

BROADCAST **engineering**

September, 1974/75 cents



'74 Buyer's Guide Section page 45

**Magnetic Head Maintenance
Proof Survey Findings**

the FS-10 Frame Synchronizer

it's here
(since NAB, in March)

it's proven
(by critical network
evaluation in actual operation
-- all 4 networks)

**it's the most
revolutionary
broadcast
product
since the color
camera!**

In March, NEC introduced the frame synchronizer to U. S. broadcasters. Because the frame synchronizer is a completely new kind of product, it took a little time to find out what its real capabilities are. Since NAB, all four networks have had the unit in their studios for evaluation — the consensus of opinion is that the frame synchronizer is the most revolutionary broadcast product to come along in years.

The FS-10 converts remote non-synchronous signals (satellite transmissions; dedicated video lines; remote vans) to digital bits, stores a digitized frame of video, then reads it out synchronous with your local plant reference. This allows special effects and switching between remote and local video without the usual picture disruption or stability problems.

The FS-10 employs a 3 mega-bit random access MOS memory (not shift registers); uses 8-bit quantizing with proven clean transfer characteristics; and the A to D/D to A converters are of the most recent design.

Because the FS-10 stores a complete "frame" of video, there is no distortion of the vertical blanking width — no loss or exchange of VITS — no inconsistency in output switching.

If you're concerned about spare parts or foreign manufacture, don't be — most components are U. S. made or cross-referenced to other American-made equivalents. NTSC standards were the design criteria.

Want to know more? Contact:
NEC America, Inc.,
277 Park Avenue
New York, New York 10017
(212) 758-1666; or

TeleMation, Inc.
P. O. Box 15068
Salt Lake City, Utah 84115
(801) 487-5399

NEC

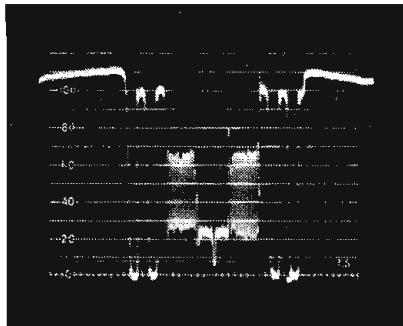
Nippon Electric Company, Limited

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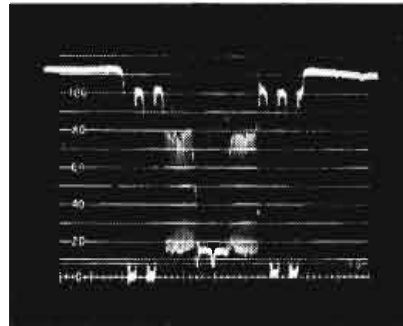
Amperex announces a new high resolution Plumbicon* tube that increases the modulation depth in your Green Channel by 50%†

In the ten years since we introduced the Plumbicon TV camera tube, we have worked continuously to "improve the breed." The first improvement was the development of the separate-mesh Plumbicon . . . then, the XQ1025R, an extