francisco CA 94105
415 986-5961
16 mm film telecine projectors; video/film recording
camera; motion picture projectors; film labs; film
post-production services; videotape/film recording
transfer VS

PANASONIC CO
One Panasonic Way Secaucus NJ 07094
201 348-7000
Audio preamps, line amps; audio consoles (mic
mixers, portable, studio stereo); full line disk playing
equip; dynamic & condenser/electret mics;
speakers; color studio cameras; monochrome
cameras; ENG/EFP cameras; video tripods; video
camera lenses; camera power packs; RGB chroma
keyers; monitors (b&w, color, dc portable); remote
pan & tilt systems; SMPTE time code reader/gens;
special effects gens; sync & color bar generator
systems; time lapse video action recorders; large
screen projectors; video equip carrying cases; new
videotape; two-VTR editor/controllers; multi-source
video editors; computerized auto assembly editors;
U-type & half-inch VCRs VS
See ads pp Cover 2, 76-77

CA	Pan 8383 Wilshire Blvd Beverly Hills 90211	213 655-1111
GA	Pan #1 Meca Way Norcross 30093	404 923-9700
HA	Matsushita Elec 320 Waiakamilo Rd Honolulu 96817	808 847-5361
IL	Pan 425 E Algonquin Rd Arlington Heights 60005	312 364-7900
MA	Pan 75 University Av Westwood 02090	617 326-4000
MD	Pan 11 Azar Ct Baltimore 21227	301 247-4300
NY	Pan 50 Meadowlands Pky Secaucus NJ 07094	201 348-7000
PR	Ave 65 de Iniferteria Km 9.7 Victoria Ind Pk Carolina 00630	809 769-4320
TX	Pan 1825 Walnut Hill Ln Irving 75062	214 258-2828

PANDUIT CORP
17301 Ridgeland Av Tinley Park IL 60477
312 532-1800
Nylon cable ties, accessories; plastic wiring duct;
terminals; wire markers; electronic connectors

PANEL COMPONENTS CORP
PO Box 6626 Santa Rosa CA 95406
707 523-0600
Electrical connectors

PANOAK LIGHTING SYSTEMS & SUPPLY
6809 E 40 St Tulsa OK 74145
918 664-1111
Lamps; lighting control systems (manual,
automated & dimmer packs); lighting heads, stands
& fixtures; diffusion material, gels & filters/special
effects; patch terminals; plugs & connectors;
seamless materials; TV studio design; 19-inch
equip racks; cabinets & furniture; wire & cable VS

PASO SOUND PRODUCTS INC
14 First St Pelham NY 10803
914 738-4800
Audio preamps & line amps; hardwired intercoms;
mics (dynamic, wireless, lavaliere); mic stands,
booms & dollies; speakers

PATRICK COMPUTER SYSTEMS INC
11 Plymouth St Winnipeg MAN Canada
204 632-9128
Radio & TV business computer services/equipment

PAULMAR INC
3316 Commercial Av Northbrook IL 60062
312 498-1020
Film cases; film cleaners; vertical film editors; film
splicing equip.; film inspection equip; film
processors

PD MAGNETICS
PO Box 4499 Wilmington DE 19807
302 999-4253
Audio & video cassettes

VS MEANS IT'S VERIFIED

Circle 199 on Reader Service Card

The measure of success.



In 2," 1" and 3/4"
1/2" Beta and VHS Video
and Head Cleaning
Cassettes.



FUJI

© 1980 Fuji Photo Film U.S.A., Inc.,
Magnetic Tape Division, 350 Fifth Avenue, NY, NY 10118



Circle 200 on Reader Service Card

on a properly
aligned machine
(see below)

ARISTOCART will deliver the finest AM/FM sound of any NAB cartridge on the market

Alone among commercial tape cartridges Aristocarts are fabricated in a single cavity precision mold from engineering grade plastic. Before shipping, each cartridge is individually checked for optimum phase stability and frequency response. On any properly aligned cart tape recorder we guarantee performance to or beyond NAB standards. Or we replace at our expense. And we'll gladly show you how to make the simple modification to your equipment to ensure peak efficiency with any cartridge. Call or write us.

We guarantee it!



NAB
TYPE A & AA
CARTRIDGE

ARISTOCART

The cartridge for people who care how they sound

Manufactured by:
ARISTOCART DIV. WESTERN BROADCASTING LTD.
505 BURRARD ST., VANCOUVER, CANADA V7E 1M6
TEL: (604) 687-2844 TELEX: 04-54639

Circle 201 on Reader Service Card

The Source '81

PEIRCE-PHELPS INC

2000 N 59 St Philadelphia PA 19131
215 879-7171
TV studio design; mobile units VS
See ad pg 95

PENNY & GILES

1640 Fifth St Santa Monica CA 90401
213 393-0014
Audio rotary & slide attenuator controls VS

PENTAGON INDUSTRIES INC

4751 N Olcott Chicago IL 60656
312 867-9200
High-speed cassette & open-reel tape duplicators

PERROTT ENGINEERING

1020 N Fillmore St Arlington VA 22201
703 528-5861
Power supplies for prod equip, batteries for emergency power; battery chargers VS

PHASECOM CORP

6365 Arizona Circle Los Angeles CA 90045
213 641-3501
TV converters; heterodyne processors; modulators & demodulators; programmable videocassette automation systems

PHELPS DODGE COMMUNICATIONS CO

Rte 79 Marlboro NJ 07746
201 462-1880
FM antennas; transmission lines; RF filters; two-way radio communications; duplexers; communications antennas; combiners VS
See ad pg 70

AZ	3102 N 29 Av Phoenix 85017	602 252-8058
CA	1420 Monterey Pass Rd Monterey Park 91754	213 268-9330
FL	Route 44 Leesburg 32748	904 787-9200

PHILADELPHIA RESINS CORP

20 Commerce Dr Montgomeryville PA 18936
215 855-8450
Non-metallic antenna guys VS
See ad pg 150—refer to rep/dist section

PHILIPS' BROADCAST EQUIP DIV CENTRAL DYNAMICS CORP

900 Corporate Dr Mahwah NJ 07430
201 529-3800
Color studio cameras; ENG/EFP cameras; digital video noise reducers; complete telecine systems; small production switchers; special effects generators; helical capstan servo TBCs; one-inch helical VTRs; TV excitors; VHF & UHF transmitters; mobile teleproduction vans VS

PHILIPS TEST & MEASURING INSTRUMENTS INC

85 McKee Dr Mahwah NJ 07430
201 529-3800
Color encoders; sync generators; color video signal & pattern generators; pulse generators; video level meter; decoder; monitor calibrator; RF generators; demodulator; frequency counters; audio generators; video test equip; multimeters; oscilloscopes; logic analyzers VS
See ad pg 169—refer to rep/dist section

CA	Garden Grove 92645	714 898-5000
	Milpitas 95035	408 946-6722
MA	Woburn 01801	617 935-3972
PA	Newtown 18940	215 968-7707

PLASTIC REEL CORP OF AMERICA

475 Boulevard Elmwood Pk NJ 07407
201 796-6000
Video equip carrying cases; new videotape; videotape reels & storage; film cases & cleaners; film splicing equip; recording & test magnetic film; audio tape reels & boxes VS

VS MEANS IT'S VERIFIED

CONSTANTINE N POLITES & CO
833 Guenther Av Yeadon PA 19050
215 626-4643

Hardware for lighting grids; tubes & clamps for tower construction

POLYLINE CORP

1233 Rand Rd Des Plaines IL 60016
312 298-5300
Empty audio reels, carts & cassettes; videotape reels VS

PORTA-PATTERN TELECOMMUNICATIONS INDUSTRIES

6822 Santa Monica Blvd Los Angeles CA 90038
213 461-3561
Video test charts & slides VS

POTOMAC INSTRUMENTS INC

932 Philadelphia Av Silver Spring MD 20910
301 589-2662
Patch panels; demodulators; antenna monitors; automated test & measurement systems; diff phase-gain measurement; AM, FM & TV field intensity meters; audio & RF generators; harmonic distortion meters; impedance bridges; IM meters; log printers; multitest systems; phase meters; status & alarm indicators; voltmeters; multimeters, dB meters; wow & flutter meters VS
See ad pg 228

POWER-OPTICS INC

1055 W Germantown Pike Fairview Village PA 19409
215 539-5300
Video camera stabilizing systems; remote control camera mounts; monitor calibrators; animation production equip rentals

PROCART

7012 27 St W Tacoma WA 98466
206 565-4546
Audio cartridges

PRODELIN INC

PO Box 131 Hightstown NJ 08520
609 448-2800
Earth station antennas; flexible & rigid transmission line; transmission line connectors; microwave antennas, reflectors, waveguides

PROJECTION SYSTEMS INC

66 Clinton Rd Fairfield NJ 07006
201 575-9166
TV projection systems; large screen projectors

PROTECH AUDIO CORP

Flowerfield Bldg #1 St James NY 11780
516 584-5855
Audio preamps, line, monitor, power & dist amps, amp power supplies; slide attenuators; ALC & AGC amps; mechanical reverb units; audio consoles (portable, mono & stereo studio multi-output, audio for TV); headphones; hardwired intercoms; telephone coupling equip VS

PTS ELECTRONICS INC

PO Box 272 5233 Hwy 37S Bloomington IN 47401
812 824-9331
TV field intensity meters; converter & amplifier rebuilding

PULSE TECHNIQUES INC (PULTEC)

1411 Palisade Av Teaneck NJ 07666
201 837-2575
Parametric equalizers & filters VS

PYRAMID INDUSTRIES INC

PO Box 23169 Phoenix AZ 85063
602 269-6431
Coaxial cable; cable connectors

Q

QEI CORP

Rte 73 Kresson NJ 08053
609 767-8052
AM, FM, stereo modulation monitors; FM excitors; ATS systems; FM transmitters; stereo generators; SCA generators; SCA monitors VS

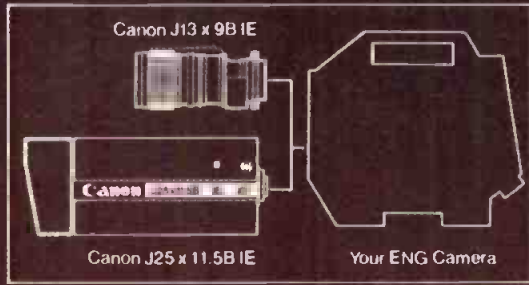
TWO ASSIGNMENTS

Canon J13x9B IE plus Canon J25x11.5B IE and your camera

Two assignments, one location. For example, get great action shots of a football game and also get player interviews at half-time. You can do it with one cameraman and one camera—like the one shown here—with Canon's amazing E.F.P. lenses. Here's how:

Mount our J25 x 11.5B IE on a tripod at your principal location. It's 2/3" system was designed specifically to work with ENG cameras, yet this lens provides a 25-to-1 zoom ratio, power zoom and focus, automatic iris and the image quality you'd expect from a Canon broadcast lens. Another choice is the Canon J13 x 9B IE, with a 20-to-1 zoom ratio. (Both these lenses have built-in extenders, too!) With your ENG camera attached, you've got full capability.

Detach your camera from the tripod, mount the famous



Canon J13 x 9B IE and head for the locker room! You've got a 13X, f1.6 lens now and can move about freely for your interview shots. The J13 x 9B IE is unsurpassed as an ENG lens, with Cable Drive and auto iris capabilities

plus built-in extenders and auxiliary wide-angle and telephoto accessories available as well.

Electronic Field Production is a reality. A practical reality because you don't have to send two crews or even two cameras to a single location if all you really need is one ENG camera and two Canon lenses. And, costs notwithstanding, sometimes you just don't have enough cameras to go around. Selecting the right combination of Canon lenses could actually double the utility of the ENG cameras you already own. And that's something even your accountant can appreciate!

Find out more. Use the coupon or write on your letterhead for the facts on the Canon J25 x 11.5B IE and J20 x 8.5B IE lenses, as well as our popular J13 x 9B IE. We'll also be happy to arrange a practical demonstration for you. A very practical demonstration!



Canon

Optics Division

Canon U.S.A. Inc. Head Office: One Canon Plaza, Lake Success, N.Y. 11042 (516) 431-7000
 Industrial Drive, Elmhurst, Ill. 60126 (312) 833-3070 • 13 Paularino Avenue East, Costa Mesa, Ca. 92626 (714) 979-8000
 Canon Optics & Business Machines, Canada Ltd., 3245 American Drive, Mississauga, Ontario L4V1B8, Canada
 Canon Amsterdam N.V. Industrial Product Division De Boelelaan 8, Amsterdam, Netherlands
 © 1981 Canon U.S.A., Inc.

Circle 202 on Reader Service Card

The name to know in broadcasting.
 Please send me information on Canon BCTV lenses and accessories.

Name _____ Title _____
 Company/Organization _____ Phone () _____
 St _____ City _____ State _____ Zip _____

THE INNOVATORS

We started with a concept. An abstract concept. The pure science of time. To theoretically synchronize multiple machines for video and audio production. To translate the SMPTE Code, which we helped develop, into a practical application. To make theory a reality, a tool engineers could actually use. Simply put, to revolutionize the television production and post production industries. What we did was become the first to make a micro-processor based synchronizer system, the first to make the SMPTE Time and Control Code really work. That's why when we say we're the Innovators, it's more than a slogan. It's a fact.

The MOS-100A Series. We started with an evolutionary micro-computer based synchronizer that cues and synchronizes any three audio/video transports simultaneously. And went on from there, adding enhancements like three "scratch pad" memories accessible from the keyboard.

The MTG-550 Series Time Code Generators, for precision electronic indexing of video and audio tapes. CMOS/LS TTL logic gives you reduced size, weight and power requirements.

And, slave and user input options are no standard.

The TCR-650 Series Edit Time Code Readers, for reading electronically indexed video and audio tapes from any source. This micro-computer based system also gives you TACH pulse input operation.

It's one thing earning a reputation. It's another maintaining it. And that's why EECO is continually innovating. And our competitors continually imitating. For complete information, write or call us today.

EECO Incorporated,
160! East Chestnut Avenue,
Santa Ana, California 92701,
Phone: (714) 835-6000.

AMPEX Ampex is a worldwide distributor for EECO Broadcast Products



Circle 203 on Reader Service Card

EECO
Incorporated

The Source '81

QRK BROADCAST ELECTRONICS —
See Broadcast Electronics

QSI SYSTEMS INC

12 Linscott Rd Woburn MA 01888
617 938-1403

Logging recorders; small production switchers; video identification systems; time lapse video action recorders; digital clocks; master & slave clocks; tape loggers; timers; RF demodulators; time code gens/readers; sync gen systems; alphanumeric gens; video dist amps; color bar generators; countdown generators; numerical video slates; demod tuners; single-line vertical interval transport systems; tally ID VS
See ad pg 122

Q-TV/TELESYNC

33 W 60 St New York NY 10023
212 765-4200

TV prompter systems VS

QUAD EIGHT ELECTRONICS CORP

11929 Vose St N Hollywood CA 91605
213 764-1516

Audio preamps, line, monitor & power amps; FM compressor/limiter/filters; parametric & graphic equalizers & filters; delay systems & digital reverb units; complete automation systems; audio consoles (stereo studio multi-output, automated); VU meters & LED audio level indicators VS
See ad pg 171—refer to rep/dist section

QUANTUM AUDIO LABS

1905 Riverside Dr Glendale CA 91201
213 841-0970

Audio consoles (mono & stereo studio multi-output) VS

See ad pg 204—refer to rep/dist section

QUICK-SET INC

3650 Woodhead Dr Northbrook IL 60062
312 498-0700

Video camera heads, tripods, pedestals & dollies VS

QUINTEK INC

4721 Laurel Canyon Blvd #209 N Hollywood CA 91607
213 980-5717

Audio delay systems; audio special effects; SMPTE time code system; SMPTE readers, generators & reader/generators; auto locators VS

R

RADIOMETER ELECTRONICS US INC — See RE Instruments

RADIO ARTS INC

210 N Pass Av Burbank CA 91505
213 841-0225/800 423-2840

Syndicated radio programming services

RADIO SYSTEMS

5131 W Chester Pike Edgemont PA 19028
215 356-4700

Audio preamps, monitor power & distribution amps; RF carrier current; facility turnkey installation; radio studio design VS

RADMAR INC

1282 Old Skokie Rd Highland Pk IL 60035
312 831-9000

16 mm film telecine projectors & multiplexers

RAINBO PRODUCTS

404 N River Ypsilanti MI 48197
313 482-6591

Manual lighting control systems; gooseneck lamps VS

VS MEANS IT'S VERIFIED

RAMKO RESEARCH INC

11355 A Folsom Blvd Rancho Cordova CA 95670
916 635-3600

Audio distribution, line, preamp, monitor amps; ALC & AGC amps; LED audio level indicators; audio switcher/router; audio consoles (mono, stereo, audio for TV, portable); turntables, turntable preamps & controls; speakers; single, dual, multiple cassette & cartridge player/recorders; open-reel studio player/recorders; digital clocks & timers VS
See ads pp 155, 157, 159—refer to rep/dist section

RAMTEK CORP

2211 Lawson Ln Santa Clara CA 95050
408 988-2211

Electronic graphics system for news; facility turnkey installation

RANGERTONE RESEARCH INC

509 Madison Av New York NY 10022
212 753-5430

Magnetic film recording equipment; film transports; telecine systems; 16 mm & 35 mm film projectors; slide projectors VS

RANK PRECISION IND INC

411 E Jarvis Av Des Plaines IL 60018
312 297-7720

Video & film camera lenses and accessories; Varotol lens repair service; flying spot telecine (35 mm, 16 mm, Super 8); preprogrammer for telecine VS

RAVEN SCREEN CORP

124 E 124 St New York NY 10035
212 534-8408

Front & rear projection screens

RAMKO TURNTABLE PREAMPS



ENGINEERED FOR YOUR BOTTOMLINE.

Setting standards since 1970, there are five different models available. The MP-8 and SP-8 are the undisputed cost/performance leaders for the broadcast industry. Both feature balanced output; 0.05% distortion; 68 dB gain; +8 dBm out (+21 dBm max.); S/N: -77 dB; ±1.0 dB RIAA; remote scratch and brilliance activation. Our top-of-the-line ESP-38 features improved performance specs like 0.03% distortion, S/N of -90 dB, ±0.25 dB RIAA and +25 dBm out. The SP-8 and ESP-38 are also available in rack mounting versions.

Everything we manufacture is, and always has been, shipped on a two week trial basis and warranted for a full two years. On some of our industry standard consoles, four years! Write or call collect today for full information on the products that are engineered for your bottomline.

Engineered For Your Bottomline.

RAMKO

Ramko Research, 11355-A Folsom Blvd.,
Rancho Cordova, California 95670 (916) 635-3600

Visit Booth #302 at NRBA

Circle 204 on Reader Service Card



Broadcast on a budget

The Ikegami ITC-350 keeps harsh economic realities from interfering with high quality program origination. It has the inherent advantage of three tube prism optics and Ikegami's high standard of quality, all for a surprisingly low price. A manufacturer's list of only \$11,400, completely ready to go with 2 1/2" Saticons[®] and accessories (less lens and microphone). And it's the only camera in this price range to offer Plumbicons[™], for just slightly more.

The ITC-350 consistently delivers quiet, high resolution pictures with excellent colorimetry. And, with its f1.4 lens and up to 12 dB of added video gain, it can produce low light level pictures superior to any camera in its class. What's more, all of the basic operational features and automatics you'd expect from Ikegami are built in.

And, the ITC-350 is versatile, it could be the only camera you need to cover fast-breaking news, manage field production, and handle studio origination. Its light weight (13 lbs. with battery and viewfinder) and low power consumption (15W) make ENG applications a natural. Add an optional CCU and 5" viewfinder (both powered from the camera battery) and you're ready for EFP/Studio use in minutes.

Best of all, the ITC-350 is establishing a very solid record for reliability. That could be why it's making beautiful pictures for a rapidly growing number of budget-minded broadcasters. See how well the ITC-350 fits into your station and your budget.

Ikegami

Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, NJ 07607; (201) 368-9171
Northeast: (201) 368-9171 West Coast: (213) 534-0050 Southwest: (713) 445-0100 Southeast: (912) 924-0061 Canada: (201) 368-9179

*Registered Trademark of Hitachi *Registered Trademark of NV Philips Shown with Fujinon 10X lens

The Source '81

RCA AMERICAN COMMUNICATIONS INC
400 College Rd E Princeton NJ 08540
609 734-4069

Satellite transmission services; post-production services VS

RCA BROADCAST SYSTEMS

Front & Cooper St Bldg 2-2A Camden NJ 08102
609 338-3000

Audio preamps, monitor, power & dist amps; ALC & AGC amps; AM & FM compressor/limiters; audio consoles (portable, mono & stereo studio multil-output, audio for TV); open-reel studio tape player/recorders; quad videocassette/cart players; color studio cameras; ENG/EFP cameras; RGB chroma keys; color correctors; color encoders; dropout compensators; SMPTE time code readers; generators & reader/generators; helical capstan servo TBCs; two-VTR editor/controllers; multi-source video editors; computerized auto assembly editors; VTRs (quad, one-inch helical); new VTR heads; head refurbishing, machine rebuilding; magnetic recording equip & accessories; AM, FM, VHF & UHF transmitters; two-way radio communications; AM & FM antennas; HP & CP TV antennas; facility turnkey installation; mobile van construction VS

See ad pg 126

AL	2244 Center Point Rd Ste 208 Birmingham 35215	205 854-3096
CA	330 Primrose Rd Ste 305 Burlingame 94010	415 343-2741
	6363 Sunset Blvd Ste 531 Hollywood 90028	213 468-4083
CO	Irongate #4 Ste 205 777 S Wadsworth Blvd Lakewood 80226	303 986-1521
FL	3900 RCA Blvd Palm Bch Gdns 33410	305 622-1100
GA	3395 Northeast Expy Atlanta 30341	404 452-2340
IL	120 W Eastman St Ste 303 Arlington Hgts 60004	312 255-2202
IN	9240 N Meridian St Ste 102 Indianapolis 46260	317 267-6395
KS	8900 Indian Creek Pky Ste 410 Overland Pk 66210	913 642-3185
MA	Wellesley Office Pk 40 William St Wellesley 02181	617 237-6050
MN	4601 Excelsior Blvd Ste 305 Minneapolis 55416	612 920-6395
MO	Noah's Ark Ste 340 St Charles 63301	314 946-7755
NC	1515 Mockingbird Ln Ste 211 Charlotte 28290	704 525-4870
MI	16400 W 12 Mile Rd Ste 215 Southfield 48076	313 569-5880
NY	1180 Av of the Americas 22 Floor New York 10036	212 930-4651
	500 S Salina St Ste 214 Syracuse 13202	315 478-4195
OH	11440 Hamilton Av Cincinnati 45231	513 825-1550
PA	924 N Washington Rd Malanos Bldg McMurray 15317	412 941-5570
TX	3409 Executive Center Dr Ste 213 Austin 78731	512 345-2224
	8700 Stemmons Freeway Dallas 75247	214 638-6820
VA	1901 N Moore St Arlington 22209	703 558-4233
WA	1818 Westlake Av N Ste 222 Seattle 98109	206 285-2375
WI	Grafton State Bank Bldg 101 Falls Rd Ste 403 Grafton 53024	414 377-8430

RCA DIST & SPECIAL PRODUCTS DIV
2000 Clements Bridge Rd Deptford NJ 08096
609 541-3636

Camera pickup tubes; transmission line & connectors; RF tubes VS

RCA ELECTRO OPTICS & DEVICES
New Holland Av Lancaster PA 17604
717 397-7661

Camera pickup tubes; vacuum tubes; RF tubes VS

RCA SERVICE CO
Dept 2615 Bldg 204-2 Rt 38 Cherry Hill NJ 08358
609 338-3000

Videotape duplicating service; video & film camera installation & service, TV tape, TV antenna measurement installation & service; teleproduction system design & implementation VS

R-COLUMBIA PRODUCTS CO INC
2008 St Johns Av Highland Park IL 60035
312 432-7915

FM & hardhat RF intercom headphones; hardwired intercom headphones; RF & hardwired intercom systems; dynamic & condenser/electret mics; base station for interfacing RF & hardwired systems VS

REAL RADIO CO
127 Glen Summer Rd Pasadena CA 91105
213 795-4900

Syndicated radio programming services VS

RECORTEC INC
475 Ellis St Mt View CA 94043
415 962-0220

Audio and video tape cleaners, cleaning and evaluating services; videotape rewinders & timers; VTR players/recorders (segmented-helical, helical cassette, automated systems); U-type VCRs, VTR machine rebuilding VS

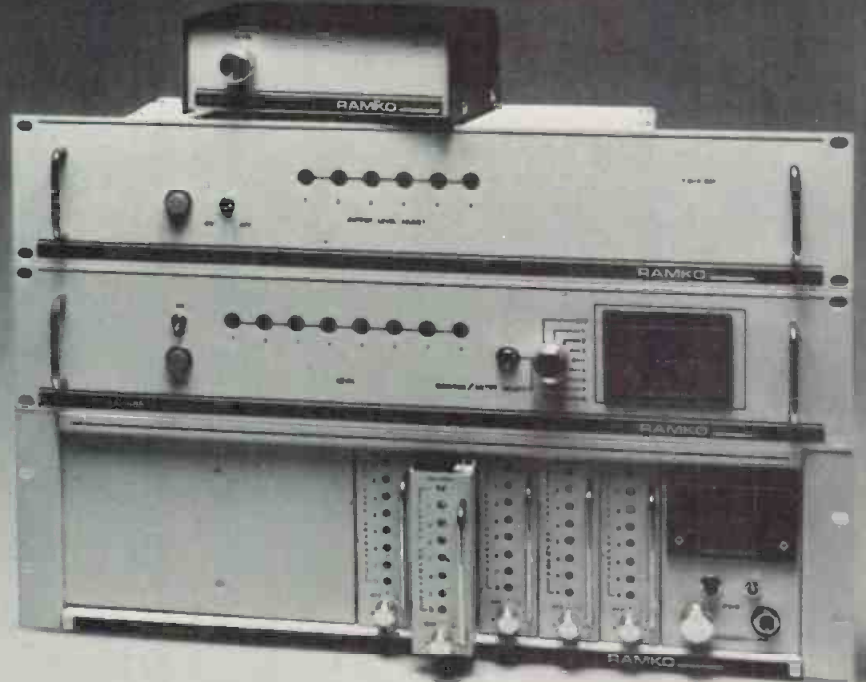
REDDING RADIO DIV SJ INDS INC
Box 344 Fairfield CT 06430
914 561-4769
Call letter plates; telephone coupling equip

REGISTER DATA SYSTEMS
PO Box 1246 Perry GA 31069
912 987-2501

Radio business computer services/equip VS

VS MEANS IT'S VERIFIED

RAMKO AUDIO DISTRIBUTION AMPS



ENGINEERED FOR YOUR BOTTOMLINE.

They're the most versatile selection of audio DA's available anywhere: ten different rack and table top versions with mic or line level inputs and individually isolated amplifier outputs. They range from the DA-6/E (1 in and 6 out) through our mass feed (1 in and 30 out stereo) to the DA-2080 (20 in and 80 out) modular, metered unit. All models feature 20 Hz to 20 kHz, ± 0.5 dB; distortion of less than 0.1%; noise down 98 dB referenced to +21 dBm out; and balanced inputs and outputs.

Everything we manufacture is, and always has been, shipped on a two-week trial basis and warranted for a full two years. On some of our industry standard consoles, four years! Write or call collect today for full information on the products that are engineered for your bottomline.

Engineered For Your Bottomline.

RAMKO

Ramko Research, 11355-A Folsom Blvd.,
Rancho Cordova, California 95670 (916) 635-3600

Visit Booth #302 at NRBA

Circle 206 on Reader Service Card

CREATIVITY TAKES FLIGHT ON AMPEX VIDEO TAPE.



BROADCASTERS AND PRODUCTION COMPANIES DEPEND ON AMPEX TAPE.

From videotape equipment to the videotape itself, broadcasters and production companies throughout the world depend on Ampex. High quality, durability, reliability, and prompt service are just some of the reasons.

Ampex 175 Highband Quadruplex Video Tape has proven itself under every conceivable type of operating condition within every video standard. Excellent color performance, low drop-outs, and a tough durable formulation with low headwear are features which have contributed to this dependability.

And now Ampex 196 High Energy Broadcast Helical Video Tape has been specifically engineered to fill the increasing needs of a particularly demanding group of video professionals—those who have chosen one of the new broadcast helical VTRs.

No matter what your video tape needs are, there's an Ampex video tape for you. And, once you've tried Ampex tape, you'll see why broadcasters and production companies have grown to depend on Ampex.

AMPEX

REFLECTIONS OF REALITY. AND BEYOND.

Ampex Corporation, Magnetic Tape Division,
401 Broadway, Redwood City, CA 94063 415/367-4463
Circle 207 on Reader Service Card

The Source '81

RE INSTRUMENTS US

31029 Center Ridge Rd Westlake OH 44145
216 871-7617

RF signal & stereo generators; distortion analyzers; modulation meters; wow & flutter meters & analyzers; frequency analyzers

RE-PLAY VIDEO CARTRIDGE SERVICE

328 Merritt Av Pittsburgh PA 15227
412 881-9172

Videotape cartridge reloading service VS

RESEARCH SYSTEMS TECHNOLOGY INC

33447 Kelly Rd Fraser MI 48026
313 296-1540

19-inch equip racks; amp power supplies; audio line & preamps; graphic equalizers & filters; studio stereo & mono multi-output consoles; direct audio interface for stereo equip

RESEARCH TECHNOLOGY INTL

4700 Chase Lincolnwood IL 60646
312 677-3000/800 323-7520

Video inspection machines; videocassette evaluator/cleaner/eraser; videotape storage; film cases; film cleaners; vertical film editors; film splicing equipment; film shipping cases, reels, cans; film leader; film splicing tape; viewers; sound readers; film cleaning/conditioning equip; film cleaning supplies; radio & TV business computer services/equip; storage shelves; shipping cases VS

REX RHEOSTAT AND CO INC

149 Babylon Turnpike Roosevelt LI NY 11575
516 379-1030

AM dummy antennas VS

REYNOLDS/LETERON CO

6704 Valjean Van Nuys CA 91406
213 994-1194

Character generators VS

RF TECHNOLOGY INC

145 Woodward Av S Norwalk CT 06854
203 866-4283

Wireless mics; microwave equip (intercity, portable, ENG, airborne); RF amps; microwave STLs VS

RHG ELECTRONICS LABORATORY INC

161 E Industry Court Deer Park NY 11729
516 242-1100

Demodulators; ENG & airborne microwave equip; modulators; comm & monitor receivers; RF attenuators; microwave STLs

RICHMOND SOUND DESIGN LTD

1234 W 6 Av Vancouver BC V6H 1A5
604 734-1217

Full line audio mixing consoles; audio preamps; line & dist amps; amp power supplies; graphic & parametric equalizers & filters VS

RIPLEY CO INC

46 Nooks Hill Rd Cromwell CT 06416
203 635-2200

Tools

RITME CX — LIBRARY SYSTEM

65 Cadencia St Fremont CA 94539
415 651-9266

Complete automation systems; audio post-production services

RIVERS ASSOCIATES INC

47 Berry St Ext Fitchburg MA 01420
617 342-8965

Audio relay & time insertion sequencers; audio silence alarm; RF program subcarrier; two-way radio communications; EBS two-tone systems; digital telemetry & control systems VS

RKO TAPE CORP

3 Fairfield Crs W Caldwell NJ 07006
201 575-8484

Audio tape, open-reel and cassettes; tape duplicators VS

RMS ELECTRONICS INC

50 Antin Place Bronx NY 10462
212 892-6700

Audio dist amps; dynamic mics; VTR head cleaners; RF cables & connectors; audio connectors VS

ROCKWELL INTERNATIONAL CORPORATION

COLLINS TRANSMISSION SYSTEMS DIVISION

1200 N Alma Rd Richardson TX 95081
214 996-5000

Intercity and portable microwave equipment; receivers, comm and monitor; satellite earth stations VS

RODELCO ELECTRONICS CORP

365A Comac Rd Deer Park NY 11729
516 643-5110

TV & FM translators

ROH CORPORATION

3603 Clearview Pl Atlanta GA 30340
404 455-7940

Audio preamps, line, monitor & distribution amps, audio routing switchers; attenuators; intercom systems VS

ROHDE & SCHWARZ SALES CO (USA) INC

14 Gloria Ln Fairfield NJ 07006
201 575-0750/800 526-2270

B&W & color monitors; sync generator systems (sync, color bar, black burst, stairstep/ramp, multiburst); comb decoders; complex comb filter; RF demodulators; modulators; VHF transmitters; AM, FM & TV field intensity meters; RF generators; video generators (multiple output, cross pulse); video noise meters; video test generators; VITS; VIR systems & equip VS

RAMKO AUDIO CONSOLES



ENGINEERED FOR YOUR BOTTOMLINE.

If you're under the impression all audio consoles are more or less alike, then you haven't seen Ramko's exciting "silent series" of 14 different models. Stereo and mono, and available in any input/output configuration you could possibly need, Ramko has pioneered many innovative features such as total D.C. control of all mixing and switching functions, solid-state balanced inputs and outputs, full-range input gain selects, switch selectable muting on all inputs, solid-state V.U. meters, and plug-in modules and I.C.'s. Everything we manufacture is, and always has been, shipped on a two week trial basis and warranted for a full two years. On some of our industry standard consoles, four years! Write or call collect today for full information on the products that are engineered for your bottomline.

Engineered For Your Bottomline.
RAMKO

Ramko Research, 11355-A Folsom Blvd.,
Rancho Cordova, California 95670 (916) 635-3600

VS MEANS IT'S VERIFIED

Visit Booth #302 at NRBA

Rancho Cordova, California 95670 (916) 635-3600

Circle 208 on Reader Service Card

The Source '81

ROSCO LABORATORIES INC
36 Bush Av Port Chester NY 10573
914 937-1300

Lighting heads, stands, fixtures, diffusion material, gels and filters, set design, lens cleaning tissue

ROSNER TELEVISION SYSTEMS INC
250 West 57 St New York NY 10107
212 246-2850

Radio & TV studio design; facility turnkey installation **VS**

ROSS VIDEO LTD
9 Plaza Dr Iroquois ONT K0E 1K0
613 652-4889

Large & small production switchers; master control switchers **VS**

RPM/RADIO PROGRAMMING MANAGEMENT
25140 Lahser Ste 232 Southfield MI 48075
1-800 521-2537/313 358-1040

Full-format syndicated radio programming services

RTS SYSTEMS

1100 W Chestnut St Burbank CA 91506
213 843-7022

Audio preamps, line, monitor & dist amps; mic mixers & portable audio consoles; audio for TV consoles; phono preamps; hardwired Intercoms; telephone coupling equip **VS**

See ad pg 19

RUSLANG CORP

320 Dewey St Bridgeport CT 06605
203 384-1266

Freestanding & table-top consoles for audio & video equip; 19-inch equipment racks; cabinets & furniture **VS**

RUSSCO ELECTRONICS MFG INC
5690 E Shields Av Fresno CA 93727
209 291-5591

Audio dist, power-amps; preamps; audio consoles

(mono, portable, studio); turntables; remote pickup equipment

S

SACRED SOUNDS — See Century 21 Programming

SADELCO INC
75 West Forest Av Englewood NJ 07631
201 569-3323

Field intensity meters for TV calibrators **VS**

SAE (SCIENTIFIC AUDIO ELECTRONICS INC)
701 E Macy St Los Angeles CA 90012
213 489-7600

Audio preamps & line amps; parametric equalizers & filters; audio delay systems; headphones **VS**

SAKI MAGNETICS INC
8650 Hayden Pl Culver City CA 90230
213 559-6704

Professional audio & video high-speed duplicating long-life ferrite tape heads; replacement audio posts for Ampex & RCA VTRs **VS**

SANSUI ELECTRONICS CORP
1250 Valleybrook Av Lyndhurst NJ 07071
201 460-9710

Audio preamps, monitor & power amps; graphic equalizers & filters; mechanical reverb units; portable audio consoles, turntables; dynamic & condenser/electret mics; mic stands, booms & dollies; speakers; VU meters **VS**

SAWYER CAMERA CO
6820 Santa Monica Blvd Los Angeles CA 90038
213 466-6111

TV studio design; post-production equip rental; stage rental

VS MEANS IT'S VERIFIED

SCALA ELECTRONIC CORP
PO Box 4580 Medford OR 97501
503-779-6500

Communications antennas; FM antennas; STL microwave antennas; HP TV & LPTV antennas **VS**

KEN SCHAFFER GROUP INC
10 E 49 St New York NY 10017
212 371-2335

Audio special effects, reverb units, delay lines; digital broadcast delay for obscenity deletion; intercom systems; wireless mics; audio spectrum analyzers; duplex wireless com systems

SCHNEIDER CORP OF AMERICA
185 Willis Av Mineola NY 11501
516 747-5100

Video camera lenses; motion picture camera lenses; lens accessories; lenses for slide projectors, 16 mm, 35 mm motion picture projectors **VS**

SCIENTIFIC-ATLANTA
3845 Pleasantdale Rd Atlanta GA 30340
404 441-4000

Transmit/receive, receive-only satellite earth stations **VS**

See ad pg 197

SCIENTIFIC RADIO SYSTEMS INC
367 Orchard St Rochester NY 14606
716 458-3733

FM transmitters, RF receivers, comm & monitor; audio power amps; HF receivers & transceivers; VHF & AM transmitters & receivers **VS**

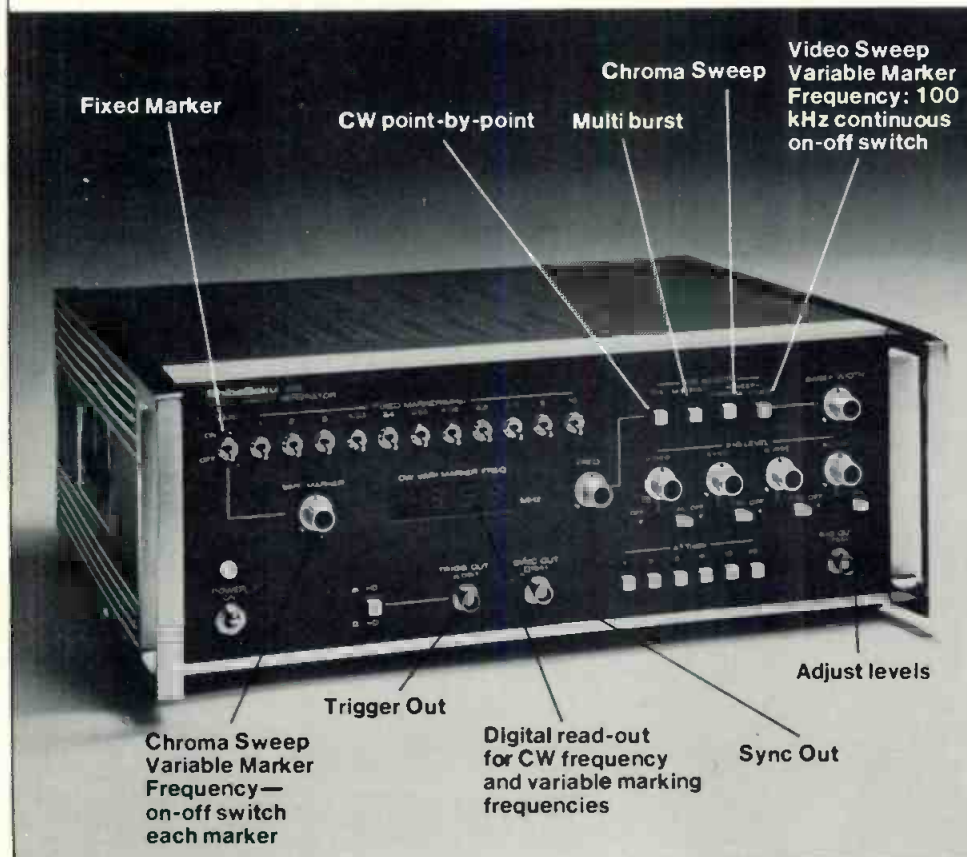
SCIENTIFIC SYSTEMS INC
92 Westwood Dr Toms River NJ 08753
201 255-2230

Audio distribution amps

HH SCOTT INC
20 Commerce Way Woburn MA 01888
617 933-8800

Audio analyzers; audio cassette player/recorders

BUILT TO MAKE IT!



AND MAINTAIN IT!! Measures frequency response on TVs, VTRs and other video equipment.

The Asaca Video Sweep Generator 205 contains a built-in standard color sync signal generator. The color burst can be switched on and off so the 205 is ideal for oscillator comparisons to measure frequency response of color equipment.

There is a selection of output signals: video sweep (0.1 - 10 MHz), chroma sweep (sub carrier ± 2 MHz), CW and multi-burst.

Also, the 205 features facilities for composite sync signal outputs and trigger pulse outputs (H. D/V. D. Selectable) and so it can be used for oscilloscope triggering. Digital read out for CW frequency and variable marking.

Contact your Asaca distributor for details or demonstration. Or write to:

ASACA®

ASACA CORPORATION OF AMERICA
1277 Rand Road, Des Plaines, Ill. 60016
(312) 298-4380

Circle 209 on Reader Service Card

SCOTT INSTRUMENTS LABORATORIES
13 Sagamore Pk Rd Hudson NH 03051
603 880-6300
Sound level meters

THE SCREEN WORKS LTD/WILCOX-LANGE INC
3925 N Pulaski Rd Chicago IL 60641
312 588-8380
Free-standing front/rear projection screens

L J SCULLY MANUFACTURING CORP
138 Hurd Av Bridgeport CT 06604
203 368-2332
Tape deck reproducers, disc cutting equip

SEA-CAM INC
6080 SW 28 St Miami FL 33155
305 665-5694
Underwater video camera housings

SEACOR INC
123 Woodland Av Westwood NJ 07675
201 666-1600
Capacitors

SENCORE INC
3200 Sencore Dr Sioux Falls SD 57107
605 339-0100
Sweep generators for VHF, UHF, FM & chroma; dual-trace oscilloscopes; AM/FM stereo analyzer; power supplies; voltmeters, multimeters, oscilloscopes; frequency monitors & counters; transistor testers; digital multimeters; capacitor/inductor analyzers; CRT testers/restorers; tube testers

SENNHEISER ELECTRONIC CORP
10 W 37 St New York NY 10018
212 239-0190
Mics (dynamic, condenser/electret, wireless, shotgun, lavalier); booms, stands & dollies; mic

accessories; headphones
See ad pg 196—refer to rep/dist section

SEQUERRA CO
137-92 Southgate St Jamaica NY 11435
212 297-5000
Broadcast monitor; FM intensity meters, modulation monitors

SESCOM INC
1111 Las Vegas Blvd N Las Vegas NV 89101
702 384-0993
Audio preamps, line, monitor & dist amps; rotary & slide attenuators; ALC & AGC amps; parametric equalizers & filters; audio generators; harmonic distortion meters; voltmeters; dB meters; transformers

SETCOM CORP
1400 Stierlin Rd Mountain View CA 94043
415 965-8020
Headsets & communications accessories; hardwired intercoms

SFENA CORP
26 17 Aviation Pky Grand Prairie TX 75051
214 988-8000/800 527-1777
Camera & helicopter stabilizing systems

SGL WABER ELECTRIC
300 Harvard Av Westville NJ 08093
609 456-5400
Plugs and connectors, multiple outlet electrical fixtures, utility carts

SHALCO INC
Smithfield Ind Pk S PO Box 1089 Smithfield NC 27577
919 934-3135
Audio rotary attenuators

SHAREPOINT SYSTEMS INC
402 Tenth Av Haddon Heights NJ 08035
609 546-1841
Hardwired intercoms; audio cart machine controller/timers; tape timers; electronic tape editors; FM processors; remote control systems; digital clocks; master & slave clocks; timers; time distribution systems

SHARP ELECTRONICS CORP
10 Sharp Plaza Box 588 Paramus NJ 07652
201 265-5600
Audio power amps; turntables; speakers; cassette tape player/recorders; studio cameras; studio/field convertible cameras; ENG/EFP cameras; mono cameras; lenses & accessories; color monitors; helical cassette VTRs
See ad pg 149—refer to rep/dist section

SHINTRON CO INC
144 Rogers St Cambridge MA 02142
617 491-8700
Video moduline consoles; production switchers, SEGs; sync generator systems (sync, color bar, black burst); character generators; alphanumeric generators; video pulse & subcarrier amps; encoded & luminance chroma keyers; time code gens/readers; audio dist. amps

SHIVELY LABS INC
85 Harrison Rd Bridgton ME 04009
207 647-3327
RF duplexers; RF connectors; RF filters, loads & switchers; FM antennas; transmission line & connectors; antenna monitors

SHURE BROTHERS INC
222 Hartrey Av Evanston IL 60204
312 866-2200
Audio preamps, monitor & power amps; FM compressor/limiter/filters; equalizers & filters; audio consoles (mic mixers, portable); phono pickup arms & cartridges; mics (dynamic, condenser/electret, ribbon, lavalier); mic stands & booms; speakers; telephone coupling equip

SIEGEL ELECTRONICS
PO Box 33421 San Diego CA 92103
714 295-4995
RGB chroma keyers; color correctors; color encoders; dropout compensators; image enhancers; sync generator systems; video film noise reducers; comb decoders

MEASURES GROUP DELAY IN TRANSMISSION SYSTEMS & LINES

BUILT-IN SYNC AND BLANKING CIRCUIT
Measures Group Delay

INTERNAL AND EXTERNAL MARKER
Has fixed internal marker as well as connector for external marker

BUILT-IN SWEEP GENERATOR
Determines sweep measurement and CW (point by point delay of discrete frequencies)

SWEEP SPEED IS ADJUSTABLE

LARGE CRT SCREEN

CW (Point by point delay)

EXTERNAL MARKER CONNECTOR

At last! The Envelope Delay Measuring Set You've Always Wanted—But Which Technology Couldn't Develop Until now! Compare

Our envelope Delay Measuring Instruments* feature large CRT screens, built-in sweep generators and allow spot frequency delay measurements from 200 KHz to 10 MHz. Check out Models 763 NA and the new 201-1. Both are NTSC or PAL compatible. The 201-1 adds a built-in sync generator and blanking mixer.

Don't you delay in getting full information. Write.

We create change

ASACA

ASACA CORPORATION OF AMERICA
1277 Rand Road, Des Plaines, Ill. 60016
Phone (312) 298-4380

*Product of SHIBASOKU—sister company of ASACA

Circle 210 on Reader Service Card

FACT!

No one can match The Complete Lightning Protection Systems from LEA.

- ANTENNA DISSIPATION ARRAYS FOR AM, FM, TV, MICROWAVE TOWERS
- SURGE ELIMINATORS FOR MAIN POWER LINES TO HANDLE ENERGY LEVELS OF > 8800 JOULES PER PHASE
- COAXIAL TRANSMISSION LINE SURGE ELIMINATORS 1 Kw to 25 Kw
- KLEANLINE ELECTRONIC FILTERING SYSTEMS TO PROTECT AGAINST LIGHTNING STRIKES AT > 8800 JOULES PER PHASE PLUS AN RFI/EMI FILTER TO HANDLE RF INTERFERENCE FOR SENSITIVE SOLID STATE EQUIPMENT.
- TRANSIENT ELIMINATORS FOR DATA LINES, PHONE LINES, COMMUNICATIONS EQUIPMENT WITH A FREQUENCY RESPONSE FROM D.C. TO 1 GIGAHERTZ.
- LIGHTNING WARNING SYSTEMS PROVIDING 1/2 HOUR ADVANCE WARNING OF AN APPROACHING STORM.
- SURGE AND TRANSIENT GENERATORS
- GROUND SYSTEMS
- CONSULTING SERVICES
- PERFECT POWER VOLTAGE REGULATION

LIGHTNING ELIMINATION ASSOCIATES

12516 Lakeland Road
Santa Fe Springs, CA 90670
(213) 944-0916
TWX: 910-586-1381



The Source '81

SIEMENS CORP

186 S Wood Av Iselin NJ 08830
201 494-1000
Gas-filled surge voltage lighting protectors for cable amps & power supplies

SIGMA ELECTRONICS INC

1830 State St E Petersburg PA 17520
717 569-2681
Video amps (pulse, distribution, subcarrier); sync & black burst generators: sync pulse changeover; audio dist amps; passive video switchers; video processing amps with auto color black; color bar generator with I & Q vectors VS

SINGER BROADCAST PRODUCTS

19 Olney Av Cherry Hill NJ 08003
609 424-1500
FM & TV exciters; RF program subcarriers & TV combiners; FM SCA equip; stereo generators; transmitters (AM, FM, VHF, UHF); FM antennas VS
See ad pg 221—refer to rep/dist section

SINGER EDUCATION SYSTEMS

3750 Monroe Av Rochester NY 14603
716 586-2020
16 mm projectors; slide projectors; filmstrip projectors; sound slide projectors/viewers

SINTRONIC CORP — See Singer Broadcast Products

SITCO ANTENNA CO

10330 NE Marx St Portland OR 97220
503 253-2000
TV antennas; antenna preamps; CATV & master antennas & accessories

SKIRPAN LIGHTING SYSTEMS INC

1100 W Chestnut St Burbank CA 91506
213 843-3232
Automated lighting control systems VS

SKOTEL CORP

1445 Provencher Brossard Que J4W 1Z3
514 676-1813
SMPTE time code synchronizing systems; SMPTE audio/video recorder synchronizers; SMPTE time code readers, generators & reader/generators; digital metronomes VS
See ad pg 177—refer to rep/dist section

THE WARREN R SMITH CO

110 E Point Pleasant Av PO Box 324 Ocean Gate NJ 08740
201 269-6795
Real time video animatics graphics table; camera lens adaptors (motion picture lenses to video cameras); telecine positioner; film to video transfer; custom optical mechanical systems VS

SMITH-VICTOR CORP

301 N Colfax St Griffith IN 46319
219 924-6136/800 348-9862
Camera tripods; lighting heads, stands & fixtures; diffusion material

SMOKE SIGNAL BROADCASTING

31336 Via Colinas Westlake Village CA 91361
213 889-9340
Computer business services for radio

SOLADYNE INC SUBSIDIARY ROGERS CORP

7447 Convoy Ct San Diego CA 92111
714 279-7872
Microwave communications equip

SOLID ELECTRONICS LABORATORIES

49 Fairfield Rd Havertown PA 19083
215 446-4799
FM exciters & transmitters; FM SCA equip VS

SOLID STATE LOGIC — See Music Works Intl

SOLL INC

401 E 74 St New York NY 10021
212 988-0290
Computer/microprocessor automation controllers;

complete automation systems; remote control systems; RF loads & switchers; FM, HP & CP TV antennas; transmission line & connectors; towers; facility turnkey installation; mobile van construction; radio & TV studio design VS

SONAR RADIO CORP

3000 Stirling Rd Hollywood FL 33021
305 981-8800
Bulk videotape erasers VS

SONO-MAG CORP

1833 W Hovey Av Normal IL 61761
309 452-5313
Computer/microprocessor automation controllers; complete automation systems; audio cart player/recorders (single, dual, multiple, time delay)

SONTEC ELECTRONICS

Audio Dr Goldbond VA 24094
703 626-7256
Audio line amps, preamps, dist opamp modules; AM & FM limiter/compressors; equalizers & filters (active); mixing consoles

SONY CORP OF AMERICA

9 W 57 St New York NY 10019
212 371-5800
Digital reverb systems; portable audio consoles; fixed head, multichannel digital audio recorders; headphones; mics (dynamic, condenser/electret, wireless, shotgun, lavaliere); mic stands, booms & dollies; magnetic tape (open-reel, carts, cassettes); tape cleaners; audio cassette player/recorders; portable open-reel audio tape player/recorders; TV color studio cameras; one-piece camera/VTRs; portable ENG/EFP/EC cameras; camera power packs; digital video noise reducers; mono & color picture monitors; video action recorders (slow mo, variable speed, time lapse); large screen projectors; new videotape; two-VTR editor/controller; multi-source video editors; computerized auto assembly editors; VTRs (one-inch helical, U-type, half-inch) VS
See ads pp 26-27, 108-109

SOUND DYNAMICS INC

PO Box 32055 San Jose CA 95152
408 926-3588
Audio tape (open-reel, test tapes); tape head rebuilding; cabinets & furniture; tape transports; audio recorder rebuilding; RENG system; field production mixer VS
See ad pg 202

SOUNDMASTER INC

1365 C Dynamics St Anaheim CA 92806
714 528-4930
Monitor & power amps; studio mono & stereo multi-output consoles, audio for TV consoles VS

SOUNSCRIBER MAGNETIC RECORDING CO

85 Willow St New Haven CT 06511
203 624-5179
Open-reel audio recorders (portable, studio, logging); videotape rewinders & bulk erasers; magnetic recording equip & accessories VS

SOUND TECHNOLOGY

1400 Dell Av Campbell CA 95008
408 378-6540
Audio & RF generators; harmonic distortion meters, intermodulation meters; autoranging tape recorder test system; stereo preamps; test records; RF stereo generator; phono preamps; multitest systems; spectrum analyzers; wow & flutter meters VS

SOUTHWESTERN PROGRAMMING SERVICE

1014 S Toltec Mesa AZ 85204
602 892-2343
Radio business computer services/equipment

SPECTRA SONICS

3750 Airport Rd Ogden UT 84403
801 392-7531
Audio preamps, line, monitor, power & dist amps, amp power supplies; rotary & slide attenuators; AM & FM compressor/limiters; graphic equalizers & filters; audio delay systems & special effects; full line audio consoles; speakers; VU meters; audio generators VS
See ad pg 178

VS MEANS IT'S VERIFIED



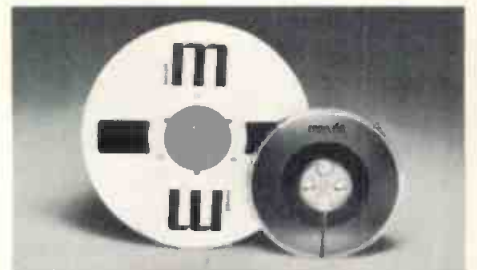
Exceptional reproduction.

Without exception.

For mastering and duplicating applications, you need audio tapes that are capable of flawless and dependable reproduction—all the time, under all circumstances. Editing and recording sessions are very demanding on all tapes. Maxell is made to take this kind of punishment, and then some! Our tape is manufactured with the studio engineer in mind, providing all the advantages of our most advanced tape technology.

You can depend on our state-of-the-art magnetic oxide formulas that can handle every signal with plenty of headroom to spare. And because of special calendring techniques, our tape finish is mirror-smooth, virtually eliminating dropouts.

The advantages of Maxell audio cassettes and professional open reel product don't end with our superior tape. Our cassette shells and take-up reels are manufactured to tolerances far exceeding industry standards. They silently and dependably transport the tape without stretching, jamming or breaking. Not only do you get a more faithfully reproduced signal with Maxell tape, you get to keep it longer, thanks to our advanced binder and mixing techniques. There are many other advantages to using Maxell. To discover more about Maxell's superior products, call one of our Regional Sales Offices: Eastern Office, Moonachie, NJ (201) 440-8020 ■ Midwestern Office, Glenelg, IL (312) 469-3615 ■ Western Office, Los Gatos, CA (408) 395-1998



maxell
PROFESSIONAL
INDUSTRIAL
PRODUCTS

The Professional Advantage

Maxell Corporation of America
60 Oxford Drive, Moonachie, NJ 07074

Circle 212 on Reader Service Card

www.americanradiohistory.com

The Source '81

SPHERE ELECTRONICS

20201 A Prairie Av Chatsworth CA 91311
213 349-4747

Audio preamps, line & dist amps; parametric & graphic equalizers & filters; computer/microprocessor automation controllers; audio consoles (portable, mono & stereo studio multi-output, audio for TV, automated) VS

SPINDLER & SAUPPE

13034 Satlcoy St N Hollywood CA 91605
213 764-1800

Telecine slide projectors; film slide projectors; computer-controlled slide projector VS

SPIN PHYSICS INC (A KODAK CO)

3099 Science Park Rd San Diego CA 92121
714 453-5410

Replacement heads for VTRs, quad head refurbishing VS

STAINLESS INC

Third St & Montgomery Av N Wales PA 19454
215 699-4871

Towers VS
See ad pg 14

STANCIL CORP

921 N Highland Av Hollywood CA 90038
213 464-7461

Auto loggers for audio; open reel logging recorders; tape loggers VS

STANDARD ELECTRIC TIME

89 Logan St Springfield MA 01101
413 732-1141

Tape timers; digital clocks; master & slave clocks; timers; time distribution systems VS

STANDARD TAPE LABORATORY INC

26120 Eden Landing Rd #5 Hayward CA 94545

415 786-3546

Audio test tapes, test magnetic film VS

STANTON MAGNETICS

175 Terminal Dr Plainview NY 11803
212 445-0063

Headphones; stereo phono pickups; turntables, arms; turntable preamp/equalizer; audio preamps; record care products VS
See ad pg 89

STANTRON DIV WYCO METAL PRODUCTS

6918 Beck Av N Hollywood CA 91605
213 875-0800

Racks, cabinets, furniture VS

STAR CASE MFG CO INC

15525 S 70 Ct Orland Pk IL 60462

312 429-6200
Broadcast equip carrying cases, flight-approved cases, cabinets VS
See ad pg 188

STATION BUSINESS SYSTEMS DIV CONTROL DATA CORP

600 W Putnam Av Greenwich CT 06830
203 622-2400

Computer business services for radio and TV; newsroom computers; facility turnkey installation VS

STOREEL CORP

2050-C Carroll Av Ste 2 Atlanta GA 30341
404 458-3280

Mobile & static storage equip for videotape, film & cassettes VS
See ad pg 91

STRAND CENTURY INC

5432 W 102 St Los Angeles CA 90045
213 776-4600

20 Bushes Ln Elmwood Park NJ 07407
201 791-7000
Lamps; lighting control systems (manual, automated; dimmer packs); lighting heads, stands &

fixtures; diffusion material; gels & filters/special effects; complete laniro product line; HMI lights; portable ENG lighting kits; patch panels; lighting plugs & connectors; remote control systems; TV studio design; electrical connectors; electrical distribution equip (connector strips, plugging boxes) VS
See ad pg 148—refer to rep/dist section

STUDER REVOX AMERICA INC

1425 Elm Hill Pike Nashville TN 37210
615 254-5651

Audio monitor, power & dist amps; audio consoles (mic mixers, portable, mono & stereo studio multi-output, audio for TV); turntables; headphones; mics (dynamic, condenser/electret); SMPTE time code systems; open-reel audio tape; empty reels, carts & cassettes; full line open-reel audio recorder/players; replacement audio tape heads; open-reel tape storage; electronic audio editors; telephone coupling equip; SMPTE A/V recorder synchronizers; video & mag film multi-lock; modulators; tape loggers VS

See ad pg Cover 3—refer to rep/dist section

CA 14046 Burbank Blvd Van Nuys
90401..... 213 780-4234
NY 155 Av of the Americas New York
10013..... 212 255-4462

STUDIO FILM & TAPE INC

6670 Santa Monica Blvd Hollywood CA 90038
630 9 Av New York NY 10036

213 466-8101/212 977-9330
On-line performance monitors (DOM); dist of film, mag film, new & reconditioned videotape, editorial leaders & supplies VS
See ad pg 248—refer to rep/dist section

JOHN M SULLIVAN ASSOC

341 Marrett Rd Lexington MA 02173
617 861-0238

Production & post-production equip rental services; video production services VS

SUPEREX ELECTRONICS CORP

151 Ludlow St Yonkers NY 10705
914 965-6906

Beaveronics, Inc.

STUDIO PRODUCTION VIDEO SWITCHING SYSTEMS

(Also available in PAL and PAL-M versions)

Write or phone for details.

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

FOR MODERATE SIZE FACILITIES
MODEL B1-154

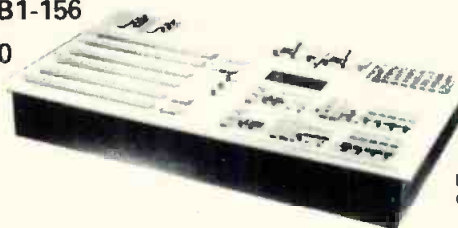
\$12,990.00



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

FOR SOPHISTICATED FACILITIES
MODEL B1-156

\$21,795.00



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

ENG Switcher
Model J & D 705

\$7,990.00



FEATURES:

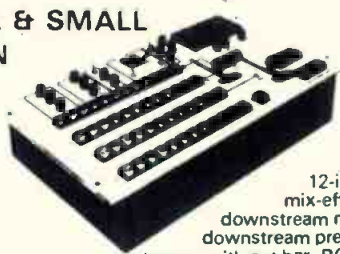
- BUILT IN COLOR BLK AND BKG
- SELF CONTAINED SYNC GEN
- INDEPENDENT COLOR BLK OUTPUTS TO CAMS
- SELF CONTAINED CASE
- 5 INPUTS INCLUDING BLK AND BKG
- 32 PATTERN MIX/EFF/KEY WITH POSITIONER
- ADDITIONAL SEPARATE MIX BUSSES
- PREVIEW FEATURES
- FRONT PANEL ANGLE ADJUSTABLE

Prices and specifications subject
to change without notice

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

All Beaveronics Switching Equipment Carries a Two Year Warranty

OTHER ITEMS AVAILABLE FROM BEAVERONICS

FAVAG MASTER CLOCK SYSTEMS

- Master control switchers AFV with audio breakaway
- Routing switchers with AFV

CHECK BEAVERONICS FOR:

- Specialized custom switchers
- Selected terminal equipment

Available with accuracy
better than 1 second/yr.



Circle 213 on Reader Service Card

FUJINON ENG/EFP and BCTV lenses...to improve your image.



Wide angle A3.5 x 6.5 zoom



Lightweight A10 x 11 zoom



A12 x 9 zoom,
2.2X extender



A14 x 9.5 zoom, 2X extender,
diascope optional



A17 x 9 zoom, 2X extender



A22 x 12.5 zoom, 2X extender



A30 x 11 field zoom, 2X extender



R14 x 14 studio zoom, 2X extender



16X studio zoom,
2X extender



30X field zoom,
2X extender



14X high resolution zoom,
2X extender, diascope —
constant F/2.1



14 x 7 zoom for 1/2" format
VTR/cameras — 2X extender F/1.4
(not shown, 12 x 7 zoom — F/1.4)

Fujinon offers you more ways to improve your image — regardless of format, camera or application.

For the new VTR/Cameras, Fujinon is first again, including two new full-featured, light-weight lenses for 1/2-inch format.

In 2/3-inch format, Fujinon is the undisputed front-runner in variety, versatility and value. Examples: the only wide-angle EFP zoom is Fujinon's 3.5 x 6.5 zoom. The longest EFP field zoom is Fujinon's 30 x 11. And in between, Fujinon offers zoom lenses with the precise combination of focal length, speed and performance characteristics you need. Plus the widest range of studio conversion accessories available including new variable rate demand units and microprocessor controlled shot boxes.

In 1-inch and 1 1/4-inch formats, Fujinon continues to lead the way. For maximum range — especially for field productions with limited lighting — Fujinon's 30X zoom, with built-in 2X extender, maintains its F/2.2 to a 21X zoom. For maximum image quality, Fujinon's 14X ultra high resolution zoom (reads 1300 tv lines) and can maintain its F/2.1 aperture in all zoom and focus ranges.

For your new and existing cameras, specify the lenses that will improve your image. Now, more than ever . . .

the world sees itself more clearly through the eyes of Fujinon.



Fujinon Optical Inc.
672 White Plains Road
Scarsdale, New York 10583
Phone: (914) 472-9800
Telex: 131642

Fuji Optical Systems Inc.
4855 Atherton Avenue
San Jose, California 95130
Phone: (408) 866 5466
Telex: 171164

The Source '81

Headphones; parametric & graphic equalizers & filters; audio tape switchers; LED audio level indicators; video switchers; video equalizer VS

SUPERIOR ELECTRIC CO
383 Middle St Bristol CT 06010
203 582-9561

Lighting control systems (manual, automated, dimmer packs); electrical connectors; surge protectors; transformers; voltage conditioning equip; voltage regulators VS

SUPERSCOPE INC
20525 Northoff Chatsworth CA 91311
213 998-9333

Condenser mics; cassette decks; receivers; tuners;

preamps; loudspeakers; turntables; tape player/recorders; equalizers; car stereo

SURCOM ASSOCIATES INC
305 Wisconsin Av Oceanside CA 92054
714 722-6162

Vacuum capacitors, mica capacitors VS
See ad pg 196

SWAGER TOWER CORP
PO Box 656 Fremont IN 46737
219 495-5165

Lamps; AM, FM, microwave & HP antennas; towers

SWINTEK ENTERPRISES INC
1180 Aster Av Sunnyvale CA 94086
408 249-5646

RF intercom systems; wireless mics; remote pickup equip; FM transmitters; two-way radio communications VS

SWITCHCRAFT INC
5555 N Elston Chicago IL 60630
312 792-2700
Audio connectors VS

SWR INC
PO Box 215 Goffstown NH 03045
603 497-3000
Transmission line & accessories; RF cable & connectors; TV antennas VS

SYRACUSE SCENERY & STAGE LIGHTING CO
1423 N Salina St Syracuse NY 13208
315 474-2474
Seamless materials; grids, tracks & curtains VS

SYSTEM ASSOCIATES
5801 Uplander Way Culver City CA 90230
213 641-2042
Broker for used TV equip VS
See ad pg 232

SYSTEM CONCEPTS INC
2440 S Progress Dr Salt Lake City UT 84119
801 974-0992
Character generators/titlers; newsroom computers VS
See ad pg 182
OH Eastern office 16006 Waterloo Rd
Cleveland 44110 216 692-3410
OK Southwest Sales 1535 S Memorial Ste 124
Tulsa 74112 918 627-4151

SYSTRON DONNER
2750 Systron Dr Concord CA 94518
415 682-6161
Digital clocks, time distribution systems; frequency monitors & counters; RF generators; voltmeters, multimeters, dB meters; multitest systems; microwave equipment components VS

SYSTRON DONNER CORP MICROWAVE DIV
14844 Oxnard St Van Nuys CA 91409
213 786-1760
Microwave instruments systems, subsystems & components; sweep generators & test sets VS

T

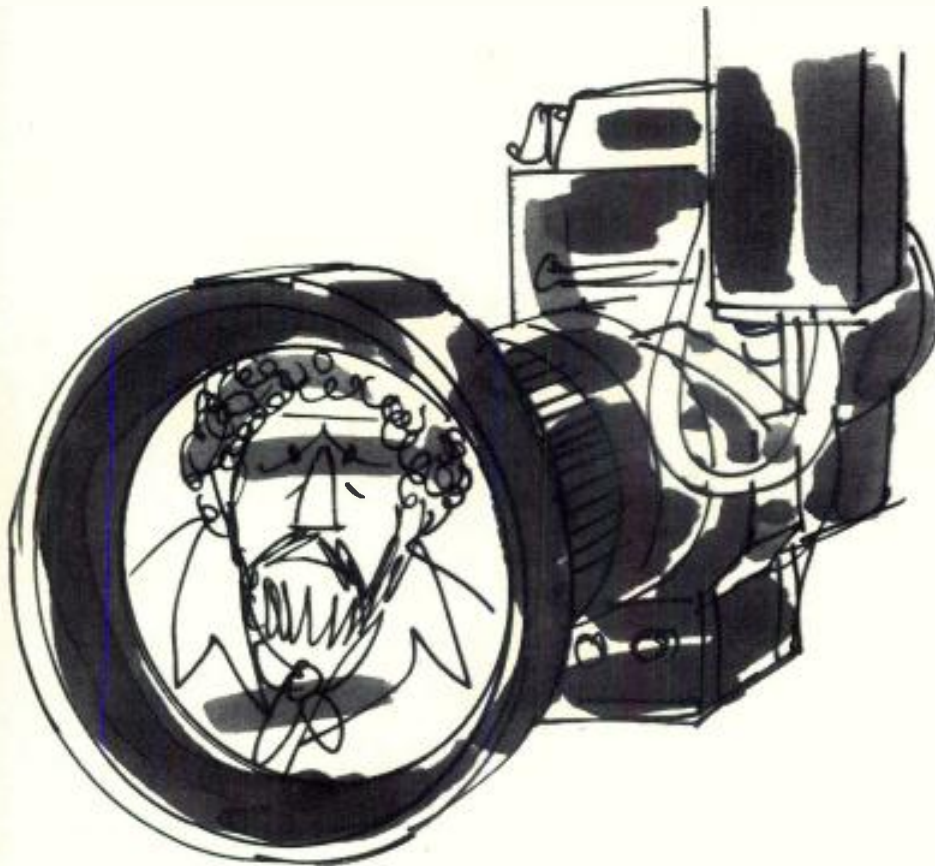
TABER MFG & ENG CO
2081 Edison St San Leandro CA 94577
415 635-3831
Replacement audio heads for VTR & audio recorder/players; audio & VTR bulk erasers; VTR head refurbishing, replacement & rebuilt videotape heads; audio & videotape recorder overhaul; general recorder service & parts; audio preamps, line amps, amp power supplies; audio tape (open-reel), carts, test tapes; tape timers; tape cleaners; tension & alignment gauges; splicing blocks & tape; head degaussers; new videotape; VTR head cleaners; reels; VTR rebuilding VS
See ad pg 245

TANDBERG OF AMERICA INC
Labriola Court Armonk NY 10504
914 273-9150
Open reel recorder/players; FM monitor tuners; preamps; power amps; cassette recorder/players; receivers VS

TANGENT SYSTEMS INC THE PHOENIX GROUP
2005 E University Phoenix AZ 85034
602 267-0653
Full line audio consoles; intercom talkback modules; patch panels; VU, PPM & LED level indicators; dB meters; post-production equip

TAPCO (TECHNICAL AUDIO PRODUCTS CORP)
3810 148 Av NE Redmond WA 98052
206 883-3510
Audio power amps; active equalizers and filters, reverb units; audio consoles (mono, stereo); speakers

TAPEX CORP
228 Fifth St Suite 2 W Des Moines IA 50265
515 274-3087
Audio tape carts, cassettes, test tapes; empty reels, carts, cassettes; leader tape; tension gauges; alignment gauges; replacement tape heads; head degaussers; bulk erasers; tape storage



Video equipment re-repairs ruining your reputation? Let MPCS improve your image.

When your "just repaired" piece of video equipment breaks down and winds up back in the shop, you blame the shop, but your client and/or employer blames you. It can ruin a person's reputation. Why not let MPCS improve your image.

MPCS has the kind of repair facility that optimizes equipment performance while making you look good. Our professionally trained service technicians, hand picked from among the finest in the country, are continually schooled by the major manufacturers (Ikegami, Sony, JVC, Panasonic, etc.) on the latest technology, to provide our customers with the quickest, most thorough, and most reliable service available.

Our newly implemented computerized parts inven-

tory, the very latest diagnostic test equipment, and our fifteen years in the video repair business are your assurance of the highest quality repairs. And to avoid down time, immediate replacement equipment is available, at a special discount, from our rental department.

If your present video repair service is spending more time with your equipment than you are, the problem isn't the equipment, it's the service. Improve your image — next time take it to MPCS. For further information, call in New York State 212-586-3690. Out of state, call Toll Free 800-223-0622. Ask for Service Dept.

MPCS is also Broadcast Video, Industrial Video, Rental, IFC, our video production facility, and Videomart, the largest home video and TV showroom in N.Y.



MPCS VIDEO INDUSTRIES, INC.
MPCS Video Center Building 514 West 57 Street New York, NY 10019

NOW AVAILABLE: MPC'S 30 pg EQUIPMENT CATALOG

Circle 215 on Reader Service Card

If you're looking for low-cost TV programming with broadcast quality...

There's a Harris earth station system to fit your needs

The Harris SSL* family offers a variety of satellite earth stations *specifically designed for broadcasters*. Whatever your system requirement—large or small, downlink or uplink—Harris has the complete package for you, including total planning, rapid reposition antennas, video receivers, exciter-high power amplifiers, microwave links, remote control and complete installation. All backed by Harris 24-hour-a-day service—the most responsive in the broadcast industry.

The high-speed drive system of the Harris kingpost pedestal allows rapid and accurate repositioning of the antenna, so that it can be rotated automatically between any domestic com-



6.1 meter



9.0 meter

munications satellites in less time than a normal commercial break.

The Harris 9.0 meter SSL provides the industry's most advanced feed horn antenna design, with video receive S/N (signal-to-noise) in the high 50s for network quality broadcasting. This antenna is also designed for uplink service, *where specifications and price outperform 10 meter designs!*

The 6.1 meter SSL provides *highly cost effective* TV receive only (TVRO) service for broadcasters, with S/N performance in the mid-50s.

Set your sights on a whole new universe of TV program sources. Contact Harris Corporation, Broadcast Products Division, Quincy, Illinois 62305-4290. 217-222-8200.

*Satellite to Studio Link



HARRIS

The Source '81

TAYBURN ELECTRONICS

6106 Avenida Encinas Carlsbad CA 92129
714 438-5444

Microwave systems (intercity, portable, ENG, airborne); microwave supports & portable equipment; remote control systems; tower hardware & construction equip

VS

TDK ELECTRONICS

755 Eastgate Blvd Garden City NY 11530
516 746-0880

Full line VHS & Beta videocassettes, professional half-inch open-reel audio tape; full line audio cassette tape & audio calibration test tapes

VS

TEAC CORP OF AMERICA

7733 Telegraph Rd Montebello CA 90640
213 726-0303

Audio preamps, amp power supplies; graphic equalizers & filters; mics (dynamic, condenser/electret); open-reel studio tape player/recorders; stereo studio multi-output consoles; head degaussers; cassette decks

VS

TECH ELECTRONICS INC

6000 Peachtree Rd NE Atlanta GA 30341
404 455-7626

Programmable videotape controller

TECH LABORATORIES INC

Bergen & Edsall Blvds Palisades Pk NJ 07650
201 944-2221

Rotary & slide attenuators

TECHNICS

One Panasonic Way Secaucus NJ 07094

201 348-7000

Turntables; direct-drive tape decks; cassette players; preamps, power amps; equalizers; mics; peak/average meters; speakers

VS

TECHNISPHERE CORP

215 E 27 St New York NY 10016
212 889-9170

Equip rental & sales; post-production services; electronics design services; repair services

TECHNOLOGY SERVICE CORP

2950 31 St Santa Monica CA 90405
213 450-9755

Weather radar systems; weather satellite data; weather graphics

VS

See ad pg 17

TEKTRONIX INC

PO Box 1700 Beaverton OR 97075
503 644-0161/800 547-6711

Oscilloscopes, color picture monitors, spectrum analyzers; demodulators; sideband analyzers; video test generators; sync, color bar, black burst, stairstep/ramp, multiburst generators; audio generators; voltmeters, multimeters; VITS & VIR systems & equip; diff phase/gain measurement; vectorscopes; video processing amps; logic analyzers; video noise meters; dB meters; waveform monitors & analyzers; automated test & measurement systems; PPM & LED audio level indicators; frequency monitors & counters; multitest systems; video noise meters

VS

TELAUTOGRAPH CORP

8700 Bellanca Av Los Angeles CA 90045
213 641-3690

RF facsimile equip

VS

TELE-CINE CORP

5434 Merrick Rd Massapequa NY 11758
516 798-2828

Film and TV lenses and accessories (Schneider) VS

TELECTRO SYSTEMS CORP

9618 43 Av Corona NY 11368
212 651-8900

Speakers; audio tape (open-reel, carts & cassettes); single & dual cart players/recorders; tape duplicators; tape loggers

VS

TELEDYNE BIG BEAM

290 East Prairie Crystal Lake IL 60014
815 459-6100

Emergency lighting

VS

TELEDYNE CAMERA SYSTEMS

131 N 5 Av Arcadia CA 91006
213 359-6691

Video to film recording systems; optical equip

TELEDYNE ENERGY SYSTEMS

110 W Timonium Rd Timonium MD 21093
301 252-8220

Power supplies for remote applications

TELE-MEASUREMENTS INC

145 Main Av Clifton NJ 07014
201 473-8822/609 345-2670

Production & post-production equip rental; facility turnkey installation; mobile van construction; system design, project engineering, construction & fabrication, installation & service for broadcast, CATV, CCTV, industry

TELEMET

185 Dixon Av Amityville NY 11701
516 842-2300

Audio monitor, RGB & encoded chroma keys; video pulse & dist amps; routing switchers; signal equalizing systems; demodulators; modulators; optical fiber STLs; diff phase-gain measurement; sideband analyzers; spectrum analyzers; video test generators; VITS, VIR systems & equip

VS

See ad pg 12

NY B Griffiths RFD #3 Brewster
10509..... 914 279-3231

TELESCRIPT INC

20 Insley St Demarest NJ 07627
201 567-2220

Analog & digital teleprompters

VS

TELESOURCE COMMUNICATIONS

PO Box 7132 Phoenix AZ 85011
602 265-1232

Newsroom computers

VS

STROBEGUARD®

HIGH INTENSITY
OBSTRUCTION
LIGHTING SYSTEMS*
FOR TELEVISION AND
RADIO TOWERS AND
SIMILAR SKELETAL
STRUCTURES.



TECHNICAL PRODUCTS GROUP — BEDFORD DIVISION
35 CONGRESS ST., SALEM, MASSACHUSETTS 01970
TEL: (617) 745-3200

ATTENTION: GEORGE MANDEVILLE, PRODUCT MANAGER

*FAA APPROVED as meeting or exceeding the requirements of Advisory Circular AC 150/5345-43 and FAA/DoD Specifications L-856 plus FAA AC 70/7460-1

Circle 217 on Reader Service Card

TV test equipment from the inventors of the Plumbicon® tube.

At long last a new, reliable source of TV test equipment. One that offers fast, predictable delivery. One with a name all the world trusts—Philips. Four quick examples:

PM5565 Waveform Monitor

Enjoy the luxury of examining one line and one field at a time. On top of this, there's a convenient front probe input so you can use the monitor as a troubleshooting oscilloscope.

PM5567 Vectorscope

If you want more accurate decoding and the ability to have an external reference from composite video signals, choose our vectorscope.

Both waveform monitor and vectorscope mount side by side, fit all existing hardware and use less power than the competition.

PM5539 Color Analyzer

Take it on a quick trip through your studio or control room and adjust all monitors to the same color temperature in a matter of minutes.

With four different memories, there's no problem in quickly calibrating four different phosphors.

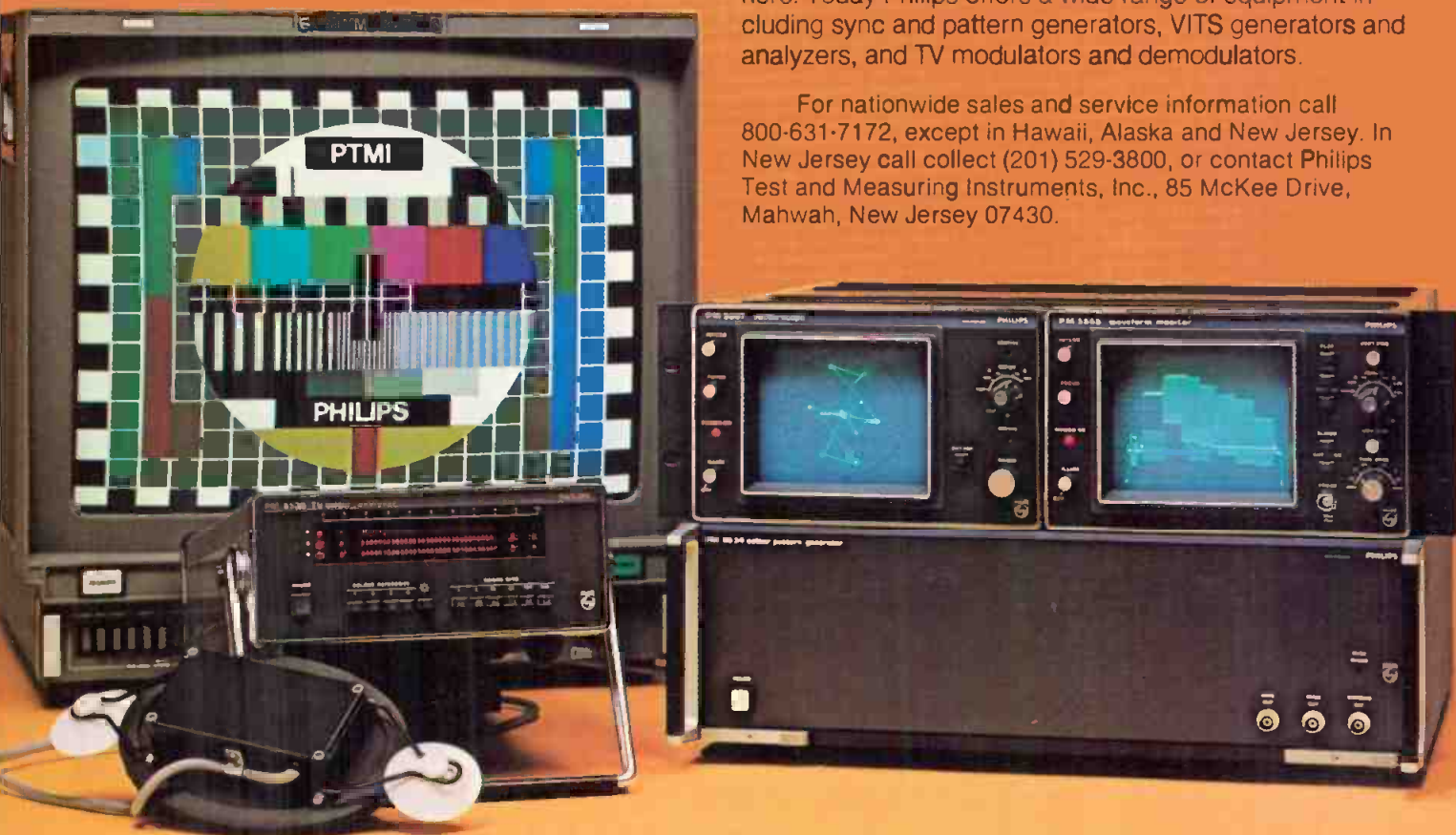
Variable full-scale, from less than set up to more than reference white, allows measurement of color tracking as a function of APL.

PM5534 Color Pattern Generator

Our universal pattern contains all the signals needed to verify overall system operation—directly from the picture. No wonder virtually every set manufacturer uses our pattern for their TV set alignment.

Of course our TV test equipment line doesn't end here. Today Philips offers a wide range of equipment including sync and pattern generators, VITS generators and analyzers, and TV modulators and demodulators.

For nationwide sales and service information call 800-631-7172, except in Hawaii, Alaska and New Jersey. In New Jersey call collect (201) 529-3800, or contact Philips Test and Measuring Instruments, Inc., 85 McKee Drive, Mahwah, New Jersey 07430.



Philips, of course.



**Test & Measuring
Instruments**

PHILIPS

Circle 218 on Reader Service Card

The Source '81

TELEVISION ENGINEERING CORP
580 Goddard Av Chesterfield MO 63017
314 532-4700

Facility turnkey supply & installation; mobile van construction; TV studio design

TELEVISION EQUIPMENT ASSOCIATES (TEA)
Box 260 S Salem NY 10590
914 763-8893

Headphones; intercom systems, RF & hardwired; dynamic mics; videotape cleaners; videotape rewriter; video delay lines & filters; video equalizer; tape cleaning & evaluating; tape rewinders; color monitor comparator; videotape evaluators; monitor calibrator VS

See ad pg 43

TELEVISION GRAPHICS
555 Broad St Glen Rock NJ 07452
201 444-2911

Post-production equipment rental VS

TELEVISION PRODUCTION SERVICES CORP
381 Horizon Dr Edison NJ 08817
201 287-3626

Equipment rental; pre-production consultation; studio construction; acoustical treatments

TELEVISION PRODUCTS CO INC
9016 Aviation Blvd Inglewood CA 90301
213 776-3276

Camera pedestals VS

See ad pg 114

TELEVISION TECHNOLOGY CORP
5970 W 60 Av Arvada CO 80003
303 423-1652

RF amps, attenuators, converters, filters; FM & TV translators; diplexers VS

See ad pg 174

TELEX COMMUNICATIONS INC
9600 Aldrich Av S Minneapolis MN 55420
612 884-4051

Audio preamps; relay & time insertion sequencers; headphones; hardwired intercoms; dynamic & lavalier mics; wireless mics; empty audio carts; single cart player/recorders; open-reel tape player/recorders (portable, studio, logging); tape duplicators; communications antennas; tape loggers VS

See ads pp 25, 59, 146, 195

TELFAX COMMUNICATIONS
900 Seneca St PO Box 31 Webster City IA 50595
515 832-1263

One-output mic mixers; telephone coupling equip

TELONIC/BERKELEY
PO Box 277 Laguna Beach CA 92652
714 494-9401

Test instruments; RF attenuators; sweep generators, RF filters, microwave sub-systems; impedance bridges; dB meters

TENNAPLEX SYSTEMS LTD
34 Bentley Av Ottawa ONT K2E 6T8
613 226-5870

TV & FM diplexers; ENG microwave equip; TV combiners; RF connectors; antennas (communications, FM, HP & CP TV); transmission line & connectors; Impedance bridges VS

TENTEL CORP
1506 Dell Av Campbell CA 95008
408 379-1881/800 538-6894

Tape tension gauges; spindle height gauges for U-Matic, Beta & VHS VS

See ad pg 232

TEPCO CORP
PO Box 680 Rapid City SD 57701
605 343-7200

TV & FM translators; FM boosters; comm & monitor receivers; microwave equip

TERRACOM DIV OF LORAL CORP
9020 Balboa Av San Diego CA 92123
714 278-4100

Microwave STLs; microwave relay, portable,

mobile, ENG microwave radios & antennas; digital audio program channel multiplexers VS

TEXAS ELECTRONICS INC
PO Box 7225 Inwood Sta Dallas TX 75209
214 631-2490

Meteorological monitoring equip
See ad pg 248

TEXSCAN CORP
2446 N Shadeland Av Indianapolis IN 46219
317 357-8781

Rotary attenuators; RF attenuators & filters; automated test & measurement systems; impedance bridges; oscilloscopes; spectrum analyzers VS

TEXWIPE
650 Crescent Av Upper Saddle River NJ 07458
201 327-5577

Head & tape cleaning; VTR video head cleaners VS

TFT INC
3090 Oakmead Village Dr Santa Clara CA 95051
408 727-7272

Microwave STLs; remote control systems data acquisition & logging systems; program subcarriers; demodulators; log printers; modulation monitors; status & alarm indicators; automatic TV monitors; EBS two-tone system; E-Alert warning system VS

See ad pg 240—refer to rep/dist section

PA T Creighton 1355 Jeanette Way
Southampton 18966..... 215 322-8911

THALNER ELECTRONIC LABS
7235 Jackson Rd Ann Arbor MI 48103
313 761-4506

Character generators; 2-way & 4-way video screen splitters; video ID systems; video time/date generators; video counters, timers; portable video timing equip

THEATRE TECHNIQUES INC
60 Connolly Pkwy Hamden CT 06514
203 281-6111

Audio mixers; hardwired intercom systems; manual & automatic light dimmer controls; patch terminals

Real Time Animation, Video Graphics and Scanned Video Inputs.

AURORA 100

It's a digital video graphics system designed by creative people for creative people. It's an incredible magic tablet that lets your graphic artist create, combine, and manipulate multi-graphic elements including scanned inputs from a graphics camera . . . all without having to understand computers. It combines the functions of electronic painting, real time animation, character generation and titling, and coloring of video inputs. It has made digital videographics a

practical reality for broadcast news and weather programming, as well as industrial/educational production. It's the Aurora 100. Deliveries are now under way. We'd like to tell you more. Call or write. Aurora Systems, 185 Berry St., San Francisco, CA 94107 (415) 777-2288



Circle 219 on Reader Service Card

What do NBC, The Australian Broadcast Commission, Czechoslovakia Television, Complete Post Production Center, Neiman-Tillar Associates, Sunwest Recording Studios and Oral Roberts Television Production have in common?

Quad-Eight, the audio standard in motion picture production, is now setting standards in audio for television. Quad-Eight's renowned sound quality, clean, efficient console design and fast, powerful Compumix™ automated disc editing system make an unmatched post-production combination. And the price is right. For full details on how a Quad-Eight automated system can go to work for you, call or write our Systems Applications Department...today.

Quad/Eight Post Production Consoles.

Post-Production facilities courtesy of Neiman-Tillar Associates, Los Angeles.



Audio Enhancement

Quad/Eight Electronics
11929 Vose Street
North Hollywood, CA 91605
(213) 764-1516 Telex: 662-44



The Source '81

THERMODYNE INTL LTD

20850 S Alameda St Long Beach CA 90810
213 603-1976

Film cases; video equipment carrying cases VS

THOMSON-CSF BROADCAST INC

37 Brownhouse Rd Stamford CT 06902
203 327-7700

Audio dist amps; AM & FM compressor/limiters; color studio cameras; ENG/EFP cameras; digital video noise reducers; character & graphics generators; image enhancers; frame synchronizers; helical capstan servo TBCs VS

See ad pg 20-21—refer to rep/dist section

CA	M Clayton 1919 W Magnolia Blvd Burbank 91506	213 849-2188
GA	F Benson 107 Tuliptree Ter Peachtree City 30269	404 487-6756
IL	T Lorenzen 7644 Rae Ln Gurnee 60031	312 356-6924
TX	M McGreevy PO Box 905 Alief 77411	713 933-1700
VA	A Audick 8519 Buckboard Dr Alexandria 22208	202 296-9189

THOMSON-CSF ELECTRON TUBES

750 Bloomfield Av Clifton NJ 07015
201 779-1004

RF power tubes, vacuum tubes, UHF/VHF tetrodes & circuits, UHF klystron VS

See ad pg 147—refer to rep/dist section

THOMSON-CSF LGT DIV

75 Rockefeller Plaza New York NY 10019
212 977-2214

TV translators; UHF & VHF transmitters VS

See ad pg 98—refer to rep/dist section

THOR ELECTRONICS CORP

321 Pennsylvania Av Linden NJ 07036
201 486-3300

Camera pickup tubes; rectifiers; RF tubes; solid state components; surge protectors; vacuum tubes

TIFFEN MFG CORP

90 Oser Av Hauppauge NY 11788
516 273-2500

Filters, special effects, adapters & accessories for front & back of lenses VS

TIME & FREQUENCY TECHNOLOGY—See TFT Inc

TIMES WIRE & CABLE DIV TIMES FIBER COMM INC

358 Hall Av PO Box 384 Wallingford CT 06492
800 243-6904

Coaxial cable & cable assemblies for broadcast; fiber optic video links for broadcast; fiber optic cable; opto-electronic components, instruments & installation equip

TM SYSTEMS INC

25 Allen St Bridgeport CT 06604
203 366-4571

Line amps, amp power systems, VU meters, dB meters; conditioning equip

TOPAZ ELECTRONICS DIV

9192 Topaz Way San Diego CA 92123
714 279-0111

Transformers; power isolators VS

See ad pg 217—refer to rep/dist section

TORPEY CONTROLS & ENGINEERING LTD

2220 Midland Unit 98 Scarborough ONT Canada
M1P 3E6

416 298-7788

Computer/microprocessor automation controllers; video source identification systems; digital clocks, master slave clocks; time distribution systems; digital thermometers; video temperature displays; electronic stopwatch

TOSHIBA CORP BROADCAST ELECTRONICS SYSTEMS DIV

292 Gibraltar Dr Sunnyvale CA 94086

408 734-9172

Color TV studio cameras; ENG/EFP portable TV cameras VS

See ad pg 189

TOWNSEND ASSOCIATES INC

PO Box 1122 Westfield MA 01086
413 562-5055

Demodulators, diplexers, exciters, RF amps; HV power supplies for TV transmitters; TV transmitters; vacuum contactors; TV transmitter maintenance service VS

TRANSIST-O-SOUND INC

728 Yosemite Dr Indianapolis IN 46217
317 787-8491

ALC and AGC amps; audio consoles (mic mixers, portable) VS

TRANS-LUX CORP

625 Madison Av New York NY 10022
212 751-3110

Rear projection screens

TREISE ENG INC

1941 First St San Fernando CA 91340
213 365-3124

Motion picture color and b/w film processors & film processor accessories

TREPAC CORP OF AMERICA

30 W Hamilton Av Box 471 Englewood NJ 07631
201 567-3810

Audio/video automatic line program alarm; tone status reporting & control modules VS

TRIDENT (USA) INC

652 Glenbrook Rd Stamford CT 06490
203 357-8337

Parametric equalizers & filters; FM compressor/limiter/filters; computer/microprocessor automation controllers; audio consoles (one-output mic mixers, portable, mono & stereo studio multi-output, audio for TV, automated); condenser/electret mics; studio open-reel tape player/recorders VS

FIDELIPAC takes NAB AA cartridge standards seriously.

Somebody else
takes them
for
granted.

Running tension. Phase. Overall width. Thickness. Wow and flutter. Fidelipac Master Cart cartridges meet or exceed all current NAB standards. And we can prove it. Something somebody else can't.

We make sure factory loaded Fidelipac Master Cart cartridges meet all NAB standards because they make sense. And they make for a flawless air sound without the mush, swish and gurgle that can make you sound less professional than you really are.

So if somebody tries to tell you their carts meet NAB standards, make them prove it. When they can't, show them the door. And as a parting shot, tell them you use Fidelipac. Because you've got standards too.



FIDELIPAC[®] BROADCAST TAPE CARTRIDGES

Fidelipac Corporation
109 Gaither Drive • Mt. Laurel, NJ 08057 • USA
TWX/TELEX 710-897-0254 FIDELIPAC MTLR
609-235-3511

Who knows more about tape cartridges than Fidelipac?

Circle 221 on Reader Service Card

CLEAR THE AIR WITH THE **NEW** TRANSDYNAMIC PROCESSOR

THE SUPER CLEAN SOUND THAT WINS MORE LISTENERS.

VERSATILITY, RELIABILITY AND LOW DISTORTION. THAT'S WHAT THE TRANSDYNAMIC™ PROCESSOR IS ALL ABOUT. IT TEAMS WITH AUDIO & DESIGN'S EXPRESS OR COMPEX LEVEL CONTROL AMPLIFIERS TO CREATE A SUPERIOR TRI-BAND SYSTEM. IT FEATURES:

- TWO INDEPENDENT PROGRAM CHANNELS, FOR STEREO OR DUAL MONO PROCESSING.
- FIELD TUNABLE BAND-SPLITTING FILTERS (6 OR 12 dB PER OCTAVE PHASE COMPENSATED CURVES).
- SEPARATE CONTROL OF THE COMPRESSOR ATTACK, RELEASE AND RATIO FOR EACH BAND.
- WIDE BAND VCA LIMITER AT THE SYSTEM OUTPUT FOR ABSOLUTE OVERMODULATION PROTECTION.
- SELECTABLE 0, 25, 50 OR 75 μS PRE-EMPHASIS IN THE CONTROL CIRCUITS (NOT THE SIGNAL PATH) OF THE OUTPUT LIMITER.
- ADJUSTABLE PEAK MODULATION ASYMMETRY FOR AM OPERATIONS.
- SWITCHABLE HIGH AND LOW PASS FILTERS THAT ATTENUATE EXTRANEOUS INPUT SIGNALS AND CONTOUR THE SYSTEM BANDWIDTH.
- SENSIBLE SET-UP ADJUSTMENTS WITH LED BAR GRAPH PPM METERS.
- TAMPER-PROOF SOLID STATE AUDIO SWITCHING CIRCUITRY.
- NO MYSTERIOUS EPOXY "BRICKS" OR "SECRET PARTS".

NO MATTER WHAT YOUR FORMAT, THE TRANSDYNAMIC SYSTEM IS THE CLEAR CHOICE FOR YOUR SOUND.

AN AUDITION IS THE ONLY WAY TO FULLY APPRECIATE THE TRANSDYNAMIC. CALL TODAY, TOLL-FREE 800-426-6170 FOR FURTHER INFORMATION.

SYSTEM INSTALLATION BY FACTORY PROFESSIONALS IS ALSO AVAILABLE.



Audio + Design

THE HIT SOUND IN BROADCAST SCIENCE.

CALL TOLL-FREE 800-426-6170
AUDIO & DESIGN RECORDING, INC. · P.O. BOX 786 · BREMERTON, WASHINGTON U.S.A. 98310 · TELEPHONE 206-275-5009 · TELEX 15-2426
AUDIO & DESIGN RECORDING, LTD., · NORTH STREET READING RG1 4 DA · BERKSHIRE, ENGLAND · TELEPHONE (0734) 53411 · U.K. TELEX 848722

Copyright 1981 by Audio & Design Recording, Inc.

Circle 222 on Reader Service Card

The Source '81

TRI-EX TOWER CORP

7182 Rasmussen Av Visalia CA 93277
209 625-9400

Self-supporting, guyed towers; portable towers

TRIPLETT CORP

1 Triplett Dr Bluffton OH 45817
419 358-5015

VU & dB meters; voltmeters; multimeters

TRI TEC SYSTEMS INC — See Broadcast Technology Inc

TRITRONICS INC

2921 W Alameda Burbank CA 91505
213 843-2170/800 423-3640

Production equip rental, post-production services, studio design, radio and TV; mobile van construction, facility turnkey installation, color video monitor; videotape/film recording transfer; custom & proprietary design

TROMPETER ELECTRONICS INC

8936 Comanche Av Chatsworth CA 91311
213 882-1020

Audio, coax, twinax & triax patching & cable connectors; patch panels; FEP fire-retardant cable connectors; crimp & stripping tools VS

TRUE TIME INSTRUMENTS DIV KINEMATRICS

3243 Santa Rosa Av Santa Rosa CA 95401
707 528-1230

Digital clocks; master & slave clocks; time distribution systems VS

TTE INC

2212 Barry Av Los Angeles CA 90064
213 478-8224

Transformers; filters; capacitors; fixed film capacitors; RF, audio video filters; IM distortion measurement filters VS

TVNS

Suite 250R World Trade Ctr San Francisco CA 94111

415 982-3073

Newsroom computers VS

U

UHF ASSOCIATES

5625 State Farm Dr # 4 Rohnert Pk CA 94928
707 584-7844

RF modulators

ULTRA AUDIO PIXTEC

BOX 921 Beverly Hills CA 90213
213 276-2726

Audio monitor, power & dist amps; audio consoles (mic mixers, portable, mono studio multi-output, audio for TV); lighting control systems (manual, automated, dimmer packs); remote pickup equip; vectorscopes; waveform monitors & analyzers; audio, video & film post-production services; radio & TV studio design VS

See ad pg 232

UMC ELECTRONICS CO BEAUCART DIV

460 Sackett Pt Rd North Haven CT 06473
203 288-7731

Relay sequencers; computer/microprocessor controllers; multi-cart machines; complete automation systems; audio consoles (mixers, stereo, audio for TV); tape cart player/recorders (single, dual, multiple); replacement tape heads; bulk erasers, head degaussers; tape cartridges VS

UNARCO-ROHN — See UNR-Rohn

UNEMCO INTL INC

2102 Ringwood Av San Jose CA 95131
408 946-5076

Two-VTR editor/controller; multi-source videotape editors; computerized auto assembly editors; SMPTE time code readers VS

UNION CONNECTOR CO INC

149 Babylon Tpk PO Box H Roosevelt NY 11575

516 623-7461

Lighting patch terminals; lighting plugs/connectors; electrical connectors VS

UNI-SET

449 Av A Rochester NY 14621
716 544-3820

Modular studio set design

UNITED MEDIA INC

4075 Leaverton Ct Anaheim CA 92807
714 638-8020

Computer/microprocessor automation controllers; SMPTE audio time code system; electronic audio tape editor; SMPTE audio/video recorder synchronizers; SMPTE readers, generators & reader/generators; two-VTR editor/controller; computerized auto assembly editors VS

See ad pg 36—refer to rep/dist section

UNITED RECORDING ELEC IND (UREI)

8460 San Fernando Rd Sun Valley CA 91352
213 767-1000

Audio line amps, preamps & power amps; amplifier power supplies; compressor/limiters, AM & FM; active equalizers & filters; delay lines; mono, stereo, quad, audio for TV consoles; turntable preamps & controls; speakers; VU meters; chart recorders; audio generators; spectrum analyzer VS

See ad pg 205

UNITED RESEARCH LABS

16 E 52 St New York NY 10021
212 751-4663

Open-reel studio tape player/recorders; record/reproduce amps; electronic tape motion sensing VS

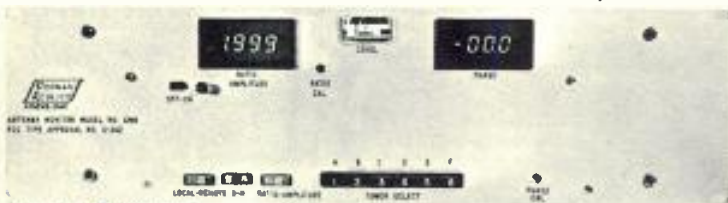
UNITED SYSTEMS CORP (DIGITEC)

918 Woodley Rd Dayton OH 45403
513 254-6251

Frequency counters, counter-timers; digital clocks; digital voltmeters; frequency converters, frequency synthesizers; pulse, sine, square-wave generators; time base generators; status and alarm indicators

DIGITAL ANTENNA MONITORS

In Stock — Available for Immediate Delivery.



Price \$1,950.00 2 Towers Will operate with any remote control equipment.



Price \$1,390.00 2 Towers For AM directionals with studio located at transmitter site.

These monitors are state-of-the art instruments of unequalled accuracy (.5% or better on ratio and .5° or better on phase) and stability. With typical modulation the true ratio readout of these monitors is a factor of 10 more stable than instruments that measure normalized amplitude, and their phase readouts are rock solid. Phase sign is automatic, no extra operation. In addition to the analog DC outputs for remote control the Model CMR has a multiplexed BCD digital output which can be used to drive the Remote Indicator Model CMR-1. RF inputs have dual protection. Gas discharge tubes across the sample line terminations plus relay protection.

Gorman Redlich Mfg. Co.

6 Curtis Street Athens, Ohio 45701

614-593-3150



#1

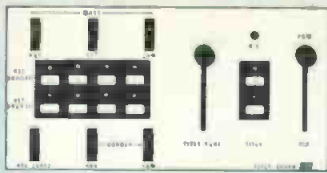
LOW POWER BROADCASTING

- UHF & VHF TRANSMITTERS
- TV & FM TRANSLATORS

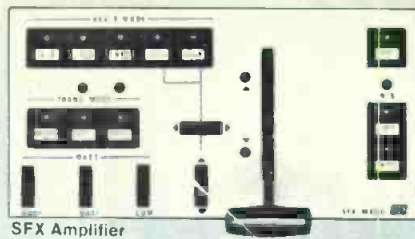
TELEVISION TECHNOLOGY CORP.
5970 WEST 60th AVENUE
ARVADA, COLORADO 80003
(303) 423-1652 — TWX 910-938-0396

Circle 223 on Reader Service Card

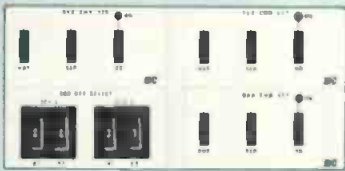
Circle 224 on Reader Service Card



Title Keyer



SFX Amplifier



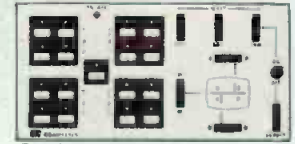
Chroma Keyers... RGB and Encoded



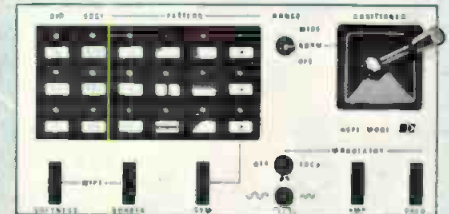
Master Mix & Auto Transitions



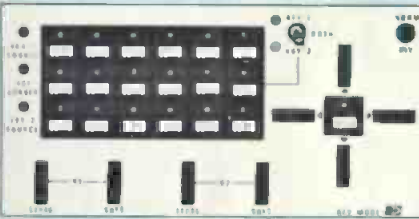
Extended Effects Generator



Quadplexer



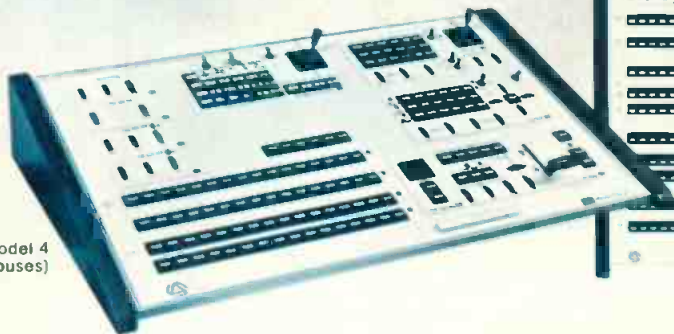
Wipe Module



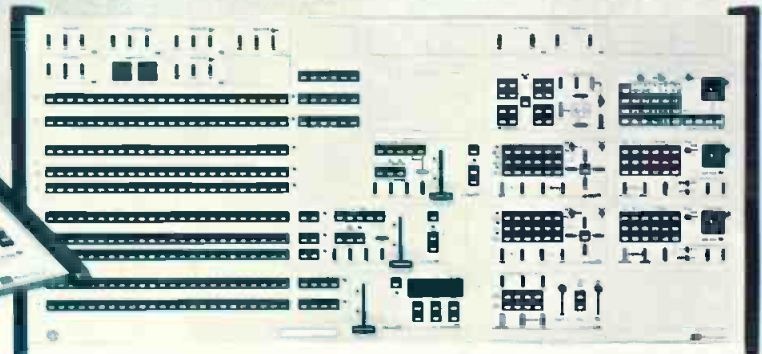
Key Module



CAP... Computer Assisted Production System



CD-480 Model 4
(1 SFX, 4 buses)



CD-480 Model 10 (2 SFX, 10 buses)

CD-480... the most powerful and modular production switcher available today.

The 480's proven superior performance, reliability and flexibility has evolved from these powerful video production modules.

That's why you can customize a 480 to your specific production requirements... within your budget. And because of the 480's modular design we can deliver the largest model within 90-120 days.

Design your own switcher starting with any one of 9 basic models, and selectively equip it with a wide range of powerful 480 modules and accessories.

No other manufacturer can offer you that flexibility... and every 480 is equipped with the unbeatable video power of the CD-480 SFX Processor System that includes the SFX Amplifier, Key and Wipe Modules.

The 480 family includes switchers with 4 buses to 10 buses... even a model you can upgrade from 1 SFX and 5 buses to a Model 8 or 9 with 2 SFX Amplifiers and 8 or 9 buses. And the 480 continues to evolve which means you can always add the latest 480 production accessories.

That's why over 300 users call the 480 the most powerful and flexible new generation switcher available today.

Start designing your new CD-480 now so you can have the competitive advantage. Call or write for literature or our complete CD-480 Design Kit.

Central Dynamics Corporation, 900 Corporate Drive, Mahwah, NJ 07430. 201-529-1550.
Central Dynamics Ltd., Montreal, 514-697-0810.



CENTRAL DYNAMICS CORPORATION

The U.S. Broadcast Company for ■ COL ■ PHILIPS ■ American Data

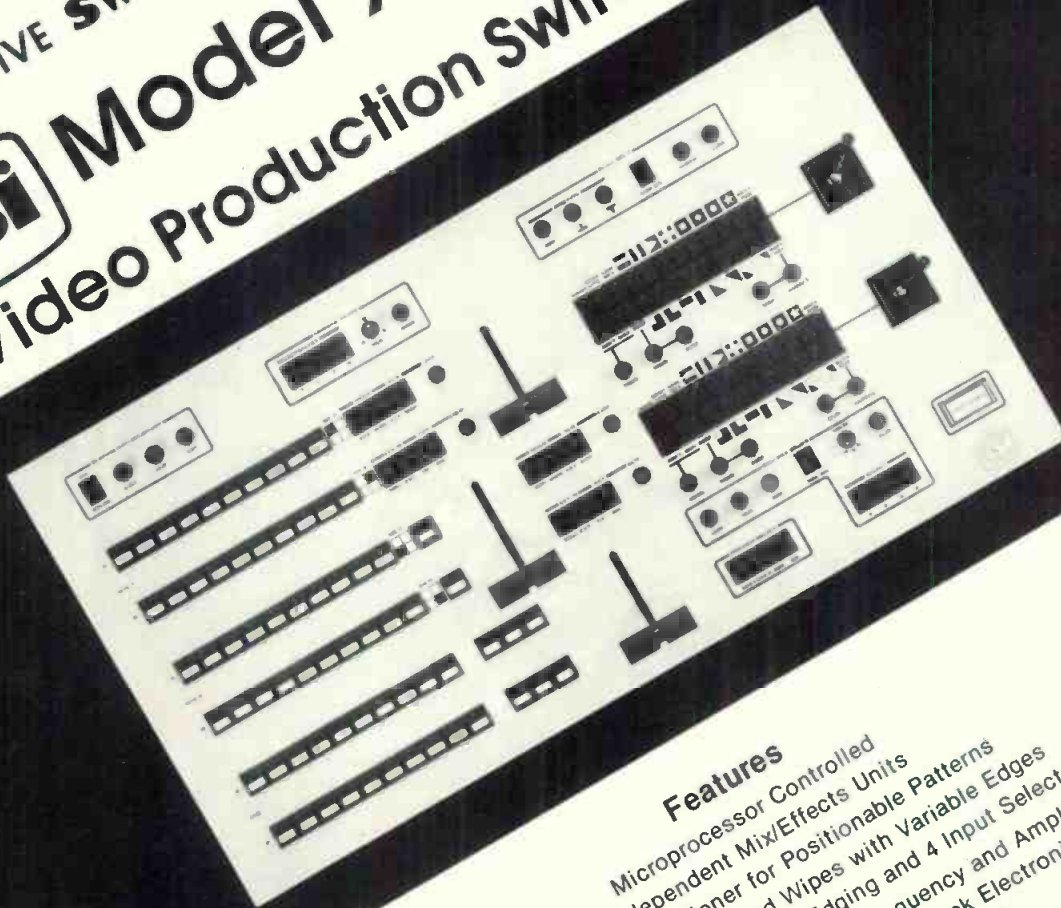
Circle 225 on Reader Service Card

www.americanradiohistory.com

Another
iNNOVATIVE SWITCHING iDEA . . .



Model 904 Video Production Switcher



Features

- Microprocessor Controlled
- Independent Mix/Effects Units
- Joystick Positioner for Positionable Patterns
- Hard, Soft, and Bordered Wipes with Variable Edges
- Downstream Keyer with Variable Frequency and Amplitude Controls
- Modulation of Wipe Patterns with Key Edging and 4 Input Selector
- Digital Control Logic from Control Panel to Rack Electronics, enabling
- Dual Pattern Generators each with 16 patterns including Star, Circle, Diamond, Square, Corner, Diagonals and Three Rotary Patterns
- Combination of Modes on each Mix/Effects System, enabling Mix, Wipe, Key Mix-Wipe, Mix-Key or Wipe Key on each Mix
- Effects Systems
- Two Year Warranty
- Available in NTSC, PAL versions

ISI also produces custom video systems built to customer requirements. We encourage the use of our assistance and invite inquiries.



INDUSTRIAL SCIENCES, INC.
3521 S.W. 42nd Avenue
P.O. Box 1495
Gainesville, Florida 32602
U.S.A.

TELEPHONE

Outside U.S.A. 01 (904) 373-6782
In Florida (904) 373-6783
Sales (800) 874-7590
Service (800) 874-7874

CABLE

TWX 810-825-2307

UNR-ROHN DIV OF UNR INC
PO Box 2000 Peoria IL 61656
309 697-4400

Towers, hardware and construction equip; tower lighting

UP-RIGHT SCAFFOLDS DIV UP-RIGHT INC
1013 Pardee St Berkeley CA 94710
415 843-0770

Towers VS

URSA MAJOR INC
Box 18 Belmont MA 02178
617 489-0303

Audio delay systems; digital reverb units; audio special effects VS

US JVC CORP
41 Slater Dr Elmwood Pk NJ 07407
201 794-3900

TV color studio cameras; ENG/EFP cameras; color & dc portable picture monitors; two-VTR editor/controllers; U-type & half-inch VCRs (portable & studio) VS
See ads pp 85, 86

CA US JVC Corp 1011 W Artesia Blvd Compton 90220..... 213 537-6020
IL US JVC Corp 2250 Lively Blvd Elk Grove Village 60007..... 312 364-9300
TX US JVC Corp 3400 S Loop E Houston 77021..... 713 741-9470

US PIONEER ELECTRONICS CORP
85 Oxford Dr Moonachie NJ 07074
201 440-8100

Audio power amps; stereo graphic equalizers; reverb amps; stereo dynamic processors; stereo monitor receivers; turntables; phono cartridges; digital timers; dynamic mics; cassette & open-reel tape decks; speaker systems VS

UTAH SCIENTIFIC INC
2276 S 2700 W Salt Lake City UT 84119
801 973-6840/800 453-8782

Video, audio & tally routing switchers & controls VS
See ad pg 145

UTILITY TOWER CO
3200 NW 38 PO Box 12369 Oklahoma City OK 73157

405 946-5551
Towers for AM, FM, two-way, microwave; base insulators VS

V

VACUUM TUBE INDUSTRIES INC
35 Pequit St Box 358 Canton MA 02021
617 828-1650
Vacuum power tubes, rebuilt

VALAD ELECTRIC HEATING CO
160 Wildey St Tarrytown NY 10591
914 631-4927
Electric heaters for mobile vans & stations

VALLEY PEOPLE INC
PO 40306/2820 Erica Pl Nashville TN 37204
615 383-4737
ALC & AGC amps; AM & FM compressor/limiter/filters; parametric equalizers & filters; audio special effects; complete automation systems; noise reduction systems; FM processors; facility turnkey installation VS

VALTEC CORP COMMUNICATION FIBEROPTICS DIV
99 Hartwell St W Boylston MA 01583
617 835-6082
Fiberoptic cable for broadcasting & CATV VS

VAMCO ENGINEERING
11104 E 56 St Tulsa OK 74145
918 252-5448
Digital tape timers; clock systems; A/V dist amps; videotape timer (also for ENG & TVC); A/V routing switcher

V.A.M.P. INC
6753 Selma Av Los Angeles CA 90028
213 466-5533

Audio monitor & power amps; speakers; videotape editing controller; picture monitors (color, mono, dc portable) VS

VAN LADDER INC
PO Box 1557 Spencer IA 51301
800 831-5051
Aerial lifts

VANNER INC
2136 Eakin Dr Columbus OH 43223
614 272-6263
Battery power converters for ENG/EFP vehicles

VARIABLE SPEECH CONTROL CO
185 Berry St San Francisco CA 94107
415 495-6100
Speed controlling modules (speech compressors, pitch correctors) for film & tape; audio cassette player/recorders

VARIAN ASSOC ELECTRON DEVICE GROUP
611 Hansen Way Palo Alto CA 94303
415 493-4000
See also EIMAC
Intercity & airborne microwave equip; RF amps, attenuators, filters, converters & loads; satellite earth station; receivers, comm & monitor; chart recorders; VHF & UHF TV transmitters; solid state components; vacuum tubes VS
See ad pg 218

VERSA COUNT ENGINEERING
553 Lively Blvd Elk Grove Village IL 60007
312 593-0208
Video processing amps; FM and TV translators; FM transmitters; exciters; RF amps; modulation monitors; audio dist amps; intercity microwave equip; microwave STLs VS

VIDAIRE ELECTRONICS MFG CORP
150 Buffalo Av Freeport NY 11520
516 623-6696
Audio preamps, power supplies for amps; headphones; RF & hardwired intercom systems; dynamic & condenser/electret mics; multimeters; audio connectors VS

Time Code on the Move

The New PTC-100 sets the standard for TV and Film EFP Time Code generation and recovery.

Rugged, reliable and compact the PTC-100 Generator • Reader is designed to accommodate the user and meet all your EFP requirements... for TV and Film.

Features include:

- Identifies Color Field sequence in Time Code
- Film Standards: 24, 25 and 30fps.
- TV Standards: NTSC, PAL & PAL-M.
- Jam Sync reader: several PTC-100's can be slaved together.
- No multi function controls.
- Power saving circuitry: 5 days normal operation with four AA cells, or plug into external 6-12 VDC source. NiCad batteries and charger are optional.
- Remote control for Time Code.
- Generates and reads User Bits.
- Thumbwheels preset time counter, or loads User Bits into memory.
- Designed-in servicing aids, including Signature Analysis techniques.

See us at
SMPTE '81
Booth 625



skotel

SKOTEL CORPORATION
1445 Provencher, Brossard
Que., Canada J4W 1Z3
Telex 05-267493
(514) 465-8990

Circle 227 on Reader Service Card

The Source '81

VIDEO AIDS OF COLORADO

1930 Central Av Boulder CO 80301
303 443-4950

Audio monitor & power amps; hardwired intercoms; video dist amps; pulse distribution amp; sync & black burst generator systems; automatic TV monitors; burst phase meters; video generators, cross pulse; phase meters; vectorscopes; VIRS Inserter VS

See ad pg 234—refer to rep/dist section

VIDEO ASSOCIATES LABS

2304 Hancock # 1-F Austin TX 78756
512 459-5684

Direct-drive dc drum servos; field framer; character, slate & graphics generator & keyer

VIDEO COMPONENTS INC

601 S Main St Spring Valley NY 10977
914 386-3700

Camera heads, tripods, pedestals, ENG braces, power packs; lighting heads, stands & fixtures; battery supplies for production equip & emergency power

VIDEO DATA SYSTEMS

5630 Waterbury Way B-102 Salt Lake City UT 84121

801 272-9296

Character generator systems; production titlers VS
See ad pg 222

CO Karol Loeffler 316 S Humboldt

Denver 80209

GA Dave Allen 8530 Hospital Dr

Douglasville 30135..... 404 942-8669

NJ Tony Keator 54 Harvard Rd Fair Haven

07701..... 201 747-5122

UT Barry Kenyon 5630 Waterbury Salt Lake

City 84121..... 801 272-9296

WI Vern Bentrand RR 1 Box 235 Lodi

53555..... 608 592-3272

VIDEOMAGNETICS INC

1500 San Lazaro Sunnyvale CA 94086
408 737-8300

New VTR heads; head refurbishing VS

VIDEOMEDIA INC

250 N Wolfe Rd Sunnyvale CA 94086
408 733-6500

Character generators; studio automation, two-VTR editor/controllers; multi-source video editors; computerized auto assembly editors; rentals of production & post-production equip: facility turnkey Installation VS

See ad pg 230—refer to rep/dist section

VIDEO OPTICS

1916 Old Middlefield Way Mountain View CA 94043

415 965-4298

Low light level camera; high-resolution color TV camera; high-resolution image enhancer

VIDEO SPECIALTIES

PO Box 136 Solana Beach CA 92075

714 481-0073

Automation controllers, computer/microprocessor; complete automation systems; custom equip design

THE VIDEO TAPE CO

10545 Burbank Blvd N Hollywood CA 91601
213 985-1666

New & reprocessed videotape; video post-production services; flying spot scanner film-to-tape transfer; complete syndication/distribution services for TV programming; tape duplication in all formats

VIDEOTEK INC

125 N York St Pottstown PA 19464

215 327-2292

Color & dc portable picture monitors for studio & ENG; demodulators; waveform monitors vectorscope; audio program monitor VS

See ad pg 121

AZ 9625 N 21 St Dr

Phoenix 85021..... 602 997-7523

VIDICRAFT INC

0704 SW Bancroft St Portland OR 97201
503 223-4884

Image enhancers; video dist amps VS

See ad pg 200

VIDTRONICS

855 N Cahuenga Blvd Hollywood CA 90038
213 856-8200

Film to tape transfer; video post-production services

VIF INTERNATIONAL

Box 1555 Mt View CA 94042

408 739-9740

Audio monitor & power amps; ALC & AGC amps; graphic equalizers & filters; relay sequencers; complete automation systems; stereo studio multi-output audio consoles; phono pickup cartridges; headphones; dynamic mics; speakers; open-reel studio tape player/recorders; bulk erasers; remanufacturing service, Ampex & Scully capstan drive motors VS

VIKRON

520 Blanding Wood Rd S St Croix Falls WI 54024

715 483-3233

Magnetic tape heads

VISCOUNT INDUSTRIES LTD

105 E 69 Av Vancouver BC V5X 2W9

604 327-9446

Video production switchers; distribution amps; routing switchers; sync generator systems; manual master control switchers; small & portable production switchers; special effects generators VS
See ad pg 216

VISION-SOUND PROFESSIONAL AUDIO

110 Grand Av Englewood NJ 07631

201 871-4101

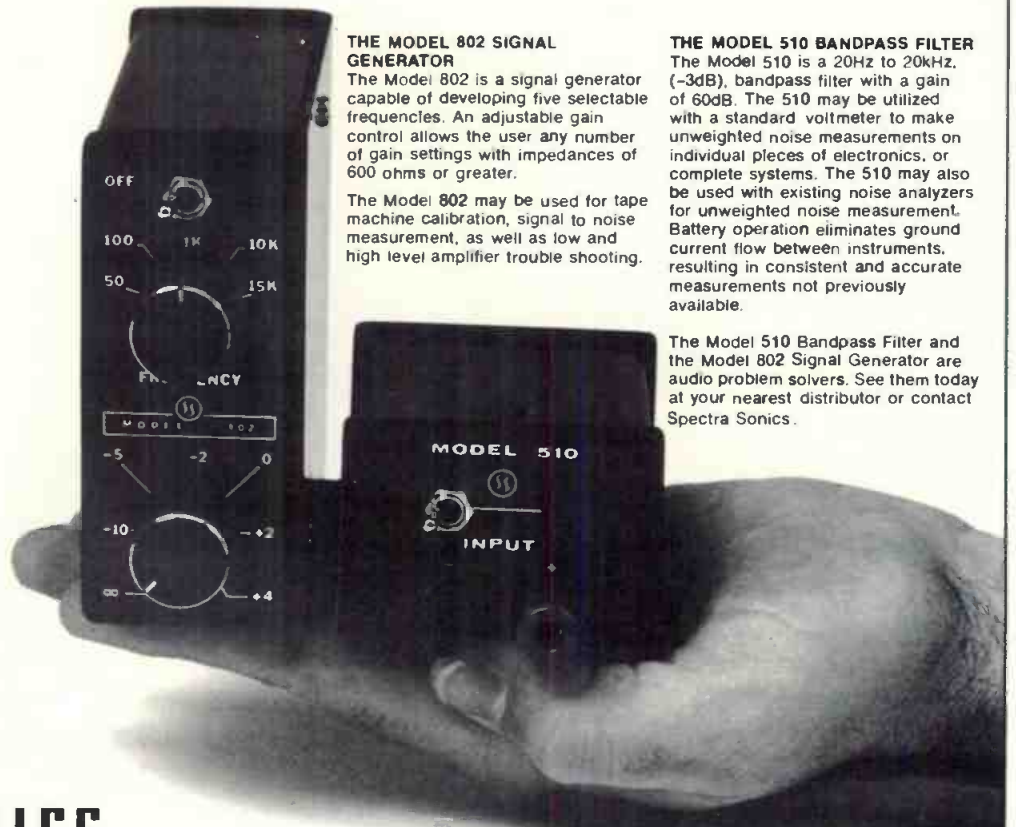
Audio consoles (studio, multi-output, audio for TV & film (Harrison & Neotek); digital audio recorders,

VS MEANS IT'S VERIFIED

Reading this ad may solve your next audio problem

Solving audio problems is a daily requirement for the professional. Often, the solution requires the use of accurate test instruments, with a high degree of reliability.

The Spectra Sonics Model 510 Bandpass Filter and the Model 802 Signal Generator are the answer to your service requirements, permanent or portable. The battery powered units are accurate, reliable, compact, affordable, and easy to use.



THE MODEL 802 SIGNAL GENERATOR

The Model 802 is a signal generator capable of developing five selectable frequencies. An adjustable gain control allows the user any number of gain settings with impedances of 600 ohms or greater.

The Model 802 may be used for tape machine calibration, signal to noise measurement, as well as low and high level amplifier trouble shooting.

THE MODEL 510 BANDPASS FILTER

The Model 510 is a 20Hz to 20kHz, (-3dB), bandpass filter with a gain of 60dB. The 510 may be utilized with a standard voltmeter to make unweighted noise measurements on individual pieces of electronics, or complete systems. The 510 may also be used with existing noise analyzers for unweighted noise measurement. Battery operation eliminates ground current flow between instruments, resulting in consistent and accurate measurements not previously available.

The Model 510 Bandpass Filter and the Model 802 Signal Generator are audio problem solvers. See them today at your nearest distributor or contact Spectra Sonics.

SPECTRA SONICS

LEADER IN ADVANCED TECHNOLOGY

3750 AIRPORT ROAD OGDEN, UTAH 84403 801-392-7531



Circle 228 on Reader Service Card

editing systems, transmission systems (Sony); monitor speakers (John Meyer); power amplifiers (Bryston); distr of full audio production & processing equip; recording studio & audio stage design; facility turnkey installations; mobile van installations; financing

VISUAL INFORMATION INSTITUTE INC
PO Box 33 Xenia OH 45385
513 376-4361

Sync generator systems, video test materials and generators; monitor calibrators

VISUAL METHODS INC
35 Charles St Westwood NJ 07675
201 666-3950

CCTV lenses & accessories, CCTV microwave system; video access control; covert lenses for CCTV cameras VS

VITAL INDUSTRIES INC
3700 NE 53 Av Gainesville FL 32601
904 378-1581

Audio dist amps; complete automation systems; RGB & encoded chroma keyers; master control switchers (manual, automated, business auto interface); video proc amps; production switchers (large, small, portable, automated); video pulse, dist & subcarrier amps; digital video effects VS
See ad pg 239

CA	1680 Vine St Suite 1204 Hollywood 90028.....	213 463-7393
	1255 Post St Suite 609 San Francisco 94109.....	415 561-9130
IN	Morrel Beavers 2644 N 7 St Terre Haute 47804.....	812 466-3212
MN	Mike Barsness PO Box 74 Prior Lake 55372.....	612 447-4453
NY	Barry Enders 338 E Lake Rd Williamson 14589.....	315 589-9289
TX	Gordon Peters PO Box 912 Arlington 76010.....	817 467-0051
VA	Eric King Fox Hill Rd Lynchburg 24503.....	804 384-7001

VLAHOS-GOTTSCHALK RESEARCH CORP/ULTIMATE

18607 Topham St Reseda CA 91335
213 345-5525
RGB & luminance chroma keyers; video matting device VS

W

WALLACH & ASSOCIATES INC
PO Box 18167 Cleveland OH 44118
216 575-0765
Open-reel, cartridge & cassette tape storage; videotape storage; film storage; storage shelves VS

WARD-BECK SYSTEMS LTD
841 Progress Av Scarborough ONT M1H 2X4
416 438-6550
Audio preamps, line, monitor, power & dist amps; amp power supplies; AM compressor/limiters; parametric equalizers & filters; audio consoles (mono & stereo studio multi-output, audio for TV); hardwired intercom systems; digital intercom VS
See ad Cover 4

AZ 6900 E Camelback Rd Ste 1010
Phoenix 85251

WATERS MANUFACTURING INC
Longfellow Center Wayland MA 01778
617 358-2777
Audio attenuators & controls, rotary & slide

WAVETEK INDIANA INC
5808 Churchman Beech Grove IN 46107
317 783-3221
Sweep/signal generators, RF detectors; function, signal, sweep generators; oscilloscopes; phase meters; transmission level test set; programmable waveform synthesizers; test accessories VS

WAVETEK ROCKLAND INC
Rockleigh Ind Ct Rockleigh NJ 07647
201 767-7900
Active equalizers & filters, audio & RF; sideband analyzers; spectrum analyzers; frequency synthesizers

WEATHERMATION INC
190 N State St Ste 516 Chicago IL 60601
312 263-6921
Full electronic graphics systems; weather radar systems for TV and radio VS

WEATHERSCAN INTL
2445 NW 39 St Expy Oklahoma City OK 73112
405 521-9081
Weather information services VS

WEATHER SERVICES INTL CORP
131 The Great Rd PO Box B Bedford MA 01730
617 275-5300
Weather information services

WESTERN TELE-COMMUNICATIONS INC
PO Box 22595 Wellshire Station Denver CO 80222
303 771-8200
Satellite communication service; microwave & fiber optic systems VS

WESTERN UNION
1 Lake St Upper Saddle River NJ 07458
201 825-5241
Video & audio transmission via satellite VS

WESTINGHOUSE ELECTRIC CORP/IND & GOVT TUBE DIV
Westinghouse Circle Horseheads NY 14845
607 796-3211
RF & vacuum tubes; rectifiers; low light level surveillance cameras VS

WESTLAKE AUDIO
2165 Santa Monica Bl Los Angeles CA 90046
213 851-9800
Tape splicing blocks & cleaners; speakers; cabinets; furniture; acoustic materials; complete studio construction; facility turnkey installation

VS MEANS IT'S VERIFIED

WHAT'S THE DIFFERENCE?

99.67% VS 99.97%

A 0.3% increase in your commercial-to-air success rate isn't much of an improvement until...you multiply it by 200 (average number of commercials/day), and then by 365 (number of days in the year), and then by your average spot rate! And if your spot rate is \$200.00, the difference is \$43,800.00!

If your present success rate can stand to be improved a few "0.3%" more...

WE WILL MAKE THE DIFFERENCE

175 systems, in over 100 markets, in 5 continents, have made the difference.

If you own a TCR-100, ask about our RCD-100 diagnostic system — you'll wonder how you ever got along without it!

PINZONE COMMUNICATIONS PRODUCTS, INC.

10142 FAIRMOUNT ROAD
NEWBURY, OHIO 44065
(304) 296-4493

Circle 229 on Reader Service Card

**LIGHTNING FAST
YET PAMPERED**

That unique combination of
**20-minute Burp Charger and
camera mounted, slide-lock,
super ni-cad battery.**

CHRISTIE
ELECTRIC CORP
20665 Manhattan Plac. Torrance CA 90501
(213) 320-0808, TWX 910-349-6260, (213) 21-2855

Circle 230 on Reader Service Card

Cleaner, Brighter, Louder

OPTIMOD-AM permits progressive AM broadcasters with quality plants to broadcast a standout signal with improved coverage.

The signal is processed for common automobile, table and portable radios to achieve outstanding speech intelligibility, musical definition and freedom from distortion.

And the versatile new OPTIMOD-FM Model 8100A is even cleaner, brighter and louder than the industry-standard Model 8000A it replaces.

The new 8100A was computer designed and refined by hundreds of hours of listening to set the new quality standard for FM in the 80's.

AM or FM—OPTIMOD creates sound that dominates the dial. For all the details, call Toll Free (800) 227-4498, In California (415) 957-1067, or write for the name of the Orban Broadcast Dealer nearest you.

orban

Orban Associates Inc., 645 Bryant Street, San Francisco, CA 94107 Telex: 17-1480 Cable: ORBANAUDIO



For Information on Optimod-AM Circle 231 on Reader Service Card

For Information on Optimod-FM Circle 232 on Reader Service Card

The Source '81

**WESTON INSTRUMENTS DIV OF
SANGAMO-WESTON INC**
614 Frelinghuysen Av Newark NJ 07114
201 242-2600

Analog VU meters, voltmeters, multimeters, dB meters VS

WHIRLWIND MUSIC & AUDIO INC
100 Boxart St Rochester NY 14612
716 663-8820

Cabinets; connectors; wire & cable; mobile van construction; RF cables; complete studio construction

WHITE INSTRUMENTS INC
PO Box 698 Austin TX 78767
512 892-0752

Equalizers & filters (passive & active), real time spectrum analyzers; audio generators

WIDE BAND ENGINEERING CO INC
PO Box 21652 Phoenix AZ 85036
602 254-1570

RF amps; comparator; impedance bridges; directional couplers; power dividers; patch panels; RF filters, detectors, switches; terminations; Impedance transformers

WIDE RANGE ELECTRONICS CORP
2119 Schuetz Rd St Louis MO 63141
314 567-5366

Head degaussers; bulk erasers; magnetic recording equip & accessories; optical sound recorders, systems & components VS

WILCOX-LANGE INC — See Screen Works Ltd

VS MEANS IT'S VERIFIED

WILKINSON ELECTRONICS INC
PO Box 738 Trainer PA 19013
215 497-5100

AM & FM broadcast transmitters; audio consoles; audio compressor/limiters; distribution amps, equalizers, line amps; demodulators, exciters, RF amps; modulation & frequency monitors; AC line surge protectors; rectifier stacks VS

THE WILL-BURT CO TMD DIV
169 S Main St Orville OH 44667
216 682-7015

Telescoping masts

WINEGARD CO
3000 Kirkwood St Burlington IA 52601
319 753-0121

Over-the-air pay TV equip

WINEGARD CO CATV DIV
PO Box 329 Montgomeryville PA 18936
800 523-2529

300 & 400 MHz trunk & dlist equip; 30/60 V ac power supplies; 300/400 MHz passive & subscriber multitaps & connectors

WINSTED CORP
8127 Pleasant Av S Minneapolis MN 55420
612 888-1957

Full line editing, production & VTR consoles; portable production consoles; dubbing consoles for half-inch & 3/4-inch; rack-mount cabinets; tape & film trucks; film & tape storage; cabinets & furniture; equip carrying cases VS

WIREWORKS CORP
380 Hillside Av Hillside NJ 07205
201 686-7400

Wire & cable; audio interconnect systems; cable components; hardwired multicables; microphone cables; multiboxes; splitters; multitrunks VS
See ad pg 141

WOLF COACH INC
200 Bartlett St Northboro MA 01532
617 393-2551

Mobile van construction VS

WORLD VIDEO INC
23 S Reading Av PO Box 117 Boyertown PA 19512
215 367-6055

Color & ac/dc color portable monitors; waveform analyzers; audio monitor amplifiers VS

Y

**YAMAHA INTERNAT'L CORP COMBO
PRODUCTS DIVISION**
6600 Orangethorpe Av Buena Park CA 90620
714 522-9011

Monitor, power, PA audio amps; active equalizers & filters; special effects; delay lines; integrated mixer/amp; mono, stereo, quad, audio for TV, portable, SR mixing consoles; turntables; headphones; music synthesizers; speakers; tape & cassette player/recorder; cabinets VS
See ad pg 203

YARDNEY ELECTRIC CORP
82 Mechanic St Pawcatuck CT 02891
203 599-1100

Camera power packs; batteries for production equipment; emergency power; battery chargers VS

Z

ZE-MARK CORP
PO Box 182 Brookfield Center CT 06805
203 355-0008

Optical multiplexer; telecine film chain with preview; film chain adapters for 16 mm & super-8 mm film projectors, lap dissolve slide projector, telecine accessories

ZOOMAR INC
55 Sea Cliff Av Glen Cove NY 11542
516 676-1900

Optics; electro-optical instrumentation

Optimod quality in your production room!

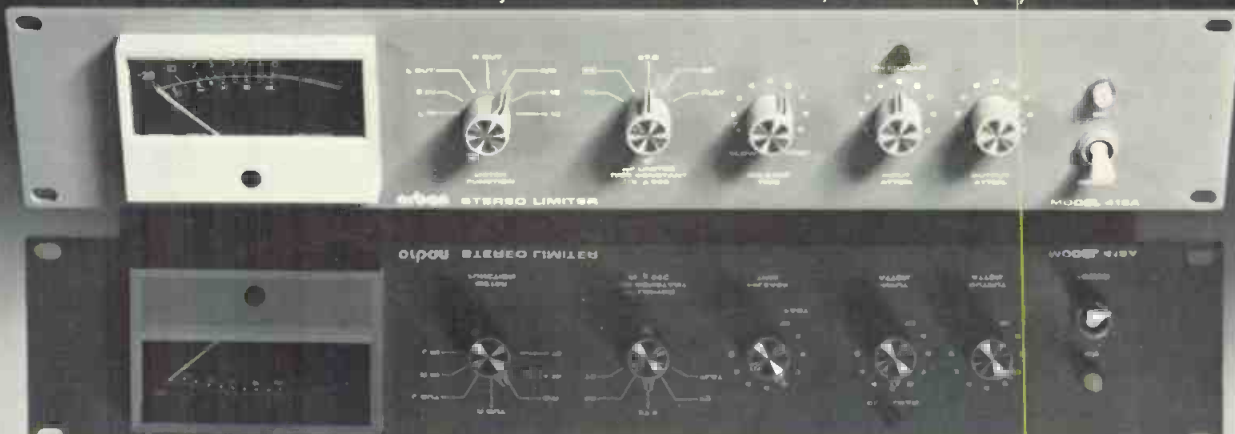
Now Orban brings the natural, transparent Optimod-FM sound to a stereo compressor/limiter designed specifically for production work. Set our 418A once and forget it; from then on it guarantees clean, uniform cuts regardless of operator skill and experience. The 418A's smooth subtle broadband compressor prevents overload distortion; its separate high-frequency limiter guards against preemphasis-induced tape saturation.

You can use the 418A as a safety limiter or you can use it to drive your microwave STL to your Optimod-FM. Either way, its accurate stereo tracking makes it ideal for FM Stereo today—or AM Stereo tomorrow.

The time-saving 418A gets it right the first time—and *that* savings can mean more consistent quality and healthier ratings! See your Orban dealer for all the details or call for the dealer nearest you.

orban

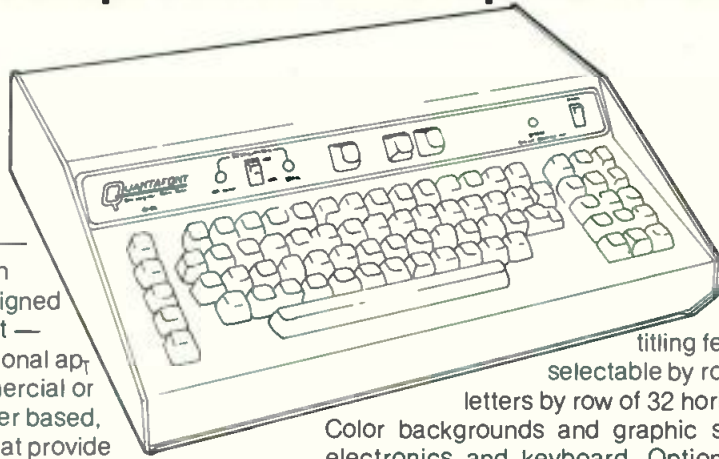
Orban Associates Inc. 645 Bryant Street San Francisco, CA 94107 (415) 957-1067



Circle 233 on Reader Service Card

QUANTAFONT[®]

Teleproduction Graphic Titlers



QUANTAFONT television production titlers are available in a product line designed to satisfy virtually any titling requirement — from limited budget industrial or educational applications to the high demands of commercial or broadcast studios. All are microcomputer based, software intensive, compact systems that provide extensive display versatility and variety. Numerous character sizes and a wide variety of resident fonts with large resident RAM memories are standard features in all systems.

The titlers as listed indicate only the basic differences between the various models. Complete feature listings and system descriptions are available from System Concepts' offices and from dealers located worldwide.

MODEL Q-7A

Broadcast and commercial studio titling features. Proportionally spaced characters in 16 resident fonts. "Bolt" large and small caps and "Universal" upper and lower case type faces. NANOLOG* character resolution. Colorized characters and backgrounds. Full borderline and shadow edge selections, and graphic separators. Self-contained keyboard and electronics. Optional international accents.

MODEL Q-7A/R

Rack mount electronics with remote keyboard and multiple remote keyboard capability. Display features the same as Q-7A with the addition of RS-232-C input for external data interface.

MODEL QST

Automatic Subtitling System. Includes a Q-7A/R production titler with EBU/SMPTE time code interface, expanded software subtitle timing and operations package, and dual disc extended memory for mass title storage. Functional as a studio production titler or automatic subtitler utilizing Q-7A display capabilities.

MODEL Q-VII

Commercial, industrial and educational titling features. Multiple resident fonts of large and small caps and true upper and lower case characters. 20 character size selection of all fonts. NANOLOG* character resolution. Colorized characters, backgrounds and graphic separators. Full borderline and shadow edge selections. Self-contained keyboard and electronics. Optional international accents and custom logo capability.

MODEL Q-6/B

Industrial and educational titling features. 24 character sizes selectable by row. Large and small capital letters by row of 32 horizontal pixel bold face font. Color backgrounds and graphic separators. Self-contained electronics and keyboard. Optional international accents.

MODEL Q-6/A

All of the standard features of Q-6/B in monochrome only.

MODEL Q-6/M

Automated mass memory information display system. Programmable control over digital cassette memory. Over 3,000 rows — 400 pages typical. All display qualities and standard features of Q-6/B available for automatic recall.

MODEL Q-V

Industrial and educational titling features. 12 character sizes selectable by row. Large and small capital letters by row of 32 horizontal pixel bold face font. Monochrome only. Self-contained electronics and keyboard. Optional international accents. Optional on-board mini-cassette extended memory.

EXTENDED MEMORY SYSTEMS

FLEXIBLE DISC MEMORY Single or dual mini-disc storage systems. 100, 16-row pages per disc. Random or sequential page access of less than .5 second. Total data block of resident memory storage per disc. Memory console can accommodate 6-inch monitor. Available for use with models: Q-7A/R, Q-7A, Q-VII, Q-6/B and Q-6/A.

DIGITAL CASSETTE MEMORY High speed computer grade cassette tape systems. Block load storage of entire resident memory. Self-standing or top-mounting console. Top-mounting console can accommodate a 6-inch monitor.

NightWatch™

Automatic all-night character generator display for broadcast sign-off to sign-on void. Displays 7 or 8-row formatted newswire service, local weather from sensors and one-row keyboard entry 2,720 character crawl. Color backgrounds and teleproduction quality character font. Rack mount electronics and remote keyboard.



To Be Letter Perfect

System Concepts, Inc. Corporate headquarters, 2440 South Progress Drive, Salt Lake City, Utah 84119, (801) 974-0992, TWX 910-925-5684 / Cleveland, (206) 692-3410 / Tulsa, (918) 627-4151

*20 nanosecond effective average start-point resolution with patent-pending NANOLOG™ circuit.

Circle 234 on Reader Service Card

www.americanradiohistory.com

INDEPENDENT BROADCAST REPS/DISTRIBUTORS

Including cross reference to companies whose products are advertised

ALABAMA

AMTEL
Huntsville
205 852-0362
System Concepts see ad pg 182

DOUG COOK & ASSOC
Charlotte NC
704 542-6510
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CRESCENDO ASSOC
Ponte Vedra Beach FL
904 285-6732
Nady see ad pg 236

ELREP SALES CO
Atlanta GA
404 938-7108
Edcor see ad pg 212

FM ASSOCIATES LTD
Huntsville
205 536-9990/205 882-0689
Lightning Elimination see ad pg 162

GRAY COMMUNICATIONS
Birmingham
205 942-2824
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176

LEE MID-SOUTH
Huntsville
205 533-5896
Marconi see ad pg 207

MONTGOMERY MARKETING INC
Huntsville
205 830-0498
EECO see ad pg 154

PRO VIDEO SYSTEMS
Birmingham
205 942-7904
Digital Video see ad pg 137
Listec see ad pg 131
Sharp see ad pg 149

ROSCOM INC
Roswell GA
404 992-2700
Ramko see ad pg 155, 157, 159
TFT see ad pg 240

SESCO
Huntsville
205 881-8768
Topaz see ad pg 217

SONICS ASSOC
Birmingham
205 942-9631
ATI see ad pg 141
Auditratics see ad pg 123, 125, 127
Quantum see ad pg 204

TECHNICAL SYSTEMS REPS
Clemson SC
803 654-2321
JBL see ad pg 103

TEQSPEC
Atlanta GA
404 455-7222
Phillips T&M see ad pg 169

WILSON AUDIO SALES
Franklin TN
615 794-0155
dbx see ad pg 113, 220
Cetec Vega see ad pg 117

ALASKA

JOHN P. BAGOY & ASSOC
Anchorage
907 274-8531
Topaz see ad pg 217

ELECTRONICS CO OF ALASKA
Anchorage
907 349-3562
Harris Video see ad pg 44-45

MARCOM
Seattle, WA
206 364-9911
Scotts Valley CA
408 438-4273
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221
TFT see ad pg 240

MATRIX MARKETING
Seattle WA
206 789-5990
Cetec Vega see ad pg 117

NORTH SHORE MARKETING
Redmond WA
206 883-4152
JBL see ad pg 103

NORTHERN VIDEO SYSTEMS
Anchorage
907 279-5571
Sharp see ad pg 149

NVS SYSTEMS
Anchorage
907 279-5571
Convergence see ad pg 242

ROGER PONTO ASSOC
Bellevue WA
206 453-8487
dbx see ad pg 113, 220

TASCO INC
Bellevue WA
206 453-1414
Phillips T&M see ad pg 169

ARIZONA

ARGUS SALES
Tempe
602 968-7791
EECO see ad pg 154

PAUL BAUGHMAN
El Monte CA
213 442-0782
Cetec Vega see ad pg 117

DON BENNETT & ASSOC
Mesa
602 897-2151
Ramko see ad pg 155, 157, 159

BFA CORP
Scottsdale
602 994-5400
Topaz see ad pg 217

CLEVELAND ENTERPRISES INC
Phoenix
602 944-4679
Phillips T&M see ad pg 169

STEVE FISHER ASSOC
Phoenix
602 247-7865
Edcor see ad pg 212

H P MARKETING
Phoenix
602 244-2725
JBL see ad pg 103
Littleton, CO
303 794-8367
dbx see ad pg 113, 220

J F HURLBUT
Tempe
602 968-5962
Allen Avionics see ad pg 248

INDUSTRIAL VIDEO
Phoenix
602 264-6011
ISI see ad pg 176
Sharp see ad pg 149
Videomedia see ad pg 230

INSTANT REPLAY
Los Angeles CA
213 827-4510
Beaveronics see ad pg 164

I T S CONCOR
Tempe
602 968-8523
Edutron see ad pg 124

MARCOM
Woodland Hills CA
213 703-0381
Scotts Valley CA
408 438-4273
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221
TFT see ad pg 240

RHM ASSOC
Scottsdale
602 949-0121
Lightning Elimination see ad pg 162

RIA CORP
Salt Lake City UT
801 486-8822
Harris Video see ad pg 44-45
Cottonwood
601 634-8065
System Concepts see ad pg 182

ROH'S INC
Tucson
602 795-8573
Convergence see ad pg 242

ROLLS ELECTRONIC CORP
N Hollywood CA
213 877-8877
Sennheiser see ad pg 196

SPENCER BROADCAST
Phoenix
602 242-2211
ATI see ad pg 141

TREMBLY ASSOC
Phoenix
602 967-2058
Marconi see ad pg 207

WESTERN AUDIO SALES
Phoenix
602 867-4659
Nady see ad pg 236

ARKANSAS

ALPHATECH INC
Allen TX
214 423-4570
Phillips T&M see ad pg 169

AUDIOMEDIA ASSOC
New Orleans LA
504 586-0140
504 242-8014
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

DIMENSION MARKETING CORP
Houston TX
713 772-0961
Cetec Vega see ad pg 117

DOBBS-STANFORD CORP
Irving TX
214 259-3737
JBL see ad pg 103

ELECTRA REPS INC
Fort Smith AZ
501 783-7323
EECO see ad pg 154

**GBS-GIESLER BROADCASTING
SUPPLY INC**
Houston TX
713 974-6205
See ad this page

GBS-GIESLER BROADCASTING SUPPLY, INC.
9440-L HARWIN, HOUSTON, TX 77036
(713) 974-6205

ORBAN, MOSELEY, CABLEWAVE, BELAR, PHELPS
DODGE, BE, POTOMAC, MARK, MARTI, RF PROD.,
AMPEX, SCULLY, AUTOGRAM, DBX, REVOX,
LOGITEK, MCI, OTARI, TECHNICS, JBL, EV, UREI,
REVOX, SHURE. COMPLETE STATION
REQUIREMENTS.

Reps/Dists

GRAY COMMUNICATIONS

Little Rock
501 372-1909
ISI see ad pg 176

MILLER & ASSOCIATES INC

Dallas TX
214 661-5002
Edcor see ad pg 212

MZB & ASSOC

Dallas TX
214 233-5535
See ad this page

PARCOM

Southlake TX
817 481-7221
Ramko see ad pg 155, 157, 159
TFT see ad pg 240

R P TECH INC

Terrell TX
214 222-2131
dbx see ad pg 113, 220

CALIFORNIA

ADTEK ASSOC

Palo Alto
415 323-5414
Allen Avionics see ad pg 248

A-F SALES ENGINEERING INC

Pasadena
213 681-5631
Topaz see ad pg 217

AMBER SYSTEMS

Santa Barbara
805 687-1771
Phillips T&M see ad pg 169

AMERICAN VIDEO PRODUCTS

Anaheim
714-978-9002
See ad pg 250

A-VIDD

Long Beach
213 998-4124
Edutron see ad pg 124

PAUL BAUGHMAN

El Monte
213 442-0782
Cetec Vega see ad pg 117

BCD INC

Anaheim
714 630-8150
Auditronics see ad pg 123, 125, 127
ESE see ad pg 225
Ikegami see ad pg 54, 156, 185, 192
Quantum see ad pg 204
Thomson-CSF see pg 20-21

BIDWELL SALES ASSOC

Gardena
714 634-4668
Edcor see ad pg 212

BROADCAST VIDEO SYSTEMS

213 460-2949
Leitch see ad pg 128

BURDEN ASSOCIATES

Canoga Park
213 340-4590
LPB see ad pg 104

CENTRO CORP

San Diego
714 560-1578
Quantum see ad pg 204

COMPACT VIDEO SYSTEMS

Burbank
213 843-3232
Listec see ad pg 131

LEN DOZIER

Brea
714 899-7940
Asaca see ad pg 160-161

EVERYTHING AUDIO

Encino
213 995-4175
See ad pg 249
ATI see ad pg 141

HARRY FORMAN

Hollywood
213 550-7070
Strand Century see ad pg 148

GENERAL ELECTRONICS SYSTEMS INC

Berkeley
415 527-7700
Convergence see ad pg 242
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
Thomson-CSF see ad pg 20-21

HOFFMAN VIDEO SYSTEMS

Los Angeles
213 794-3311
Animation Video see ad pg 18
Convergence see ad pg 242
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45

KEITH HUGHES

Anaheim
714 978-9092
Knox see ad pg 30

INNOVATIVE CONCEPTS

Redondo Beach
213 540-5684
213 540-3956
Digital Video see ad pg 137

INSTANT REPLAY

Chatsworth
213 998-4124
Los Angeles
213 598-4263
Anaheim
714 632-7744
Beaveronics see ad pg 164
Edutron see ad pg 124

JSH ELECTRONICS INC

Huntington Beach
800 854-7651
714 895-2298
JSH see ad pg 112
RCA see ad pg 203

LEDDY ASSOC

Mountain View
415 969-6313
Lightning Elimination see ad pg 162

LEE/ALLAN ASSOC

Milpitas
408 946-8300
Topaz see ad pg 217

LISTEC

Glendale
213 247-9247
Electrohome see ad pg 48

MARCOM

Scotts Valley
408 438-4273
ATI see ad pg 141
NEC America see ad pg 107
Philadelphia Resins see ad pg 150
Quantum see ad pg 204
Singer Broadcast see ad pg 221
TFT see ad pg 240

MARSHANK SALES CO

Culver City
213 559-2591
dbx see ad pg 113, 220

RICHARD MEIS

San Francisco
415 647-4332
Knox see ad pg 30

MESA ENGINEERING & SALES

San Diego
714 278-8037
Phillips T&M see ad pg 169

MEYER & ROSS

Burlingame
415 348-6800
Nady see ad pg 236

WALLY MILLS

Burbank
213 841-5930
Strand Century see ad pg 148

MOXON ELECTRONICS

Santa Clara
408 727-6491
Los Angeles
714 635-7600
San Diego
714 565-1557
Marconi see ad pg 207

NORTHERN CALIFORNIA

MARKETING
Hayward
415 783-2052
JBL see ad pg 103

PACIFIC AERO SALES

Torrance
213 540-5177
Thomson-CSF (DTE) see ad pg 147

PACIFIC COAST MARKETING

Los Gatos
408 395-7021
Ramko see ad pg 155, 157, 159

PACIFIC VIDEO

Anaheim
714 634-8585
Harris Video see ad pg 44-45
Sharp see ad pg 149

PROPECO

San Francisco
415 647-4332
Clear-Com see ad pg 218
Videomedia see ad pg 230

ROLLS ELECTRONIC CORP

N Hollywood
213 877-8877
Sennheiser see ad pg 196

SCAGGS VIDEO SALES

San Diego
714 578-9640
Convergence see ad pg 242
Edutron see ad pg 124
Faroudja Labs see ad pg 69

SNADER & ASSOC

Mill Valley
415 381-3300
Edutron see ad pg 124
ISI see ad pg 176
System Concepts see ad pg 182

SOUND DYNAMICS

San Jose
408 926-3588
See ad pg 202

SOUND ELECTRONICS

Lafayette
818 984-4090
Edcor see ad pg 212

SOUND GENESIS

San Francisco
415 285-8900
See ad this page
Auditronics see ad pg 123, 125, 127

STAR ENTERPRISES

Yorba Linda
714 996-5622
JBL see ad pg 103

STUDIO FILM & TAPE

Los Angeles
213 466-8101
See ad pg 248

SUNWEST MARKETING

Northridge
213 368-1938
Clear-Com see ad pg 218

SYSTEM ASSOCIATES

Culver City
213 641-2042
System Concepts see ad pg 182

TELEVISION ASSOC

Mountain View
415 967-6040
Harris Video see ad pg 44-45
Sharp see ad pg 149

BRIAN TRANKLE & ASSOC

Hillsborough
415 344-1133
Edcor see ad pg 212

TRAVER ASSOC

Artesia
213 924-0883
Topaz see ad pg 217

TRITRONICS INC

Burbank
213 861-8244
Digital Video see ad pg 137
Edutron see ad pg 124
Faroudja Labs see ad pg 69
Ikegami see ad pg 54, 156, 185, 192
Lightning Elimination see ad pg 162

M Z B & ASSOCIATES

4203 BELTWAY DRIVE, DALLAS, TX 76248
(214) 233-5535

ALSO, OFFICES AT 16502 NORTHCHASE, SUITE E
HOUSTON, TX 77060-713/448-0881
MAJOR BDCST/VIDEO LINES-IKEGAMI, SONY, JVC,
ETC. PROFESSIONAL SALES, SERVICE, RENTAL &
INSTALLATION SERVING THE SOUTHWEST FOR
OVER 25 YEARS.

SOUND GENESIS

2001 BRYANT STREET, SAN FRANCISCO, CA 94110
(415) 285-8900

FULL SERVICE AUDIO EQUIPMENT SUPPLIER
OFFERING COMPETITIVE PRICING AND FAST
DELIVERY ON 100 LINES OF PROFESSIONAL AUDIO
PRODUCTION AND STUDIO GEAR.



Self starter

For a fast start, no other studio camera comes close to the HK-312. It comes air ready. Just unpack it and it'll give you superior performance the first time. And, it'll keep working. The HK-312 helped establish Ikegami's reputation for legendary reliability.

The HK-312 is also an extremely stable camera that doesn't require time consuming adjustment. Add the optional computer setup and you can trim your daily checkout time even more—to less than a minute. Computer setup that has already proven itself at many leading stations.

The HK-312 includes all the essentials for

superior picture quality and performance. High resolution. Superb colorimetry. Plus an excellent signal-to-noise ratio. And with Ikegami Triax, you can extend the normal 600 meter cable length to 1500 meters with no compromise in picture quality.

One simple demonstration will show you why so many networks and leading independents are convinced that the HK-312 is the finest studio camera ever built.

To get started, contact Ikegami.

Ikegami

Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, NJ 07607; (201) 368-9171

Northwest: (201) 368-9171 | West Coast: (213) 534-0050 | Southwest: (713) 445-0100 | Southeast: (912) 924-0061 | Canada: (201) 368-9179

Reps/Dists

UNITED COMPONENTS INC
Santa Clara
408 496-6900
Electrohome see ad pg 48

VAN GOTT & ASSOC
Arcadia
213 445-9728
San Diego
714 272-8452
Allen Avionics see ad pg 248

VIDEO-COM INTERNATIONAL
Encinitas
714 753-8068
System Concepts see ad pg 182

VIDEO EQUIPMENT CORP
San Diego
714 278-4400
Digital Video see ad pg 137
Quantum see ad pg 204

THE VIDEO STORE
San Diego
714 560-4454
Harris Video see ad pg 44-45
Sharp see ad pg 149

VIDEO SYSTEMS NETWORK
Los Angeles
213 306-4675
Harris Video see ad pg 44-45
ISI see ad pg 176
Sharp see ad pg 149
Videomedia see ad pg 230

VOICE & VIDEO
San Diego
714 560-1166
Harris Video see ad pg 44-45
Nady see ad pg 236

RONALD WEBB
San Francisco
415 664-2400
ADM Technology see ad pg 9

WESTERN AUDIO SALES
Fountain Valley
213 493-1444
Nady see ad pg 236

WESTERN BROADCAST SYSTEMS
Cupertino
408 749-0900
ATI see ad pg 141
Leitch see ad pg 128

WESTLAKE AUDIO
Los Angeles
213 655-0303
ATI see ad pg 141
Auditronics see ad pg 123, 125, 127

WHEELOCK ASSOC
La Jolla
714 578-9640
Topaz see ad pg 217

COLORADO

ABCO INC
Boulder
303 444-1173
Lightning Elimination see ad pg 162

AUDIO VIDEO SYSTEMS INC
Aurora
303 341-9994
Sharp see ad pg 149

BFA CORP
Denver
303 777-8070
Topaz see ad pg 217

BROADCAST COMMUNICATION PRODUCTS
Boulder
303 442-3231

Denver
303 424-3231
ATI see ad pg 141
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CLEVELAND ENTERPRISES OF COLORADO
Denver
303 751-3252
Phillips T&M see ad pg 169

DIDIER/DENVER
Evergreen
303 674-6000
See ad this page
Asaca see ad pg 160-161
Leitch see ad pg 128
TFT see ad pg 240

JAMES E HALL CO
Salt Lake City UT
801 268-3263
Edcor see ad pg 212

H P MARKETING
Phoenix AZ
602 244-2725
dbx see ad pg 113, 220
JBL see ad pg 103

J F HURLBUT
Golden
303 279-7796
Allen Avionics see ad pg 248

CHUCK JONES
Thornton
303 457-2058
Knox see ad pg 30

LANGE SALES INC
Littleton
303 795-3600
EECO see ad pg 154

LISTEN UP
Denver
303 778-0952
Quantum see ad pg 204

R I A CORP
Denver
303 320-5521
Harris Video see ad pg 44-45
ISI see ad pg 176
System Concepts see ad pg 182

DIDIER DENVER

Evergreen, CO
303/674-6000

AM · FM · TV · LPTV

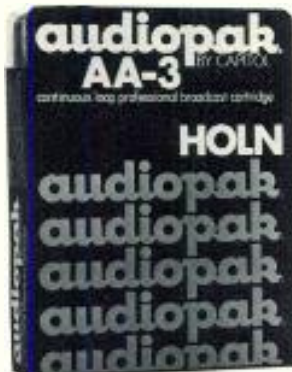
"The Missing Link to Reliable Cart Music Reproduction Has Been the Cart...Not the Cart Machine.

I've been using the Audiopak AA-3 at various stations for over two years, with gratifying results.

The AA-3 is capable of studio master music reproduction with excellent stereo phase stability.

It is durable and reliable in performance throughout its long life.

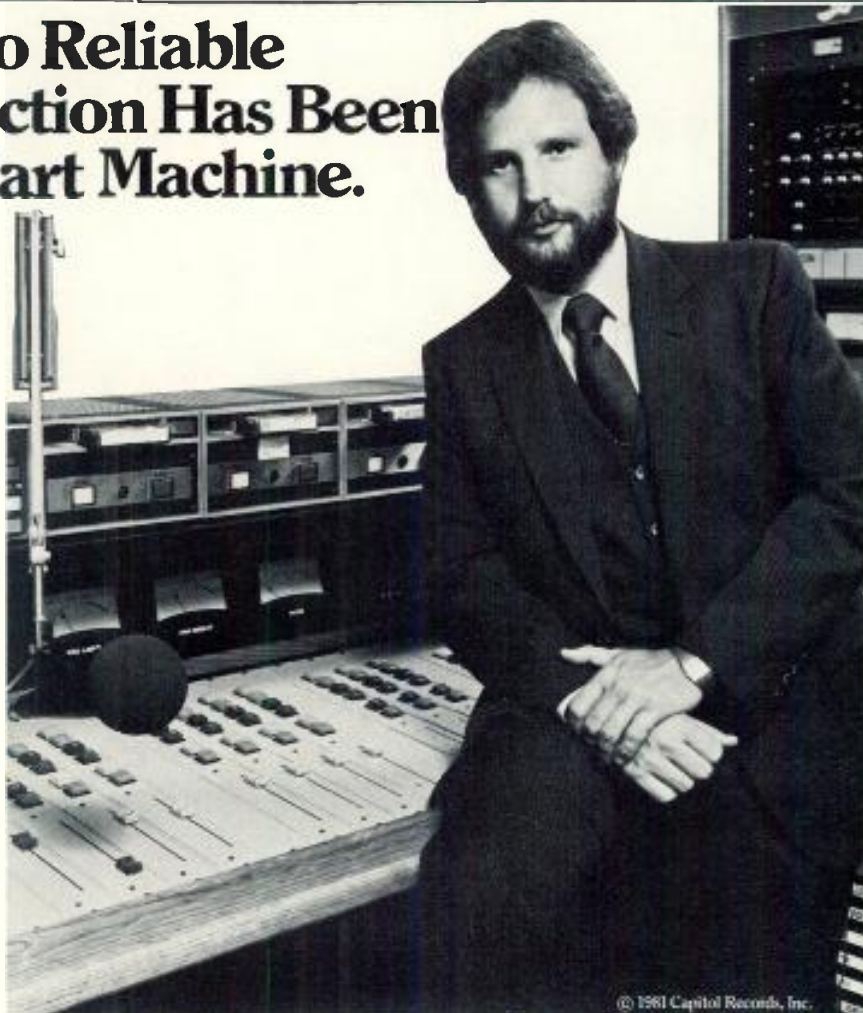
In my opinion, the AA-3 is the best cart we've tested."



AA-3—The Missing Link for stations who care how they sound

Elliott Klein

Corporate Director of Engineering,
Buck Owens Broadcasting Group
Chief Engineer, KNIX AM & FM,
Phoenix, AZ
Consultant to:
Scripps-Howard Broadcasting Co.
(Radio Division)
Sunbelt Communications Ltd.
The Research Group
Transtar Network



CAPITOL MAGNETIC PRODUCTS
A Division Of Capitol Records, Inc.
6902 Sunset Blvd., Hollywood, California 90028 (213) 461-2701

© 1981 Capitol Records, Inc.

Circle 236 on Reader Service Card

IMAGE

At EEV...
Your Image Is
Our Business.



Leddicon® Television
Camera Tubes

® Registered Trademark of
EEV Lead Oxide Camera Tubes

IMAGE

Leddicons assure you dynamically faithful pictures over a long life, and they are rugged.

That is why Leddicons are used in virtually every country, and by the major networks and television camera manufacturers worldwide.

If you want to improve your image, call or write for all the facts about our 2/3", 1" and 30mm Leddicon tube family.

Also ask about our Vidicons... the image standard for color telecine.



EEV, INC.

7 Westchester Plaza, Elmsford, NY 10523, 914-592-6050, TWX 710-567-1215

In Canada: EEV CANADA, LTD., 67 Westmore Drive, Rexdale, Ontario M9V 3Y6, 416-745-9494, TELEX 06-965864

In Europe: English Electric Valve Co. Ltd., Chelmsford, England CM1 2QU Tel: 0245 61777, TELEX 851-99103

Members of the GEC Group of Companies

Circle 237 on Reader Service Card

Reps/Dists

SILVER PEAK MARKETING

Lakewood
303 233-8577
Nady see ad pg 236

TREMBLY ASSOC

Lakewood
303 233-9544
Marconi see ad pg 207

VIDEO TEKNIX

Denver
303 744-1378
Sharp see ad pg 149

CONNECTICUT

APPLIED MEASUREMENTS INC

Hamden
203 288-5288
Lightning Elimination see ad pg 162

LANDY ASSOCIATES, INC.

801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Eddcor see ad pg 212

AUDIO ASSOCIATES

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

AUDIOTECHNIQUES

Stamford
203 354-2312
Auditronics see ad pg 123, 125, 127
ATI see ad pg 141

DAVID BAIN ASSOC

Port Washington NY
516 883-4818
ESE see ad pg 225

CONNECTICUT CALIBRATION

LABS
Monroe
203 261-9518
Philips T&M see ad pg 169

CHAMBERLIN & MURRAY INC

Concord MA
800 343-5519
Ramko see ad pg 155, 157, 159

DAGE CORP

Stamford
203 314-3123
Allen Avionics see ad pg 248

RICHARD DEAN ASSOC

Woburn MA
617 933-8435
JBL see ad pg 103

H B EDUCATIONAL SYSTEMS

New Haven
203 777-5301
Edutron see ad pg 124

H M HOLZBERG ASSOC

Totowa NJ
201 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

LANDY ASSOC INC

Framingham MA
617 877-9570
See ad this page

RAY PERRON & CO INC

Seymore
203 888-4849
EECO see ad pg 154

PROFESSIONAL AUDIO ASSOC

Burlington MA
617 926-6107
dbx see ad pg 113, 220

SPHERE ASSOC

Reston VA
212 246-0176
Cetec Vega see ad pg 117

VIDEO PLAY INDUSTRIES

Rockville
203 872-9195
203 875-5211
Harris Video see ad pg 44-45

DELAWARE

AUDIO ASSOC

Bethlehem PA
215 865-6013
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

DAVID GREEN ASSOC

Leesburg VA
703 777-8660
See ad pg 216
ESE see ad pg 225

MARKETRATION INC

Phoenix MD
301 666-9292
800 638-3330
JBL see ad pg 103

MID-STATES MARKETING INC

Springfield VA
703 569-2661
Philips T&M see ad pg 169

RANDY NEEL

Washington DC
202 547-3436
Nady see ad pg 236

RICHARD S PASS & ASSOC

Langhorne PA
215 757-6100
Eddcor see ad pg 212

SPHERE ASSOC

Reston VA
703 471-1230
Cetec Vega see ad pg 117
dbx see ad pg 113, 220

CASES BUILT FOR THE FUTURE
(OF YOUR EQUIPMENT)



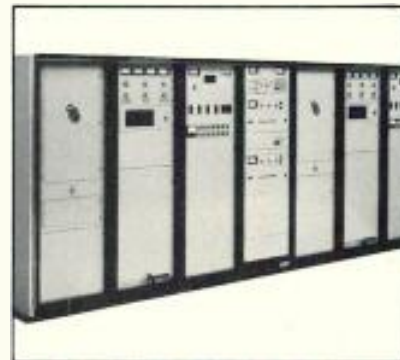
Star Case

When you pack for the ultimate show whether it be across town or across the universe your equipment will land safely with Star Case.

Before your next close encounter on the road call or write


Star Case Manufacturing Company, Inc.
15525 South 70th Court
Orland Park, Illinois 60462
312-429-6200

NOW! CONTINENTAL'S 50 KW FM



High performance. Offers you high fidelity, dynamic balance, good stereo separation, extremely low noise and distortion; excellent frequency stability. Easy installation. Low power consumption. Proven exciter. Available with fully automatic exciter and combiner control.

Write for brochure on 817R-1
Continental Electronics Mfg. Co.
Box 270879
Dallas, Texas 75227

Continental
Electronics 

THE NEWS DIRECTOR'S CAMERA.



You want great picture quality. You get it with the new Toshiba PK-60 ENG/EFM camera. Beautiful pictures, even in the most difficult lighting situations.

You also get a whole range of features that will make you think the PK-60 was designed by one of your colleagues.

Super light weight—at just 9.2 pounds, it's the lightest broadcast color camera in the world.

Perfect balance for your cameramen.

Fast, automatic microprocessor-controlled setup. At the camera head or remotely.

Snap-on battery pack and quick-charge unit.

Configurations to suit just about any remote broadcast situation you will ever encounter. Digital, analog, triax, and wireless triax.

And specifications that will make the chief engineer think you're brilliant.

The PK-60 from Toshiba. It will make your news programs come alive.

Write or call for details. Toshiba America, Inc. Broadcast Electronic Systems Division, 292 Gibraltar Dr., Sunnyvale, CA 94086, (408) 734-9172.

TOSHIBA

Circle 240 on Reader Service Card

Reps/Dists

WILTRONIX INC
Washington Grove MD
301 258-7676

Ramko see ad pg 155, 157, 159
TFT see ad pg 240

DISTRICT OF COLUMBIA

AUDIO ASSOC

Bethlehem PA
215 865-6013
Philadelphia Resins see ad pg 150

DAVID GREEN ASSOC

Leesburg VA
703 777-8660
See ad pg 216
ESE see ad pg 225

ELECTRONIC MARKETING ASSOC

Rockville MD
301 881-5300
EECO see ad pg 154

INSTRUCOM INC

Washington DC
202 223-1759
Lightning Elimination see ad pg 162

LANDY ASSOC INC

Cherry Hill NJ
609 424-4660
See ad this page

MID STATES MARKETING INC

Springfield VA
703 569-2661
Philips T&M see ad pg 169

MIDWEST TELECOMMUNICATIONS

Lanham MD
301 577-4903
ISI see ad pg 176

RICHARD S PASS & ASSOC

Langhorne PA
215 757-6100
Edcor see ad pg 212

SPHERE ASSOC

Reston VA
703 471-1230
Cetec Vega see ad pg 117
dbx see ad pg 113, 220

WILTRONIX INC

Washington Grove MD
301 258-7676
Leitch see ad pg 128
Ramko see ad pg 155, 157, 159

FLORIDA

AVS PROFESSIONAL

Tampa
813 884-1461
Circuit Research Labs see ad pg 247

BREIT'S TOWER SERVICE

Miami
305 858-3143
Philadelphia Resins see ad pg 150

MICHAEL CHAFEE INTERNATIONAL

Sarasota
813 366-9414
Cetec Vega see ad pg 117

CONTROL TECHNOLOGY

Ft Lauderdale
305 792-7791
MCI see ad pg 62

CRESCENDO ASSOC

Ponte Vedra Beach
904 285-6732
dbx see ad pg 113, 220
Nady see ad pg 236

FLORIDA VIDEO SYSTEMS

Ft Lauderdale
305 771-4784
Convergence see ad pg 242
Sharp see ad pg 149
Jacksonville
904 737-5083
Miami
305 688-6618
Sharp see ad pg 149

FM ASSOC LTD

Orlando
305 851-5710
305 851-5716
Lightning Elimination see ad pg 162

FUTURE VIDEO SYSTEMS

St Petersburg
813 577-7759
Digital Video see ad pg 137
Listec see ad pg 131

GRAY COMMUNICATIONS

Tampa
813 885-1411
Orlando
305 896-7414
ATI see ad pg 141
Convergence see ad pg 242
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
TFT see ad pg 240

HUTTO HAWKINS PEREGOY INC

Maitland
305 831-2474
Edcor see ad pg 212

IMAGE RESOURCES

Winter Park
305 678-9779
Edutron see ad pg 124

LEE FLORIDA

Winter Haven
813 294-5815
Marconi see ad pg 207

MIDWEST CORP

Miami
305 592-3007
Edutron see ad pg 124

MIDWEST TELECOMMUNICATIONS

Miami
305 592-5355
ISI see ad pg 176
Videomedia see ad pg 230

GENE MURPHY

Deland
904 736-7604
Strand Century see ad pg 148

ONYX SYSTEMS

Orlando
305 894-7034
Quantum see ad pg 204

PRO-AUDIO GENERAL STORE

Coral Springs
305 752-0330
ATI see ad pg 141
Auditrionics see ad pg 123, 125, 127
MCI see ad pg 62
Quantum see ad pg 204

RECORDING STUDIO EQUIPMENT

N Miami Beach
305 945-9774
See ad this page
MCI see ad pg 62

REPELECT

Tampa
813 227-5051
Ramko see ad pg 155, 157, 159

REYNOLDS & ASSOC

Ft Lauderdale
305 581-6611
St Petersburg
813 360-1484
Satellite Beach
305 773-4700
Allen Avionics see ad pg 248

R H ASSOC

Clearwater
813 442-7505
NEC America see ad pg 107

ROSCOM

Atlanta GA
404 992-2700
ESE see ad pg 225

SEMTRONIC ASSOC INC

Clearwater
813 461-4675
EECO see ad pg 154

SESCO

St Petersburg
813 576-6911
Topaz see ad pg 217

SOUND & SIGNAL

Tampa
813 253-0923
Quantum see ad pg 204

SOUTHEAST ELECTRONICS

Jacksonville
904 356-3007
Edutron see ad pg 124

SUN VIDEO COMMUNICATIONS

Largo
813 866-6651
System Concepts see ad pg 182

TEQSPEC

Clearwater
813 725-2201
Ft Lauderdale
305 748-9292
Philips T&M see ad pg 169

GEORGIA

BCA-BROADCAST COMMUNICATIONS ASSOC

Peachtree City
404 487-9559
Auditrionics see ad pg 123, 125, 127
LPB see ad pg 104
Moseley see ad pg 31

JAMES W BELL JR

Atlanta
404 237-6819
Electrohome see ad pg 48

CONTROL TECHNOLOGY

Ft Lauderdale FL
305 587-2716
Quantum see ad pg 204

DOUG COOK & ASSOC

Charlotte NC
704 542-6510
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CRESCENDO ASSOC

Atlanta
404 321-4013
Nady see ad pg 236

ELECTRONIC EQUIPMENT

Atlanta
404 873-5841
Sharp see ad pg 149

ELREP SALES CO

Atlanta
404 938-7108
Edcor see ad pg 212

EME II

Decatur
404 325-0165
NEC America see ad pg 107

FM ASSOC LTD

Atlanta
404 451-2293
404 452-1535
Lightning Elimination see ad pg 162

GRAY COMMUNICATIONS

Doraville
404 455-3121
Albany
912 883-2121
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Listec see ad pg 131

MONTGOMERY MARKETING INC

Norcross
404 447-6124
EECO see ad pg 154

LEW RADFORD

Atlanta
404 237-6097
Asaca see ad pg 160-161
Knox see ad pg 30

REYNOLDS & ASSOC

Atlanta
404 393-9113
Allen Avionics see ad pg 248

RECORDING STUDIO EQUIPMENT

14207 N. E. 18th AVENUE, N. MIAMI BEACH, FL 33160
(305) 945-9774

WE FEATURE: MCI TAPE RECORDERS & MIXING CONSOLES • TECHNICS RADIO & BROADCAST SERIES • JBL MONITORS • AUDIO & DESIGNS • DOLBY LABS • DBX • CROWN • UREI • ORBAN • EVENTIDE • MRL • OTARI • AKG • BEYER • EV • NEUMANN • SENNHEISER • SHURE • SONY.

LANDY ASSOCIATES, INC.

1890 E. MARLTON PIKE, CHERRY HILL, NJ 08003
(609) 424-4660

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.



ACE. The Editor's Choice. With more choices for editors.

This is the most adaptable, most flexible, most fully human-engineered editing system ever.

This is ACE. Ampex Computerized Editing.

TouchScreen™. The Ultimate in Editing.

No keyboard. No buttons. No lightpen. That's ACE's unique TouchScreen.

As your finger gently touches a particular command on the screen, ACE instantly senses the location of your finger, compares it with the command on the screen, then executes the function or sequence.

All you do is touch and edit. It's that simple.

Standard Options With Uncommon Flexibility.

If you're accustomed to working with the

simplicity of a dedicated keyboard, ACE offers one with exciting new flexibility. We've added eight soft keys that increase available functions. Without increasing complexity. They're even programmable to perform repetitive operations, so you don't have to.

Rather work with the familiar ASCII typewriter keyboard? ACE has that, too. Plus programmable soft key operation.

ACE also complements each editing mode with an improved version of the popular joystick control to make finding edit points easy.

Modular Design for Today. And Tomorrow.

Once the basic ACE system is installed, its modular design allows you to make enhancements economically. The advanced thinking that went into ACE assures that, as your needs grow, ACE

can grow with you.

To find out how ACE can start taking care of your editing needs today, get in touch with your Ampex representative for more information.

ACE. It Lets the Editor Make the Choice.



Ampex Corporation,
Audio-Video Systems Division
401 Broadway, Redwood City, CA 94063
415/367-2011
Sales, Spares and Service Worldwide.

Circle 241 on Reader Service Card

EYE-OPENERS

Just when everyone had their eyes wide open to the outstanding line of Ikegami broadcast and production color cameras, Ikegami introduced its color and B&W monitor line, engineered with the same innovative technology as its cameras. A great tradition of eye-opening continues with precision, quality and beautiful images.

The Ikegami color monitor line consists of the High Resolution Series RH Color Monitors and the High Performance Series 8 Color Monitors. The High Resolution Series RH Color Monitors are available in the 14" TM 14-2RHA and the 20" TM 20-8RH. Both provide precision color reproduction at 600 plus lines for professional studios, control rooms, remote vans, etc., and feature a high resolution CRT with High Density Dot Matrix, a switchable comb filter in the decoder, and the AFPC (Automatic Frequency Phase Control) system to maintain exceptional color reproduction. Both models are rack-mountable, with the TM

14-2RHA featuring plug-in circuit boards for easy maintenance.

The High Performance Series 8 Color Monitors are available in the 14" TM14-8RC, 20" TM20-8R and 25" TM25-8. The Series 8 monitors offer high quality color reproduction, a Shadow Mask Dot Matrix CRT, Pulse Cross Circuit, Active Convergence Circuit, low power consumption, and more.

The B&W Monitors are engineered to the same exacting Ikegami standards and are available in Triple 5", Dual 9", 5", 9", 12", 17" and 20" sizes.

Ikegami's Eye-Openers are available at most dealers. For details and additional information, contact: Ikegami Electronics (USA) Inc., 37 Brook Ave., Maywood, NJ 07607, (201) 368-9171; West Coast: 19164 Van Ness Ave., Torrance, CA 90501, (213) 328-2814; Southwest: 330 North Belt East, Suite 228, Houston, TX 77060, (713) 445-0100; Southeast: 522 So. Lee St., Americus, GA 31709, (912) 924-0061.



Video Products built to Ideal Standards

ITC Ikegami

Circle 242 on Reader Service Card

Reps/Dists

ROSCOM INC

Roswell
404 992-2700
ESE see ad pg 225
Ramko see ad pg 155, 157, 159
TFT see ad pg 240

SESCO

Allianta
404 458-6423
Topaz see ad pg 217

TECHNICAL INDUSTRIES

Atlanta
404 455-7610
Convergence see ad pg 242
Harris Video see ad pg 44-45

TECHNICAL SYSTEMS REPS

Chamblee
404 457-0426
JBL see ad pg 103

TEQSPEC

Atlanta
404 455-7222
Philips T&M see ad pg 169

VISUAL SYSTEMS CO

Atlanta
404 457-1388
Edutron see ad pg 124

WILSON AUDIO SALES

Franklin TN
615 794-0155
Cetec Vega see ad pg 117
dbx see ad pg 113, 220

HAWAII

BROADCAST SERVICES INC

Honolulu
808 521-6311
Philadelphia Resins see ad pg 150

RH CAMPBELL INC

Honolulu
808 946-1048
Lightning Elimination see ad pg 162

EMC CORP

Honolulu
808 836-1138
Convergence see ad pg 242
Harris Video see ad pg 44-45
Knox see ad pg 30
Sharp see ad pg 149

INDUSTRIAL ELECTRONICS

Honolulu
808 533-6095
Topaz see ad pg 217

MARCOM

Scotts Valley CA
408 438-4273
Singer Broadcast see ad pg 221

MEYER & ROSS

Mililani Town
808 623-1860
Nady see ad pg 236

ROGER PONTO ASSOC

Bellevue WA
206 453-8487
dbx see ad pg 113, 220

STAR ENTERPRISES

Yorba Linda CA
714 996-5622
JBL see ad pg 103

TASCO INC

Bellevue WA
206 453-1414
Philips T&M see ad pg 169

JIM WALTERS CO

Honolulu
808 373-2701
Ramko see ad pg 155, 157, 159

IDAHO

BROADCAST COMMUNICATION PRODUCTS

Golden CO
303 424-3231
Singer Broadcast see ad pg 221

DIDIER/DENVER

Evergreen CO
303 674-6000
TFT see ad pg 240

JAMES E HALL CO

Salt Lake City UT
801 268-3263
Edcor see ad pg 212

HALL ELECTRONICS

Boise
208 336-5894
Ramko see ad pg 155,157,159

H P MARKETING

Littleton CO
303 794-8367
dbx see ad pg 113,220

MATRIX MARKETING

Seattle WA
206 789-5990
Cetec Vega see ad pg 117

JIM NEAL & ASSOC

Gillette WY
307 682-8314
Philadelphia Resins see ad pg 150

NORTH SHORE MARKETING

Redmond WA
206 244-2725
JBL see ad pg 103

CHUCK OLSON ASSOC

Renton WA
206 271-5416
Edcor see ad pg 212

TASCO INC

Portland OR
503 245-8168
Philips T&M see ad pg 169

ILLINOIS

ALLIED BROADCAST EQUIPMENT

Chicago
312 784-2257
Auditronics see ad pg 123,125,127
ESE see ad pg 225

JOHN AMSTADTER

Park Forest
312 748-4741
Nady see ad pg 236

ANCHA ELECTRONICS INC

Elk Grove Village
312 437-7712
See ad pg 194

ARGONNE ELECTRONICS

Niles
312 736-2600
Sharp see ad pg 149

AUDIO RESOURCES

Westmont
312 685-2338
Cetec Vega see ad pg 117

A V C SYSTEMS INC

Chicago
312 763-6010
Quantum see ad pg 204

BROADCAST ELECTRONICS INC

Quincy
217 224-9600
Bald Mountain Labs see ad pg 252

CARVEL ENGINEERING SALES

Shaumburg
312 885-8800
Topaz see ad pg 217

BSM SYSTEMS

"Remote Broadcast Unit"

Features:

2 Mike Channel
1 Tape Channel
AC or Battery
Rugged Case
Studio Talk Back
Removeable Lid



Portable
Lightweight
Easy to Operate

The unit shown above is our middle of the line model, RBU-1. If this unit is too much mixer or too little, call or write for complete information on our other systems. We have one just right for you.

BSM SYSTEMS
BOX 8081 MANITO
SPOKANE, WA 99203
(509) 448-0697

Manufacturers of
Quality Broadcast Equipment

NEW - SYSTEM 20



SYSTEM 20 is the latest addition to our family of innovative broadcast mixers. Although larger in size and scope, it still retains the elegant low profile appearance of our other desk top audio consoles.

Affordable options include 7-frequency graphic equalizers, pan pots and a studio monitor output which can be selected from the studio. Technical features include P & G slide faders, custom wound wide band output transformers and voltage regulators on each mixer.

This all new design has spectacular performance at a surprisingly low cost. Delivery? Four weeks or less. Why wait?

11355 PYRITES WAY
RANCHO CORDOVA, CA 95670
(916) 635-1048

**BROADCAST
AUDIO CORPORATION**

Reps/Dists

COLUMBIA VIDEO SYSTEMS

Highland Park
312 433-6010
Sharp see ad pg 149

CORBELL ELECTRONICS

Carterville
618 985-6367
Sharp see ad pg 149

G DUVALL CO

Chicago
312 774-5155
Philadelphia Resins see ad pg 150

VICTOR DUNCAN INC

Chicago
312 943-7300
Digital Video see ad pg 137
Nady see ad pg 236

DYER ELECTRONICS

Farmington Hills MI
313 478-2157
QSI see ad pg 122
TFT see ad pg 240

ELECTRO-TECH MARKETING ASSOC

Chicago
312 588-4535
Allen Avionics see ad pg 248

RICHARD L GRAHAM ASSOC

Leawood KS
913 383-3475
Edcor see ad pg 212

JACKMAN SALES INC

Berkeley
312 261-0342
Electrohome see ad pg 48

MARCUS JOHNSON & ASSOC

St Charles MO
314 441-7066
Nady see ad pg 236

LASSERS SANGWIN LASSERS CO

Chicago
312 539-0170
Edcor see ad pg 212

MILAM AUDIO

Pekin
309 346-3161
Auditronics see ad pg 123,125,127
MCI see ad pg 62
Quantum see ad pg 204

RON MITCHELL-DEBBIE SANDER

Elk Grove
312 640-7077
McCurdy Radio see ad pg 11

NOMAD ENGINEERING

Northfield
312 446-2725
Lightning Elimination see ad pg 162

OASIS SALES

Elk Grove Village
312 640-1850
EECO see ad pg 154

GARY OLSON

Lake Forest

312 295-6726
Knox see ad pg 30

PALATINE SALES INC

Hazelwood MO
314 895-4577
Phillips T&M see ad pg 169

PRO AUDIO GENERAL STORE

Carroll Stream
312 690-8301
ATI see ad pg 141

ROSCOR CORP

Morton Grove
312 539-7700
Convergence see ad pg 242
Edutron see ad pg 124
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 141
Listec see ad pg 131
Sharp see ad pg 149
Videomedia see ad pg 230

STEFFEY MARKETING ASSOC

Northbrook
312 480-3575
JBL see ad pg 103

SWIDERSKI ELECTRONICS

Elk Grove Village
312 364-1900
System Concepts see ad pg 182

TELEVISUAL

Springfield
217 525-1238
Edutron see ad pg 124

TORKELSON ASSOC INC

Northfield
312 446-9085
Phillips T&M see ad pg 169

BRIAN TUCKER

Barrington
312 381-4559
Studer-Revox see ad Cover 3

INDIANA

ALLIED BROADCAST EQUIPMENT

Richmond
317 962-8596
ATI see ad pg 141
Auditronics see ad pg 123,125,127
ESE see ad pg 225
LPB see ad pg 104
Moseley see ad pg 31
Quantum see ad pg 204

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

AUDIO RESOURCES

Westmont IL
312 655-1180
dbx see ad pg 113,220

AUDIO VISUAL SPECIALTIES

Ft Wayne
219 483-0528
Edcor see ad pg 212
Edutron see ad pg 124

BA ELECTRONICS

Terre Haute
812 232-1061
Convergence see ad pg 242
Harris Video see ad pg 44-45

CENTURY DYNAMICS INC

Ft Wayne
291 486-2681
Lightning Elimination see ad pg 162

DOUG COOK & ASSOC

Charlotte NC
704 542-6510
Singer Broadcast see ad pg 221

BRUCE DAWSON ASSOC

Indianapolis
317 241-1364
NEC America see ad pg 107

HM DYER ELECTRONICS INC

Farmington Hills MI
313 478-2157
Philadelphia Resins see ad pg 150
TFT see ad pg 240

KAVCO INC

Evansville
812 476-6327
Indianapolis
317 251-0800
ISI see ad pg 176
Sharp see ad pg 149

KEYSTONE CROSSINGS

Indianapolis
317 267-8901
Edutron see ad pg 124

KENNETH W MEYERS CO

Indianapolis
317 243-6681
Marconi see ad pg 207

MRC ASSOC

Indianapolis
317 849-0544
Edcor see ad pg 212

M S SALES & ASSOC

Fort Wayne
219 484-1904
Indianapolis
317 257-8915
EECO see ad pg 154

TED PAPPAS & ASSOC

Chicago IL
312 685-2338
Cetec Vega see ad pg 117

SOUTHWESTERN COMMUNICATIONS

Evansville
812 477-6495
Edutron see ad pg 124

TORKELSON ASSOC INC

Indianapolis
317 244-7867
Phillips T&M see ad pg 169

BOB WHITE ASSOC

Solon OH
216 248-1317
JBL see ad pg 103

IOWA

ALLIED BROADCAST EQUIPMENT

Richmond IN
317 962-8596
ESE see ad pg 225

BROADCAST COMMUNICATIONS PRODUCTS

Golden CO
303 424-3231
Singer Broadcast see ad pg 221

CENTURIAN MARKETING ASSOC

Baldwin MO

314 227-7229
dbx see ad pg 113,220

EMMONS ASSOC

Burnsville MN
612 890-8920
TFT see ad pg 240

ENTERPRISES INC

Milwaukee WI
414 257-4668
Philadelphia Resins see ad pg 150
Ramko see ad pg 155,157,159

RICHARD L GRAHAM ASSOC

Leawood KS
913 383-3475
Edcor see ad pg 212

MARCUS JOHNSON & ASSOC

St Charles MO
314 441-7066
Nady see ad pg 236

PALATINE SALES INC

Cedar Rapids
319 365-8071
EECO see ad pg 154
Phillips T&M see ad pg 169

RM ASSOC LTD

Shawnee Mission KS
913 631-7606
JBL see ad pg 103

VIDEO MIDWEST INC

Des Moines
515 244-1447
Asaca see ad pg 160-161
Convergence see ad pg 242
Sharp see ad pg 149
System Concepts see ad pg 182

KANSAS

ATECH

Shawnee
913 268-9644
Topaz see ad pg 217

BROADCAST COMMUNICATION PRODUCTS

Golden CO
303 424-3231
Singer Broadcast see ad pg 221

BROADCAST TECHNICAL CONSULTANTS

Shawnee Mission
913 677-1483
Listec see ad pg 131

BUSINESS COMMUNICATIONS

Kansas City
913 342-4000
Sharp see ad pg 149

C & C SALES

Lenexa
913 888-6200
Lightning Elimination see ad pg 162

CENTREX A/V SYSTEMS

Topeka
913 232-7701
Convergence see ad pg 242
ISI see ad pg 176

CENTURIAN MARKETING ASSOC

Baldwin MO
314 227-7229
dbx see ad pg 113,220

DIDIER/DENVER

Evergreen CO
303 674-6000
TFT see ad pg 240

RICHARD L GRAHAM ASSOC

Leawood
913 383-3475
Edcor see ad pg 212

ANCHA ELECTRONICS, INC.
189 GORDON STREET, ELK GROVE VILLAGE,
IL 60007
(312) 437-7712

A/V SYSTEMS AND EQUIPMENT INCLUDING: LENCO, MICROTIME, ISI, JVC, SHINTRON, DYNAIR, DATATEK, ELECTROHOME, COHU, ITE, BROADCAST VIDEO SYSTEMS, VIDEOTEK, JERROLD, AMPEX, SWINTEK, ALTEC, YAMAHA, BIAMP, EV, JBL.

For every product manufactured, there's always a leader.



And when it comes to Headsets, it's Telex

Write us today, and we'll tell you why.

Quality products for the audio professional



TELEX

TELEX COMMUNICATIONS, INC.

9600 Aldrich Ave. So., Minneapolis, MN 55420 U.S.A.
Europe: 22, rue de la Légion-d'Honneur, 93200 St. Denis, France.

Circle 245 on Reader Service Card

www.americanradiohistory.com

Reps/Dists

JIM GRUNDER
Westwood Hills
913 831-0188
Knox see ad pg 30

MARCUS JOHNSON & ASSOC
St Charles MO
314 441-7066
Nady see ad pg 236

NICHOLS ELECTRONICS
Wichita
316 686-2131
Sharp see ad pg 149

PALATINE SALES INC
Mission
913 831-0555
EECO see ad pg 154
Philips T&M see ad pg 169

R M ASSOC
Des Moines IA
515 274-2517
Cetec Vega see ad pg 117
JBL see ad pg 103

RADIO SUPPLY CO
Wichita
316 267-5213
Philadelphia Resins see ad pg 150

REESE & ASSOC
Overland Park
913 648-2573
Lightning Elimination see ad pg 162

TELEVISION ENGINEERING CORP
Prairie Village
913 642-8011
Ikegami see ad pg 54,156,185,192

KENTUCKY

AMERICAN SOUND
Covington
606 261-9024
Harris Video see ad pg 44-45

AUDIO RESOURCES
Westmont IL
e12 655-1180
dbx see ad pg 113,220

DOUG COOK & ASSOC
Charlotte NC

704 542-6510
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 149

BRUCE DAWSON ASSOC
Prospect
502 228-4898
Knox see ad pg 30

RALPH L HUCABY
Nashville TN
615 373-0231
TFT see ad pg 240

MIDWEST TELECOMMUNICATIONS

Louisville
502 491-2888
Digital Video see ad pg 137
Edutron see ad pg 124
Ikegami see ad pg 54,156,185,192
ISI see ad pg 176
System Concepts see ad pg 182
Videomedia see ad pg 230

M R C ASSOC
Indianapolis IN
317 849-0544
Eddor see ad pg 212

TED PAPPAS & ASSOC
Chicago IL

312 685-2338
Cetec Vega see ad pg 117

TORKELSON ASSOC INC
Indianapolis IN
317 244-7867
Philips T&M see ad pg 169

BOB WHITE ASSOC
Solon OH
216 248-1317
JBL see ad pg 103

LOUISIANA

ALPHATECH INC
Houston TX
713 466-1979
Philips T&M see ad pg 169

AUDIOMEDIA ASSOC
New Orleans
504 586-0140
See ad this page
ATI see ad pg 141
LPB see ad pg 104
Philadelphia Resins see ad pg 150
Quantum see ad pg 204
Singer Broadcast see ad pg 221

AUDIOMEDIA ASSOCIATES
P.O. BOX 29264, NEW ORLEANS, LA 70189
(504) 586-0140

ANDREW, CCA, CABLEWAVE, MARTI, MOSELEY, QEI, ORBAN OPTIMOD, DIELECTRIC, SHIVELY, PHELPS/DODGE, PHILLYSTRAN & OTHER RF EQUIP. STUDIO LINES: AMPRO, AUDICORD, BE/SPOTMASTER, OTARI, LPB, QUANTUM, UREI, ORBAN, TECHNICS, RUSSCO.

GBS-GIESLER BROADCASTING SUPPLY, INC.
9440-L HARWIN, HOUSTON, TX 77036
(713) 974-6205

ORBAN, MOSELEY, CABLEWAVE, BELAR, PHELPS DODGE, BE, POTOMAC, MARK, MARTI, RF PROD., AMPEX, SCULLY, AUTOGRAM, DBX, REVOX, LOGITEK, MCI, OTARI, TECHNICS, JBL, EV, UREI, REVOX, SHURE. COMPLETE STATION REQUIREMENTS.

NOW, ONE MICROPHONE CAPTURES IT ALL.

The Sennheiser Telemike Electret Microphone System.

Its unique modular design provides all the flexibility and precision of a collection of separates—from omni to super cardioid, spot to shotgun, telescopic boom to tie-clip lavalier.

All, at a fraction of the price of comparable separates.

And all, with the most advanced electret technology available: our unique back-electret.

See your Sennheiser dealer for details. And capture it all.

All components available separately or as a package.



SENNHEISER

ELECTRONIC CORPORATION
10 West 37th Street, New York, N.Y. 10018
(212) 239-0190

© 1981, Sennheiser Electronic Corporation (N.Y.)

Circle 246 on Reader Service Card

CDE CORNELL-DUBILIER

Transmitting Mica Capacitors



STOCK DELIVERY ON MOST RATINGS

ITT JENNINGS VACUUM CAPACITORS

SURCOM ASSOCIATES
305 Wisconsin Avenue
Oceanside, California 92054
(714) 722-6162

Circle 247 on Reader Service Card

Why 4 out of 5 earth stations for TV broadcasting are from Scientific-Atlanta

Model 8010 7-Meter Antenna. Designed specifically for television broadcasting. Exceeds all broadcast earth station requirements.

Full geostationary satellite arc coverage.

Highly reliable GaAs Fet low noise amplifier. Fully enclosed for weather protection.

Factory-installed de-icing systems available for severe weather conditions.

Easy to install. Minimal space requirements.

Scientific-Atlanta has designed, built, and delivered more broadcast earth stations than any other company in the world. A lot more. Here are some reasons why.

SCIENTIFIC-ATLANTA MAKES THE ENTIRE SYSTEM

Scientific-Atlanta builds complete satellite earth station systems for the television industry. Our earth station packages give you everything you need to turn satellite signals into programming revenues. Antennas, receivers, low noise amplifiers, and installation and service.

THE RIGHT SYSTEM FOR YOUR NEEDS

As the industry's largest manufacturer, we offer a wider choice in complete system packages. And we have the practical, total systems experience to help you put together the earth station to fit your technical requirements. And your budget.

A broadcast earth station can be as simple as our Model 8501 Basic Receive-only system. It consists of an antenna assembly, a low-noise amplifier (LNA), and a video receiver.

This is the basic downlink system. It's perfect for operations such as taping satellite programming for future broadcast.

For added flexibility as well as improved reliability, many broadcasters choose our Model 8502 Receive-Only Earth Station. It includes a second set of electronics to give simultaneous reception on two different satellite channels—a significant increase in signal receiving ability.

What's more, the additional electronics serve as back-up units for the primary

set, giving full station redundancy.

Should a malfunction occur in your primary on-line components, protection switching devices are included in the Model 8502 package which will automatically switch those functions over to the redundant stand-by units without interrupting on-line reception.

SUPPLY YOUR OWN PROGRAMMING

Scientific-Atlanta has supplied 97% of all the satellite uplinks currently in use by commercial TV broadcasters.

When you buy a Scientific-Atlanta uplink, you get the entire package, from the initial site planning advice to the final proof of performance procedure.

If you prefer, the uplink package can include frequency coordination, FCC licensing, and supervision for pouring of the foundation (using local construction crews for minimum cost).

MORE SATELLITE COVERAGE MEANS MORE PROGRAMMING

Scientific-Atlanta broadcast earth stations are available with full geostation-

ary satellite arc coverage. Your system can "see" all current and future domestic communications satellites from anywhere in the continental United States.

No other antenna system offers more satellite coverage.

Pre-programmable motor-drive systems are available for 7- and 10-meter antennas. You can switch from one satellite to another in 60 seconds or less.

For example, by entering a simple two-digit code into our remote-control antenna positioning unit, your antenna can be switched to a different satellite during a commercial break.

WRITE OR CALL FOR INFORMATION

Clip this coupon for more information on the most advanced satellite earth station systems available for the television broadcast industry. Or call or write Ron Pearl at (404) 449-2064.

Scientific Atlanta Communications

BM/E-9/81

Attn: Mr. Ron Pearl
3845 Pleasantdale Rd.
Atlanta, Georgia 30340

Please send more information on satellite earth stations for television broadcasting.

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____
BUSINESS TELEPHONE () _____

United States: One Technology Parkway, Box 105600, Atlanta, Georgia 30348. Telephone 404-441-4000. TWX 810-766-4912, Telex 0542898
Canada: 1640 Bonhill Road, Unit 6, Mississauga, Ontario L5T 1C8, Canada. Telephone 416-677-6555, Telex 06983600
Europe: Horton Manor, Stanwell Road, Horton, Slough SL3 9PA, England. Telephone Colmbr ok (02182) 3211, Telex 849406

Reps/Dists

DICK BELLEW SALES INC

Lenner
514 468-1489
Nady see ad pg 236

DIMENSION MARKETING GROUP

Dallas TX
214 348-9657
Cetec Vega see ad pg 117

DOBBS-STANFORD CORP

Irving TX
214 259-3737
JBL see ad pg 103

FOGERTY ENGINEERING SALES

Baton Rouge
504 928-3372
Gretna
504 366-3264
Lightning Elimination see ad pg 162

GBS-GIESLER BROADCASTING SUPPLY INC

Houston TX
713 974-6205
See ad pg 196

GRAY COMMUNICATIONS

New Orleans
504 733-7265
Convergence see ad pg 242
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176

INTERSTATE SCHOOL SUPPLY

Baton Rouge
504 387-5131
Convergence see ad pg 242

MILLER & ASSOC

Dallas TX
214 661-5002
Eddor see ad pg 212

MZB & ASSOC

Dallas TX
214 233-5535
See ad this page

PARCOM

Southlake TX
817 481-7221
Ramko see ad pg 155,157,159
TFT see ad pg

REP TECH INC

Terrell TX
214 222-2131
dbx see ad pg 113,220

SESCO

Baton Rouge
504 928-4951
Topaz see ad pg 217

SOUND ELECTRONICS

Lafayette
318 984-0490
Digital Video see ad pg 137
System Concepts see ad pg 182

M Z B & ASSOCIATES
4203 BELTWAY DRIVE, DALLAS, TX 76248
(214) 233-5535

ALSO, OFFICES AT 16502 NORTHCHASE, SUITE E HOUSTON, TX 77060-713/448-0881
MAJOR BDCST/VIDEO LINES-IKEGAMI, SONY, JVC, ETC. PROFESSIONAL SALES, SERVICE, RENTAL & INSTALLATION SERVING THE SOUTHWEST FOR OVER 25 YEARS.

MAINE

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Eddor see ad pg 212

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

CHAMBERLAIN & MURRAY INC

Concord MA
800 343-5519
Ramko see ad pg 155,157,159

RICHARD DEAN ASSOC

Woburn MA
617 933-8435
JBL see ad pg 103

H M HOLZBERG & ASSOC

Totowa NJ
201 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

INTERSELL

Burlington MA
617 273-3844
Phillips T&M see ad pg 169

LAKE SYSTEMS CORP

Newton MA
617 244-6881
ESE see ad pg 225

LANDY ASSOCIATES INC

Framingham MA
617 877-9570
See ad this page, above

MAINE VIDEO SYSTEMS

Portland
207 773-2355
Sharp see ad pg 149

RAY PERRON & CO INC

Dover NH
603 742-2321
800 225-4280
EECO see ad pg 154

PROFESSIONAL AUDIO ASSOC

Burlington MA
617 926-6107
dbx see ad pg 113,220

SPHERE ASSOC

Reston VA
212 246-0176
Cetec Vega see ad pg 117

MARYLAND

AUDIO ASSOC

Bethlehem PA
215 865-6013
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

BEKR INDUSTRIES

Bethesda
301 654-1434
Marconi see ad pg 207

LANDY ASSOCIATES, INC.

801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

COLLMUS SOUND INC

Baltimore
301 747-6339
Quantum see ad pg 204

ELECTRONIC MARKETING ASSOC

Rockville MD
301 881-5300
301 744-7700
EECO see ad pg 154

JIM FAIRBANK

Reistertown
301 252-8919
Knox see ad pg 30

DAVID GREEN ASSOC

Leesburg VA
703 777-8660
See ad pg 216
ESE see ad pg 225

LANDY ASSOCIATES INC

Cherry Hill NJ
609 424-4660
See ad this page, below

MARKETRATION INC

Phoenix
301 666-9292
800 638-3330
JBL see ad pg 103

MID-STATES MARKETING INC

Springfield VA
703 569-2661
Phillips T&M see ad pg 169

MIDWEST TELECOMMUNICATIONS

Lanham
301 577-4903
Digital Video see ad pg 137
Eddor see ad pg 212
Videomedia see ad pg 230

RANDY NEEL

Washington DC
202 547-3436
Nady see ad pg 236

RICHARD PASS & ASSOC

Langhorne PA
215 757-6100
Eddor see ad pg 212

PEIRCE-PHELPS

Bethesda
301 530-9580
Digital Video see ad pg 137
Ikegami see ad pg 54, 156, 185, 192

POWELL-PENDERGRAPH

Bethesda
301 656-4535
Topaz see ad pg 217

PROFESSIONAL PRODUCTS

Bethesda
301 657-2141
Lanham
301 657-2141
Convergence see ad pg 242
Eddor see ad pg 212
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
ISI see ad pg 176

RCI

Silver Spring
301 587-1800
Quantum see ad pg 204

SPHERE ASSOC

Reston VA
703 471-1230
Cetec Vega see ad pg 117
dbx see ad pg 113,220

J WELLMAN

Bel Air
301 879-1794
Asaca see ad pg 160-161

WILTRONIX INC

Washington Grove
301 358-7676
ATI see ad pg 141
Leitch Video see ad pg 128
NEC see ad pg 107
Ramko see ad pg 155,157,159
TFT see ad pg 240

MASSACHUSETTS

APPLIED MEASUREMENTS INC

Acton
617 263-2766
617 646-7250
Lightning Elimination see ad pg 162

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Eddor see ad pg 212

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

LANDY ASSOCIATES, INC.

1890 E. MARLTON PIKE, CHERRY HILL, NJ 08003
(609) 424-4660

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

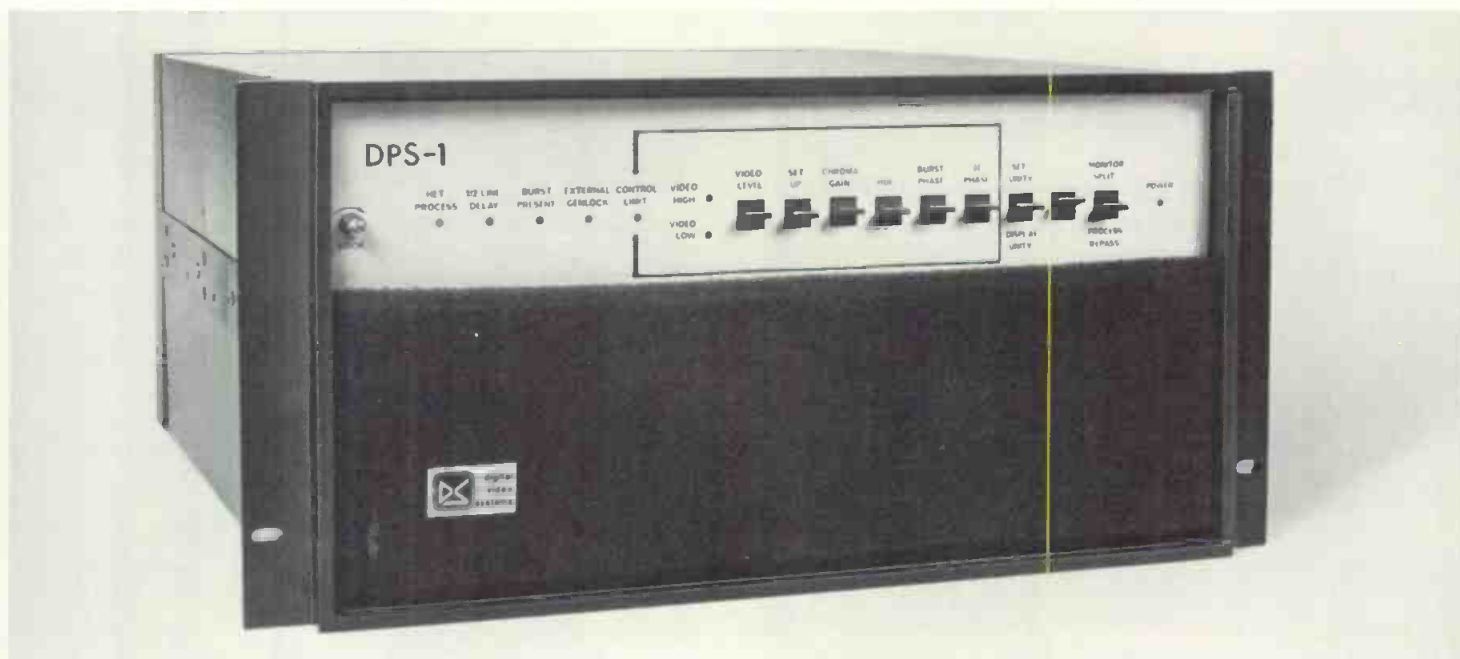
DIGITAL

VIDEO SYSTEMS

DPS-1 TIME BASE CORRECTOR

\$16,430

Trade in your old TBC. Allowance up to \$4,000.



Fixed 32 line window for precise vertical blanking.

A fixed window is used instead of a floating window which results in faster lockup without vertical hunting.

Digital burst processing.

Used to provide line by line clock phase correction accuracy to 0.5 nanoseconds.

Digital servo.

Eliminates horizontal cycle hopping.

Digital velocity compensator.

Corrects velocity errors on a line by line look ahead basis to provide highest quality color pictures.

Adjacent line drop out compensator.

Full bandwidth correct color signal from the previous line is inserted to replace the dropout portion of the active line.

Internal test/calibration generator.

System throughput is checked and tested by comparing one of eight selectable Digital Test Signals switched from output to throughput every 32 lines providing an A/B picture comparison.

Digital RS 170A PROC AMP.

Converts all normal incoming NTSC Signals to RS 170A Standard, facilitating color frame editing.

Passes VITS and VIRS.

Full bandwidth capability and precise digital blanking ensures that VITS and VIRS are passed without degradation.

Modular interchange facilities servicing.

Price includes delivery, set-up and instructions and manufacturer's warranty.
This offer is subject to withdrawal without notice.

Call
(215) 223-8200

LERRO
ELECTRICAL CORPORATION
COMMUNICATIONS SYSTEMS DIVISION
3125 North Broad Street, Philadelphia, PA 19132

Ask for
Jim Holly

Leading the way in the  DIGITAL Decade

Circle 249 on Reader Service Card

Reps/Dists

CHAMBERLAIN & MURRAY INC
Concord
800 842-1300
Ramko see ad pg 155,157,159

CRAMER VIDEO/AUDIO SYSTEMS
Needham
617 254-2110
ATI see ad pg 141
CMX/Orrox see ad pg 3
Quantum see ad pg 204
Sharp see ad pg 149

RICHARD DEAN ASSOC
Woburn
617 933-8435
JBL see ad pg 103

H M HOLZBERG ASSOC
Totowa NJ
201 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

KEN CORP
Stoneham
617 926-5525
Marconi see ad pg 207

LAKE SYSTEMS CORP
Newton
617 244-6881
Convergence see ad pg 242
Edecor see ad pg 212
ESE see ad pg 225
Harris Video see ad pg 44-45
ISI see ad pg 176
Listec see ad pg 131
System Concepts see ad pg 182
Thomson-CSF see ad pg 20-21
LANDY ASSOC
Framingham
617 877-9570
See ad this page
Ikegami see ad pg 54,156,185,192
Skotel see ad pg 177
MP VIDEO
Newton
617 965-5405
Sharp see ad pg 149
O'SULLIVAN & MURPHY
Needham Heights
617 449-4141
Thomson-CSF (DTE) see ad pg 147
RAY PERRON & CO INC
Farmington CT
203 673-4825
800 225-4280
EECO see ad pg 154

PIPER ASSOC
Needham
617 449-1144
Electrohome see ad pg 48

POWER CONVERSION SYSTEMS
Wellesley
617 235-7884
Topaz see ad pg 217

PROFESSIONAL AUDIO ASSOC
Burlington
617 926-6107
dbx see ad pg 113,220

PROFESSIONAL VIDEO SYSTEMS
Boston
617 254-2101
NEC see ad pg 107
Videomedia see ad pg 230

P R S INC
Boston
617 254-2110
Circuit Research Labs
see ad pg 247

PVS INC
Boston
617 254-2101
Digital Video see ad pg 137

SPHERE ASSOC
Reston VA
703 471-7887
Cetec Vega see ad pg 117

FRAN VALENTI
Lexington
617 860-0089
Knox see ad pg 30

WAYLAND ENGINEERING SALES
Natick
617 655-6080
Allen Avionics see ad pg 248

MICHIGAN

AUDIO ASSOC
Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

AUDIO DISTRIBUTORS INC
Grand Rapids
616 452-1596
ATI see ad pg 141
Auditronics see ad pg 123,125,127
ESE see ad pg 225
LPB see ad pg 104

CM SALES
W Bloomfield
313 626-2397
dbx see ad pg 113,220

CRUSE COMMUNICATIONS
East Lansing
517 332-3579
Digital Video see ad pg 137
Edutron see ad pg 124
Sharp see ad pg 149
Videomedia see ad pg 230

DEITRICH & ASSOC
Warren
313 751-4990
Phillips T&M see ad pg 169

HM DYER ELECTRONICS
Farmington Hills
313 478-2157
Asaca see ad pg 160-161
Leitch Video see ad pg 128
NEC see ad pg 107
Philadelphia Resins see ad pg 150
Skotel see ad pg 177
TFT see ad pg 240
Thomson-CSF see ad pg 20-21

TED FIRANECK SALES
Pontiac
313 373-9595
Edecor see ad pg 212

LANDY ASSOCIATES, INC.
801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

AN IMAGE ENHANCER FOR HELICAL VCRS

- Adds sharpness and detail to video dubs
- Improves low cost color cameras
- B & W mode for proper enhancement of B & W materials
- Coring circuit helps reduce enhancement noise
- 3 input selector switches both audio and video
- Built-in distribution amp provides 4 outputs
- Available with BNC or RCA connectors
- 1 year limited warranty on parts and labor

The DETAILER II is a unique type of image enhancer especially designed for use with ¾" and ½" vcrs. Its separate detail and sharpness controls provide flexibility for dealing with a wide variety of material.



(503) 231-4884
3357 S.E. 22nd Ave. Portland, OR 97202

vidicraft


Circle 250 on Reader Service Card

NOW! CONTINENTAL'S 10 KW AM



Completely transparent. What you program in is what goes out to the antenna. Automatic Program Peak Controller gives you maximum loudness without overmodulation. Solid-state exciter. Ready for AM stereo. Proven "On-Air" reliability. Low power consumption

Write for brochure on 316F
Continental Electronics Mfg. Co.
Box 270879
Dallas, Texas 75227

Continental
Electronics 

Circle 251 on Reader Service Card



Best Picture:
**SCOTCH ONE-INCH
VIDEO TAPE**

"Scotch" is a registered trademark of 3M.

For the second year in a row, Scotch® 479 won the award for the best picture of the year in a test of one-inch video tapes.

We scored well in all of the twelve categories tested, but especially well in the categories that commonly represent picture quality: color dropouts, high frequency dropouts, chroma noise, signal-to-noise ratio and stop motion.

These were scientific, quantitative tests, conducted as you would conduct them yourself, with no room for brand bias. The meters didn't play favorites. The standards were the same for every brand tested. And we tested every brand.

These kinds of test results don't surprise us. We pioneered the invention of video tape. And we've been setting the standard for quality ever since.

Our quality has always been consistent from the first replay to the

last. In fact, our sophisticated binder and oxide coating are more advanced than the binders and oxides on some quad tapes. They had to be advanced to meet the special durability demands of one-inch video production.

So choose Scotch 479 for your one-inch video production. You'll find it looks good from repeated mastering all the way through post production. And we've seen the test results to prove it.



3M

Reps/Dists

RICK FISHER

Roseville
313 778-8400
ADM Technology see ad pg 9

GENERAL TELEVISION NETWORK

Oak Park
313 548-2500
Convergence see ad pg 242

HY JAMES ENTERPRISES

Ann Arbor
313 994-0934
Quantum see ad pg 204

LOWELL WENDT MARKETING CO

Farmington Hills
313 553-9800
EECO see ad pg 154

MIDWEST TELECOMMUNICATONS

Troy
313 689-9730
Digital Video see ad pg 137
Edutron see ad pg 124

CHUCK MILSK

Southfield
313 354-3310
Cetec Vega see ad pg 117
Knox see ad pg 30

NEWMAN VISUAL EDUCATION

Grand Rapids
616 243-3300
Harris Video see ad pg 44-45

RILEY & PETCHELL SALES INC

Detroit
313 937-3000
Plainwell
616 685-1271
Nady see ad pg 236

SOUND SOLUTIONS

Sterling Heights
313 739-7020
LPB see ad pg 104

THALNER ELECTRONICS

Ann Arbor
313 761-4506
Harris Video see ad pg 44-45
ISI see ad pg 176
Nady see ad pg 236
System Concepts see ad pg 182

THIBODEAU ENGINEERING

Birmingham
313 642-6620
Lightning Elimination see ad pg 162

BOB WHITE ASSOC

Solon OH
216 248-1317
JBL see ad pg 103

WALT WIKOL

Birmingham
313 642-2763
Topaz see ad pg 217

MINNESOTA

ALLIED BROADCAST EQUIPMENT

Richmond IN
317 962-8596
ESE see ad pg 225

A V C SYSTEMS INC

Minneapolis
612 729 8305
ATI see ad pg 141
Quantum see ad pg 204

BETHANY

Minneapolis
612 881-6931
Edutron see ad pg 124
Sharp see ad pg 149

BORETT & LEE CORP

Minneapolis
612 827-1731
Edcor see ad pg 212

CARVEL ENGINEERING SALES

Edina 612 835-7929
Topaz see ad pg 217

CLARK GIBB CO

Minnetonka
612 938-5050
JBL see ad pg 103
Nady see ad pg 236

ELECTRONIC SALES AGENCY

Bloomington
612 884-8291
EECO see ad pg 154

ENTERPRISES INC

Milwaukee WI
414 257-4668
Philadelphia Resins see ad pg 150
Ramko see ad pg 155,157,159

EMMONS ASSOC

Burnsville
612 890-8920
Leitch Video see ad pg 128
NEC see ad pg 107
TFT see ad pg 240

FRUEN & ASSOC

Wayzata
612 475-2642
dbx see ad pg 113,220

KEN HAUGEN & ASSOC

Anoka
612 421-3395
Allen Avionics see ad pg 248

KODO KAWAMURA

Minneapolis
612 881-1255
Knox see ad pg 30

KNOW ASSOC

St Paul
612 448-5402
Lightning Elimination see ad pg 162

KENNETH W MEYERS CO

Minneapolis
612 920-7080
Marconi see ad pg 207

SELTEC SALES CORP

Prior Lake
612 447-6123
Electrohome see ad pg 48

SKOR

St Paul
612 645-6461
Cetec Vega see ad pg 117

SOUND 80

Minneapolis
612 721-6341
MCI see ad pg 62

TODD COMMUNICATIONS

Minneapolis
612 835-3080
Digital Video see ad pg 137
Edutron see ad pg 124
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Videomedia see ad pg 230

TORKELSON ASSOC

Minneapolis
612 835-2414
Philips T&M see ad pg 169

VIDEO MIDWEST

Minneapolis
612 379-3300
Asaca see ad pg 160-161
Convergence see ad pg 242
System Concepts see ad pg 182

VITC ENCODE-DECODE PROVIDES THE BEST OF BOTH CODES



MODEL VIE-124 ENCODER



MODEL VID-125 DECODER

- Two separate modular instruments for maximum flexibility and economy.
- Works in conjunction with your existing SMPTE 'cue' code equipment.
- Freeze frame and slow motion code accuracy to speed computer editing.
- Need only one unit to encode in the 'DUB' area.
- Automatically decode SMPTE 'cue' code and/or VITC for each VTR in the edit bay to provide clean output 'cue' code from freeze to high speed search.

GRAY ENGINEERING LABORATORIES
504 W. Chapman Ave. Suite P
Orange, Ca. 92668 714-997-4151

Circle 252 on Reader Service Card

Do you have the latest in audio broadcast equipment?

call or write us . . .
(408) 926-3588



post office box 32055 San Jose, CA 95152

Circle 253 on Reader Service Card

Our new M SERIES puts PM-2000 performance within your reach.

Yamaha's PM-2000 mixer has established itself as an industry standard. Our new M Series mixers maintain that standard of performance—with the features, price, and size to meet your demands.

The M Series makes an excellent choice for live sound reinforcement main or submixers, as well as for theatrical, church, and broadcast uses.

The M508 and M512 are identical, except the M508 has 8 input channels and the M512 has 12. Both have 5 outputs and 4 mixing busses.

And both have, in the PM-2000 tradition, generous headroom, ultra-low noise, ultra-high gain, and tremendous flexibility.

The M916 has 16 input channels, 19 outputs and 11 mixing busses for more complex demands. You will feel the PM-2000 heritage in the M916's

smooth control. And see it in the logical layout. And hear it in the performance.

It's all part of the M Series aim—to put PM-2000 performance well in hand. Visit your Yamaha dealer for more information or write: Yamaha, Box 6600, Buena Park, CA 90622. In Canada: 135 Milner Ave., Scarb, Ont. M1S 3R1.

Because you're serious.



Circle 174 on Reader Service Card

Reps/Dists

MISSISSIPPI

AUDIOMEDIA ASSOC

New Orleans LA
504 586-0140
504 242-8014
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CENTRAL SCHOOL SUPPLY

Jackson
601 969-6700
Convergence see ad pg 242
Harris Video see ad pg 44-45
Listec see ad pg 131

DOBBS STANFORD CORP

Irving TX
214 259-3737
JBL see ad pg 103

MILLER & ASSOC

Dallas TX
214 661-5002
Edcor see ad pg 212

MISSISSIPPI SCHOOL SUPPLY

Jackson
601 948-8600
Sharp see ad pg 149

MONTGOMERY MARKETING

Huntsville AL
205 830-0498
EEO see ad pg 154

PETERSON VIDEO SYSTEMS

Jackson
601 948-8881
Edutron see ad pg 124

REP TECH INC

Terrell TX
214 222-2131
dbx see ad pg 113,220

ROSCOM INC

Roswell GA
404 992-2700
TFT see ad pg 240

TEQSPEC

Atlanta GA
404 455-7222
Philips T&M see ad pg 169

WILSON AUDIO SALES

Franklin TN
615 794-0155
Cetec Vega see ad pg 117

MISSOURI

ALLIED BROADCAST EQUIPMENT

Richmond IN
317 962-8596
ESE see ad pg 225

ANTECH LABS

Webster Groves
314 962-5656
Philadelphia Resins see ad pg 150

ATECH

St Louis
314 428-7447
Topaz see ad pg 217

AUDIOMEDIA ASSOCIATES

New Orleans LA
504 586-0141
Singer Broadcast see ad pg 221

CENTRAL MISSOURI A/V

Columbia
314 871-2111
Sharp see ad pg 149

CENTURIAN MARKETING ASSOC

Baldwin
314 227-7229
dbx see ad pg 113,220

COMMUNITRONICS CORP

St Louis
314 771-7160
Digital Video see ad pg 137

DELCOM CORP

St Louis
314 432-1164
Convergence see ad pg 242
ISI see ad pg 176
Listec see ad pg 131

DYER ELECTRONICS

Farmington Hills MI
313 478-2157
TFT see ad pg 240

ELECTRO MECHANICAL

ASSOC INC
St Louis
314 725-5219
Lightning Elimination see
ad pg 162

ENGINEERING SERVICES

Independence
816 254-3600
St Louis
314 997-1515
Allen Avionics see ad pg 248

RICHARD L GRAHAM ASSOC

Leawood KS
913 383-3475
Edcor see ad pg 212

MARCUS JOHNSON & ASSOC

St Charles
314 441-7066
Nady see ad pg 236

LINES MUSIC CO

Springfield
417 862-5533
Harris Video see ad pg 44-45

PALATINE SALES INC

Hazelwood
314 895-4577
EEO see ad pg 154
Philips T&M see ad pg 169

PRODUCTION AUTOMATION

Kansas City
816 737-3000
St Charles
314 441-6600
Marconi see ad pg 207

RM ASSOC

St Louis
314 569-1076
Cetec Vega see ad pg 117
JBL see ad pg 103

TECHNICAL REPS INC

Earth City
314 291-0001
Electrohome see ad pg 48

TV ENGINEERING CORP

Chesterfield
314 532-4700
Leitch see ad pg 128
Fenton
314 343-5605
Audiotronics see ad pg 123,125,127
Digital Video see ad pg 137
Ikegami see ad pg 54, 156, 185, 192
Listec see ad pg 131
Thomson-CSF see ad pg 20, 21

VIDEO MASTERS

Kansas City
816 474-8530
System Concepts see ad pg 182

Broadcast Production Consoles

GREAT AUDIO STARTS HERE

FEATURES:

Stereo Outputs 8 or 12 Channels
Up to 24 Inputs All Inputs &
Outputs Balanced QM-
8P, 4 Stereo Channels standard, 0,
2 or 6 optional QM-12P, 4
Stereo Channels standard, 0, 2,
6, 8 or 10 optional.

Input Channels: 3 Knob EQ
with In/Out Switch Echo,
headphone and Cue Send
 Channel On and Remote
Start High Quality
Conductive Plastic Faders.

Output Channels: 4 Balanced Low
Noise, Low Distortion May be
Stereo or Mono.

Monitoring: 4 Independent Monitors
 Flexible Control Room Selection
Talkback to Studio Muting

QUANTUM offers the following
options for the QM-8P and QM-12 P:
Phantom Power Supply 104 Point
Patchbay 8 or 12 Channel Input
Expander.



QUANTUM
AUDIO LABS, INC.

1909 Riverside Dr., Glendale CA 91201
Telephone (213) 841-0870

*Quantum Audio Labs is an independent manufacturer
and is not affiliated with any retail store.*


Circle 254 on Reader Service Card

NOW! CONTINENTAL'S 20 KW FM



High performance. Offers you
high fidelity, dynamic balance, good
stereo separation, extremely low noise
and distortion; excellent frequency
stability. Compact size. Simple
installation. Low Power consump-
tion. Proven exciter. Combine with
duplicate Type 816R-2 and get 40
kW output.

Write for brochure on 816R-2
Continental Electronics Mfg. Co.
Box 270879
Dallas, Texas 75227

Continental
Electronics 

Circle 255 on Reader Service Card

For the acoustician. The broadcast engineer. The recording and maintenance engineer. The audio educator/student. The audio manufacturer. The professional audio distributor. Literally anyone who needs precision audio instrumentation

The UREI Series 2000 Audio Analysis System

to do a myriad of jobs can benefit by owning U.R.E.I.'s 2000 Series instruments.

The foundation of the 2000 Series consists of two plug-in mainframes: The Model 200 X-Y Recorder for hard-copy graphs, and the Model 201 for use with scopes or existing X-Y recorders.

Add to either of these rugged mainframes the following plug-in test modules:

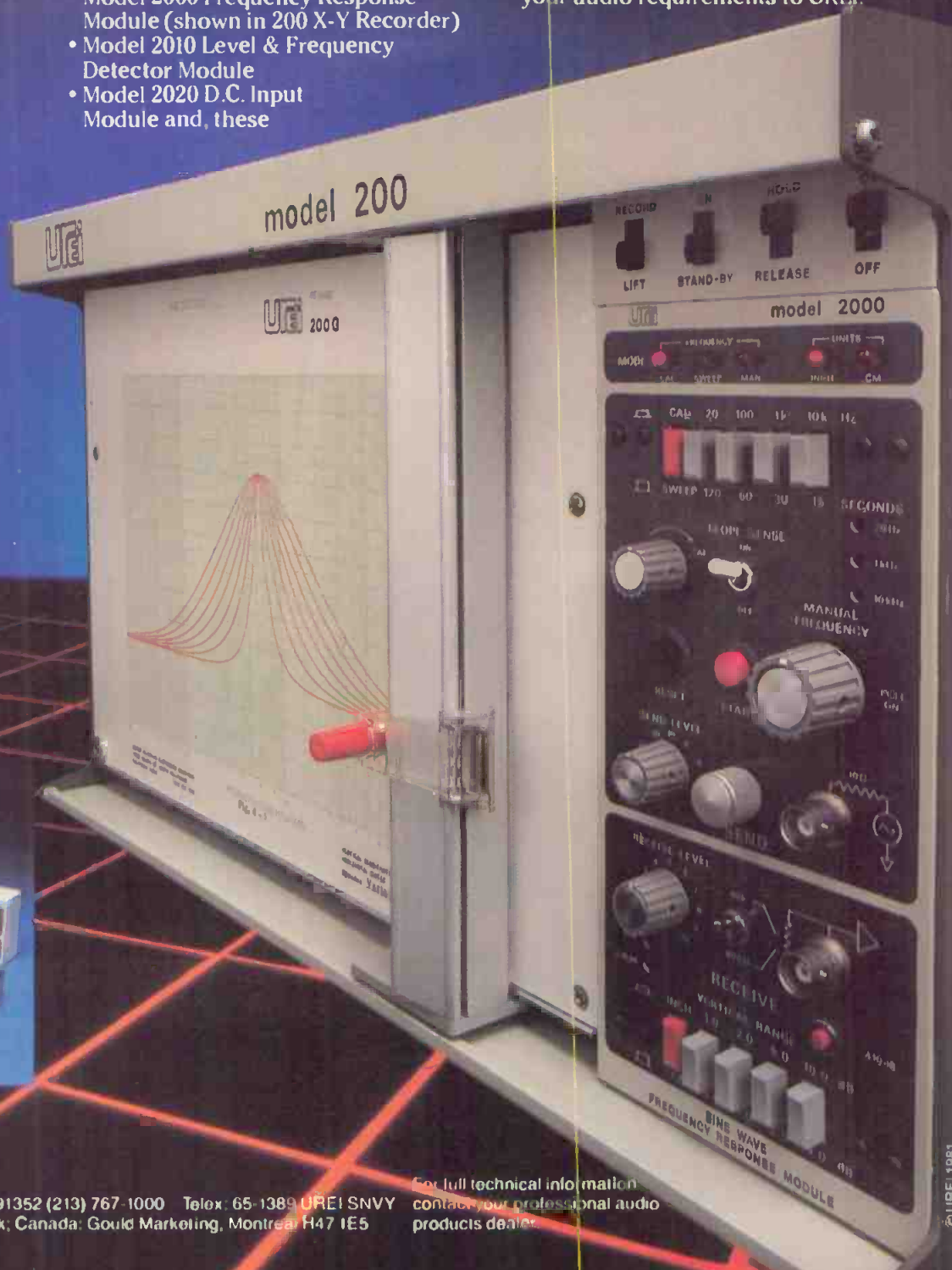
- Model 2000 Frequency Response Module (shown in 200 X-Y Recorder)
- Model 2010 Level & Frequency Detector Module
- Model 2020 D.C. Input Module and, these

accessory modules:
 • Model 20 Warble Generator
 • Model 21 Mic Preamp/Warble Generator
 With the proper combinations of these easily set-up components, the audio engineer can perform hundreds of vital technical evaluations.

- To name just a few:
- Acoustical room analysis
 - Loudspeaker measurements
 - Tape recorder measurements
 - Equalization and filter measurements
 - Telephone line measurements
 - Delay line, cartridge/stylus, optical/magnetic head and complete audio systems measurements

Check out the inexpensive, precision Series 2000 building-block audio analysis system. It could be handling the majority of your audio measurements and telling you things you need to know.

From One Pro To Another — Trust all your audio requirements to UREI.



UREI From One Pro To Another
 United Recording Electronics Industries
 60 San Fernando Road, Sun Valley, California 91352 (213) 767-1000 Telex: 65-1389 UREI SNVY
 Worldwide: Gotham Export Corporation, New York; Canada: Gould Marketing, Montreal H47 1E5

For full technical information contact your professional audio products dealer.

Reps/Dists

Videomedia see ad pg 230
St Louis
314 569-1334
Harris Video see ad pg 44-45
System Concepts see ad pg 182
Videomedia see ad pg 230

MONTANA

BROADCAST COMMUNICATION PRODUCTS
Golden CO
303 424-3231
Singer Broadcast see ad pg 221

DIDIER/DENVER
Evergreen CO
303 674-6000
See ad this page
TFT see ad pg 240

JAMES E HALL CO
Salt Lake City UT
801 268-3263
Edcor see ad pg 212

HALL ELECTRONICS
Boise ID
208 336-5894
Ramko see ad pg 155,157,159

H P MARKETING
Littleton CO
303 794-8367
dbx see ad pg 113,220

MATRIX MARKETING
Seattle WA
206 789-5990
Cetec Vega see ad pg 117

JIM NEAL & ASSOC
Gillette WY
307 682-8314
Philadelphia Resins see ad pg 150

CHUCK OLSON ASSOC
Renton WA
206 271-5416
Edcor see ad pg 212

NORTH SHORE MARKETING
Redmond WA
206 883-4152
JBL see ad pg 103

TASCO INC
Bellevue WA
206 453-1414
Philips T&M see ad pg 169

NEBRASKA

BROADCAST COMMUNICATIONS PRODUCTS
Golden CO
303 424-3231
Singer Broadcast see ad pg 221

CENTURIAN MARKETING ASSOC
Baldwin MO
314 227-7229
dbx see ad pg 113,220

DIDIER/DENVER
Evergreen CO
303 674-6000
See ad this page
TFT see ad pg 240

RICHARD L GRAHAM ASSOC
Leawood KS
913 383-3475
Edcor see ad pg 212

MARCUS JOHNSON & ASSOC
St Charles MO
314 441-7066
Nady see ad pg 236

D E McCULLY CO
Omaha
402 346-6373
Lightning Elimination see ad pg 162

PALATINE SALES INC
Cedar Rapids IA
319 365-8071
Philips J&M see ad pg 169

RM ASSOC
Shawnee Mission KS
913 631-7606
JBL see ad pg 103

SCOTT ELECTRONICS SUPPLY CO
Lincoln
402 466-8221
Philadelphia Resins see ad pg 150

TODD COMMUNICATIONS
Omaha
402 551-7600
Digital Video see ad pg 137
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Videomedia see ad pg 230

VIDEO SERVICES OF NEBRASKA
Lincoln
402 466-6057
Sharp see ad pg 149

NEVADA

PAUL BAUGHMAN
El Monte CA
213 442-0782
Cetec Vega see ad pg 117

B C D
Anaheim CA
714 630-8150
ESE see ad pg 225

BIDWELL SALES CO
Gardena CA
714 636-4668
Edcor see ad pg 212

DIDIER DENVER

Evergreen, CO
303/674-6000

AM · FM · TV · LPTV

Computer Video Systems

Introduces our NEW
Family of Products

COMPUVISION[®]

COMPUVID TL[®]
TITLING SYSTEM

Featuring:

- Medium to Low Cost
- Easy to Operate
- Expandable Memory
- Font Enhancements

COMPUVID[®]

Featuring:

- Telephone Public Access System
- Multiple Character Sizes, Colors, & Enhancements
- Single or multiple keyboards (Local or Remote)
- Ease of maintenance service
- Increased memory capability, editing functions and program features
- Program displays to include local weather, NOAA, AP, UPI, Reuters news, stock crawl, TV program guide, shoppers guide and more.
- 3 serial input capability
- Bubble memory (non Volatile solid state)

COMPUNews[®]
"The Electronic Newspapers"

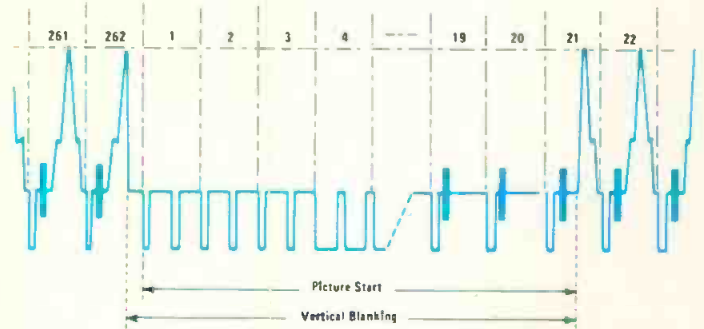
COMPUTER VIDEO SYSTEMS
NEW FAMILY OF PRODUCTS
COMPUVID
COMPUVID JR.
COMPUVID TL.
DATA DISPLAY SYSTEMS

3678 W 2150 South SLC. UT 84120 (801) 974-5380 / (800) 453-8822

Circle 256 on Reader Service Card

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

Marconi Television Interval Timer Model 2920 measures the following parameters



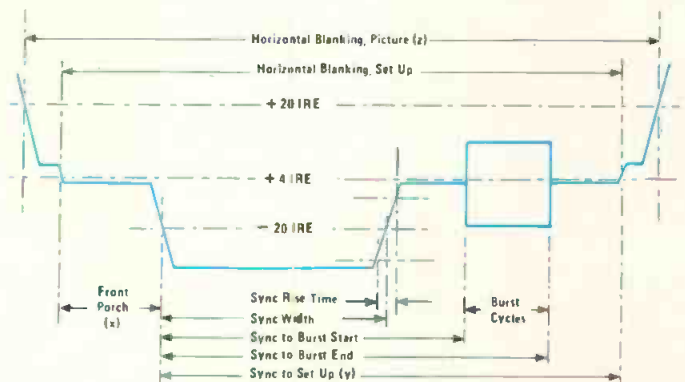
VERTICAL BLANKING MEASUREMENTS

- Total Vertical Blanking Interval
- Picture Start
- Equalizing Pulse Width
- Serration 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.



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

marconi instruments

100 STONEHURST COURT, NORTHVALE, NEW JERSEY 07647
TELEPHONE: (201) 767-7250 • TWX: 710-991-9752

Circle 257 on Reader Service Card



50 kW VHF power, greater efficiency. 4CX40,000G tetrode and cavities from Eimac.

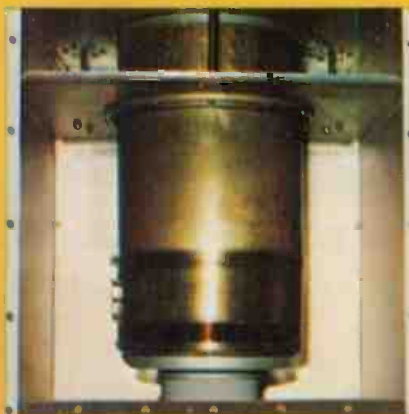
Eimac's new CV-2200 series of practical, low-cost cavities are available now. Combined with Eimac's 4CX40,000G VHF tetrode, this efficient, compact package is recommended for FM broadcast service, VHF-television, particle acceleration and VHF radar.

Generating a measured power output of 60 kW, the 4CX40,000G tetrode offers power gains of 20 dB up to 218 MHz. High stability is achieved with the pyrolytic graphite grid structure. And a highly efficient, economical and quiet anode cooling system is inherent in its design.

Eimac supplies cavity and tube to match your requirements.

We back it up with know-how and application engineering information.

the nearest Varian Electron Device Group sales office. Call or write today.



50 kW FM broadcast cavity CV-2200 with 4CX40,000G tetrode.

Electron Device Group
Eimac Division
301 Industrial Way
San Carlos, California 94070
415 • 592-1221,
ext. 218

More information is available from Varian Eimac Division. Or



Reps/Dists

L P MARKETING
Oakland CA
415 532-5600
dbx see ad pg 113,220

MARCOM
Scotts Valley CA
408 438-4273
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221
TFT see ad pg 240

MEYER & ROSS
Petaluma CA
707 778-0778
Nady see ad pg 236

**NORTHERN CALIFORNIA
MARKETING**
Hayward CA
415 783-5052
JBL see ad pg 103

PACIFIC COAST MARKETING
Los Gatos CA
408 395-7021
Ramko see ad pg 155,157,159

BRIAN TRANKLE & ASSOC
Hillsborough CA
415 344-1133
Edcor see ad pg 212

NEW HAMPSHIRE

ASSOCIATED SYSTEMS
Londonderry
603 434-0731
Edcor see ad pg 212

AUDIO ASSOC
Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

CHAMBERLAIN & MURRAY
Concord MA
800 343-5519
Ramko see ad pg 155,157,159

RICHARD DEAN ASSOC
Woburn MA
617 933-8435
JBL see ad pg 103

HM HOLZBERG ASSOC
Totowa NJ
201 256-0455
TFT see ad pg 240

INTERSELL
Burlington MA
617 273-3844
Philips T&M see ad pg 169

LAKE SYSTEMS CORP
Newton MA
617 244-6881
ESE see ad pg 225

LANDY ASSOC INC
Framingham MA
617 877-9570
See ad this page

C MILLER
Londonderry
603 434-0890
Asaca see ad pg 160-161

NEW ENGLAND WHOLESALE
Londonderry
603 434-0323
Edutron see ad pg 124

RAY PERRON & CO INC
Dover
603 742-2321
800 225-4280
EECO see ad pg 154

POWER CONVERSION SYSTEMS
Londonderry
603 434-2371
Topaz see ad pg 217

PROFESSIONAL AUDIO ASSOC
Burlington MA
617 926-6107
dbx see ad pg 113,220

NEW JERSEY

AF ASSOC INC
Northvale
201 767-1000
Listec see ad pg 131

JOHN B ANTHONY CO
Stamford CT
203 322-9202
dbx see ad pg 113,220

AUDIO ASSOC
Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

DAVID BAIN ASSOC
Port Washington NY
516 883-4818
ESE see ad pg 225

C BARLOW
Hasbrouck Heights
201 288-6862
Asaca see ad pg 160-161

CINECRAFT INTL
Moonachie
201 939-0875
Frezzolini see ad pg 251

EASTERN METRO ASSOC
E Brunswick
201 254-2555
Allen Avionics see ad pg 248

LANDY ASSOCIATES, INC.
801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

ULTRA-LIGHTWEIGHT TELESCOPING MICROPHONE POLES



- THREE MODELS:**
- ★ Sm.—15½" to 46½"—Wt. 8.5 oz!
 - ★ Med.—22" to 67"—Wt. 9 oz!
 - ★ Lg.—4' to 13+ '—Wt. 22 oz!
- SUPER-STRONG, PLUS**
- ★ No-glare black Epoxy finish
 - ★ Smooth, silent telescoping
 - ★ Ideal, comfortable balance
 - ★ Knurled friction lock
 - ★ Intl. Std. threaded stud

- MICROPHONE SUSPENSION:**
- ★ Simple, secure!
 - ★ Wt. only 3.25 oz!
 - ★ Threaded yoke support—no nut necessary



LTM CORP. OF AMERICA
N. Las Palmas Avenue, Hollywood, CA 90038 • (213) 460-6166
FRANCE: 104 Boulevard Saint-Denis • 92400 Courbevoie-France
Circle 259 on Reader Service Card

you say it, we play it.

Programming that really sells—That's where BPI's live-assist plan comes in. With 10 constantly updated formats to choose from, select the preprogrammed, unannounced music that's right for your station. Live back up is provided by your on-air personalities. The result is a clean, consistent, professional sound.

With BPI's help, you'll have the best of both worlds—The programming control and easy operation of automation and the spontaneity and community rapport of live radio. Better programming brings increased market shares. And, more production and sales time for your staff.

CALL TOLL FREE 1-800-426-9082

Call Collect (206) 676-1400
P.O. Box 547
Bellingham, WA 98227

music is **BPI**

Circle 260 on Reader Service Card

Reps/Dists

HANSEN & HUGHES

Ridgewood
201 652-7055
Lightning Elimination see ad pg 162

H M HOLZBERG ASSOC

Totowa
201 256-0455
NEC see ad pg 107
Philadelphia Resins see ad pg 150
TFT see ad pg 240

LANDY ASSOC INC

Cherry Hill
609 424-4660
See ad this page
Ikegami see ad pg 54, 156, 185, 192
Leitch see ad pg 128
Listec see ad pg 131
Skotel see ad pg 177

L & M ASSOC

Saddle Brook
201 843-8700
Marconi see ad pg 207

MARKETRATION INC

Phoenix MD
301 666-9292
800 638-3330
JBL see ad pg 103

RANDY NEEL

Washington DC
202 547-3436
Nady see ad pg 236

OPTIMEDIA SYSTEMS INC

Clifton
201 777-7600
Quantum see ad pg 204

RICHARD PASS & ASSOC

Langhorne PA
214 757-6100
Eddor see ad pg 212

PROFESSIONAL AUDIO-VIDEO

Patterson
201 523-3333
Quantum see ad pg 204

POWER CONVERSION & CONTROL

Englewood Cliffs
201 569-0015
Topaz see ad pg 217

PUSECKER SALES

Upper Montclair
201 744-1834
Eddor see ad pg 212

SHEA SALES

Maplewood
201 762-2382
Ramko see ad pg 155-157,159

SPHERE ASSOC

Reston VA
212 246-0176
Cetec Vega see ad pg 117

TECHNIMAT

Englewood
201 569-4200
EEDO see ad pg 154

TELEMEASUREMENTS INC

Clifton
201 473-8822
Harris Video see ad pg 44-45
ISI see ad pg 176
Quantum see ad pg 204
Thomson-CSF see ad pg 20,21

TURNER ENGINEERING

Mountain Lakes
201 263-0023
Digital Video see ad pg 137

HARRY J WHITE

Cherry Hill
609 428-4544
Allen Avionics see ad pg 248

NEW MEXICO

ARGUS SALES

Tempe AZ
602 968-7791
EEDO see ad pg 154

DON BENNETT & ASSOC

Mesa AZ
602 897-2151
Ramko see ad pg 155,157,159

B F A CORP

Albuquerque
505 292-1212
Topaz see ad pg 217

BLACK'S COMMUNICATION CONSULTANTS

Las Cruces
505 524-9681
Digital Video see ad pg 137
Sharp see ad pg 149

BROADCAST COMMUNICATIONS PRODUCTS

Golden CO
303 442-3231
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CLEVELAND ENTERPRISES INC

Albuquerque
505 265-7893
Phillips T&M see ad pg 169

DIDIER/DENVER

Evergreen CO
303 674-6000
TFT see ad pg 240

DYMA ENGINEERING

Taos
505 758-2686
ESE see ad pg 225
ISI see ad pg 176
LPB see ad pg 104
NEC see ad pg 107
Quantum see ad pg 204

C C VIDEO

Sandria Park
505 281-1303
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
Videomedia see ad pg 230

JAMES E HALL CO

Salt Lake City UT
801 268-3263
Eddor see ad pg 212

HP MARKETING

Littleton CO
303 794-8367
dbx see ad pg 113,220

INDUSTRIAL PRODUCTS CORP

Albuquerque
505 256-3561
Lightning Elimination see ad pg 162

KLR AUDIO/VISUAL

Albuquerque
505 265-3562
Edutron see ad pg 124

MAGNETIC MEDIA

Albuquerque
505 265-8335
Convergence see ad pg 242
Harris Video see ad pg 44-45

M Z B & ASSOC

Dallas TX
214 233-5535
See ad this page
ISI see ad pg 176

SILVER PEAK MARKETING

Lakewood CO
303 233-8577
Nady see ad pg 236

TREMBLY ASSOC

Albuquerque
505 266-8616
Marconi see ad pg 207

NEW YORK

ADCOM COMMUNICATIONS

New York
212 265-1670
Faroudja Labs see ad pg 69
Harris Video see ad pg 44-45
System Concepts see ad pg 182
Videomedia see ad pg 230

JOHN B ANTHONY CO

Stamford CT
203 322-9202
dbx see ad pg 113,220

ASHTON COMMUNICATIONS

Vestal
607 748-3331
Sharp see ad pg 149
Videomedia see ad pg 230

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Eddor see ad pg 212

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

AUDIO VIDEO CORP

Delmar
518 439-7611
Convergence see ad pg 242
ISI see ad pg 176
System Concepts see ad pg 182

DAVID BAIN ASSOC

Port Washington
516 883-4818
ESE see ad pg 225

BROADCAST EQUIPMENT CORP

New York
212 754-0400
Digital Video see ad pg 137

THE CAMERA MART

New York
212 757-6977
Frezzolini see ad pg 251
Ikegami see ad pg 54, 156, 185, 192
Listec see ad pg 131
Skotel see ad pg 177

EASTERN METRO ASSOC

Plainview
516 931-1414
Allen Avionics see ad pg 248

HARRY GLASS

Jamaica
212 465-3536
Digital Video see ad pg 137

HARVEY AUDIO/VIDEO

New York
212 921-5920
Quantum see ad pg 204

H M HOLZBERG ASSOC

Totowa NJ
01 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

LANDY ASSOC INC

Cherry Hill NJ
609 424-4660
See ad pg 212

LAUMIC CO

New York
212 889-3300
Nady see ad pg 236

L C A SALES CO

Tuckahoe
914 961-4700
Electrohome see ad pg 48

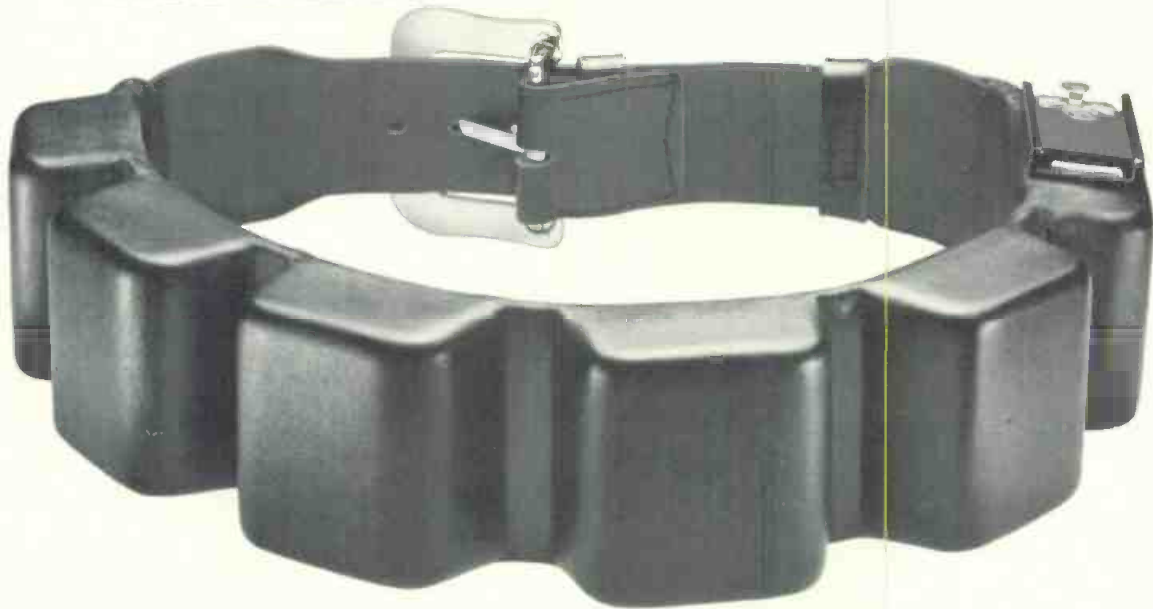
M Z B & ASSOCIATES
4203 BELTWAY DRIVE, DALLAS, TX 76248
(214) 233-5535

ALSO, OFFICES AT 16502 NORTHCHASE, SUITE E
HOUSTON, TX 77060-713/448-0881
MAJOR BDCST/VIDEO LINES-IKEGAMI, SONY, JVC,
ETC. PROFESSIONAL SALES, SERVICE, RENTAL &
INSTALLATION SERVING THE SOUTHWEST FOR
OVER 25 YEARS.

LANDY ASSOCIATES, INC.
1890 E. MARLTON PIKE, CHERRY HILL, NJ 08003
(609) 424-4660

DISTRIBUTORS OF IKEGAMI CAMERAS AND
MONITORS, ROSS VIDEO SWITCHERS, TWEED
AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS,
LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER
BATTERIES, VIDEOTEK MONITORS, CONRAC
MONITORS, THOMSON CSF BROADCAST EQUIP,
DATATEK, DATATRON EDITORS, TAYBURN
MICROWAVE, ETC.

FIRST, WE BROUGHT YOU THE ULTIMATE POWER BELTS.



NOW, WE'VE MADE THEM A LOT MORE AFFORDABLE.

Not too long ago, we introduced you to Pagbelts—the premium power belts that set new standards of performance and reliability. With the longest-lasting charge. The greatest safety. For the finest in broadcast quality.

Now, we've set another new standard. In power belt *value*. With the new *Comprehensive Powerbelts*. Designed and manufactured exclusively for us by PAG. In popular four and seven amp/hr 12-volt configurations.

Like Pagbelts, Comprehensive Powerbelts have all-leather belts and cell pockets to withstand years of use and abuse. Nicad cells for longer, more stable operation—as well as lighter weight. And the many PAG exclusives that ensure high reliability and total safety. For your equipment as well as yourself.

In short, Comprehensive Powerbelts offer all the major benefits of PAG technology—*without* a major investment. In fact, they cost no more than vinyl plastic belts with half the features!

Discover the power belt you can't afford to be without. Contact your Comprehensive dealer, or call us TOLL FREE at 800-526-0242. In New Jersey and Metro New York, call 201-767-7990. Telex: 13-5139.

Comprehensive

VIDEO SUPPLY CORPORATION

148 Veterans Drive, Northvale, NJ 07647
In Canada: 751 Wall Street, Winnipeg, Man., R3G 2T6

Comprehensive
VIDEO SUPPLY CORPORATION
Northvale, N.J.

Reps/Dists

L & M ASSOC

New York
212 243-6155
Marconi see ad pg 207

MILAZZ ELECTRONICS

Farmingdale
516 454-6110
Leitch see ad pg 128

MPCS VIDEO INDUSTRIES

New York
212 586-3690
Ikegami see ad pg 54, 156, 185, 192
MPCS see ad pg 166

NACO

Syracuse
315 699-2651
Philips T&M see ad pg 169

N E BROADCAST LABS

Glens Falls
518 793-2181

Bald Mountain Labs see ad pg 252
LPB see ad pg 104

OSSMANN INSTRUMENTS

E Syracuse
315 437-6666
Rochester
716 473-5720
Vestal
607 785-9947
Topaz see ad pg 217

PASTON HUNTER CO

Syracuse
315 437-2992
JBL see ad pg 103

PROFESSIONAL ELECTRIC CO

Schenectady
518 355-3120
Harris Video see ad pg 44-45

PUSEKER SALES CO

Upper Montclair NJ
201 744-1834
Edcor see ad pg 212

JACK SCHAFFER

Bayside
212 352-8838
Knox see ad pg 30

SHEA SALES

Maplewood NJ
201 762-2382
Ramko see ad pg 155,157,159

SINGER PRODUCTS CO INC

Westbury
516 333-2000
ATI see ad pg 141

SONOCRAFT CORP

New York
212 760-9300
Digital Video see ad pg 137
Gray Engineering Labs see ad pg 202

SPECIALIZED AUDIO

Saratoga Springs
518 885-8966
Quantum see ad pg 204

SPHERE ASSOC

Reston VA
212 246-0176
Cetec Vega see ad pg 117

STUDIO FILM & TAPE

New York
212 977-9330
See ad pg 248

TECHNISPHERE CORP

New York
212 889-9170
Edutron see ad pg 124

TAEREP

Binghamton
607 722-9265
Marconi see ad pg 207

TECH-MARK INC

Mendon
716 624-3840
EECO see ad pg 154

TERRYBERRY SALES

Williamsville
716 632-7404
Lightning Elimination see ad pg 162

UNIVISIONS

Syracuse
315 479-5328
Harris Video see ad pg 44-45

UPSTATE MARKETING

Auburn
315 252-7282
Nady see ad pg 236

VIDEOSOUND OF ITHACA

Ithaca
607 272-2060
Edutron see ad pg 124

J G WELCH ASSOC

Rochester
716 244-1100
Utica
315 736-7821
Allen Avionics see ad pg 248

WESTEC AUDIO VIDEO

New York
212 586-1662
Auditronics see ad pg 123,125,127

LANDY ASSOCIATES, INC.

1890 E. MARLTON PIKE, CHERRY HILL, NJ 08003
(609) 424-4660

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

NORTH CAROLINA

ELREP SALES CO

Atlanta GA
404 938-7108
Edcor see ad pg 212

The Answer:

CHEAT!



The Question: How do I get 8 audio lines from point A to point B on one microphone cable?

Cheat with Edcor's Multiplex Snake. It encodes 8 channels of audio on one microphone cable up to 1500 feet cost effectively.
EDCOR 16782 Hale Avenue, Irvine, CA 92714
(714) 556-2740

Circle 262 on Reader Service Card

Another
G&M First
THE BATTERY BELT
THAT MAKES ALL
OTHERS OBSOLETE!



THE NEW G&M NICAD 1C SERIES

- Will Fully Charge in 1 1/4 Hr.
- Charger Automatically Cuts Off
- L.E.D. Charge Mode Indicators
- All Solid State Electronics
- Time and Temperature Cell Protection
- Available in 12V and 30V Belts
- Eliminates the Need for a Separate Fast Charger

*The Most Sophisticated
Battery Belt Ever!*

Special Introductory Offer
**GM12B-1C, 1 1/4 Hour Charge
Battery Belt \$675.00**
**GM30B-1C, 1 1/4 Hour Charge
Battery Belt (Illustrated) \$825.00**

G & M POWER PRODUCTS
6500 Santa Monica Blvd. / Los Angeles, CA. 90038
[213] 465-8236

Circle 263 on Reader Service Card



**ELECTRONIC INTERLOCK
MAGNETIC FILM
RECORDERS and REPRODUCERS
THE STANDARD OF HOLLYWOOD
AND THE WORLD**

**FOR FILM AND TELEVISION RE-RECORDING
ELECTRONIC LOOPING
HIGH SPEED DUBBING
TELECINE MAGNETIC FOLLOWERS
HIGH SPEED PROJECTORS
VIDEO TAPE-FILM INTERLOCK SYSTEMS
TOTAL FACILITY ENGINEERING**

Sydney
Magna-Techtronics (Aust.) Pty., Ltd.
P.O. Box 150
Crows Nest NSW 2064, Australia
Telex 24655

London
Branch & Appleby
42 High Street
Harrow-on-the-Hill
Middlesex HA1 3LL,
England

MAGNA-TECH ELECTRONIC CO., INC.

630 Ninth Avenue, New York, N. Y. 10036

Telephone (212) 586-7240

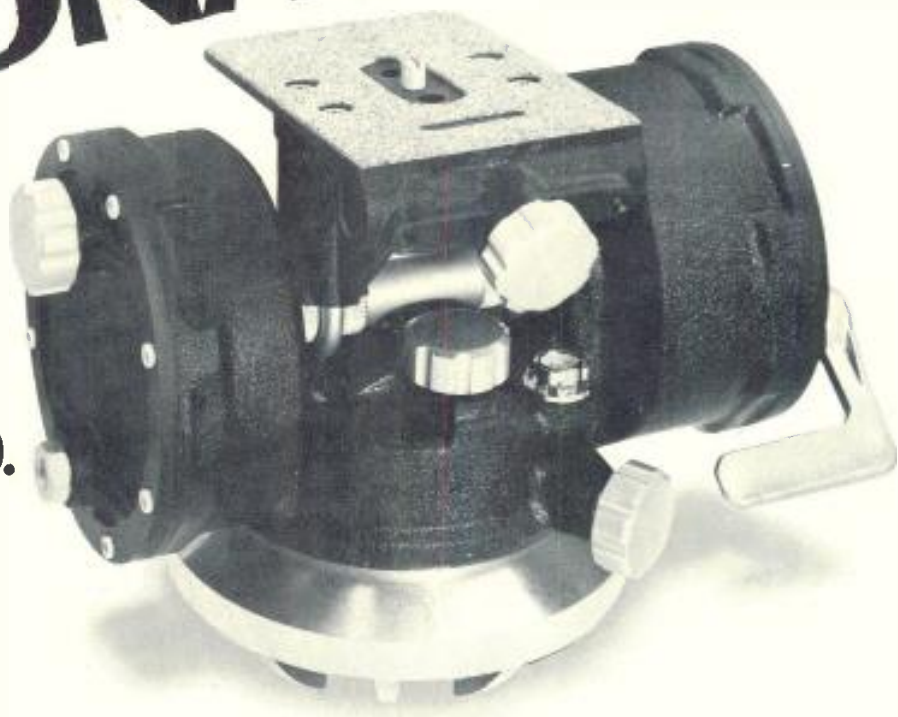
Telex 126191

Cables "Magtech"

Circle 264 on Reader Service Card

DIAGONALABLE.

O'Connor Model 100.
Fluid smooth control
to follow the action
in any direction.



SIMULTANEOUS PAN AND TILT CONTROL.

Unlike cumbersome gear heads that require tremendous coordination to operate the separate pan and tilt controls, the O'Connor 100 follows the action at any speed in any direction with the gentle touch of your hand. Panning and tilting are simultaneous, so the camera obeys your every command.

be lifted more comfortably at the lens and the rear of the body. The mounting plate can be ordered to any length providing support for those extra long and heavy lenses. Plus, the platform is made adjustable to balance the camera on the head and it's a quick release type with a built in safety feature.

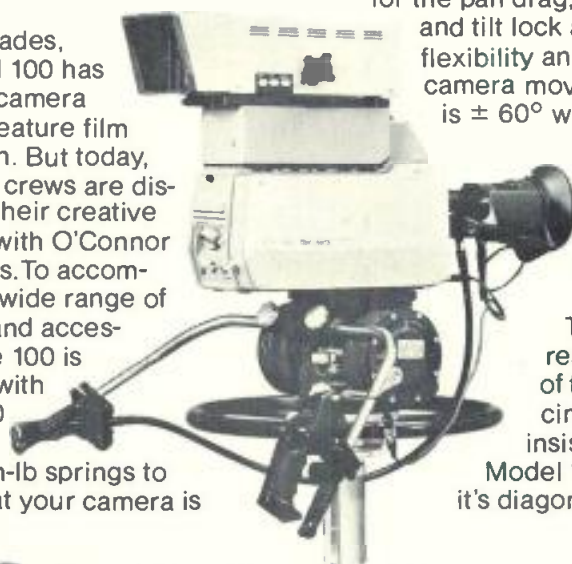
properly counterbalanced at all times. Double handles are also available for video users.

O'CONNOR PRECISION THROUGHOUT.

Built of magnesium and aluminum alloy castings, this low profile head weighs only 16 lbs. Separate controls for the pan drag, pan lock, tilt drag and tilt lock all improve the flexibility and repeatability of camera movement. The tilt range is $\pm 60^\circ$ with a 360° pan.

FILM OR TELEVISION.

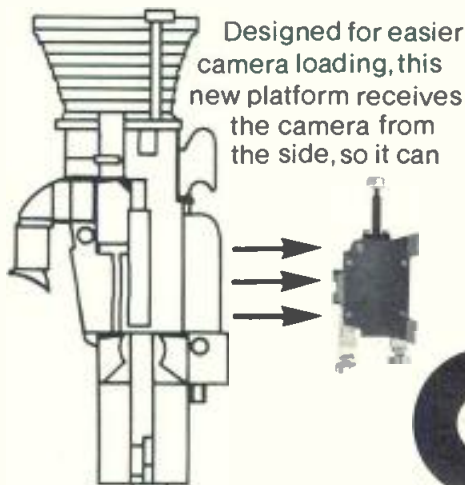
For decades, the Model 100 has been the camera head for feature film production. But today, television crews are discovering their creative potential with O'Connor fluid heads. To accommodate a wide range of cameras and accessories, the 100 is available with a 300, 500 (standard) and 700 in-lb springs to assure that your camera is



ASK THE MAN WHO OWNS ONE.

There must be a reason why so many of the world's greatest cinematographers insist on the O'Connor Model 100. Maybe because it's diagonalable.

OUR NEW SIDEMOUNTING PLATFORM.



Designed for easier camera loading, this new platform receives the camera from the side, so it can

O'Connor

FLUID CAMERA HEADS

O'Connor Engineering Labs., Inc., 100 Kalmus Drive, Costa Mesa, CA 92626 • (714) 979-3993 • TELEX 685 641
O'Connor Engineering Ltd., 14 Av. Industrielle, 1227 Carouge, Geneva, Switzerland • Phone (022) 42 79 38 • TELEX 28 449

Circle 265 on Reader Service Card

Reps/Dists

EME I INC
High Point
919 869-3335
TFT see ad pg 240

F M ASSOCIATES
Ramseur
919 824-2196
919 824-8461
Lightning Elimination see ad pg 162

GEORGE GOLD
High Point
919 869-3335
Knox see ad pg 30
NEC see ad pg 107

KIRKMAN ELECTRONICS
Winston-Salem
919 722-2306
Edutron see ad pg 124

LEE CAROLINAS
Raleigh
919 848-8818
Marconi see ad pg 207

MIDWEST COMMUNICATIONS
Charlotte
704 399-6336
Videomedia see ad pg 230

MONTGOMERY MARKETING INC
Cary
919 467-6319
EECO see ad pg 154

REFLECTION AUDIO
Charlotte
704 375-1053
Quantum see ad pg 204

SESCO
Charlotte
704 535-4920
Topaz see ad pg 217

SOUTHEASTERN SIGHT & SOUND
Raleigh
919 828-2311
Charlotte
704 568-0240
Convergence see ad pg 242
Harris Video see ad pg 44-45

SOUTHERN COASTAL MARKETING
Charlotte
704 542-6510
704 847-5687
ESE see ad pg 225
Philadelphia Resins see ad pg 150
Ramko see ad pg 155, 157, 159
Singer Broadcast see ad pg 221

STUDIOWORKS
Charlotte
704 375-1053
MCI see ad pg 62

TECHNICAL VIDEO SYSTEMS
Raleigh
919 848-1748
Sharp see ad pg 149
Winston-Salem
919 748-0916
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Listec see ad pg 131
Sharp see ad pg 149
System Concepts see ad pg 182

TEQSPEC
Winston-Salem
919 723-8102
Phillips T&M see ad pg 169

WILSON AUDIO SALES
Franklin TN
615 794-0155
Cetec Vega see ad pg 117
dbx see ad pg 113,220

NORTH DAKOTA

AUDIO VISUAL INC
Bismark
800 472-2632
Convergence see ad pg 242
ISI see ad pg 176
System Concepts see ad pg 182

BORRETT & LEE CORP
Minneapolis MN
612 827-1731
Edcor see ad pg 212

BROADCAST COMMUNICATIONS PRODUCTS
Golden CO
303 424-3231
Singer Broadcast see ad pg 221

ELECTRONIC SALES AGENCY
Bloomington
612 884-8291
EECO see ad pg 154

EMMONS ASSOC
Burnsville MN
612 890-8920
TFT see ad pg 240

ENTERPRISES INC
Milwaukee WI
414 257-4668
Ramko see ad pg 155,157,159

FRIEN & ASSOC
Wayzata MN
612 475-2642
dbx see ad pg 113,220

CLARK GIBB CO
Minnetonka MN
612 475-2642
JBL see ad pg 103

KODO ASSOC INC
Minneapolis
612 881-1255
Philadelphia Resins see ad pg 150

SKOR
St Paul MN
612 645-6461
Cetec Vega see ad pg 117

TODD COMMUNICATIONS
Grand Forks
701 746-1268
Ikegami see ad pg 54,156,185,192
Videomedia see ad pg 230

TORKELSON ASSOC INC
Minneapolis MN
612 835-2414
Phillips T&M see ad pg 169

OHIO

ALLIED BROADCAST EQUIPMENT
Richmond IN
317 962-8596
ESE see ad pg 225

ASHBY ASSOC
Dayton
513 252-5627
Allen Avionics see ad pg 248

AUDIO MARKETING ASSOC
Brecksville
216 526-2426
Edcor see ad pg 212

AUDIO SOURCE MARKETING
Columbus
614 459-5947
dbx see ad pg 113,220

WALTER J BRAUER & ASSOC INC
Wickliffe
206 943-0601
Dayton
513 277-4957
Lightning Elimination
see ad pg 162

DOUG COOK & ASSOC
Charlotte NC
704 542-6510
Philadelphia Resins see ad pg 150
Ramko see ad pg 155, 157, 159
Singer Broadcast see ad pg 221

DETRICH & ASSOC INC
Dayton
513 223-6042
Cleveland
216 781-1855
Phillips T&M see ad pg 169

DYER ELECTRONICS
Farmington Hills MI
313 478-2157
TFT see ad pg 240

ENGINEERING MARKETING ASSOC
Aurora
216 562-6104
EECO see ad pg 154

EQS SYSTEMS
Chesterland
216 729-2222
412 261-2604
Marconi see ad pg 207

KAVCO INC
Dayton
513 898-2003
Convergence see ad pg 242
Harris Video see ad pg 44-45
ISI see ad pg 176
Listec see ad pg 131
Nady see ad pg 236
Quantum see ad pg 204
Sharp see ad pg 149

ROGER HILL
Dayton
513 890-4287
Topaz see ad pg 217

INDUSTRIAL VIDEO
Lorain
216 277-1218
Harris Video see ad pg 44-45

MIDWEST CORP
Cincinnati
513 651-1904
Columbus
614 476-2800
Digital Video see ad pg 137
Edutron see ad pg 124
Ikegami see ad pg 54,156,185,192
Listec see ad pg 131
Moseley see ad pg 31
System Concepts see ad pg 182
Videomedia see ad pg 230

DEAN MITCHELL
Bay Village
216 835-6520
Topaz see ad pg 217

DELCOM CORPORATION
6019 S. 66TH E. AVE., TULSA, OK 74145
(918) 494-9500

FULL LINE OF VIDEO EQUIPMENT INCLUDING
REMOTE TRUCKS, HITACHI, SONY, CONVERGENCE,
ISI, MICROTOME, AND THE DELCOM AE-3 AUTOMATED
EDITING EFFECTS INTERFACE FOR THE ISI 902 &
CONVERGENCE ECS-103.

J B PARENT CO
Columbus
614 459-5947
Cetec Vega see ad pg 117

JIMMY REA ELECTRONICS
Columbus
614 221-1625
Harris Video see ad pg 44-45

BOB WHITE ASSOC
Solon
216 248-1317
JBL see ad pg 103
Nady see ad pg 236

OKLAHOMA

A K A SMITH LIGHTING SALES INC
Oklahoma City
405 521-1163
Lightning Elimination see ad pg 162

ALPHATECH INC
Allen TX
214 423-4570
Phillips T&M see ad pg 169

AUDIO ASSOC INC
Oklahoma City
405 524-3232
Quantum see ad pg 204

AUDIO VISUAL ENTERPRISES
Tulsa
918 743-6427
Sharp see ad pg 149

DOUG BROWN ENTERPRISES
Tulsa
918 747-3618
Auditrone see ad pg 123,125,127

JOHN R CROUSE
Azle TX
817 444-3193
Singer Broadcast see ad pg 221

DELCOM CORP
Tulsa
918 494-9500
See ad this page
Convergence see ad pg 242
ISI see ad pg 176

DIMENSION MARKETING CORP
Houston TX
713 772-0961
Cetec Vega see ad pg 117

DOBBS-STANFORD CORP
Irving TX
214 259-3737
JBL see ad pg 103

INDUSTRIAL VIDEO
Oklahoma City
405 521-8282
Edutron see ad pg 124
Videomedia see ad pg 230

Reps/Dists

MILLER & ASSOC
Dallas TX
214 661-5002
Edcor see ad pg 212

MZB & ASSOC INC
Dallas TX
214 233-5535
See ad this page
ISI see ad pg 176

PARCOM
Southlake TX
817 481-7221
Ramko see ad pg 155,157,159
TFT see ad pg 240

REP TECH INC
Terrell TX
214 222-2131
dbx see ad pg 113,220

SAVCO
Richardson TX
214 234-1841
ESE see ad pg 225

SESCQ
Tulsa
918 622-3868
Topaz see ad pg 217

GENE SUDDUTH CO INC
Paris TX
214 785-5764
Philadelphia Resins see ad pg 150

WILEY ELECTRIC
Tulsa
918 252-5406
Lightning Elimination see ad pg 162

OREGON

ALLIED BROADCAST EQUIPMENT
Seattle WA
206 941-5453
ESE see ad pg 225

ALPHA VIDEO
Carnegie PA
412 923-2070
Convergence see ad pg 242

COMPONENTS WEST INC
Portland
503 643-5588
Allen Avionics see ad pg 248

CUSTOM VIDEO SUPPLY
Portland
503 295-6963
Harris Video see ad pg 44-45

DIMENSION 5 SOUND CO
Portland
503 232-4632
Quantum see ad pg 204

HALL ELECTRONICS
Boise ID
208 336-5894
Ramko see ad pg 155,157,159

BLAIR HIRSH CO
Beaverton
503 641-2447
EECO see ad pg 154

MARCOM
Seattle WA
206 364-9911
Scotts Valley CA
408 438-4273
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221
TFT see ad pg 240

MATRIX MARKETING
Seattle WA
206 789-5990
Cetec Vega see ad pg 117

NORTH SHORE MARKETING
Portland
206 883-4152
JBL see ad pg 103

CHUCK OLSON ASSOC
Renton WA
206 271-5416
Edcor see ad pg 212

ROGER PONTO ASSOC
Bellevue WA
206 453-8487
dbx see ad pg 113,220
Nady see ad pg 236

SHOWALTER INSTRUMENTS
Portland
503 224-8487
Marconi see ad pg 207

SOUND DYNAMICS
Portland
503 226-3588
See ad pg 202

SOUND GENESIS
San Francisco CA
415 285-8900
See ad pg 184
Audironics see ad pg 123, 125, 127

TASCO INC
Portland
503 245-8168
Philips T&M see ad pg 169

UNDERWOOD-HANIFY ASSOC
Tigard
503 641-4463
Topaz see ad pg 217

VIDEOSONICS
Portland
503 232-4632
Convergence see ad pg 242
Digital Video see ad pg 137
Faroudja Labs see ad pg 69
ISI see ad pg 176
Nady see ad pg 236
Sharp see ad pg 149

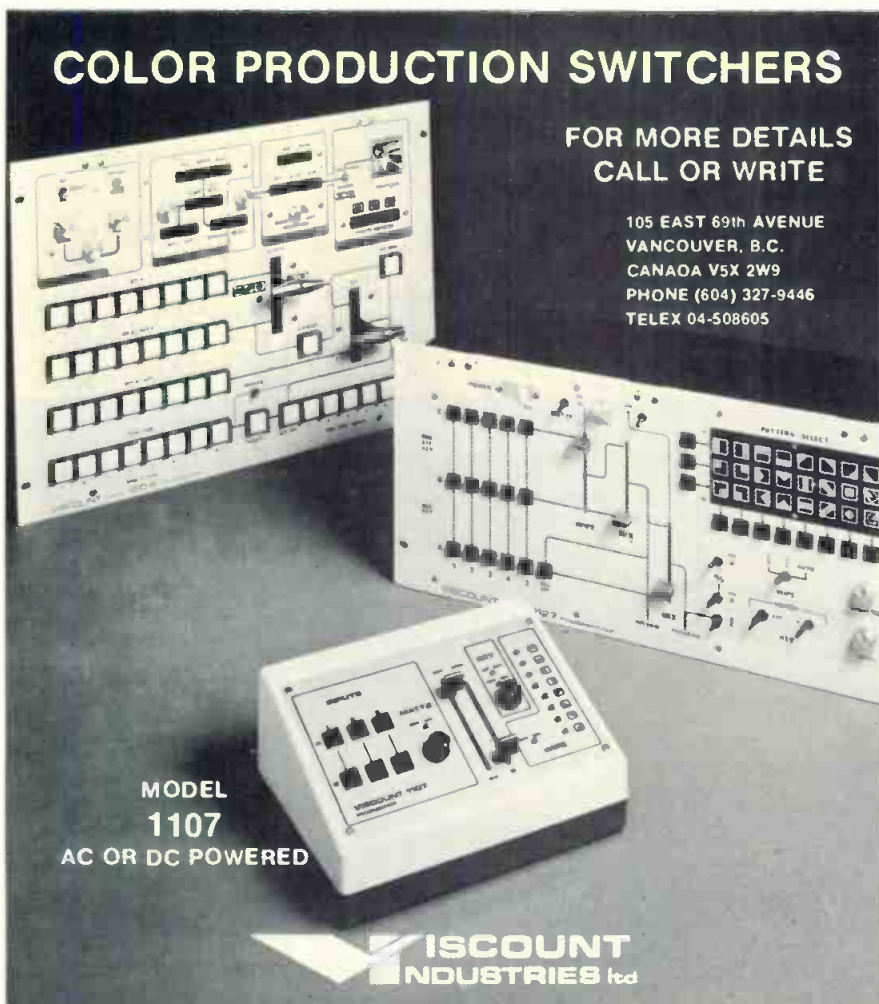
M Z B & ASSOCIATES
4203 BELTWAY DRIVE, DALLAS, TX 76248
(214) 233-5535

ALSO, OFFICES AT 16502 NORTHCHASE, SUITE E
HOUSTON, TX 77060-713/448-0881
MAJOR BDCST/VIDEO LINES-IKEGAMI, SONY, JVC,
ETC. PROFESSIONAL SALES, SERVICE, RENTAL &
INSTALLATION SERVING THE SOUTHWEST FOR
OVER 25 YEARS.

COLOR PRODUCTION SWITCHERS

FOR MORE DETAILS
CALL OR WRITE

105 EAST 69th AVENUE
VANCOUVER, B.C.
CANADA V5X 2W9
PHONE (604) 327-9446
TELEX 04-508605



MODEL 1107
AC OR DC POWERED

ISCOUNT INDUSTRIES Ltd

Circle 266 on Reader Service Card

RENT IT!

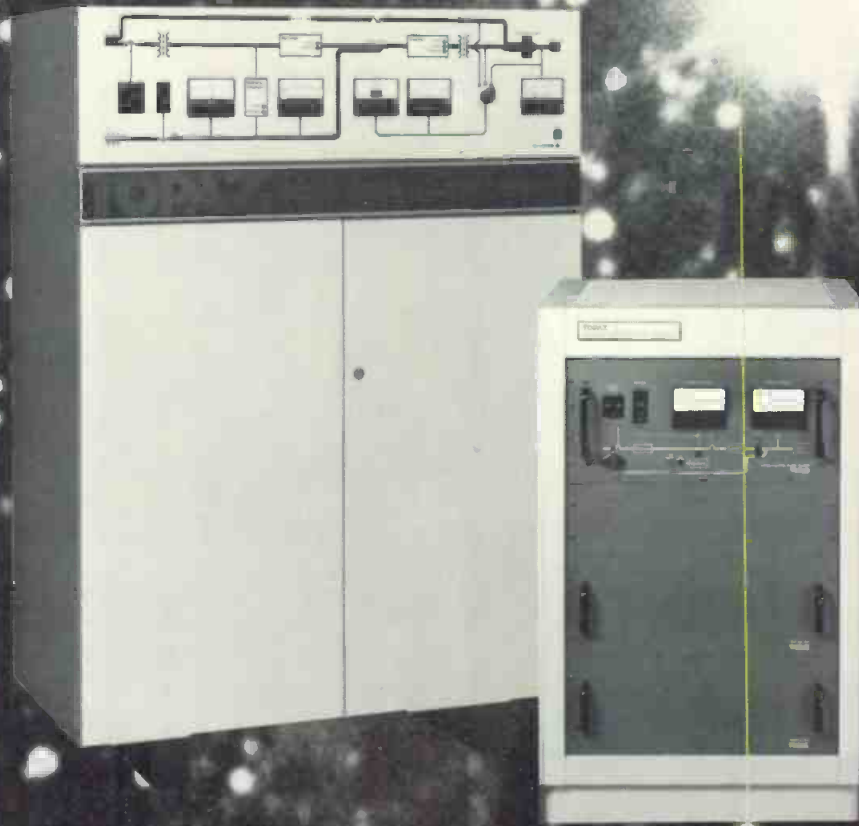


Now ... you can rent equipment for Proof-of-Performance, field strength measurement and portable broadcast studios with PA systems from the largest fleet of broadcast rental gear in America. Call for your copy of our rental equipment catalog.

daavidgreen
broadcast consultants corporation
Box 590/Leesburg, Virginia 22075
Phone 703-777-8660

Circle 267 on Reader Service Card

Go Beyond Uninterruptible Power!



The Uninterruptible Power System is a vital link in the continuous operation of security systems, telecommunications networks and many computer applications. But Topaz UPS go beyond providing power when the utility source fails. They also protect against voltage variations, power line noise and brownouts — all of which occur more frequently than voltage outages. That's why you owe it to yourself and your customers to provide the ultimate in protection against voltage sags, surges, lightning, brownouts and blackouts

which can interfere with proper computer operation or telecommunications transmission.

The protection you need is a Topaz Uninterruptible Power System. You can rely on these systems to protect your critical loads against power line disturbances and loss of commercial power. Topaz UPS are UL listed and immediately available in cabinet assemblies complete with batteries.

Tear out this ad and mail it to us with your business card, circle the reader service card or call us direct.

TOPAZ SOLUTIONS TO
POWER PROBLEMS™
ELECTRONICS DIV.

9192 Topaz Way. San Diego. California 92123—(714) 279-0831—TWX: (910) 335-1526

Reps/Dists

WESTERN DATA PRODUCTS
Wilsonville
503 682-3306
Lightning Elimination see ad pg 162

PENNSYLVANIA

ALPHA VIDEO & ELECTRONICS CO
Carnegie
412 923-2070
Sharp see ad pg 149

AUDIO ASSOC
Bethlehem
215 865-6013
Circuit Research Labs see ad pg 247
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

AUDIO INNOVATORS INC
Pittsburgh
412 471-6220
ATI see ad pg 141

AUDIO MARKETING ASSOC
Brecksville OH
216 526-2426
Edcor see ad pg 212

AVEC
Carnegie
412 279-6169
Faroudja see ad pg 69

BILL CARTER
Pittsburgh
412 561-0293
Knox see ad pg 30

DOUG COOK & ASSOC
Charlotte NC
704 542-6510
Ramko see ad pg 155,157,159

J E CUESTA & CO
Brunersville
717 626-2020
Valley Forge
215 265-5800
Topaz see ad pg 217

DEITRICH & ASSOC INC
Pittsburgh
412 892-2992
Philips T&M see ad pg 169

ELECTRO MEDIA
Pittsburgh
412 683-5424
Digital Video see ad pg 137

ELECTRONIC MARKETING ASSOC
Plymouth Meeting
215 828-7400
King of Prussia
215 265-1600
Philadelphia
215 248-5050
EECO see ad pg 154

HM HOLZBERG ASSOC
Totowa NJ
201 256-0455
TFT see ad pg 240

LANDY ASSOCIATES INC
Cherry Hill NJ
609 424-4660
See ad this page

LERRO ELECTRICAL CORP
Philadelphia
215 223-8200
Animation Video see ad pg 18
Convergence see ad pg 242
Digital Video see ad pg 137
Listec see ad pg 131
Quantum see ad pg 204
Thomson-CSF see ad pg 20-21

L & M ASSOC
Andalusia
215 245-6658
Marconi see ad pg 207

LOFSTRUM ELECTRONICS
Glassport
412 461-2116
Harris Video see ad pg 44-45

RICHARD S PASS & ASSOC
Langhorne
215 757-6100
Edcor see ad pg 212

PEIRCE-PHELPS INC
Philadelphia
215 879-7000
See ad pg 95
Edutron see ad pg 124

Faroudja see ad pg 69
Frezzolini see ad pg 251
Harris Video see ad pg 44-45
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Listec see ad pg 131
Nady see ad pg 236

QUAIL VIDEO PRODUCTS
Pittsburgh
412 243-1330
Edutron see ad pg 124

RO-CEL
Pittsburgh
412 781-2326
ESE see ad pg 225

R P C ELECTRONICS INC
Pittsburgh
412 782-3770
Harris Video see ad pg 44-45

ED SIMON CO
Pittsburgh
412 422-9199
Quantum see ad pg 204

LANDY ASSOCIATES, INC.
1890 E. MARLTON PIKE, CHERRY HILL, NJ 08003
(609) 424-4660

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

Beyond P.L.



Broadcast Intercoms limited only by your creativity, imagine:

- Live Remote P.L. and Cue Systems
- Battery Operated ENG/EFP Systems
- 4 Channel Studio and Post Production P.L. Systems
- Mobile Van P.L. Systems
- Cameraman's Headsets

All NEW from Clear-Com
Send for our catalog on more ideas and technical information.

Clear-Com
intercom systems
759 Harrison Street
San Francisco, CA 94107
(415) 989-1130
TWX: 910-372-1087

Circle 269 on Reader Service Card

swintek

The Leading Name In
Cordless Microphone Systems



Transmitters small enough to be hidden almost anywhere, tiny microphones that are so unobtrusive that they probably won't even be noticed, hand-held microphones without the encumbrances of hundreds of feet of wire — that's what cordless microphone systems are all about. But there's one more factor of prime importance — reliability. If you're in television, radio or film and you want a cordless microphone system that not only offers the most advanced state-of-the-art electronics but the highest reliability rating in the industry, Swintek is the answer. There's a Swintek transmitter and receiver to fit your specific needs, no matter what your requirements. Check with us today about the greatest name in cordless microphone systems — Swintek.

alan gordon enterprises inc.
1430 N. Cahuenga Blvd., Hollywood, CA 90028
Telephone: (213) 466-3561 • (213) 985-5500
TWX: 910-321-4526 • Cable: GORDENT

Circle 270 on Reader Service Card

DELTA BROADCAST PRODUCTS

AMC-1



The **Amplitude Modulation Controller** is the only modulation controlling system that provides a completely closed loop around the transmitter. The sampling of actual modulation levels after the PA output network assures precise adjustment for optimum modulation levels. The AMC-1 also keeps a digital count of positive and negative overmodulation bursts for both present and previous one minute periods.

APC-1



The **Automatic Power Controller** is your insurance against citations for over- and under-power operation. The APC-1 continuously monitors the transmitter output power, and makes automatic power adjustments with the transmitter loading control. This assures proper power adjustment at all times.

OIB-1



OIB-3



The **Operating Impedance Bridge** measures the impedance of networks, radiators, and the like while they operate under full power. VSWR as well as complex impedances of up to $400 \pm j300$ ohms can be measured.

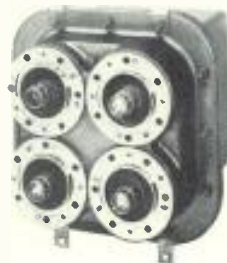
The **OIB-3 Operating Impedance Bridge** provides extended resistance and reactance ranges, measuring up to $1000 \pm j900$ ohms. The bridge has a built-in carrying case and RF amplifier for improved nulling.

DAM-1



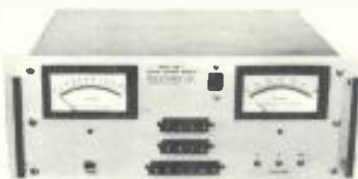
The **Digital Antenna Monitor** couples pushbutton ease of operation with digital accuracy. The DAM-1 will accept RF samples from up to 12 towers (with an auxiliary panel) and features $\pm 1^\circ$ phase and $\pm 2\%$ current ratio accuracies. Remote panels and other accessories are available.

6730-E
6740-B



Designed to switch two transmitters from antenna to dummy load, the 6730E interfaces with 1 5/8 inch coaxial cable. For 3 1/8" lines, the 6740-B transfer switch is used. Either manually or remote controlled, the **Transfer Switch** is fully interlocked and can be wired to existing equipment to prevent "hot" switching.

AAM-1



The **Analog Antenna Monitor** gives stable phase and ratio readings even in high RF fields. Separate phase and ratio mirrored-scale meters assure accurate meter indications.



State of the art antenna current metering has arrived in the **TCA Ammeter Systems**. Accurate, Modulation-free, temperature stable current indications are found in the TCA. Models include single and dual scale meters.

RG-3



The **Receiver/Generator** combines a two-watt RF output and a correlation detector circuit that virtually eliminates interference problems. The RG-3 can be used in conjunction with any conventional impedance bridge including the OIB series.

RCS-1V



The **RCS-1V Remote Control System** combines microprocessor technology with simplified operation. Features include direct interface boards for antenna monitors, patented remote modulation bargraph, automatic logging, and synthesized speech telephone interface. The modular design allows the customer to plug in additional input or control boards to expand remote control capabilities even after the system is operating in the field.

TCT



Delta's **Toroidal Current Transformers** provide accurate sampling current and phase values without the problems associated with sampling loops. Three output voltage ranges are available, as well as high voltage models for high-power facilities.

CPB-1



The **Common Point Impedance Bridge** is designed for permanent installation; and allows continuous monitoring of the common point, thus facilitating network adjustment. This model can be provided with one of Delta's TCA ammeters mounted in the front panel.

DELTA ELECTRONICS



5730 GENERAL WASHINGTON DRIVE
P.O. Box 11268 • ALEXANDRIA, VIRGINIA 22312
TELEPHONE: 703-354-3350 TWX: 710-832-0273

Circle 271 on Reader Service Card

www.americanradiohistory.com

Reps/Dists

SOUND SYSTEMS

Flourtown
215 242-3500
Edutron see ad pg 124
Sharp see ad pg 149

THERMAL SPECIALTIES CO

Harrisburg
717 236-5906
Lightning Elimination see ad pg 162

BOB WHITE ASSOC

Solon OH
216 248-1317
JBL see ad pg 103

WILTRONIX INC

Washington Grove MD
301 258-7676
Ramko see ad pg 155,157,159
TFT see ad pg 240

WOODHYRST INC

Mars
412 625-1515
Lightning Elimination see ad pg 162

RHODE ISLAND

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Eddor see ad pg 212

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

CHAMBERLAIN & MURRAY INC

Concord MA
800 343-5519
Ramko see ad pg 155,157,159

H M HOLZBERG ASSOC

Totowa NJ
201 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

INTERSELL

Burlington MA
617 273-3844
Philips T&M see ad pg 169

LAKE SYSTEMS CORP

Newton MA
17 244-6881
ESE see ad pg 225

LANDY ASSOCIATES INC

Framingham MA
617 877-9570
See ad this page

RAY PERRON & CO INC

Newton MA
617 969-8100
EECO see ad pg 154

PROFESSIONAL AUDIO ASSOC

Burlington MA
617 926-6107
dbx see ad pg 113,220

SOUTH CAROLINA

ELREP SALES CO

Atlanta GA
404 938-7108
Eddor see ad pg 212

EME I INC

High Point NC
919 869-3335
TFT see ad pg 240

MONTGOMERY MARKETING INC

Cary NC
919 467-6319
EECO see ad pg 154

PALMETTO PICTURES

Columbia
803 771-6000
Edutron see ad pg 124

SOUTHERN COASTAL MARKETING

Charlotte NC
704 542-6543
ESE see ad pg 225
Philadelphia Resins see ad pg 150
Ramko see ad pg 155, 157, 159
Singer Broadcast see ad pg 221

TECHNICAL INDUSTRIES

Columbia
803 754-1565
ISI see ad pg 176

TECHNICAL SYSTEMS REPS

Clemson
803 654-2321
JBL see ad pg 103

TEQSPEC

Winston-Salem NC
919 732-8102
Philips T&M see ad pg 169

WILSON AUDIO SALES

Franklin TN
615 794-0155
Cetec Vega see ad pg 117
dbx see ad pg 113,120

ZEHRTRONICS

Mauldin
803 288-2641
Quantum see ad pg 204

LANDY ASSOCIATES, INC.

801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

SOUTH DAKOTA

BROADCAST COMMUNICATIONS PRODUCTS

Golden CO
303 424-3231
Singer Broadcast see ad pg 221

BORRETT & DEE CORP

Minneapolis MN
612 827-1731
Eddor see ad pg 212

FIGHT CLEAN AND WIN. Increased use of carts makes tape noise reduction more critical than ever in your fight to stay competitive. With dbx Type II Noise Reduction, you have an affordable way to get high quality sound whether you're into classical music or drive-time rock. Our new Model 941 offers two channels of encode, the new Model 942 two channels of decode.

Combine them for simultaneous encode/decode. Get up to 16 channels in one 5 1/4" high rack mount frame. Broadcast noise reduction is the latest addition to the dbx 900 Series modular signal processors. All interchangeable, all compatible. See your dbx Pro dealer, or write for complete technical information.

*Manufacturer's suggested retail price. Model 941. Model 942, \$270.



Model 941 Encoder and Model 942 Decoder

dbx, Incorporated, Professional Products Division,
71 Chapel St., Newton, Mass. 02195 U.S.A.
Tel. (617) 964-3210, Telex: 92-2522. Distributed in
Canada by BSR (Canada) Ltd., Rexdale, Ontario.

dbx®

NOW! CONTINENTAL'S 25 KW FM



High performance. Offers you high fidelity, dynamic balance, good stereo separation, extremely low noise and distortion; excellent frequency stability. Compact size. Simple installation. Low Power consumption. Proven exciter. Combine with duplicate Type 816R-3 and get 50 kW output.

Write for brochure on 816R-3
Continental Electronics Mfg. Co.
Box 270879
Dallas, Texas 75227

Continental Electronics

STEREO • WVSS • WISF • KGBN • KUOA • KWAV • WSOB • EL SALVADOR) RADIO CADENA YSU • WLFA • KAIM • KZ
R • KBAR • WYFE • WWKI • HRCA • XETAP • (MALAYSIA) BU • AU COASTAL NAVIGATION • WTPM • VTHE • KOMO • (C
DEL CONQUISTADOR • WRLS • WONE • KICN • WNHV • KSOP • (ANTARCTICA) AFN • KLCC • WDBN • WYSO • KBMR • W
JF • WAAL • KMTY • KTOB • (BOLIVIA) RADIO AGUSTIN ASPIAZU • CHOI • XELM • HRCA • KSHE • WGVM • WOAL • (C
IDS) RADIO IKURANGI • KIRK • WHII • WCBY • WHMP • KSCL • KRZJ • KDLS • WWCA • (COLUMBIA) RADIO TONCHA
• WIVY • KUMU • XEUE • HRVW • (GERMANY) AFN • KOOU • WHIL • WARO • KTSU • WQSU • KUNR • WKCY • (SF
JNAL NETWORK • WRFS • KKRK • WTLO • XEKZ • KCDC • WCOH • WMLT • WPUL • KLIF • (ITALY) TLC ELETTRONICA • W
IER • KART • WWSI • WGRT • KSCL • (ANGOLA) EMEISORADA ANGOLA • WCLE • KWHO • WKEX • WKMF • WHP • (C
E) RADIO BARLOVENTO • WWSN • KEFY • WNNN • WRQK • WAYV • KSJB • WGFA • WYLO • (ARGENTINA) RADIO AZ
• XEHW • WWYD • WQFS • KFJM • KGCA • WTOO • XEEJ • (AUSTRALIA) QZZZ, QUEENSLAND UNIVERSITY • XELI • K
SOA • WSBA • KTEQ • WEDG • KORC • WIZO • XEITE • KCCL • (BAHRAIN) RABIE



WJAT • KASB • WAAA • (ANGOLA) EMEISORADA ANGOLA • (AUSTRALIA) QZZZ, QUEENSLAND UNIVERSITY • XELI • K
• WJEE • KSNN • WBMX • (MOROCCO) NATIONAL BROADCAST SERVICES, INC. • WYFM • WYFI • KWYR • WUTS • WSMC • KALU • WMLP • WKST • KLCO • WPA
IL • KTDL • WWOZ • WWNO • KVOO • WDJF • WMPH • WJTH • WCLA • (PANAMA) STEREO REY • WGUS • WLOP • V
ADCAST SERVICES, INC. • KMBI • WVMG • WLOD • WAVW • WQIK • WFIT • KAWW • (PERU) RADIO ATLANTIDA • K
Z • KAWL • WFEA • WKMB • WDCC • KWQB • WLMH • WRCJ • WUHS • WBRJ • (SAUDI ARABIA) ARAMCO • WAKW • K
F • WLEM • WYNS • WWSF • WWEZ • (ST. LUCIA) RADIO ST. LUCIA • WLAN • WAMD • WQIZ • KBHB • WTTU • WHIN • W
IE • KWEL • WFMQ • KIKT • WAMB • WLYX • WMTS • WOBL • KLVI • KMAC • (SYRIA) S.A.R. • WMGL • WGOW • WCI
• WPLN • KHCB • KASE • WLSO • WCVB • WYPR • (SURINAME) RADIO APINTIE • KAGT • WFMR • WQFM • WROE • W
T • WGMO • WRVA • WALD • KVAC • WISO • WOMS • WAID • KIEE • WRDI • WJLK • WRAN • WHHO • (CHILE) RADIO PAL
G • KMHL • KSVR • WDCS • WRUM • (R.O.C.) NATIONAL GOVERNMENT • WBMD • KOHS • WEVA • WANT • KRSP • W
AT • WVWR • KSOP • KBRE • WVLH • WQRA • WNRG • KSL • WDYL • WCUL • (ARUBA) CARUSO BODY STEREO • WGI
• (AUSTRALIA) LISMORE UNIVERSITY • WYFM • WYFI • KWYR • WUTS • WSMC • KALU • WMLP • WKST • KLCO • WPA
• KXVQ • WKMC • WICK • WSEW • KCSC • AFR • (BOLIVIA) RADIO METROPOLITANA • KGUS • WZOB • WWWB • WA
• WOZK • WHTB • WTLS • WTBG • WVSA • KNBY • KPOC • WKNU • WAFT • WDMG • (VENEZUELA) RADIO INDEPEND
IX • (BRAZIL) SINTRONICA • KMNI • WPCH • WOZN • WWSI • WJCL • KOPS • WFXV • WMST • KIWA • WYGO • WSPJ • K
MF • WRMS • WRBR • USAF • KGTS • WLYF • WKTZ • WPCS • WBGW • WCRJ • (CHILE) RADIO PATAGONIA • WTJM • WL
• WBRT • WYWY • WDCS • KTPA • KWRM • KCSU • WMPT • WMJW • (COLOMBIA) RADIO OLIMPICA • WFIT • KGYN • WI
LP • WCHA • KTLS • WIYQ • WYCR • KOLS • (DOMINICAN REP.) RADIO CIBAO • WYCR • WMGK • WDBA • KCLS • W
(I • (EL SALVADOR) RADIO CADENA YSU • WVPB • WAZS • KQHU • WGTN • WATP • WBLR • WINH • KLAU • WKDE • W
OR • WESR • WCMS • WOWI • KBRE • WRVL • (GUATEMALA) RADIO NACIONAL, TGW • WASU • KFJM • KBMR • WMI
• WCNE • KFGO • (CHILE) RADIO UNIVERSIDAD DEL NORTE • WEBB • WVOB • WAGA • WMGM • KTDB • KAFE • KMTY • WV
G • WVRM • (HONDURAS) RADIO HONDURAS • KMTY • WMVI • WOUR • WRHO • KADI • KQYX • KICN • WOKK • W
LAYSIA) DIRECTOR OF BROADCASTING • WAB • WGLI • KSYN • WSEN • WCKL • WLPH • KCFM • KANR • TELEAMER
KTCH • WKAL • (ROCCO) AMERICAN BROADCASTING CORP. • WYFR • (PARAGUAY) RADIO ITAPIRU • WGNU • WSCH • WIFF • KTAC • KI
• WJJB • KTAC • (COLOMBIA) FRECUENCIA MELODIA • WKWK • KGTS • KAGT • WEXO • KOQT • WGMQ • WCIR • KI
E • WOPA • WFMV • WLBC • KART • WRUF • WWLV • WZVW • KBAR • WKTZ • (VENEZUELA) RADIO UNIVERSIDAD • KI
IP • KOLS • WCTL • WVAM • WCTX • KLCO • (COLUMBIA) CARACOL ESTEREO • WLLS • KSCL • WNGO • KLOQ • KIWA • KE
JMBIA) EMISORA CALDAS ESTEREO • WHBN • WLLS • WSOF • WSTO • WRUS • KRZJ • KDLS • KTEQ • KKLS • WALD • W
W • WZPR • WDAS • KQHU • WKUB • WCEH • WBLJ • (EQUATORIAL GUINEA) BROADCAST AUTHORITY • WDYL • WN
• KMTF • WNHV • WCVB • WEVA • KASE • KRSP • WKOE • (GUATEMALA) LA VOZ D TONICAPAN • WGAT • KSL • KT
• WCTL • WIYQ • WWSF • KCSC • KALU • (HONDURAS) RADIO MONUMENTAL • WMBI • WLBC • WTRF • KSNM • KE
M • WWKI • (CHILE) RADIO SUPERANIA • KART • WACL • WQRA • KIWA • WJBA • KSL • WTHU • WNES • WLLS • W
F • KNEI • I
ID • WOOK
IP • WKMF
ROCCO) NA
L • WWYD
WMGL • W
D • KEFY

The World's Largest Independent Manufacturer of Broadcast Transmitters



SINGER BROADCAST PRODUCTS, INC.
P.O. BOX 5500 • CHERRY HILL, NEW JERSEY 08034 • TEL: 609-424-1500

A partial users list of CCA and Sintronic Brand Transmitters manufactured by Singer Broadcast Products.

KWAO • KAFF • KOPA • WZOB • WATV • WANA • WRFS • KWAO • WAFT • (VENEZUELA) ECOS DEL TORBES • WA
• WCOA • WUCF • WDMG • KSTV • (SAUDI ARABIA) ARAMCO • KWEL • KVET • KVLU • WFPM • WBSG • KTLR • WJ

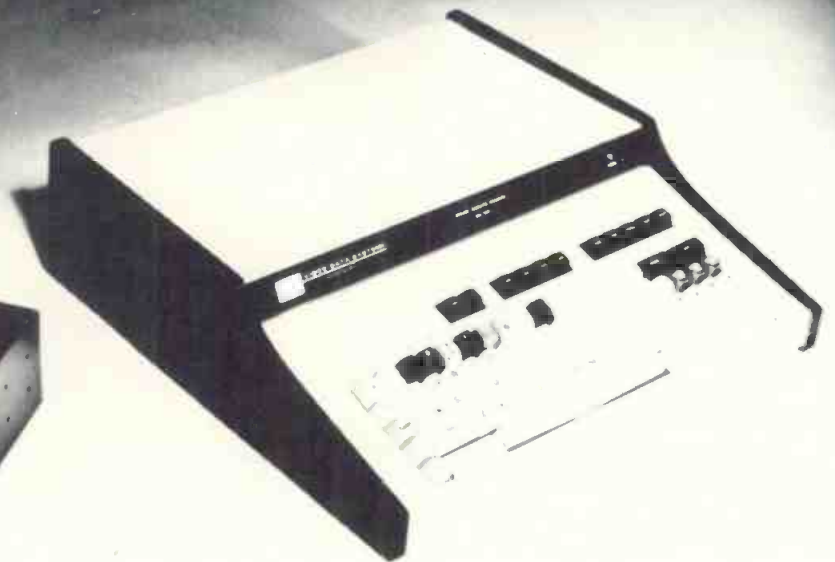
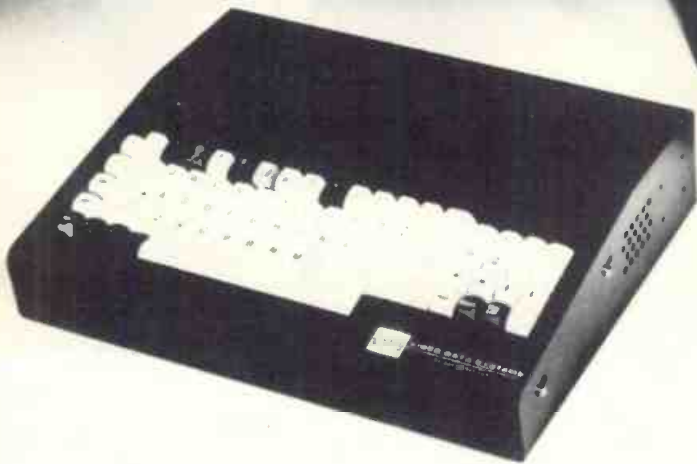
We're Better Than Ever!

Our **CG-832** is ideal as a low cost MARQUEE to promote your pay movie channel. Only our CG-832 provides these features at this . . . low price: 8 page memory expandable to 16 pages, auto line centering, character flash, optional fixed title, LED page display, and optional color background and power failure protection.

Priced from \$1695.00

The **MCG-2500** is a microprocessor based message generator with internal sync and color background. Performance features begin with a new highly legible upper and lower case, 16 x 20 matrix character display, plus 26 special graphic characters. The display can contain a maximum of 14 lines of 32 characters and up to 2 crawl lines at any line location in the raster.

Priced at \$4595.00



The new **TPT-2500** titler offers features not expected in this price range: eight character sizes, upper and lower case, border line, underlining, graphics, flash, crawls, positionable title window, 32 page resident memory and optional 700+ page tape memory.

Operating features include: auto line and page centering, word/line open and close, tab and elastic memory.

Priced at \$4995.00



Video Data Systems T.M.

Headquarters, Hauppauge, N.Y. (516) 231-4400
National CATV Sales / Western Regional Office
Salt Lake City, Utah (801) 272-9296

→ **Innovative Communications**

Circle 275 on Reader Service Card

www.americanradiohistory.com

Reps/Dists

ELECTRONIC SALES AGENCY

Bloomington MN
612 884-8291
EECO see ad pg 154

EMMONS ASSOC

Burnsville MN
612 890-8920
TFT see ad pg 240

ENTERPRISES INC

Milwaukee WI
414 257-4668
Ramko see ad pg 155,157,159

FRUEN & ASSOC

Wayzata MN
612 475-2642
dbx see ad pg 113,220

KODO ASSOC

Minneapolis MN
612 881-1255
Philadelphia Resins see ad pg 150

SKOR

St Paul MN
612 645-6461
Cetec Vega see ad pg 117

TORKELSON ASSOC INC

Minneapolis MN
612 835-2414
Philips T&M see ad pg 169

TENNESSEE

ALLIED BROADCAST EQUIPMENT

Richmond IN
317 962-8596
ESE see ad pg 225

AUDICON INC

Nashville
615 256-6900
Quad Eight see ad pg 171

DICK BELLEW SALES INC

Memphis
901 365-9437
Nady see ad pg 236

BROADCAST DISTRIBUTORS

Cleveland
615 472-8200
Quantum see ad pg 204

BROADCAST EQUIPMENT & SUPPLY CO

Bristol
615 875-2531
ATI see ad pg 141

CENTEL SYSTEMS

Memphis
615 365-1361
Sharp see ad pg 149

DOUG COOK & ASSOC

Charlotte NC
704 542-6510
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

DELKER ELECTRONICS

Smyrna
615 459-2636
Circuit Research Labs
see ad pg 247

DOBBS-STANFORD CORP

Irving TX
214 259-3737
JBL see ad pg 103

ELREP SALES CO

Atlanta GA
404 438-7108
Edcor see ad pg 212

GRAY COMMUNICATIONS

Nashville
615 883-9175
Convergence see ad pg 242
Harris Video see ad pg 44-45
ISI see ad pg 176

MILLER & ASSOC

Dallas TX
214 661-5002
Edcor see ad pg 212

MONTGOMERY MARKETING INC

Gary NC
919 467-6319
EECO see ad pg 154

PHASE AUDIO

Memphis
901 726-1900
Auditratics see ad pg 123,125,127

TECHNICAL INDUSTRIES

Nashville
615 256-0800
Harris Video see ad pg 44-45

TEQSPEC II

Morristown
615 587-0980
Philips T&M see ad pg 169

ROSCOM INC

Roswell GA
404 992-2700
Ramko see ad pg 155,157,159
TFT see ad pg 240

VALLEY PEOPLE

Nashville
615 383-4737
Auditratics see ad pg 123,125,127

WILSON AUDIO SALES

Franklin
615 794-0155
Cetec Vega see ad pg 117
dbx see ad pg 113,220

TEXAS

ABADON-SUN

San Antonio
512 824-8781
Quantum see ad pg 204

ALLIED BROADCAST EQUIPMENT

Plano
214 423-8667
Auditratics see ad pg 123,125,127

ALPHATECH INC

Houston
713 466-1979
Allen
214 423-4570
Philips T&M see ad pg 169

DICK BELLEW SALES INC

Dallas
214 373-4590
Nady see ad pg 236

BFA CORP

El Paso
915 581-6679
Topaz see ad pg 217

BROADCAST SYSTEMS INC

Austin
512 836-6014
Faroudja see ad pg 69
Moseley see ad pg 31

CONTINENTAL ELECTRONICS

Dallas
214 381-7161
Circuit Research Labs see ad pg 247

CREWS-FOLSOM ASSOC

San Antonio
512 657-5997
Strand Century see ad pg 148

JOHN R CROUSE

Azle
817 444-3193
Singer Broadcast see ad pg 221

CROUSE-KIMZEY CO

Fort Worth
800 433-2105
ATI see ad pg 141
LPB see ad pg 104

DIMENSION MARKETING GROUP

Houston
713 772-0961
Dallas
214 348-9657
Cetec Vega see ad pg 117

DOBBS-STANFORD CORP

Irving
214 259-3737
JBL see ad pg 103

VICTOR DUNCAN

Dallas
214 369-1165
Digital Video see ad pg 137
Frezzolini see ad pg 251
Listec see ad pg 131
Nady see ad pg 236
Skotel see ad pg 177

ECI VIDEO

Dallas
214 745-1292
Convergence see ad pg 242

INDUSTRIAL AUDIO/VIDEO, INC.
P.O. BOX 25127, HOUSTON, TX 77005
(713) 524-1956

FOR 10 YEARS INDUSTRIAL AUDIO/VIDEO, INC. HAS BROUGHT HOUSTON AND TEXAS THE FINEST SALES AND SERVICE ON VIDEO AND AUDIO EQUIPMENT FOR INDUSTRIAL/PROFESSIONAL USE . . . IKGAMI, HVS, HITACHI, SONY, CONRAC, CMX, JVC, ETC.

GBS-GIESLER BROADCASTING SUPPLY, INC.
9440-L HARWIN, HOUSTON, TX 77036
(713) 974-6205

ORBAN, MOSELEY, CABLEWAVE, BELAR, PHELPS DODGE, BE, POTOMAC, MARK, MARTI, RF PROD., AMPEX, SCULLY, AUTOGRAM, DBX, REVOX, LOGITEK, MCI, OTARI, TECHNICS, JBL, EV, UREI, REVOX, SHURE. COMPLETE STATION REQUIREMENTS.

MAGNETIC MEDIA CORP
DALLAS, TEXAS
(214) 931-0404

**Broadcast Video Systems
for Professional users.**
Hitachi broadcast VTR and camera equipment, C.V.S., Lenco, Tektronix, Grass Valley, C.E.I. Cameras, Convergence Editing Systems, Remote vans, Sony, JVC and Panasonic.

**Complete design, installation,
service and training.**
Additional offices:
Austin, Amarillo, Albuquerque, Denver, Odessa

The brightness you need to show it big

General Electric (U.S.A.)* Professional Large Screen Video Projection

With General Electric's (U.S.A.) exclusive sealed light valve and sealed Xenon lamp system, in both color and monochrome General Electric (U.S.A.) Professional Large Screen Video Projectors, you can depend on sharp pictures from 2 to 25 feet wide. New high brightness models allows the room lighting viewers need to take notes and refer to written material.

The color projectors reproduce every color accurately, with the convenience of inherent color registration. General Electric's (U.S.A.) exclusive single gun, single optical path light valve system eliminates the need for manual color convergence.

Portable and flexible, the projectors are being used for a wide variety of applications, including front and rear projection. Our applications experts will tell you whether yours can be added to the growing list, which includes:

Education: Medical, dental, engineering, computer science instruction.

Business: Sales meetings, industrial training, product presentations, real-time display of computer-generated data, teleconferences.

Aerospace and Defense: Situation displays, simulator training.

Entertainment: Theatre television, closed-circuit TV events, overflow crowds, special effects.

Television Production: Backgrounds for news programs, special effects, data display, program previewing.

Call or write: General Electric Company (U.S.A.), Video Display Equipment Operation, Electronics Park 6-206, Syracuse, NY 13221 U.S.A., Phone: (315) 456-2152.



NEWS BACKGROUND at WTMJ-TV, Milwaukee, is displayed rear screen by General Electric (U.S.A.) projector.



SELL-OUT CROWDS at Fiske Planetarium, Boulder, watched live NASA transmission presented by General Electric (U.S.A.) projector.

GE (U.S.A.) Professional Large Screen Television Projector Specifications

COLOR PROJECTORS

Model	Light Output in Lumens			Resolution* in TV Lines per Picture Height		Input Power Req.		Scan Standards***	Video Input**
	Open Gate, Min.	Modulated TV, Min.	Modulated TV, Typ.	Min. Horiz.	Min. Vert.	Watts	Volt-Amps.		
PJ 5000	550	220	280	750	300	1200	1600	525 li./60 fps; 625 li./50 fps	(1)
PJ 5050	1250	500	650	750	300	1600	2150	525 li./60 fps; 625 li./50 fps	(1)
PJ 5800	550	200	280	750	600	1200	1600	875 lines, 60 fps	(2)
PJ 5850	1250	500	650	750	600	1600	2150	875 lines, 60 fps	(2)
PJ 5100	550	200	280	750	650	1200	1600	1023 lines, 60 fps	(2)
PJ 5150	1250	500	650	750	650	1600	2150	1023 lines, 60 fps	(2)

MONOCHROME PROJECTORS

PJ 7000	1000	600	750	800	400	1000	1350	525 li./60 fps; 625 li./50 fps	(3)
PJ 7050	1700	1000	1250	800	400	1000	1350	525 li./60 fps; 625 li./50 fps	(3)
PJ 7055	3300	2000	2400	800	400	1500	2000	525 li./60 fps; 625 li./50 fps	(3)
PJ 7800	1000	600	750	800	650	1000	1350	875 lines, 60 fps	(3)
PJ 7850	1700	1000	1250	800	650	1000	1350	875 lines, 60 fps	(3)
PJ 7855	3300	2000	2400	800	650	1500	2000	875 lines, 60 fps	(3)
PJ 7100	1000	600	750	800	750	1000	1350	1023 lines, 60 fps	(3)
PJ 7150	1700	1000	1250	800	750	1000	1350	1023 lines, 60 fps	(3)
PJ 7155	3300	2000	2400	800	750	1500	2000	1023 lines, 60 fps	(3)

Line Power. All Projectors: 117 or 240 v., $\pm 10\%$, 50/60 Hz

*Resolution measurements made with wide-band video input.

**Video Input Key: (1) NTSC or RGB. (2) RGB. (3) Wide-Band.

***For use at other scanning rates, contact General Electric (U.S.A.) (VDEO) for special application/model information.

GENERAL ELECTRIC



U.S.A.

*Not connected with the English company of a similar name.

Ad 31 (U.K.)

Circle 274 on Reader Service Card

www.americanradiohistory.com

Reps/Dists

ELECTRA REPS INC
Houston
713 988-9022
EECO see ad pg 154

ELECTRONIC CENTER INC
Dallas
214 745-1292
Harris Video see ad pg 44-45

ELECTROTEX
Houston
713 526-3456
Thomson-CSF see ad pg 20-21

FITZCO SOUND INC
Midland
915 684-0861
See ad pg 61

**GBS-GIESLER BROADCASTING
SUPPLY INC**
Houston
713 974-6205
See ad pg 223

HEMISPHERE TECHNOLOGY
Dallas
214 690-9799
Thomson-CSF (DTE) see ad pg 147

H P MARKETING
Littleton CO
303 794-8367
dbx see ad pg 113,220

INDUSTRIAL AUDIO/VIDEO
Houston
713 524-1956
See ad pg 223
Convergence see ad pg 242
Harris Video see ad pg 44-45
Nady see ad pg 236

KRUTE VIDEO COMMUNICATONS
Houston
713 783-3113
Digital Video see ad pg 137

LUDWIG SOUND
Houston
713 449-8388
Quantum see ad pg 204

MAGNETIC MEDIA
Amarillo
806 358-2426
Odessa
915 332-4341
Austin
512 451-0138
San Antonio
512 349-9313
See ad pg 223
Convergence see ad pg 242
Edutron see ad pg 124
Harris Video see ad pg 44-45
ISI see ad pg 176
System Concepts see ad pg 182

MIDCOM INC
Arlington
817 461-2211
Quantum see ad pg 204

MILLER & ASSOC
Dallas
214 661-5002
Edcor see ad pg 212

MZB & ASSOC INC
Dallas
214 233-5535
See ad this page
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Listec see ad pg 131
NEC see ad pg 107

PARCOM
Southlake
817 481-7221
Ramko see ad pg 155,157,159
TFT see ad pg 240

BOBB PARTRIDGE-PETE BLAIR
Terrell
214 222-2131
Studer/Revox see ad Cover 3

GORDON PETERS
Arlington
817 467-2990
ADM Technology see ad pg 9

RIO RADIO SUPPLY
Allen
512 682-5224
Edutron see ad pg 124

SAVCO
Richardson
214 234-1841
ESE see ad pg 225
Listec see ad pg 131

SESCO
Austin
512 892-2490
Dallas
214 231-9364
Houston
713 999-3510
Topaz see ad pg 217

SOUND IDEAS ASSOC
Houston
713 686-4838
Electrohome see ad pg 48

GENE SUDDUTH CO
Paris
214 785-5764
Knox see ad pg 31
Leitch see ad pg 128
Philadelphia Resins see ad pg 150
Skotel see ad pg 177

S W PRO AUDIO
Austin
512 442-4567
MCI see ad pg 62
Quantum see ad pg 204

M Z B & ASSOCIATES
4203 BELTWAY DRIVE, DALLAS, TX 76248
(214) 233-5535

ALSO, OFFICES AT 16502 NORTHCHASE, SUITE E
HOUSTON, TX 77060-713/448-0881
MAJOR BDCST/VIDEO LINES-IKEGAMI, SONY, JVC,
ETC. PROFESSIONAL SALES, SERVICE, RENTAL &
INSTALLATION SERVING THE SOUTHWEST FOR
OVER 25 YEARS.

Perfect Timing

SMPTE

TIME CODE READERS THAT YOU CAN AFFORD

ES251-Six digit SMPTE Time Code Reader displaying Hours, Minutes and Seconds. Reads at play back speed.

Momentary hold switch permits "freezing" of time displayed.

Releasing hold switch updates display to correct time. **\$295**



ES252-Exactly like ES251, but displays Minutes, Seconds and Frames. **\$300**

ES253-Eight digit reader, displays Hours, Minutes, Seconds and Frames.



Reads at play back speed, has "freeze" control. **\$454**

ES254-BI-DIRECTIONAL, MULTI-SPEED

(1/20 to 20 times), eight digit reader with "freeze" control. On loss of code, displays last valid code read. **\$675**

AND FOR OFF-LINE EDITING **ES255** SMPTE IN/VIDEO OUT

ES255 is an eight digit, multi-speed, bi-directional SMPTE reader which adds the SMPTE input to your video. You can now "burn" the time code into the video portion of your tape, or feed a monitor directly. **\$995**



Write, Wire or Call: (213) 322-2136
142 Sierra Street, El Segundo, CA 90245

Reps/Dists

TEXAS TECHNICAL PRODUCTS CO
Houston
713 526-0656
Lightning Elimination see ad pg 162

TEXAS VIDEO SYSTEMS INC
Dallas
214 341-1771
Sharp see ad pg 149

TEX-MEX INDUSTRIES
Midland
915 684-5841
Lightning Elimination see ad pg 162

TOAL ASSOC
Plano
214 596-1315
Digital Video see ad pg 137

VIDEO SYSTEMS INC
Houston
713 666-9651
Listec see ad pg 131
System Concepts see ad pg 182

VIDEO UNLIMITED
Dallas
214 243-2267
Harris Video see ad pg 44-45
Sharp see ad pg 149

UTAH

B C D
Anaheim CA
714 630-8150
ESE see ad pg 225

BROADCAST COMMUNICATIONS PRODUCTS
Golden CO
303 442-3231
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221

CLEVELAND ENTERPRISES OF COLORADO
Salt Lake City
801 355-8424
Philips T&M see ad pg 169

DIDIER/DENVER
Evergreen CO
303 674-6000
See ad this pg
TFT see ad pg 240

JAMES E HALL CO
Salt Lake City
801 268-3263
Edcor see ad pg 212

HALL ELECTRONICS
Boise ID
208 336-5894
Ramko see ad pg 155,157,159

H P MARKETING
Salt Lake City
801 261-3360
dbx see ad pg 113,220
JBL see ad pg 103

LANGE SALES
Salt Lake City
801 466-6522
Topaz see ad pg 217

PERFORMANCE AUDIO
Salt Lake City
801 355-8890
Quantum see ad pg 204

RIA CORP
Salt Lake City
801 486-8822
Convergence see ad pg 242
Faroudja see ad pg 69
Harris Video see ad pg 44-45
Listec see ad pg 131

SILVER PEAK MARKETING
Lakewood CO
303 233-8577
Nady see ad pg 236

SOUND GENESIS
San Francisco CA
415 285-8900
See ad pg 184
Auditronics see ad pg 123,125,127

SKAGGS VIDEO SALES
Salt Lake City
801 539-1420
Auditronics see ad pg 123,125,127
Faroudja Labs see ad pg 69
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Quantum see ad pg 204

TREMBLY ASSOC
Salt Lake City
801 486-5292
Marconi see ad pg 207

TRITRONICS
Provo
801 377-2694
Edutron see ad pg 124

TV SPECIALISTS
Salt Lake City
801 486-5757
Edutron see ad pg 124
Sharp see ad pg 149

VERMONT

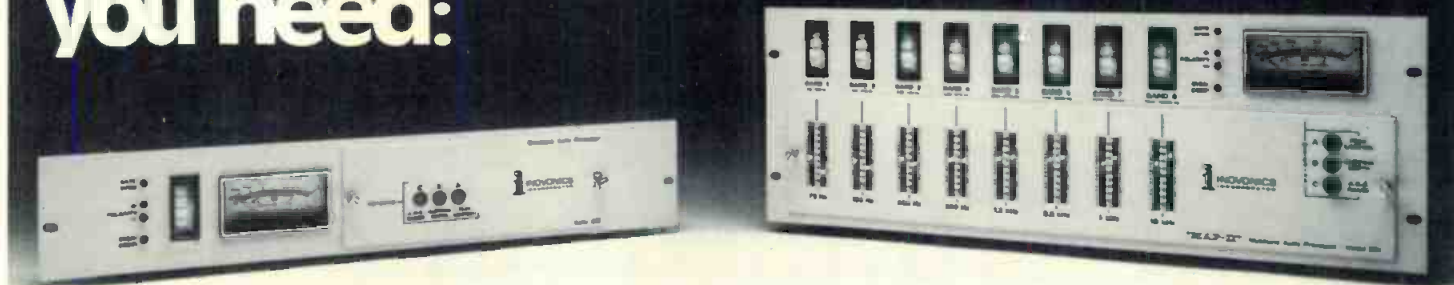
APPLIED MEASUREMENTS INC
N Bennington
802 442-2222
Lightning Elimination see ad pg 162

DIDIER DENVER

Evergreen, CO
303/674-6000

AM · FM · TV · LPTV

All the versatility you need:



a pair of better ideas for audio processing.

Inovonics' MAP II and 215 satisfy all of your needs for multiband or broadband audio processing in AM or FM broadcast, audio production, or TV/film situations.

For multiband processing, MAP II's gentle 8-band compression, gain-riding A.G.C., and absolute peak controller for AM or FM make it the most versatile "single package" processor in the industry.

And our new 215 broadband processor combines three very affordable options in one package: a slow A.G.C., a smooth, average-level compressor and an AM or FM absolute peak controller.

Select all three, and the 215 stands alone as your complete audio-processing system. Or, select only the options that will complement the equipment you already have. For

instance, the 215 chassis accepts MAP II's removable peak controller for split studio/transmitter operation.

Together — or separately — Inovonics' 215 and MAP II give you all the audio-processing versatility you need — at a price you can afford.

Call or write us today. MAP II — \$1670. Model 215 — \$200 to \$785, depending on options selected.

Inovonics, Inc.

503-B Vandell Way
Campbell, CA 95008

Telephone:
408 374-8300



Circle 277 on Reader Service Card

THE ELECTRONIC NEWS ROOM BEGINS WITH DATA-PROMPTER

MULTIPLE INPUT-TERMINAL CAPABILITY:

With Data-Prompter you can enter and store information on edit terminals. You can transfer information to the master terminal on call. You have full communication between terminals. The master terminal can be used to assemble your entire newscast. And its output goes directly into the prompter monitors. (Eliminating prompter cameras and conveyors). Communication between terminals can be set up on any twisted-pair or voice grade phone lines.

AFFORDABLE:

Data-Prompter systems start under \$10,000.

FULL WORD PROCESSING:

Data-Prompter makes it easy to write and edit text. Data-Prompter allows you to insert and delete characters, words or entire sentences. And changes on Data-Prompter can be made without re-typing entire pages.

LATE NEWS HANDLING:

With Data-Prompter that last second score or news event can be entered on an edit terminal and transferred to the master terminal and instantly inserted as part of your live newscast.

HARD COPY PRINTOUTS:

Data-Prompter interfaces with multiple copy printers for talent copies and FCC filing.

WORD WRAP:

A feature that allows you to type your story from start to finish without concern for line length or word breaks.



CLOSED CAPTIONING:

Line 21 closed-captioning for the hearing-impaired is an integral part of the Data-Prompter system. With over 6% of the population estimated to be hearing-impaired Data-Prompter offers a potentially greater share-of-market to broadcasters and advertisers.

* The National Institute for the Deaf indicated that approximately 6.4% of the U.S. population (6.400 per 100,000 people) is hearing impaired in a report dated June 13, 1978.

REMOTE SPEED CONTROL:

Data-Prompter gives you variable speeds both forward and backward. The operator will pace your on-camera talent.

COMPATIBLE:

Data-Prompter feeds directly into existing camera monitors and will interface with existing computer systems for archiving.



PO Box 937-Olathe, Kansas 66061
Toll Free 1-800-255-6226
In Kansas 913-764-1900
TWX 910-749-6401

LOOK FOR BEI AND DATA-PROMPTER AT THE RTNDA SHOW - BOOTH 15

Circle 176 on Reader Service Card

www.americanradiohistory.com

Reps/Dists

ASSOCIATED SYSTEMS

Londonderry NH
603 434-0731
Edcor see ad pg 212

AUDIO ASSOC

Bethlehem PA
215 865-6013
Singer Broadcast see ad pg 221

CHAMBERLAIN & MURRAY INC

Concord MA
800 343-5519
Ramko see ad pg 155,157,159

H M HOLZBERG ASSOC

Totowa NJ
201 256-0455
Philadelphia Resins see ad pg 150
TFT see ad pg 240

INTERSELL

Burlington MA
617 273-3844
Philips T&M see ad pg 169

LAKE SYSTEMS

Newton MA
617 244-6881
ESE see ad pg 225

LANDY ASSOC INC

Framingham MA
617 877-9570
See ad this page

RAY PERRON & CO INC

Dover NH
603 742-2321
800 225-4280
EECO see ad pg 154

PROFESSIONAL AUDIO ASSOC

Burlington MA
617-926-6107
dbx see ad pg 113,220

SPHERE ASSOC

Reston VA
212 246-0176
Cetec Vega see ad pg 117

VIRGINIA

ALPHA AUDIO CORP

Richmond
804 358-3852
Quantum see ad pg 204

AIRPAC SYSTEMS INC

Vienna
703 938-2604
Lightning Elimination
see ad pg 162

AUDIO FIDELITY

Richmond
804 285-8781
Sharp see ad pg 149

AVEC ELECTRONICS CORP

Norfolk
804 627-3502
Convergence see ad pg 242

BROADCAST CONSULTANTS CORP

Leesburg
703 777-6500
Moseley see ad pg 31

BOB DIX

Marion
703 783-2001
Circuit Research Labs
see ad pg 247

EME I INC

High Point NC
919 869-3335
TFT see ad pg 240

EME II

Williamsburg
804 253-0171
NEC America see ad pg 107

DAVID GREEN BROADCAST CONSULTANTS

Leesburg
703 777-8660
See ad pg 216
ATI see ad pg 141
ESE see ad pg 225

ELECTRONIC MARKETING ASSOC

Rockville MD
301 881-5300
EECO see ad pg 154

MARKETRATION

Phoenix MD
301 666-9292
800 638-3330
JBL see ad pg 103

MID-STATES MARKETING INC

Springfield
703 569-2662
Philips T&M see ad pg 169

MIDWEST TELECOMMUNICATIONS

Virginia Beach
804 464-6256
Digital Video see ad pg 137
Edutron see ad pg 124
ISI see ad pg 176
Videomedia see ad pg 230

RANDY NEEL

Washington DC
202 547-3436
Nady see ad pg 236

RICHARD S PASS & ASSOC

Langhorne PA
215 757-6100
Edcor see ad pg 212

POWELL-PENDERGRAPH

Richmond
804 270-1400
Topaz see ad pg 217

LANDY ASSOCIATES, INC.

801 WATER STREET, FRAMINGHAM, MA 01701
(617) 877-9570

DISTRIBUTORS OF IKEGAMI CAMERAS AND MONITORS, ROSS VIDEO SWITCHERS, TWEED AUDIO, RTS INTERCOM, O'CONNOR FLUID HEADS, LEITCH VIDEO LISAND TRIPODS, ANTON-BAUER BATTERIES, VIDEOTEK MONITORS, CONRAC MONITORS, THOMSON CSF BROADCAST EQUIP, DATATEK, DATATRON EDITORS, TAYBURN MICROWAVE, ETC.

Accurate Field Strength Measurements Can Be Easy

With the Model FIM-21, electromagnetic field strengths can be measured to within 2% across the entire 535 to 1605 KHz AM band. And to intensity levels as low as 10 μ V/m. Its integral shielded antenna in the cover, front panel speaker, large illuminated mirrored meter, and ganged oscillator/receiver tuning, make it easy to operate in the field. An optional telescoping stand adds convenience. It's also a versatile instrument — use it as a tuned voltmeter for RF bridge measurements.

Contact us now for complete details on our line of field strength meters.



POTOMAC INSTRUMENTS

932 PHILADELPHIA AVE.
SILVER SPRING, MARYLAND 20910 (301) 589-2662

Circle 279 on Reader Service Card

MAP 3550

HF KHZ 5 6 7 8 9 10 12 15

MF KHZ 15 20 25 30 40 50 60 70 80 90 100 120 150

LF HZ 50 60 80 90 100 120 150 200 300 400

IN

EQUALIZER
(5 1/4" x 1 1/2")

EUPHONIOUS "MAP a good sound future"

MODULAR AUDIO PRODUCTS
A UNIT OF MODULAR DEVICES, INC.
50 Orville Drive Airport International Plaza Bohemia, New York 11716 516-567-9620

Circle 280 on Reader Service Card

TBC

Think Again.

Now you can own the ultimate
Time Base Corrector/Frame Synchronizer
for the cost of a standard TBC.

For too long now the ADDA VW-1 has been thought of primarily as a superb frame synchronizer. And its "infinite window" TBC capabilities sometimes get second billing.

We're about to change that.

We'll make you this offer for a limited time.

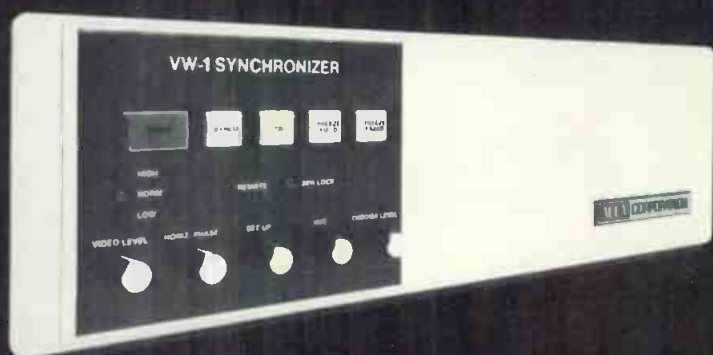
Buy our VW-1 for 3/4-inch VTRs for \$16,700, the price of competitors' TBCs,

and get frame synchronization with electronic freeze frame in the bargain.

Or you can buy our VW-2, for 1-inch VTRs, for \$19,700.

That's a lot less than either of our VW series has ever sold for.

Our VWs have made us the largest supplier of frame synchronizers to the broadcast industry. With an offer like this maybe we'll do the same for TBCs.



ADDA CORPORATION

Call your ADDA regional sales representative.

SALES OFFICES: New York City (212) 375-4064; Boston (617) 245-4602; Washington, D.C. (703) 620-6160; Detroit (313) 332-1500; Kansas City (913) 631-1500; Miami (305) 759-1500; Atlanta (404) 953-1500; Dallas (214) 373-1500; Los Angeles (714) 891-3364; Portland Ore., (503) 295-6458; Seattle (206) 721-0586

Corporate Offices: 1671 Dell Avenue, Campbell, CA 95008 (408) 379-1500.

Circle 281 on Reader Service Card

Never build an editor that can become obsolete...



And it goes for every Z editor ever built.

Considering all the advancements made in videotape editing systems in just the last three years, you might think your Mini-Z or Z-6 editing system is becoming obsolete. Well, it's not.

In fact, even though we're introducing a whole new line of Z6000 editors, the very first Z editor we ever built can be fully upgraded to Z6000 capability for less than \$4,500!

So, if you own a Videomedia editing system, hang on to it. For a surprisingly low cost, you can expand its capabilities whenever you want.

Frame accurate editing, for under \$11,000.

Don't buy a system with more features than you need. If you do, you're paying for "extras" before you can use them. Instead, invest in a system that can grow with you.

For example, start with a Z6000-A, a cuts-only editor with four-way split edits, auto extend and tag, four-event swap/recall, printer output, and the ability to select in and out points on the fly. Like all Z6000 editors, it has distributed intelligence, which controls each transport with an

individual microprocessor, thus eliminating timing discrepancies... all for less than \$11,000!

What's more, you'll be able to add features, such as our new KR6000 character generator for integrated graphics control, when you need them, at a fraction of the cost of a new system with the same capabilities.

Keep up to date at your own pace.

Whenever we build a new product or add a new capability, we make sure that it adapts to all our previous systems.

That's why, when you buy any Videomedia product, you're investing in a system with a future.

For complete details on our entire line of editing systems, post-production equipment, and a copy of our exclusive No-Obsolescence Policy, call or write today.

Videomedia
Professional Television Systems

250 North Wolfe Road
Sunnyvale, CA 94086
Telephone: (408) 733-6500

Circle 282 on Reader Service Card



Reps/Dists

PROFESSIONAL PRODUCTS

Richmond
804 282-5841
Edutron see ad pg 124

ROBERT SLYE ELECTRONICS

Arlington
703 525-7272
Auditronics see ad pg 123,125,127

SOUTHERN COASTAL MARKETING

Charlotte NC
704 542-6543
Philadelphia Resins see ad pg 150
Ramko see ad pg 155,157,159
Singer Broadcast see ad pg 221

SPHERE ASSOC

Reston
703 471-1230
Cetec Vega see ad pg 117
dbx see ad pg 113,220

VANGUARD ENGINEERING SALES

Alexandria
703 768-1660
Allen Avionics see ad pg 248

WASHINGTON

ALLIED BROADCAST EQUIPMENT

Seattle
206 941-5453
Auditronics see ad pg 123,125,127
ESE see ad pg 225
Quantum see ad pg 204

BENNET ENGINEERING ASSOC INC

Seattle
206 232-3550
Ikegami see ad pg 54, 156, 185, 192
Thomson-CSF see ad pg 20-21

BLAIR HIRSH CO

Seattle
206 783-3423
EECO see ad pg 154

BROADCAST SUPPLY WEST

Tacoma
206 565-2301
ATI see ad pg 141
Moseley see ad pg 31

R W CAMPBELL INC

Seattle
206 622-3403
Lightning Elimination see ad pg 162

COMPONENTS WEST INC

Renton
206 271-5252
Allen Avionics see ad pg 248

CUSTOM VIDEO SYSTEMS INC

Seattle
206 365-5400
Convergence see ad pg 242
Harris Video see ad pg 44-45
Sharp see ad pg 149

EARL FLEEHART

Seattle
206 522-1533
Knox see ad pg 30

HALL ELECTRONICS

Boise ID
208 336-5894
Ramko see ad pg 155,157,159

INSTANT REPLAY

Los Angeles CA
213 827-4510
Beaveronics see ad pg 164

MARCOM

Scotts Valley CA
408 438-4273
Seattle

206 364-9911

Nady see ad pg 236
NEC see ad pg 107
Philadelphia Resins see ad pg 150
Singer Broadcast see ad pg 221
TFT see ad pg 240

MATRIX MARKETING

Seattle
206 789-5990
Cetec Vega see ad pg 117

NORTH SHORE MARKETING

Redmond VA
206 883-4152
JBL see ad pg 103

NORTHWEST ELECTRONICS

Spokane
509 535-7652
ISI see ad pg 176
Videomedia see ad pg 230

CHUCK OLSON ASSOC

Renton
206 271-5416
Edcor see ad pg 212

PHOTO-SOUND CO

Seattle
206 632-8461
Edutron see ad pg 124

ROGER PONTO ASSOC

Bellevue
206 453-8487
dbx see ad pg 113,220

PUGET SOUND AUDIO

Tacoma
206 579-4701
Quantum see ad pg 204

SHOWALTER INSTRUMENTS

Bellevue
206 455-4922
Marconi see ad pg 207

SOUND GENESIS

San Francisco CA
415 285-8900
See ad page 184
Auditronics see ad pg 123,125,127

TASCO INC

Bellevue
206 453-1414
Philips T&M see ad pg 169

UNDERWOOD-HANIFY ASSOC

Bellevue
206 451-8223
Yakima
509 248-9114
Topaz see ad pg 217

WEST VIRGINIA

AUDIO MARKETING ASSOC

Brecksville OH
216 526-2426
Edcor see ad pg 212

AUDIO SOURCE MARKETING

Columbus OH
614 459-5947
dbx see ad pg 113,220

DOUG COOK & ASSOC

Charlotte NC
704 542-6510
Philadelphia Resins see ad pg 150
Ramko see ad pg 155,157,159
Singer Broadcast see ad pg 221

DAVID GREEN & ASSOC

Leesburg VA
703 777-8660
See ad pg 216
ESE see ad pg 225

MIDWEST TELECOMMUNICATIONS

Nitro
304 722-2921
Digital Video see ad pg 137
Edutron See ad pg 124
Ikegami see ad pg 54, 156, 185, 192
ISI see ad pg 176
Videomedia see ad pg 230

MID-STATES MARKETING INC

Springfield VA
701 569-2661
Philips T&M see ad pg 169

WILTRONIX INC

Washington Grove MD
301 258-7676
TFT see ad pg 240

WISCONSIN

ALLIED BROADCAST EQUIPMENT

Chicago IL
312 784-2257
ESE see ad pg 225

JOHN AMSTADTER

Park Forest IL
312 748-4741
Nady see ad pg 236

AUDIO RESOURCES

Westmont IL
312 655-1180
dbx see ad pg 113,220

AVONIX

Brookfield
414 784-1800
Edutron see ad pg 124

BORRETT-LEE CORP

Minneapolis MN
612 827-7108
Edcor see ad pg 212

CARVEL ENGINEERING SALES

Wausheka WA
414 549-6800
Topaz see ad pg 217

EMMONS ASSOC

Burnsville MN
612 890-8920
TFT see ad pg 240

ENTERPRISES INC

Milwaukee
414 257-4668
Philadelphia Resins see ad pg 150
Ramko see ad pg 155,157,159

FLANNER & HAFOOS

Milwaukee
414 259-9665
ATI see ad pg 141

FLANNER'S PRO AUDIO

Milwaukee
414 476-9560
Auditronics see ad pg 123,125,127

LASSERS, SANGWIN, LASSERS CO

Chicago IL
312 539-0170
Edcor see ad pg 212

OASIS SALES

Monomonee Falls
414 445-6682
EECO see ad pg 154

TED PAPPAS & ASSOC

Chicago IL
312 685-2338
Cetec Vega see ad pg 117

STEFFEY MARKETING ASSOC

Northbrook IL
312 480-3573
JBL see ad pg 103

TODD COMMUNICATIONS

Nekoosa
715 325-2573

Edutron see ad pg 124
Harris Video see ad pg 44-45
ISI see ad pg 176
Videomedia see ad pg 230

TORKELSON ASSOC INC

Brookfield
414 784-7736
Philips T&M see ad pg 169

VIDEO IMAGES

West Allis
414 475-0111
Convergence see ad pg 242
Sharp see ad pg 149

WYOMING

BROADCAST COMMUNICATIONS

PRODUCTS
Golden CO
303 424-3231
Singer Broadcast see ad pg 221

CLEVELAND ENTERPRISES OF

COLORADO
Denver CO
303 751-3252
Philips T&M see ad pg 169

DIDIER/DENVER

Evergreen CO
303 674-6000
TFT see ad pg 240

JAMES E HALL CO

Salt Lake City
801 268-3263
Edcor see ad pg 212

H P MARKETING

Littleton CO
303 794-8367
dbx see ad pg 113,220

HALL ELECTRONICS

Boise ID
208 336-5894
Ramko see ad pg 155,157,159

JIM NEAL & ASSOC

Gillette
307 682-8314
Philadelphia Resins see ad pg 150

SILVER PEAK MARKETING

Lakewood CO
303 233-8577
Nady see ad pg 236

CANADA

ADCOM ELECTRONICS LTD

Toronto ONT
416 251-3355
Convergence see ad pg 242
Sharp see ad pg 149

APPLIED ELECTRONICS LTD

Toronto ONT
416 252-3761
Ikegami see ad pg 54, 156, 185, 192

AUDESCO ELECTRONICS LTD

Quebec
514 931-5888
Edcor see ad pg 212

BCB ELECTRONICS

Bolton ONT
416 857-0790
Digital Video see ad pg 137
Videomedia see ad pg 230

BROADCAST VIDEO SYSTEMS

Agincourt ONT
416 497-1020
Skotel see ad pg 177

CALDWELL A/V EQUIPMENT CO LTD

Scarborough ONT
416 438-6230
Ramko see ad pg 155,157,159

TENDEL GAGES

DO THINGS EVEN THE
FACTORY GAGES DON'T DO!

FOR U-MATIC, BETA, VHS AND 1" TYPE "C" RECORDERS...
TENDEL GAGES ARE SO EASY TO USE EVEN NON-TECHNICAL
PERSONS CAN DIAGNOSE PENDING PROBLEMS.

The TENDELOMETER Tape Tension
Gage will help if you want to prevent
problems with:

- Interchange
- Hooking and flagging
- Tape destruction

The TENDEL Spindle Height (TSH)
Gage will help if you want to prevent
problems with:

- Tape edge damage
- Cassette binding
- Tape destruction

TENDEL is ready to help with your video recorder
service needs. Thousands of service engineers rely
on TENDEL daily!

Send for the TENDEL Tape Tips Guide or call us TOLL
FREE (800) 538-6894. In California call (408)
379-1881.



TENDEL
1506 Dell Avenue
Campbell, CA 95008

Circle 283 on Reader Service Card

SYSTEM ASSOCIATES

5801 Uplander Way • Culver City, California 90230

USED BROADCAST TELEVISION EQUIPMENT WANTED AND FOR SALE

If you are not receiving our free flyer of
equipment listings, please call or write
to be added to our mailing list.

(213) 641-2042

Circle 284 on Reader Service Card

INDESTRUCTIBLE AUDIO MIXER WITH UNLIMITED BATTERY LIFE ... WELL, ALMOST ...

Everything is recessed within
a rugged U-channel. You can
drive a truck over it. In intermit-
tant use, 100 hrs. battery life!
4 mic. mixers, line input, 1kHz.
tone, battery-test. True vu meter,
600 ohm transformer output @
8vu, 90db gain, flat 20-20kHz.,
transformer inputs. Headset
jack also feeds unbal. load.
Weighs scant 3 1/4 lb.; less than
12" long; beltloop. Accepts ex-
ternal 12v.d.c. too. Includes
standard XL mic. connectors.



AMA41



Div., Audio
Intl., Inc.

Ultra Audio Products

P.O. BOX 921 • BEVERLY HILLS
CA 90213 • 213/276-2726

Circle 285 on Reader Service Card

Reps/Dists

CAMARTRON COMMUNICATIONS INC

Toronto ONT
416 494-6978
NEC America see ad pg 107

CANAMEX ELECTRONICS

Willowdale ONT
416 665-4327
Digital Video see ad pg 137

ALEX L CLARK LTD

Toronto ONT
416 255-8594
Animation Video see ad pg 18

COMAD COMMUNICATIONS

Rexdale Toronto ONT
416 245-1734
ESE see ad pg 225
Lightning Elimination see ad pg 162

CORVIS COMMUNICATIONS INC

Markam ONT
416 495-7575
United Media see ad pg 36

ELECTRO & OPTICAL SYSTEMS LTD

Scarborough ONT
416 439-9333
CMX/Orox see ad pg 3

ELECTOR

Toronto ONT
426 439-9333
Merlin Engineering see ad pg 10

ELECTROTEC MARKETERS LTD

Vancouver BC
604 736-6377
Edcor see ad pg 212

MSC ELECTRONICS LTD

Downsview ONT
416 661-4180
Lightning Elimination see ad pg 162
TFT see ad pg 240

NORPAM ELECTRONICS INC

Toronto ONT
416 485-5016
Lightning Elimination see ad pg 162

NORTEC WEST LTD

Vancouver BC
604 872-8525
Convergence see ad pg 242
Skotel see ad pg 177

NORTHWEST VIDEO SYSTEMS

Burnaby BC
604 420-4910
Frezzolini see ad pg 251

A C SIMMONDS & SONS

Pickering ONT
416 839-8041
Cetec Vega see ad pg 117

THORVIN ELECTRONICS INC

Mississauga ONT
416 276-7271
Edcor see ad pg 212

TRESCO COMMUNICATIONS INC

Montreal QUE
514 332-3430
Frezzolini see ad pg 251
Skotel see ad pg 177

UNITED VIDEO LTD

Ottawa ONT
613 741-5554
Digital Video see ad pg 137

VID COM LTD

Vancouver BC
604 291-6061
Digital Video see ad pg 137

WATSON COMPUTER PRODUCTS INC

Vancouver BC
604 872-0631
Calgary ALB
403 283-9988
Lightning Elimination see add pg 162

di-tech Gives You A *REAL* Choice Of Controllers With Our Matrix Switchers...

We're Tuned Into Your Needs!



MODEL 975
Numerical, Master X-Y Serial Controller



MODEL 993
Alphanumeric, Single Buss Controller



MODEL 915B
Numerical, Single Buss Controller



MODEL 917
Numerical, Master X-Y Parallel Controller



MODEL 940
Numerical, Single Buss Controller



MODEL 915A
Numerical, Single Buss Controller



MODEL 911
Numerical, Single Buss Controller



MODEL 998
Alphanumeric, Single Buss Controller, with 4 Pre-Set Inputs



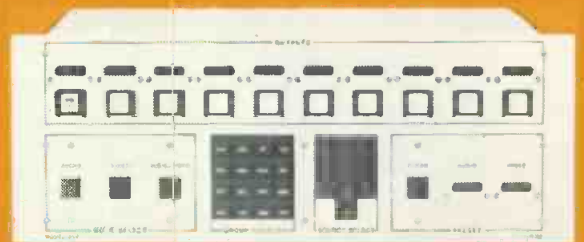
MODEL 997
Alphanumeric, Single Buss Controller, with Match Feature



MODEL 991-2
Alphanumeric, 2 Buss Controller

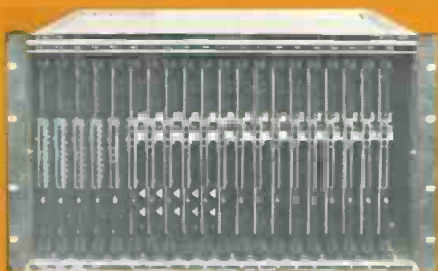


MODEL 910-3
Numerical, 3 Buss Controller



MODEL 996
Alphanumeric, 10 Buss Controller

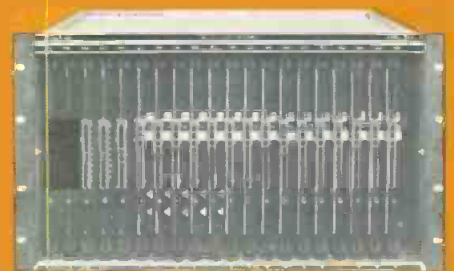
di-tech has developed an entire line of versatile control panels with every variation you might ever need. Each alphanumeric or numerical panel represents state of the art quality, unsurpassed reliability and ease of operation, allowing you total flexibility and freedom for audio only, video only or audio-follow-video with 1, 2 or 3 channels of audio per input. Select your exact matrix and controller from di-tech's surprisingly affordable line.



MODEL 5841
Video Assembly Expandable Beyond 40 X 15

Models 5800 and 5840 feature:

- up to 3 channels of audio per input within the same frame
- expandable inputs and outputs beyond the stated matrix
- audio only, video only or AFV; V.I. switching



MODEL 5842
Audio Assembly Expandable Beyond 40 X 15

Discover for yourself why industry leaders are switching to di-tech!



di-tech

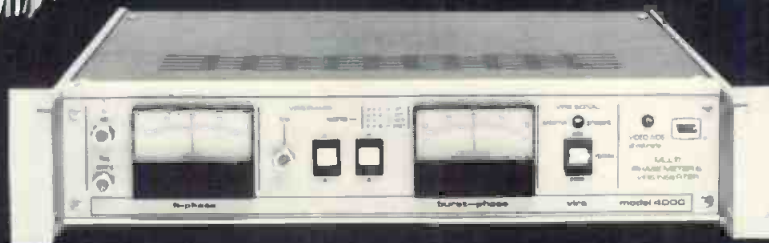
Circle 301 on Reader Service Card

our *NEW*, bigger location:
48 JEFFRYN BOULEVARD
DEER PARK, N.Y. 11729
TEL. # (516) 667-6300

RELIABLE VIDEO AIDS from

VAC

A
Standing
Ovation
for
Great
Performance



THE MODEL 4000 MULTI-Ø & VIRS Ø METERS

This unit is both a production tool and engineer's instrument. It can be substituted in place of a vectorscope when measuring VIRS-phase and Burst-phase errors. The Model 4000 is an ideal replacement for most oscilloscopes where H-phase errors need to be observed and measured. In addition to displaying H, Burst, and VIRS phase on lighted meters, VAC's Model 4000 can generate and add VIRS to line 19 of each television field.

Call for the number
of your local dealer:
(303) 443-4950

VIDEO AIDS OF COLORADO
1930 Central Avenue · Boulder, Colorado 80301

Circle 302 on Reader Service Card

GREAT IDEA CONTEST

Just three months remain in the 1981 Great Idea Contest. ENTER NOW. You may have the idea that every broadcaster has been waiting for – and if you do, you could win your own programmable calculator.

Editor's Note: Before attempting to implement any Great Idea involving the modification of equipment, station personnel should check with the equipment manufacturer to insure that no violation of warranty will occur.

If the Great Idea involves any technical standards governed by the FCC, stations should make sure that the idea will in no way cause a violation of FCC rules.

19. Audio Failure Alarm

David E. Howell, Engineer
WWDL-FM, Scranton, Penn.

Problem: To monitor station audio off the modulation monitor, activating the main alarm system in the studios when audio fails.

Solution: I found that this unit can be used to monitor most audio levels encountered. For the alarm to be activated, the audio must fail for at least 16 seconds. This allows for brief pauses in audio. The project is simple — only six chips that can be mounted on one printed circuit board. LEDs indicate audio, clock, and alarm status.

Audio is full wave bridge rectified by four IN914 diodes. The resulting voltage charges a 200 μ F capacitor. A 22 ohm resistor is placed across the capacitor to cause the dc level to change with the audio. This voltage is applied to the negative lead of 339 comparator. On the positive lead is a potentiometer connected to Vcc and ground. This

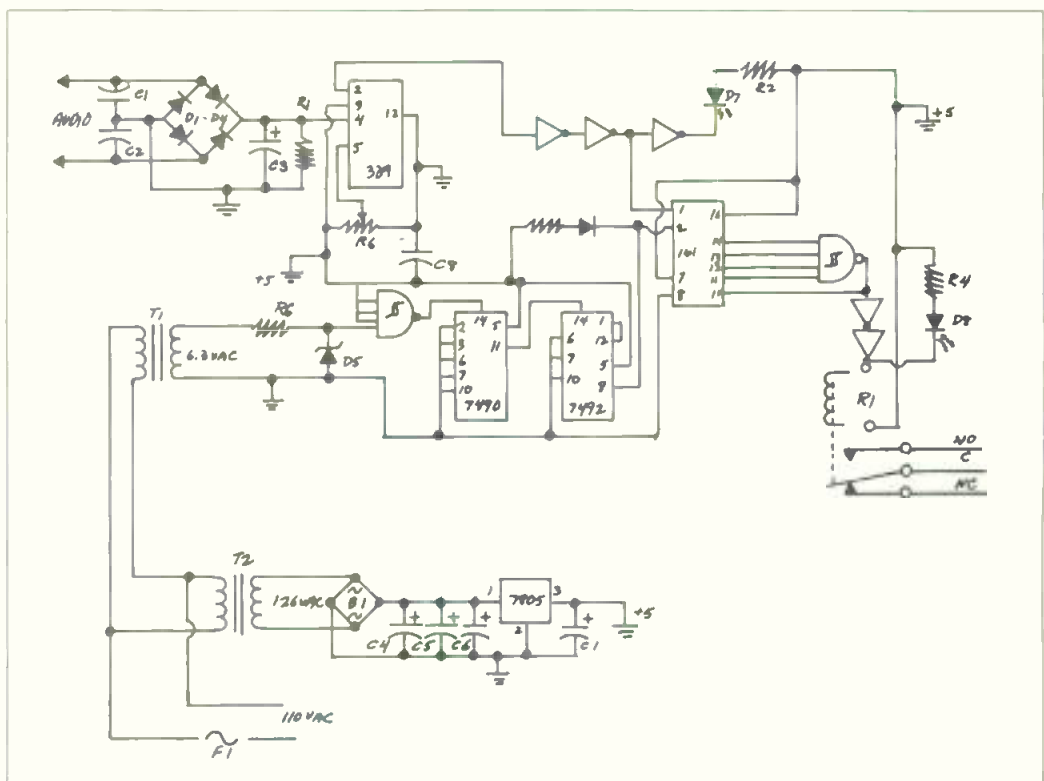
pot is used to set a reference voltage at which the comparator is to change state. The output is then inverted to run a binary counter and an LED, which indicates when the audio falls below the reference.

The reset pin is connected to the inverted output of the comparator via a 161 counter. If audio falls below the reference, the counter is cleared to zero. The four outputs are run into a four-input nand. As the counter reaches 16 seconds, it is disabled and a 5 V relay is energized along with an LED. The relay is active until audio is restored.

The counter clock starts with a 110 V ac primary/6.3 V ac secondary transformer. A 5 V zener rectifies the ac. The pulses are run into a Schmitt trigger, giving a 60 Hz square wave. These square waves are divided by five (7490) and 12 (7492) counter, giving a one-second pulse for the counter's clock.

The power supply uses one 5 V regulator for all Vcc. A 110 V ac/12.6 V ac transformer output is bridge-rectified, followed by three 1000 μ F capacitors into the voltage regulator. On the other side is a 0.1 μ F caps. All TTL/LS operating requirements should be followed. Almost any

Howell's audio failure alarm



ACCURATE SOUND CORPORATION

SYSTEM 100

High Speed Audio Duplicator



APPLICATIONS

- Broadcast Syndication
- Educational/Religious
- Advertising
- Government/Military
- Commercial Music Production
- Recording Studio

FEATURES

- Elimination of Capstan-Idler
- Crystal-Referenced DC Servo Capstan
- DC Servo Supply & Take-up Motors
- No Mechanical Brakes or Adjustments
- 16:1 Duplicating Ratio
- High Performance Ferrite Heads

WRITE OR CALL:

ACCURATE SOUND CORPORATION

3515 EDISON WAY, MENLO PARK, CA 94025
(415) 365-2843 TLX ASCO 34-8327

Circle 303 on Reader Service Card

Great Ideas

audio source can be used; I used our modulation monitor.

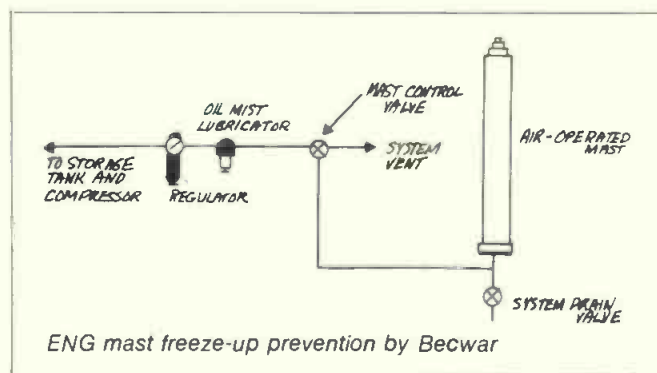
Parts list: 7404, hex inverter TTL; 7413, dual four-input positive-nand Schmitt trigger TTL; 7490, decade counters, divide by two and six, TTL; 74162, synchronous four-bit counters, binary, direct clear, TTL; 339, quad comparator; D1-D4, 1N914 diodes; D5, 5V zener diode; D6-D8, LEDs; B1, 1A-4A full wave bridge rectifier; 7805, 5 V voltage regulator; T1, 110 V ac/6.3 V ac transformer; T2, 110 V ac/12.6 V ac transformer; C1, 2, 8, 0.01 μ F 200 V dc Mylar capacitor; C3, 200 μ F 35 V dc electrolytic capacitor; C4, 5, 6, 100 μ F 35 V dc electrolytic capacitor; C7, 0.1 μ F 35 V dc electrolytic capacitor; R1, 22 ohm 0.5 W resistor; R2, 3, 4, 1K ohm 0.5 W resistor; R5, 100 ohm 1 W resistor; R6, 10K ohm pot; R1, 5 V dc relay.

20. ENG Mast Freeze-up Prevention

Bill Becwar, ENG/Maintenance
WISN-TV, Milwaukee, Wisc.

Problem: Air-operated masts on ENG/EFP vans freeze in cold weather because of condensation in the air system.

Solution: Most air-operated ENG masts have freeze-up problems in cold weather, and ours was no exception — in the first month of below-freezing temperatures, the mast froze in the up position no less than six times. Heating the mast seemed impractical at best, and the manufacturer of our mast informed us that alcohol would damage the seals. The air mast manufacturer had an air dryer available, but the cost of this unit was over \$800.



ENG mast freeze-up prevention by Becwar

Instead, we found an air mist lubricator, which is sold by air tool and compressor parts companies, to be a much better solution. Installed in the air line after the regulator, the mist lubricator sprays a continuous fine mist of lubricant into the air mast system. A lubricant that absorbs moisture (such as LPS 1) will absorb the water in the system before it can cause freezing problems. In addition, the mast is made self-lubricating, which cuts maintenance time and makes the mast faster-operating. The cost of the mist lubricator was less than \$20.

21. TBC Modification For VTR

Roger Culhane, Video Engineer,
St. Paul, Minn.

Problem: Time base correcting playback on a Sony SL-5400 Beta was not possible because of the lack of an


Discover the best worst kept secret in wireless mic's—NADY SYSTEMS

The word is out!

After only a few years on the market, Nady wireless mic's are already the only choice of the top pop and rock entertainers. Now the expanded Nady line is rapidly becoming the choice in wireless in video and film production. What's the secret? Nady Systems' U.S. Patent #4,215,431 — the biggest breakthrough in wireless mic performance ever. Sure, others claim to be the best, but only Nady Systems delivers the proof so obviously in any A-B comparison. Discover for yourself Nady Systems' full line of superior wireless mic's and wireless intercom systems. Discover for yourself matchless performance that is surprisingly affordable.

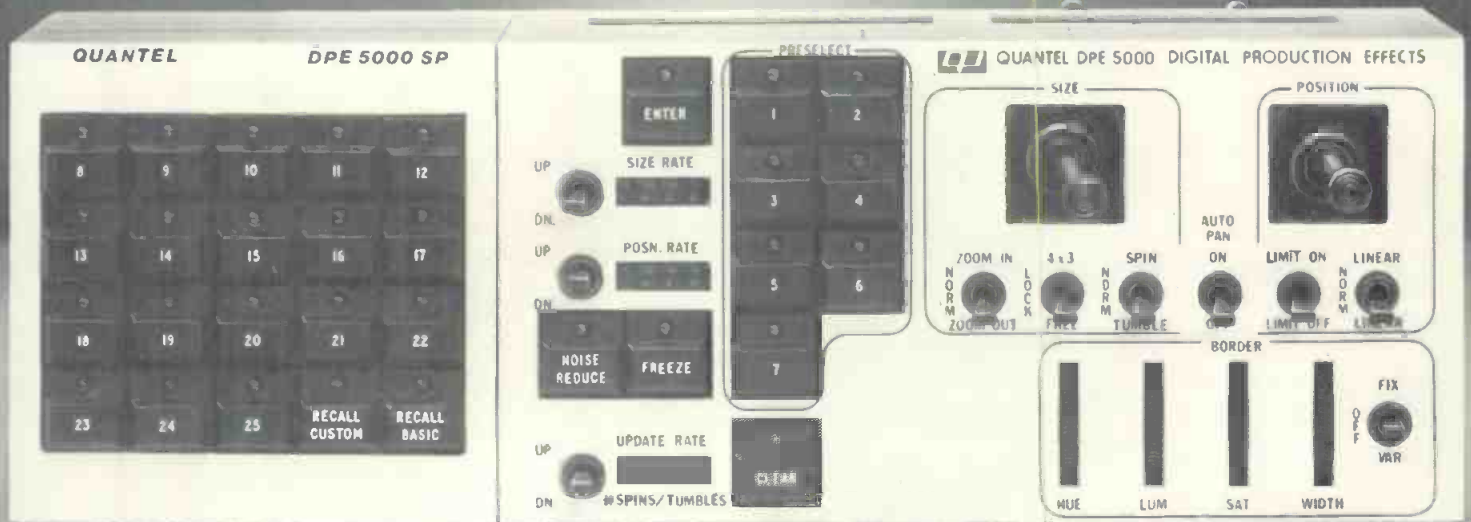
Nady Low Noise circuitry is covered by U.S. Patent 4,215,431.

NADY SYSTEMS, INC. • 1145 65th ST. • OAKLAND, CA 94608



Circle 304 on Reader Service Card

The Quantel DPE 5000/SP.



Now every broadcaster can afford digital effects.

If you've been holding back from digital production effects because the cost seemed too high, hold back no more.

The new Quantel DPE 5000/SP makes digital effects affordable by every broadcaster.

This exciting single-channel system gives you infinite compression. Zoom expansion to 2X normal picture size. Variable picture positioning. Freeze and update. Fixed and variable border generation. Horizontal squeeze. And vertical squeeze.

Not bad for a unit that's only 8 $\frac{3}{4}$ inches high. Perfectly sized for your studio—or mobile unit. And with low power dissipation.

But you get a lot more. Like pre-select of picture position, size, and transition rate. A choice of linear moves or camera-like Quantel-style moves. And "Digiflip" tumble-flip.

And more yet! Over 40 moves instantly selectable at the touch of a button—18 pre-programmed effects and 25 of your own creation.

And a serial interface makes it simple to have multi-station control.

The DPE 5000/SP even includes built-in noise reduction so you can eliminate the cost of a separate noise reducer from your equipment budget.

On top of all this, you get Quantel's superior picture interpolation for the smoothest moves available.

"SP" stands for "special performance." Almost an understatement. Call your local MCI/Quantel office for details. Or get in touch with us directly at 415/856-6226. Micro Consultants, Inc., P.O. Box 50810, Palo Alto, California 94303.



MCI/QUANTEL
The digital video people

MCI/Quantel and "Digiflip" are trademarks of Micro Consultants, Inc.

Circle 305 on Reader Service Card

www.americanradiohistory.com

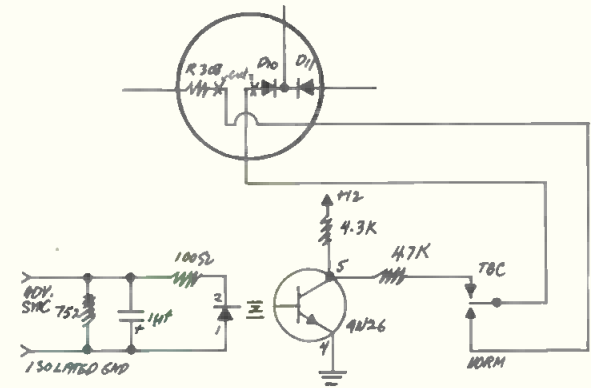
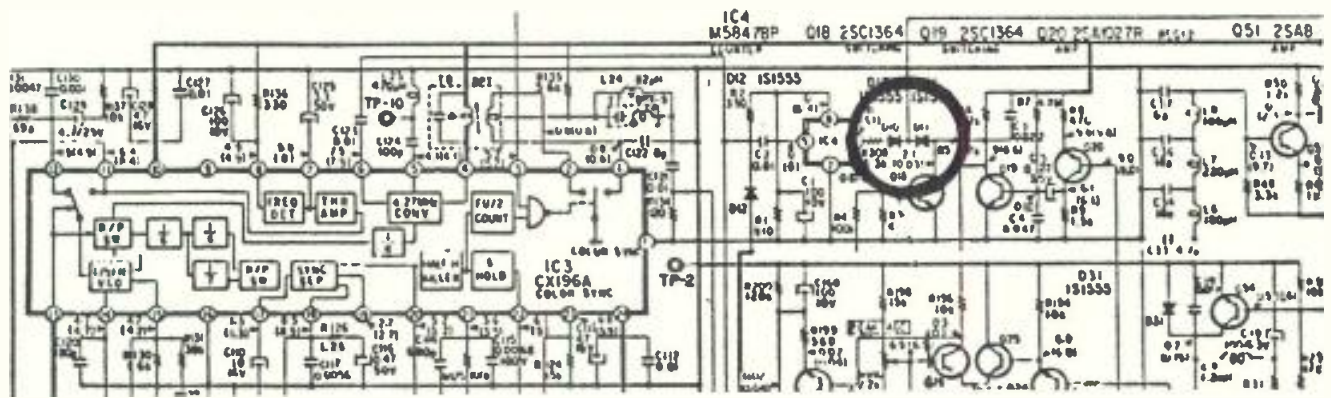


Diagram of Culhane's idea for TBC modification for VTRs

external sync input on the VTR.

Solution: An advance sync input was added by building a sync integrator and substituting the vert pulse for the internal playback reference.

The advantages in using the opto-isolator are: (1) input ground isolation; (2) low parts count; (3) the horizontal sync is isolated from the VTR power supply.

Caution: The placement of the mod is important. The input advance sync can easily be coupled to adjacent signal wires.

Rules for BM/E's 1981 Great Idea Contest

- 1. Eligibility:** All station personnel are eligible. Consultants to the industry may enter if the entry indicates the specific station or stations using the idea or concept. Manufacturers of equipment or their representatives are not eligible.
- 2. How to Enter:** Use the Official Entry Form on this page or simply send *BM/E* a description of your work. State the objective or problem and your solution. Include diagrams, drawings, or glossy photos, as appropriate. Artwork must be legible but need not be directly reproducible and not exceeding three in number. Camera reproducible material is preferred. Length can vary, but should not exceed 500 words. *BM/E* reserves the right to edit material. Entry should include: Name, title, station affiliation, and the class of station—TV, FM, AM. Indicate if idea is completely original with you.
- 3. Material Accepted for Publication:** *BM/E* editors will make all decisions regarding acceptability for publication. If duplicative or similar ideas are received, *BM/E* editors will judge which entry or entries to accept. A \$10 honorarium will be paid for each item published.
- 4. Voting:** Every reader of *BM/E* is entitled to rank the ideas published. This can be done on the Reader Service Card in the magazine or by letters or cards sent to the *BM/E* office. To vote, readers should select the three ideas they like best and rank them 1, 2, or 3.
- 5. Winners:** Top rated entries in the year-long tally will become winners in each of the three major categories (AM, FM, TV). Final winners will be picked in February, 1982, and announced in the March, 1982, issue of *BM/E*.
- 6. Prizes and Awards:** Three top prizes will be awarded: a programmable electronic calculator will be awarded for the highest rated entry in the respective categories of AM, FM, and

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

Mail to:
 Editors, *BM/E*
 295 Madison Avenue
 New York, New York 10017

**1981
 Entry Form**

Name _____ Title _____
 Station Call Letters _____ City _____
 State _____ Zip _____
 Telephone No. _____
 Licensee _____
 Class of Station at which idea is used (check one)
 TV _____ FM _____ AM _____
 Category: Audio _____ RF _____ Video _____ Control _____

Objective or Problem: (In few words; use separate sheet for details)

Solution: (Use separate sheet—500 words max)

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

Signed _____ Date _____



Vital today: hands-on demonstrations!

The best way to get the big picture: put yourself in our place — in our spectacular new Florida Showroom! It's a realtime Production Studio with working Control Room. Where you can get your hands on the most sophisticated video equipment available today for bigtime live production. Where you can see and try out for yourself all the latest Vital systems — all fully operational right in the Showroom.

To put *your* hand on the switch, call for an appointment today. Or visit our West Coast Showroom in Hollywood, California: (213) 463-7393.



VITAL INDUSTRIES, INC.

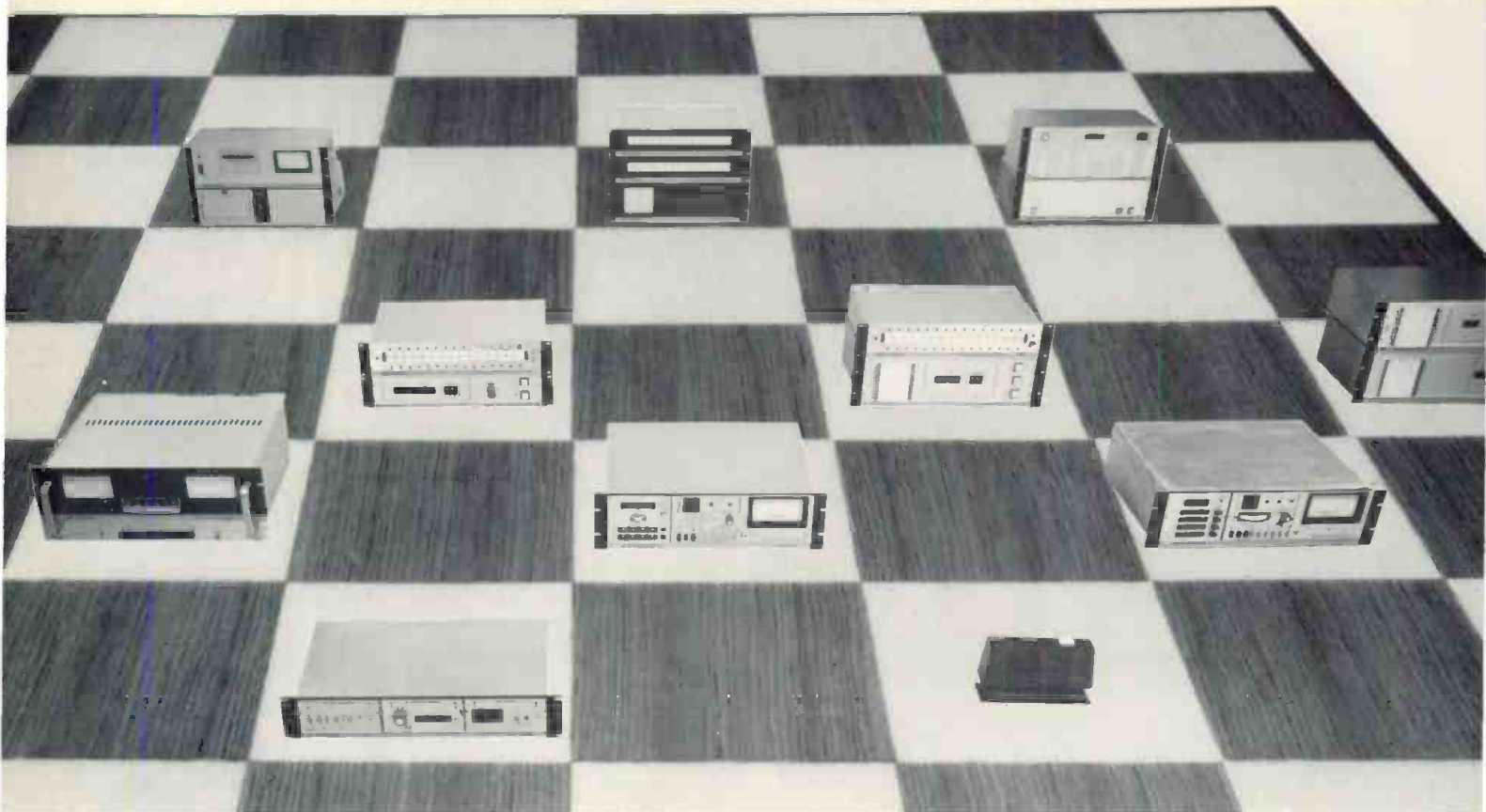
World Headquarters:
3700 NE 53rd Avenue, Gainesville, FL 32501
Tel: 904/378-1581
TWX: 810-825-2370. TLX: 80-8572-Vital-A-Gain

Vital offers you your own private NAB Showtime, 12 months a year.

Circle 306 on Reader Service Card



BROADCAST EXPERTISE...



ACROSS THE BOARD!

Since 1970, TFT, Inc. has been a pioneer in state-of-the-art broadcast technology. As such, we have been able to always keep one move ahead in cost-effective design to provide reliable, versatile and innovative products to the broadcast industry.

TFT was the first to use frequency synthesized circuits in its full line of AM, FM, TV, stereo and SCA **Modulation Monitors**. TFT concepts in **Remote Control Systems** now allow expansion all the way to micro-processor based data logging, display and

alarm systems. In the relatively new field of **Studio Transmitter Links**, TFT has made major contributions through the use of IF modulation transmitters and pulse counting discriminators to improve both S/N ratio and stereo performance.

Even in the **Emergency Broadcast System (EBS)**, TFT has taken a leadership role in the development of both EBS generators and receivers.

Now, it's your move! Call or write TFT today for full facts on their winning product lines.

(TIME & FREQUENCY TECHNOLOGY)



3090 OAKMEAD VILLAGE DR.
SANTA CLARA, CA 95051
(408) 727-7272 TWX 910-338-0584

Circle 307 on Reader Service Card

INTERPRETING THE **FCC** RULES & REGULATIONS

FCC Distant Signal Ruling Upheld; Royalty And Retransmission Arguments Dismissed

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

THE FCC'S DISTANT SIGNAL RULES for cable TV are no more. Henceforth, cable television system operators will be able to carry as many distant television signals as can be physically carried by their systems, in addition to the required local TV signals.

In a decision of tremendous importance to both TV broadcasters and cable operators, the U.S. Court of Appeals, Second Circuit, upheld the FCC's Summer 1980 decision eliminating the distant signal rules and syndicated exclusivity rules.¹ The Court had stayed the FCC order pending the outcome of this case. As a result of the decision, the court vacated the stay and permitted the exclusivity and distant signal rules to be repealed.

This decision brings the U.S. courts nearly full circle after 20 years of decisions supporting increased FCC regulatory jurisdiction over cable television systems. The Commission began regulating cable as early as 1962 when it denied a request for a permit by a common carrier to install microwave relays for a cable television system. The U.S. Court of Appeals upheld the Commission at that time in the *Cater Mountain Case*.² The impact of this most recent decision is to reduce further an already shrinking FCC presence in the regulation of cable television. For broadcasters, the primary impact of the decision is contained in the court's discussion of royalty and copyright issues. The court ruled that the FCC was well within its authority to repeal the distant signal and exclusivity rules without substituting any mechanism for compensating broadcasters, including retransmission consent. Indeed, the court ruled that the FCC would have overstepped its jurisdiction had it done so.

In this article, we will discuss the Court of Appeals' decision, with an emphasis upon the copyright, royalty, and retransmission issues. We will also briefly review the

result of the FCC's decision which is now fully in effect.

The FCC decision

The Commission's Fall 1980 decision eliminated the distant signal rules as well as those rules covering syndicated programming exclusivity protection. Those issues were fully discussed in this column at that time.³

The signal carriage rules were those regulations which prescribed those broadcast TV stations that could and could not be carried by each cable system. The rules were first adopted in 1966. Basically, systems operating within the top 100 TV markets could generally import no more than two distant signals. In the top 50 markets, three distant independent signals could be carried in certain cases. In smaller markets, cable systems were limited to one distant TV signal. However, in 1977, all cable systems with fewer than 1000 subscribers were exempted from the signal carriage limitation.

The syndicated exclusivity rules barred the carriage of certain individual programs or a series of programs available to viewers from distant signals. If those programs were also aired on local TV stations, even if not aired the same time, the distant signal could be blacked out. As a result, systems located within a 35-mile radius of the top 50 TV markets could be required, at the request of the local station or copyright holder, to delete the distant signal carriage of syndicated programming which was under exclusive contract to the local broadcaster.

By early 1979, the FCC was already favorably disposed to eliminate the distant signal rules. When they finally did so in July 1980, the Commission majority hailed the decision as a victory for consumers. Although it did acknowledge that some local stations might experience a loss in revenues resulting from elimination of rules in question, it determined that such a loss would likely not translate into a net loss of television service.

The FCC decision was appealed to the U.S. Court of Appeals in New York, which produced the opinion discussed below.

¹*Mulrite TV of New York v. FCC*, Case Nos. 80-4120, et al. U.S. Court of Appeals for the Second Circuit, June 16, 1981.

²*Carter Mountain Transmission Corp. v. FCC*, 321 F.2d 359 (D.C. Cir.), Cert. denied, 375 U.S. 951 (1963).

³See in this column "FCC Eliminates Major Cable TV Rules," *BM/E Magazine*, September 1980.

"OUR CONVERGENCE EDITING SYSTEMS REALLY DELIVER"

Isaac Hersly, ABC

"ABC Network News depends on Convergence editing systems. We need speed and precision to produce top quality programming worldwide within tight deadlines, and our Convergence editing systems really deliver."

Isaac Hersly,
American Broadcasting
Company

Isaac Hersly, Equipment Planning Engineer for ABC Broadcast Operations, selected Convergence ECS-100 joystick videotape editing systems for his Network for many reasons—dependability, easy operation, affordability—But most of all, for the standard features that make these microprocessor-based editing systems top performers in the most demanding broadcast environment.

ABC uses Convergence editing equipment for ABC Network News, 20/20, sporting events, and countless other productions such as their outstanding coverage of the 1980 Winter Olympics,

and the 1980 Republican and Democratic National Conventions. Hersly says, "With Convergence editing systems, expanded use of ENG camera crews is possible, and the American public sees better prime time network news."

CONVERGENCE CORPORATION

1641 McGaw, Irvine, CA 92714
Tel: (714) 549-3146, Tlx: (910) 595-2573
250 W. 57th Street, Fisk Building, Suite 815,
New York City, NY 10019
1 Lochaline Street, London W6 9SJ U.K.
Tel: 01-741 7211, Tlx: 851-27950 MONREF G

Circle 308 on Reader Service Card

FCC Rules & Regulations

The court ruling

Although the court decision ratified the elimination of the distant signal rules, the court concentrated its arguments on syndicated program exclusivity and possible alternative protections and remunerations for broadcasters.

Under the now-deleted exclusivity rules, local television broadcasters or copyright holders could demand the deletion of particular programs from the signals imported by cable operators. The extent of a broadcaster's right to blackout varied according to market size, program type, and time of showing. Although the FCC had no rules for copyright and royalties *per se*, the distant signal and exclusivity rules served as proxies for copyright liability.

When Congress passed the copyright act in 1976, it adopted a partial copyright liability for cable television with the system of compulsory licensing. With compulsory licensing, a cable operator could retransmit programs without a need either to gain consent from or negotiate license fees with broadcasters or copyright holders. Instead, the cable operator pays a prescribed royalty rate determined by the Copyright Royalty Tribunal from a formula based on the number of distant signals carried and a system's gross revenues.

The court pointed out that as a result of this action by the Congress in 1976, the FCC commenced an inquiry into the need for retaining its "copyright surrogates," the distant signal, and exclusivity rules. The Commission's studies included extensive staff reports and econometric case studies. The Commission then concluded that the rules imposed significant costs on subscribers and potential cable TV subscribers. Studies did not produce any evidence that elimination of those rules would have any effect on the prices paid for programming. Nor would there be any perceptible effect on the supply of programming. In sum, the court found that:

"[T]he impact on broadcast stations from the deregulation of cable television would be negligible, and that consumers would be decidedly better off due to increased viewing options from the greater availability of expanded cable services."⁴

Thus, the Commission decided for viewers and consumers rather than broadcasters.

The petitioners who had brought the court action included the National Association of Broadcasters as well as various multiple licensees. They contended that the legislative scheme embodied in the 1976 copyright act did not allow for repeal of the distant signal or exclusivity rules but that it would allow for a retransmission consent requirement. The court rejected both contentions. The Congress had expressly provided that the tribunal, the entity established to collect and distribute the royalty fees, could decide to readjust the statutory royalty rate if the FCC altered either the distant signal or syndicated program rules.

The court also ruled that while the FCC was free to eliminate the distant signal and exclusivity rules under the copyright act, it was *not* free to adopt any new arrangement that would "be inconsistent with a basic arrangement of the new legislation." Specifically, the court ruled that retransmission consents and similar proposals by the

petitioners "would undermine compulsory licensing because they would function no differently from full copyright liability, which Congress had expressly rejected."⁵

The court recalled the FCC's previous (and unhappy) retransmission consent experiment. In a footnote, the court noted that the FCC had suspended the hearing process required by its 1966 cable TV rules in favor of compliance with then proposed rules requiring cable systems in the top 100 TV markets to obtain consent from distant stations before retransmitting their signals. This experiment resulted in denials of virtually all retransmission rights, which characterized the period later known as the "freeze" on cable growth.

FCC ruling was procedurally sound

The petitioners had contended that the Commission's decision should have been set aside as arbitrary and capricious. The court thought otherwise.

The U.S. Supreme Court has ruled that a reviewing court must be "searching and careful" in its inquiry to ensure that an agency has articulated a "rational connection between the facts found and the choice made."⁶ The courts of appeals have been overruled in various cases for attempting to substitute their judgment for that of an agency. The panel of the Court of Appeals in New York which reviewed this case surely was conscious of the recent Supreme Court decision involving radio broadcast formats, in which the Supreme Court admonished the court for substituting its opinion for that of the FCC.⁷ In this distant signal case, the court ruled that the Commission had offered "a rational explanation for its policy



It's all in our CM-33 B HIR Color-Critical Monitor

- High resolution
- .31 mm. dot screen
- Shadow mask in-line gun picture tube
- Seven mHz video amplifiers standard

ELECTOR

Exclusive North American distributor
for Barco A/V products

5128 Calle Del Sol
Santa Clara, California 95050
(408) 727-1506

31 Progress Court, Scarborough
Ontario, Canada, M1G 3V5
(416) 439-9333, Telex: 065-25431

Circle 309 on Reader Service Card

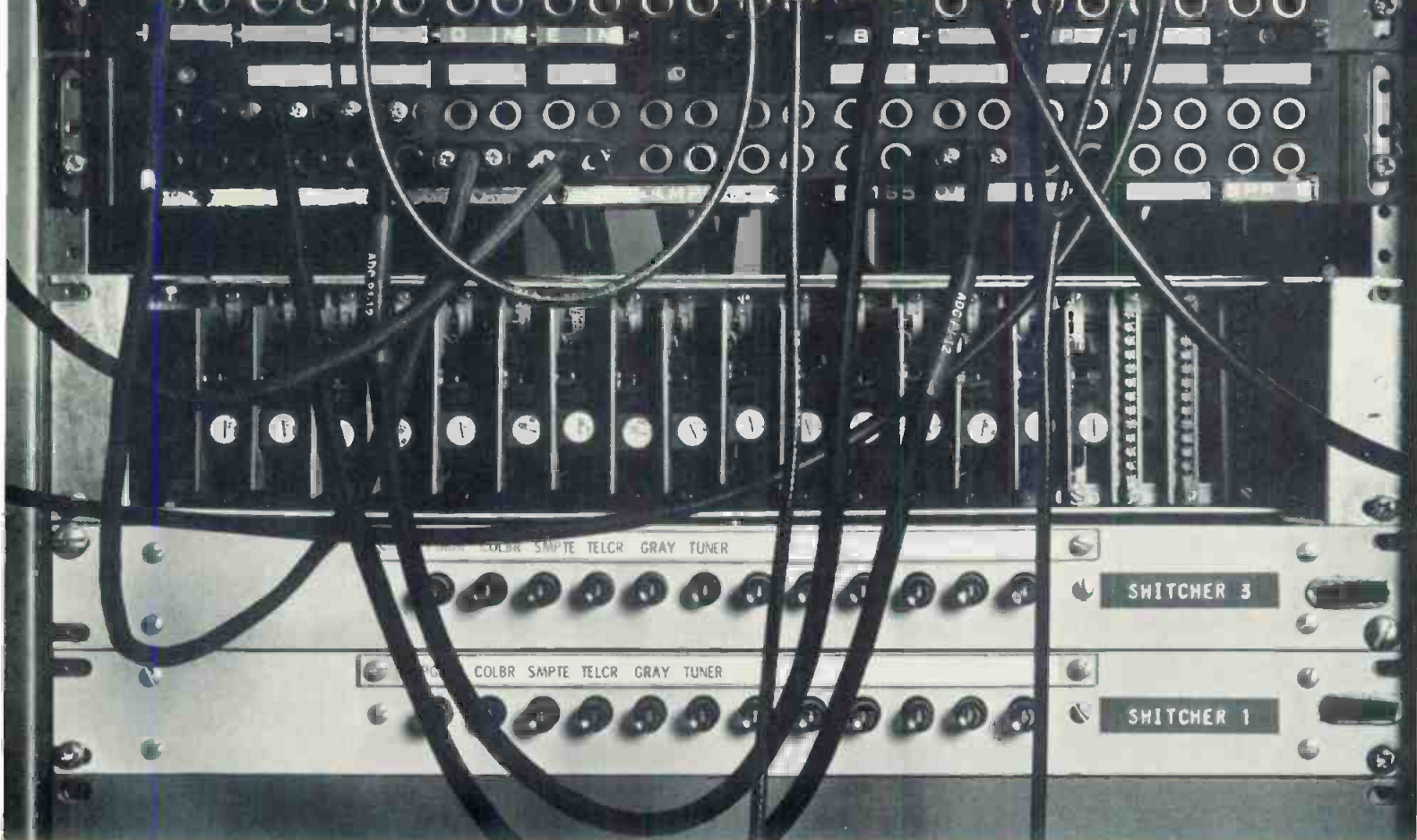
⁴*Maitre TV of New York v. FCC, op. cit.*, Slip Opinion at 3825.

⁵*Id.*, p. 3839.

⁶*Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962).

⁷*FCC v. WNCN Listeners Guild*, _____ U.S. _____, 49 USLW 4306 (March 24, 1981).

ON THE OTHER HAND, OUR ROUTING SWITCHERS HANDLE GROWTH VERY NICELY.

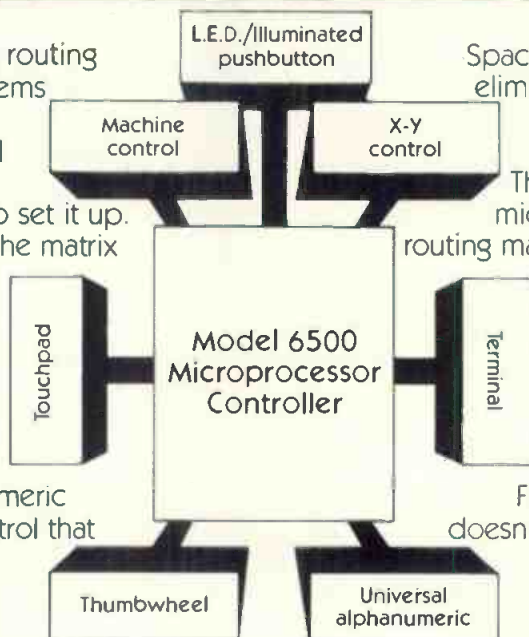


With a microprocessor-based 3M routing switcher, you can eliminate the problems of hard wiring once and for all. And specify just about any type of control you want.

It all depends on how you'd like to set it up. Our design engineers can then tailor the matrix for you. From your smallest requirement on up to any desired size. And they'll help you select the control that's best suited to your needs, too.

The choice is yours. Touchpad, thumbwheel, illuminated or L.E.D. pushbutton, machine, X-Y, or alphanumeric universal control. Even a terminal control that allows you "supervisory" control throughout the system, or computer control through our RS-232 port.

What's more, 3M routing switchers are easily expandable. Start with a matrix that matches your present requirements. Then as your studio grows, your routing switcher does, too. With the simple addition of extra frames and switch cards.



Space-guzzling, multi-conductor cables are eliminated. And so are unnecessary output panels. Because with our system, outputs can be reallocated as required.

The heart of the system, the Model 6500 microprocessor, as well as controlling the routing matrix, can be integrated with a machine control system to offer absolute production control of film chains, VTR's and other production machines.

Or it can be used as a stand-alone machine control system which offers the same coaxial wiring and expandability of the routing switcher panel.

Finally, a routing switcher whose growth doesn't depend on the size of your building.

For more information about 3M routing switchers, or a custom design consultation for your studio, call collect, (612) 736-1032. Or write on your letterhead to: Video Products/3M, Bldg. 223-5E/3M Center, St. Paul, MN 55144.

**THE ROUTING SWITCHERS THAT GROW
AS YOUR NEEDS GROW.**

FCC Rules & Regulations

founded on a predictive judgment well within its authority" in line with the ruling in the *WNCN* case noted above.⁸

The court also ruled that the Commission had not overlooked the particular concerns of certain segments of the industry. For example, some UHF television broadcasters and independents had contested the decision. The FCC had found that UHF television stations, particularly independents, had *actually experienced revenue and audience gains rather than losses from cable*. This occurred despite high penetration and carriage of multiple distant signals because of the improved signal reception of UHF stations carried on a cable system. Moreover, the court ruled that the FCC was not required to grant special status to UHF broadcasters or any other broadcasters if it would be a disservice to the public. As it noted in the opinion,

"Though in the past the FCC has accorded special treatment of UHF stations, it is not required to do so when in its judgement the public interest would be disserved; the FCC's statutory directives are to promote a 'rapid, efficient' nationwide communication service and to encourage its use in the 'public interest,' neither of which commands a specific industry structure or protection of any particular station from financial difficulty or even failure."⁹

In the court's mind, the Commission's review of the UHF broadcasters' situation was analogous to its review of possibly "grandfathering" existing syndicated program exclusivity contracts.

Independent stations had maintained that the FCC should have grandfathered the existing syndicated program exclusivity contracts. The FCC thought otherwise and the court agreed:

"The property of regulated industries is subject to such limitations as may be reasonably imposed in the public interest, and consequently, as numerous courts have recognized, regulations may be adopted that abolish or modify pre-existing interests."¹⁰

When the Commission required telephone companies to divest their interests in cable systems in the 1960s, the court had rejected a grandfathering claim because it ruled that the FCC should not be limited to building on the status quo when seeking to impose a regulatory policy.¹¹

Conclusion

Although this most recent decision on the distant signal and program exclusivity rules has been appealed to the Supreme Court, no stay of the decision has been imposed. Thus, the FCC's decision to eliminate these cable TV rules is now in effect. Cable systems are now free to import any and all distant signals that they desire. However, cable operators will still be subject to the "must carry" rules, sports black-out rules, and network non-duplication rules.

Television broadcasters and copyright holders should be aware that the focus of their efforts to increase their royalty situations will now shift to the copyright tribunal and the Congress if the U.S. Supreme Court either refuses to hear the appeal of this case or upholds the lower court decision. In any event, we have certainly not heard the last of the effects of this decision. **BM/E**

⁸*Malrite TV of New York v. FCC*, op. cit., pp. 3842-43. Citations omitted.

⁹*Id.*, pp. 3842-43. Citations omitted.

¹⁰*Id.*

¹¹See *General Telephone of the Southwest v. United States*, 499 F.2d 846, 863-43 (5th Cir., 1971).

A NEW APPROACH TO TELECINE LIGHT CONTROL THAT IS . . .

FASTER

QUIETER

SMOOTHER



MODEL 5050
AUTOMATIC LIGHT
CONTROL

and **MORE EFFECTIVE.**

FROM THE WORLD'S LARGEST SUPPLIER
OF TELECINE EQUIPMENT.



LAIRD TELEMEDIA INC.

2424 S 2570

801 972 5900

SALT LAKE CITY, UTAH 84119

Circle 311 on Reader Service Card

Make sure your tapes
are thoroughly
erased!!



TABERASER

completely erases all audio,
video, instrumentation tapes
and magnetic films.

Model 409

designed for high coercivity tape

TABER Manufacturing & Engineering Company

2081 Edison Ave. • San Leandro, CA 94577 • (415)635-3831

Circle 312 on Reader Service Card

Twice again: Shure sets the standard for the industry!



Introducing two new microphone mixers

Ten years ago—with the introduction of the M67 and M68—Shure set the standards of the industry for compact, portable micro-

phone mixers. Shure is now introducing two new mixers with features and improvements that will make them the *new* industry standards.



M267

For Professional Broadcasting
Both TV and Radio—in the studio and for remote broadcast applications.

For Professional Recording

For Professional Sound Reinforcement

For more complex public address systems.

With all these new features:

- Switchable, fast-attack limiter
- LED peak indicator
- All inputs switchable for mic or line
- Simplex power
- Greater headphone power
- Built-in battery supply
- Lower noise
- Reduced distortion

...and all of the famous M67 original features.



M268

For Public Address and Paging
In hotels, schools, churches, community centers, hospitals, etc.

For the Serious Tape Recording Enthusiast

As an Add-On Mixer for Expanding Current Equipment

With all these new features:

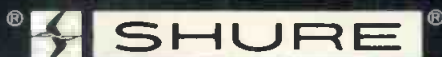
- Lower noise
- Dramatic reduction in distortion
- Mix bus
- Automatic muting circuit
- Simplex power

...and all of the famous M68 original features.

Both new models include the same ruggedness and reliability that have made the M67 and M68 the top-selling mixers in the industry.

For complete information on the M267 and M268 send in for a detailed product brochure (ask for AL669).

The Sound of the Professionals®



Shure Brothers, Inc., 222 Hartrey Avenue, Evanston, IL 60204

In Canada: A. C. Simmonds & Sons Limited

Manufacturers of high fidelity components, microphones, sound systems and related circuitry.

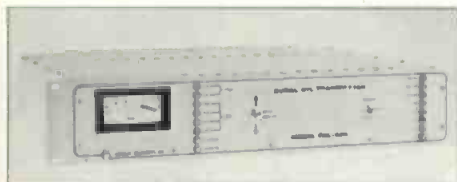
Circle 313 on Reader Service Card

BROADCAST EQUIPMENT

Aural STL

330

Models PCL-606 and PCL-606/C Studio transmitter Links are brand new, "from-the-ground-up" units offering the latest in automatic circuitry and complete diagnostic metering — eliminating the need for external test equipment for performance testing.



The transmitter section employs a new direct FM modulation concept. A synthesized AFC is used to phase lock the FMO frequency to a reference oscillator. Compensated linear base band response allows maximized monaural and stereo transmission. Automatic shutdown is provided under abnormal conditions. The receivers use Pin Diode Delayed AGC circuits to automatically control dynamic range as a function of

signal level. User controls include the ability to change the IF bandwidth in order to maximize the trade off between distortion and selectivity. A broad-band, adjustment free, extended linear digital demod enhances performance by its extremely low distortion and noise characteristics.

Distortion for the 606 is 0.25 percent from 30Hz to 15 kHz while the 606 is rated at 0.25 percent from 30 Hz to 53 kHz to meet 50 dB crosstalk limit. Sensitivity is rated less than 15 μ V for a 60 dB SNR in the 606 and less than 20 μ V for 60 dB SNR, de-emphasized for the 606/C. The 606 is designed for manual service or dual operation in stereo while the 606/C is a composite unit for stereo service. Brass enclosed modular construction provides for greatly reduced RFI potential and enhances accessibility to PC boards. MOSELEY ASSOCIATES, INC.

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

All-Master Intercom Systems

331

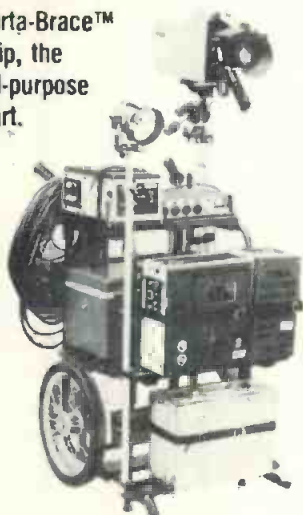
Series 1000 matrix intercom system uses a central passive matrix to supply voice communications and tally indications from any one of ten user stations to any one, or combination of, ten other user stations. It can be reconfigured in standard options with a 10 by 10, 20 by 20, or 40 by 40 matrix for expanded coverage. The system has additional flexibility and is easily reconfigured to meet other requirements. RTS SYSTEMS, INC.

Portable Audio Mixer

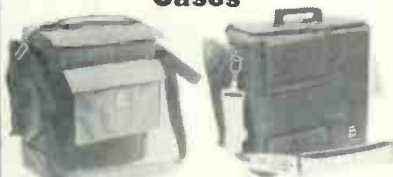
332

SAM-82, manufactured by SATT Electronics of Stockholm, Sweden, is a portable professional audio mixer designed for mobile/remote broadcasting and other applications. It features eight mic/line inputs, two program outputs, and a provision for interconnecting two units together for complete 16 into two operation. Intended for 110 or 220 V ac

Porta-Brace™
Grip, the
All-purpose
Cart.



Cases



Sony BVU110 Hitachi HR100

Call for catalog of carts, cases
and backpacks.



K and H Products, Ltd.
Box 246, North Bennington
Vermont 05257 802-442-9118

Circle 314 on Reader Service Card

The Best Advertisement

Is one your customer writes for you.
Thanks to Elliott Klein of the Buck
Owens Broadcasting Group.

We couldn't have
said it better, so
we won't try.



April 16, 1981

Mr. Ronald R. Jones, President
C.R.L. Inc.
3204 S. Fair Lane
Tempe, Arizona

Dear Ron,
As you know over the past five years we have experimented with every type of audio processor and processing system for AM and FM transmission. We have always come back to CRL. Use of your processing systems give results that can not be matched regardless of format (country, rock, or beautiful music). Over the past twelve months I have installed more than six AM and FM CRL audio processing systems with the same results. **THE LOUDEST, CLEANEST SIGNAL ON THE DIAL.** With CRL you don't have to compromise between loudness and quality.
Ron, thanks for all your help!

Sincerely,

Elliott K. Klein
Director of Engineering
Buck Owens Broadcasting Group

CRL...
making friends
and building new
frontiers in audio
processing design,
control and flexibility.

CRL Audio Processing
of the '80's

CIRCUIT RESEARCH LABS, INC.

3204 S. Fair Lane • Tempe, Arizona 85252 • (602) 894-0077

Circle 315 on Reader Service Card

Video Delay Lines

ALLEN AVIONICS Video & Pulse Delay Lines replace 75 ohm coaxial cable, provide a more suitable method of achieving precise short delays. The units reduce size, weight, installation costs, and save time and effort in making delay changes.



- Finest Specs
- Lowest Pricing
- Delivery from Stock

Part No.	Delay Range (Nano-Sec.)	Delay Steps (Nano-Sec.)	Method of Variation	Maximum Insertion Loss @ 100 KHz (db)	Amplitude Flatness At Any Delay Setting 100KHz to 5 MHz (db)	Max. Rise Time (Nano-Sec.)	Package Size (Inches)
VAR005	3-7	Continuous	Trimmer	.20	2 Max.	N.A.	3 5/8 x 1 1/2 x 1 1/4
VAR011	0-11	Continuous	Trimmer & Toggle	.20	.25	N.A.	4 3/8 x 2 3/8 x 1 1/16
VP0010	0-10.5	5	Toggle	.15	.2	3	4 3/8 x 2 3/8 x 1 1/16
VP0127	0-127	1.0	Toggle	.15	.3	14	4 3/8 x 2 3/8 x 1 1/16
VP0255	0-255	1.0	Toggle	.15	.3	16	4 3/8 x 2 3/8 x 1 1/16
VP0317	0-317.5	2.5	Toggle	.15	.3	20	4 3/8 x 2 3/8 x 1 1/16
VP0635	0-635	5.0	Toggle	.50	.4	25	4 11/16 x 3 11/16 x 2 1/16
VP1100	0-1100	10.0	Rotary	1.25	.4	30	4 11/16 x 3 11/16 x 2 1/16
VP1270	0-1270	10.0	Toggle	*3.00	.4	30	4 11/16 x 3 11/16 x 2 1/16
VP2075	0-2075	25.0	Toggle	*3.00	.5	40	7 3/8 x 4 11/16 x 3 1/16
VS0315	0-315	5.0	Strap	.25	.4	28	4 x 2 x 1 1/4
VS0635	0-635	5.0	Strap	.60	.5	33	5 x 2 x 1 1/4
VS1275	0-1275	5.0	Strap	1.25	.5	33	5 x 3 x 1 1/4
VS2075	0-2075	25.0	Strap	2.50	.5	40	6 1/2 x 3 1/2 x 2

Impedance: 75 ohms. *±.2db variation at any delay setting.
 Pulse Distortion: Less than 4% with an input pulse rise time of 20 nanoseconds.
 Working Voltage: 100 volts maximum.
 Return Loss: 20db minimum. 15db minimum for VP2075 & VS2075.
 Delay Tolerance: 5% or 1 nanosecond, whichever is greater.

VIDEO FILTERS: NTSC Lowpass, Band Reject & Bandpass are our specialties.

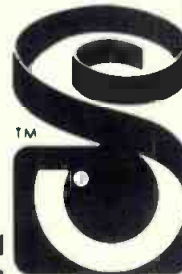
CALL/WRITE FOR VIDEO DELAY LINES & VIDEO FILTERS CATALOG

ALLEN AVIONICS, INC. 224 EAST SECOND ST., MINEOLA, NY 11501
 Phone: 516-248-8080

Circle 316 on Reader Service Card

use our new 3/4", 1", 2" CLEANING & EVALUATION SERVICE

SAVE: capital equipment
 labor costs
 manpower costs
 long term contracts available



STUDIO FILM & TAPE INC.
 630 Ninth Avenue, New York, NY 10036 212/977-9330
 6670 Santa Monica Blvd., Hollywood, CA 90038 213/466-8101

Circle 317 on Reader Service Card

New Mark V Weatherminder

An updated version of the original Mark IV-T Weatherminder, used in numerous radio stations for the past 25 years. The basic instrument cluster for local programming. Designed especially for the announcer's table. Professional equipment at modest cost.

Department B

Texas Electronics, Inc.
 P. O. Box 7225
 Dallas, TX 75209 (214) 631-2490

Circle 318 on Reader Service Card

Rainfall (Digital, 0.01" increments)
 Temperature (Digital, F° & C°)
 Wind Direction & Speed



Also, a complete line of weather instruments, recorders, sensors, controllers, etc.

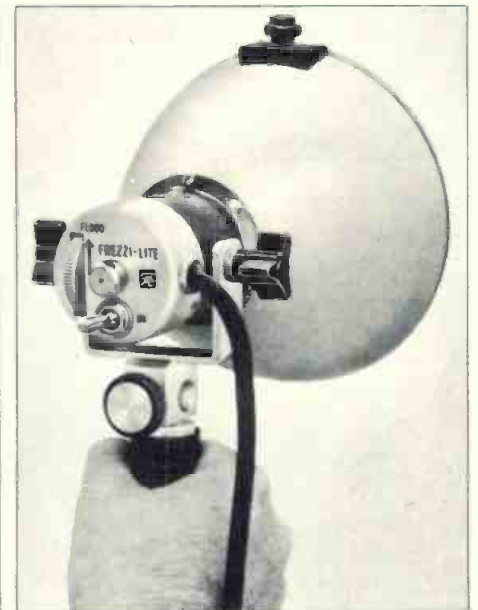


Broadcast Equipment

50/60 Hz mains operation, the mixer may be battery-powered by an attachable accessory unit. Inputs and outputs are all on standard XLR connectors, transformer coupled/floating. Inputs feature RFI filtering, LF cut filter, A-B assign or pan, LF and HF equalization, input level select and trim controls, and two auxiliary sends for echo, cue or foldback. Other functions include returns to the two outputs, dual monitor and headphone outputs, test oscillator, power supply for condenser mics, talk back provision, and PPM-type meters. Around \$6000. PROTECH AUDIO

Portable Camera Lights 333

Model FL-250 is a hand-held light which uses a 150-, 250-, or 350-W bulb and operates on 30 V dc power. The bulbs are tungsten-halogen type, with color temperature of 3400 degrees K. A second model, FL-100, uses a 100-W bulb which operates on 12 (standard) V, dc power. FREZZOLINI ELECTRONICS, INC.



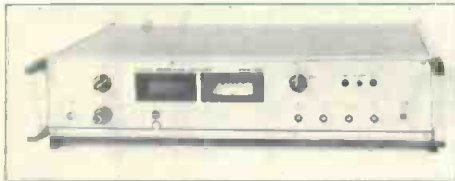
CCTV Test Generator 334

Model 1209 Signal Source provides all standard test patterns for CCTV testing, among them gray scale, window, flat field, bars, dots, resolution, and color bars. It also has selectable scan rate controlled from front-panel thumb wheels. It comes in a lightweight carrying case for easy field use. VISUAL INFORMATION INSTITUTE, INC.

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

Stereo Measuring Decoder 335

Model SMD-203 stereo measuring decoder (stereo monitor) is intended to show the state of the composite signal. The unit has distortion less than or equal to 0.1 percent, signal-to-noise ratio of 80 dB or more, SCA rejection greater than 74 dB. MARCOM.



Audio Test Set 336

Model T-8 test set is designed to measure audio frequency response of complete broadcast systems or parts of them. It supplies eight pre-set switchable sine wave audio signals with three pre-settable amplitude levels on each.



An automatic mode will run through the eight frequencies sequentially, with a burst lasting about one second from each. Output can be trimmed to 0 level on a VU meter. Frequencies are also selectable manually. The unit has three output levels: +8 into 600 ohms, -10 into 600 ohms, and -50 into 200 ohms. AUTOGRAM.

Programmable Earth Station 337

Model 8010 video earth station, with 7-m antenna, has motorized drive which can move the antenna across the entire orbital arc in less than one minute, or from one satellite to an adjacent one in 2.5 sec. The microprocessor-controlled drive can be programmed for automatic shifts in accordance with the station's scheduling. The system can switch to back-up units automatically in case of failure or loss of power. SCIENTIFIC ATLANTA, INC.

Video Production Switcher 339

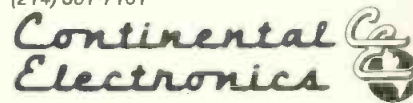
Model RME has 16 inputs in a single-level version, 16 or 24 inputs in a two-level version. In addition to all standard mixer functions, both versions have separate preview and key buses, title insert, RGB chroma key, borderliner,

**NOW!
CONTINENTAL'S
5 KW AM**



Pulse width modulation in an efficient 5 kW package; clear, crisp sound of transformerless modulation; ready for AM stereo. Stability of 12-phase power supply with Switch-mod system allows maximum modulation at all power levels IPL and other circuits combine to give you outstanding audio with cost-effective operation.

Write for brochure on 315R-1;
Continental Electronics Mfg. Co.
Box 270879 Dallas, TX 75227
(214) 381-7161



Circle 319 on Reader Service Card

ELECTRO IMPULSE

Thanks You for Making Our Model DPTC-25KFM Dummy Load One of our Most Successful Products!

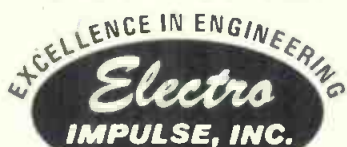


MODEL DPTC-25KFM
Rated 25KW
DC-110MHz
VSWR 1.15:1
Useable to 200MHz

Load is Dry,
Forced Air Cooled,
Fully Interlocked and
**WARRANTED
FOR 25 MONTHS**

Our New General Catalog 891 is now available upon request covering:

- Dummy Loads • Baluns • Calorimeters
- Power Meters/Attenuators



SINCE 1949

116 Chestnut St., Red Bank, N.J. 07701
Telephone: 201-741-0404

Circle 320 on Reader Service Card

**NEWEST AUDIO PROCESSORS
AVAILABLE FOR DEMONSTRATION
AND EVALUATION**

Most brands in stock

We ship anywhere overnight

Factory service for warranty and repair



EXR Exciter SP-1



Telex MC series Cart Machines



EXR Exciter EX-3



Telex Headsets



Audio & Design Limiter M-600

Otari MX-7800
Eight track



Eventide BD-955 Digital Delay Line



Otari 5050-B
Half or full track



Lexicon 1200 Speech Compressor



Otari ARS-1000
Autotated tape deck

Signal Processors

- Audio & Design Recording
- Ashly dbx
- Dolby
- DeltaLab
- EXR
- Eventide
- Inovonics
- Lexicon
- Marshall
- Orban

Microphones

- AKG
- Crown/PZM
- Electro-Voice
- Neumann
- PML
- Sennheiser
- Shure

Tape Machines

- Eumig
- Otari
- Revox
- Technics
- Telex

Monitors

- Auratone
- JBL
- Tannoy

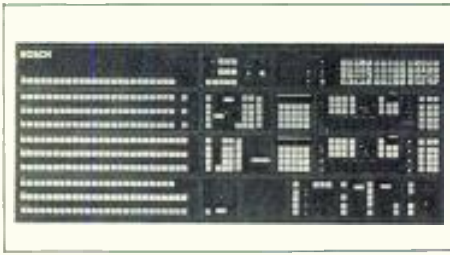


Plus: Acoustic design and consultation services for your control room or production facility.

16055 Ventura Blvd., Suite 1001
Los Angeles, California 91436
Phone (213) 995-4175 • Tlx 651485

Broadcast Equipment

flip flop stage, and pulse processing. A dual mixing stage processes six inputs simultaneously. The first part performs mix or wipe transitions with colored pattern borders; the signal passes to the second part and is used as a "back-



ground" for chroma key and titling. All switching functions and data transfer between switcher panel and separate electronics are controlled by microprocessors. Options include additional caption inserter, encoded chroma key preview bus, central color background generator, control function memory, and digital video effects processor. ROBERT BOSCH.

Audio Processor 338

Dyna-Mite™ is a powerful, self-contained, self-powered processing tool capable of rack-mounted or port-

able operation. In the mono version, it offers limiting, expansion, de-essing, noise gating, Kepexing®, and "voice over ducking." The stereo version offers intercoupling capability at the push of a switch, allowing any number of



processing combinations such as an expander followed by a limiter or a dual threshold peak and average limiter with independent release timer. The unit plugs in instantly with ring/tip/sleeve jacks to -10 or +4 lines and is capable of driving 600 ohm loads. Battery pack is optional. Mono version (convertable to stereo), \$295; stereo version, \$495. VALLEY PEOPLE, INC.

Cassette Timer/Rewinder 340

Model 200-9 will time a cassette master in less than 20 seconds. A sensing device distinguishes between leader and tape allowing speeds over 200 ips without damaging the tape. The two high-speed rewriter stations operate inde-



pendently with combined capacity of 400 C-60 cassettes per hour. One station can act as the timer indicating the total in minutes, seconds, and tenths of a second until it is reset. The other station can run the tape back and forth to destruction with a counter that totals up to 9999 passes. AUDICO, INC.

Digital Image Storage 341

Imager I digitizes and stores video images on floppy disks in a highly condensed form. Up to 40 images can be stored on each disk from any video source, with typical access time of one second. The high-contrast video images can be mixed with broadcast or post-production video in real time for keying effects. Optional software al-

Panasonic
Broadcast systems and service available from

American Video Products
1875 S. Santa Cruz St. Anaheim, CA 92805, U.S.A. 714-978-9002
Circle 321 on Reader Service Card

THE AUDISAR BALANCING ACT

Our 9K-600-6 Repeat Coil can help keep your balance in the black. It offers 5 balanced outputs with one balanced input and will replace that expensive distribution amplifier. Write for data sheet.

audisar™
P.O. Box 1561, Bellevue, WA, 98009
(206) 454-2040

RACK MOUNTED VIDEO DELAY LINES

DL-400 SERIES
10-1720ns
variable with
switches & fine trim

DL-500 SERIES
10-325ns
variable with
jumpers & fine trim

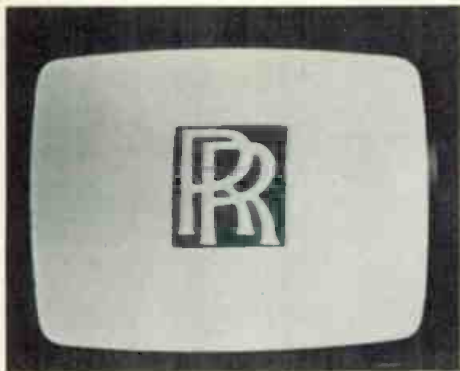
- Equalized to 5.5MHz
- Up to 16 cards in 19" frame

circle reader number for full catalog

broadcast video systems ltd.
1050 McNicoll Ave. Agincourt, Ont. M1W 2L8 (416) 497-1020

Circle 322 on Reader Service Card

Circle 323 on Reader Service Card



lows images to be reduced in scale, relocated on the screen; automation package adds microprocessor controlled simultaneous zoom, pan, and tilt. GROVE VIDEO CORPORATION.

U-Matic Head Cleaner 342

An automatic head-cleaning cassette for U-Matic VCR's consists of a 5-foot length of chamois-like material, in a typical plug-in cassette. The cleaning material is moistened with a special solution. When the cassette is put into the machine and "played," the cleaning

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

strip follows exactly the tape path, and removes dust, oxides and other pollutants from the capstan and pinch roller and the audio and video heads. The strip also cleans out the residue from the lower tape path guide, which often causes tracking problems on VCR's. The cleaning cassette is designed for use on the Sony 2000 series of U-Matic machines. ALLSOP, INC.

Phono Cartridge 343

DV/10X Mark 2, the third model in its line, is a moving coil phono cartridge with a flat frequency response 20 Hz to 20 kHz. Its output voltage of 2.3 mV is sufficiently high to obviate the need for



a head amp, according to the manufacturer. Recommended tracking force is 1.5 gm. The stylus is an elliptical diamond, and the unit also features super permalloy armature and tapered aluminum cantilever. The maker states that this cartridge is designed for exceptional musicality. \$126. DYNAVECTOR SYSTEMS USA.

Viscosity-Control Camera Head 344

Model ITE-H10 has an adjustable center-of-gravity control for exact counter-balanced load control for constant camera balance. The viscosity drag system operates on both pan and tilt. The head weighs 9 lbs. and will support a camera weighing up to 40 lbs. The head fits all ITE tripods and has control handle, quick-release adapter, and spirit level. INNOVATIVE TELEVISION EQUIPMENT.

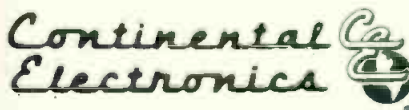


**NOW!
CONTINENTAL'S
2.5 KW FM**



High Performance 2.5 kW transmitter uses field-proven exciter; delivers clean crisp signal; has automatic filament voltage regulation, power control; is suitable for unattended operation; is solid-state except for one tube in final amplifier; provides efficient, cost-effective operation.

Write for brochure on 814R-1
Continental Electronics Mfg. Co.
Box 270879 Dallas, TX 75227
(214) 381-7161



Circle 324 on Reader Service Card

**premium grade nickel-cadmium
"On-Board" Frezzi Battery Packs
& "Frezzi-Lites" for ENG/EFP systems**



**MADE
IN
U.S.A.**

- Direct mount to factory bracket
- Full 4AH capacity • 1-hour re-charge
- Rugged aluminum case

For information call (201) 427-1160

Frezzolini Electronics Inc.
7 Valley St. Hawthorne, N.J. 07506 USA • TWX: 710-988-4142

Circle 325 on Reader Service Card

**When accuracy counts... Count on Belar
for AM/FM/TV MONITORS**



BELAR
AM MODULATION MONITOR

BELAR CALL ARNO MEYER (215) 687-5550
ELECTRONICS LABORATORY, INC.
LANCASTER AVENUE AT DORSET, DEVON, PA. 19333 • BOX 826 • (215) 687-5550

Circle 326 on Reader Service Card

Advertisers Index

Accurate Sound Corp	236
ADDA Corp	229
ADM Technology, Inc	9
A.F. Associates, Inc	60
Alexander Manufacturing Co	134
Allen Avionics, Inc	248
American Data Corp	28
American Video Products	250
Amperex Electronics Corp	46
Ampex Corp AVSD	191
Ampex Corp MTD	158
Ampro/Scully	16
Animation Video	18
Anton/Bauer, Inc	140
Aristocart	152
Asaca Corp of America	160-161
Audio & Design (Recording) Ltd	173
Audisar	250
Audio Technologies, Inc	141
Audronics Inc	123, 125, 127
Aurora	170
Bald Mountain Labs	252
Beaveronics, Inc	164
Belar Electronics Lab., Inc	251
Beston Electronics, Inc	227
Bonneville Productions	139
BPI	209
Broadcast Audio Corp	193
Broadcast Video Systems	250
BSM Systems	193
Camera Mart, Inc	142-143
Canon USA, Inc	153
Capitol Magnetic Products	186
Ceco Communications	51
Central Dynamics Corp	72, 175
Cetec Vega	117
Christie Electric Corp	179
Chyron Corp	39
Cine 60, Inc	118
Cinema Products Corp	119
Circuit Research Labs	247
Clear-Com Intercom Systems	218
CMX/Orox	3
Compact Video Sales, Inc	15
Comprehensive Video Supply Corp	211
Computer Video Systems	206
Comrex	136
Comsearch, Inc	130
Confac Corp	65
Continental Electronics Mfg Co	188, 200, 204, 220, 249, 251
Convergence Corp.	242
Crósspoint Latch Corp	57
Datatron, Inc	34
dbx, Inc	113, 220
Delta Electronics	219
Dexcel	40
Digital Video Systems	137
Di-Tech	233
Eastman Kodak Co	32-33
Edcor	212
Edutron, Inc	124
EECO	154
EEV, Inc	187
EG & G	168
Elcom-Bauer	133, 135
Electrohome Ltd	48
Elector	243
Electro Impulse	249
Electro-Voice	22, 120
Emcee Broadcast Products	68
ESE	225
Eventide Clockworks, Inc	74-75
Everything Audio	249

Faroudja Labs, Inc	69
Fernseh, Inc	92
Fidelipac	172
Fizco Sound, Inc	61
Frezzolini Electronics, Inc	251
Fujinon Optical, Inc	165
Fuji Photo Film USA, Inc	151

General Electric Co. Video Display Equipment	224
G&M Products	212
Alan Gordon Enterprises, Inc	218
Gorman-Redlich	174
Graham-Patten Systems	61
Grass Valley Group, Inc	7, 110
Gray Engineering Labs	202
David Green Broadcast Consultants Corp	216

Harris Audio Systems	25
Harris Corp	111, 167
Harris Video	44-45
Hitachi Denshi American Ltd	4-5

Ikegami Electronics USA, Inc	54, 156, 185, 192,
Industrial Sciences, Inc	176
Inovonics, Inc	226
International Tapetronics Corp	78

JSH Electronics	112
US JVC Corp	85, 86

K&H Products	247
Knox Video Systems	30

Laird Telemedia, Inc	245
Leitch Video Ltd	128
James B. Lansing Sound, Inc	103
Leader Broadcast	144
Lenco, Inc	101
Lerro Electrical Corp	199
L.G.T	98
Lightning Elimination Assoc	162
Listec Television Equip Corp	131
LPB, Inc	104
LTM Corp	209

3M/Magnetic Tape Div	201
3M/Mincom-Video Products	52-53, 244
Magna-Tech Electronic Co, Inc	213
Marconi Electronics, Inc	66
Marconi Instruments, Inc	207
Maxell Corp of America	163
McCurdy Radio Industries	11
MCI, Inc	62
MCI/Quantel (Micro Consultants Inc)	237
Merlin Engineering	10
Microtime, Inc	138
Milam Audio	115-116
Modular Audio Products	228
Moseley Assoc, Inc	31
MPCS Video Industries	166

Nady Systems	236
NEC America, Inc	107
Rupert Neve, Inc	13

O'Connor Engineering Labs, Inc	214
Oki Electric Industry	96
Orban Associates, Inc	180-181

Panasonic Matsushita	C2, 76-77
Peirce-Phelps, Inc	95
Phelps Dodge Communications Co	70
Philadelphia Resins Corp	150
Philips Test & Measuring Instruments	169
Pinzone Communications	179
Potomac Instruments	228

QSI Systems, Inc	122
Quad-Eight	171
Quantum Audio Labs	204

Ramko Research	155, 157, 159
RCA Broadcast Systems	126
RTS Systems	19

Scientific-Atlanta	197
Sennheiser Electronic Corp	196
Sharp Electronics Corp	149
Shintron	132
Shure Bros., Inc	246
Singer Broadcast Products, Inc	221
Skotel Corp	177
Sony Broadcast	26-27, 108-109
Sound Dynamics, Inc	202
Spectra Sonics	178
Spencer Broadcast	144
Stainless, Inc	14
Stanton Magnetics, Inc	89
Star Case	188
Storel Corp	91
Strand Century	148
Studer Revox America, Inc	196
Studio Film & Tape	248
Surcom	196
System Assoc	232
System Concepts	182

Taber Mfg & Eng Co	245
Technics	82
Technology Service Corp	17
Telemet	12
Television Equipment Assoc	43
Television Products Co	114
Television Technology Corp	174
Telex Communications, Inc	24, 59, 146, 195
Tentel	232
Texas Electronics, Inc	248
TFT	240
Thomson-CSF Broadcast	20-21
Thomson-CSF/DTE	147
Topaz, Inc	217
Toshiba America, Inc	189

Ultra Audio Products	232
United Media	36
UREI	205
Utah Scientific, Inc	145

Varian, Eimac Div	208
Video Aids Corp of Colorado	234
Video Data Systems	222
Videomedia, Inc	230
Videotek, Inc	121
Vidcraft, Inc	200
Viscount Industries Ltd	216
Vital Industries, Inc	239

Ward Beck Systems Ltd	C4
Wireworks Corp	141

Yamaha	203
--------	-----

SALES OFFICES



Broadcast Management/Engineering

295 Madison Ave.
New York, New York 10017
Telex: 64-4001

Eastern & Midwestern States

295 Madison Avenue
New York, New York 10017
212-685-5320
James C. Maywalt
Denis J. O'Malley

Western States

353 Sacramento Street
Suite 600
San Francisco, CA 94111
415-421-7330

William J. Healey

18008 Skypark Circle, Suite 260
Irvine, CA 92714
714-556-6480
Bob Hubbard

United Kingdom/Europe

Chilberton House
Doods Road
Reigate, Surrey, England
Telephone: Reigate 43521
Bronwyn Holmes
Derek Hopkins

Japan/Far East

Eiraku Building
1-13-9, Ginza,
Chuo-Ku, Tokyo 104 Japan
03 (562) 4781
S. Yasui
K. Yamamoto

BML

FOR ALL OF YOUR AUDIO PROOFS USE THE
AUDIO STEP GENERATOR and
DIGITAL DECIBEL METER by BALD MT. LAB.

Designed for fast and accurate audio measurements

CALL OR WRITE BOB HENRY BALD MOUNTAIN LAB 230 BELLEVUE RD. TROY N.Y. 12180	TELEPHONE 1(518) 279-9753 AUTO-RANGING DECIBEL METER \$1395 AUDIO STEP GENERATOR \$1395
--	---

Familiarity breeds respect.

You'll appreciate the Studer B67 MKII from the day it arrives at the station. After several years of hard use, your appreciation will turn to deep respect.

From the beginning, you'll appreciate Studer performance. You'll notice the solidity of the transport, the smoothness of the tape-handling, and the positive feel of the control mechanisms. And you'll hear the sonic clarity you expect from a Studer.

Soon you'll grow accustomed to the features: three speed (15/7.5/3.75 or 30/15/7.5 ips) operation, quartz PLL capstan drive, servo controlled spooling motors, real time counter with plus or minus readout, fader start, dump edit, and auto repeat. Improvements on the B67 MKII include locking tension sensor arms and better head access for easier edits. Full remote and vari-speed available as options.

Finally, as the months turn to years, you'll gain great respect for the B67 MKII's thoughtful design and meticulous Swiss craftsmanship.

Studer professional recorders. Respected worldwide for exceptional reliability and unmatched quality.



STUDER REVOX

Studer Revox America, Inc. / 1425 Elm Hill Pike, Nashville, TN 37210 (615) 254-5651
Offices: Los Angeles (213) 780-4234 / New York (212) 255-4462 • Canada: Studer Revox Canada, Ltd.

Circle 328 on Reader Service Card

The Future starts now!

It's being developed in special classrooms like those at Conestoga College of Applied Arts and Technology.

Recognizing that practical training based on high technology equipment is essential in tomorrow's world, Conestoga has spared no efforts to provide the most progressive systems and environment possible for students and faculty today.

To underscore this dedication to perfection, the Radio & Television Department has chosen a Ward-Beck L2042 audio console for the main TV production studio.

Having mastered a broad range of professional skills, as a result of this advanced training, Conestoga's graduates step confidently into their chosen careers in broadcasting and the performing arts.



First by Design.

WBS L2042
Main Studio, Conestoga College



Ward-Beck Systems Ltd., 841 Progress Avenue, Scarborough, Ontario, Canada M1H 2X4.
Tel:(416)438-6550.

Ward-Beck Systems Inc., 6900 East Camelback Road, Suite 1010, Scottsdale, Arizona 85251.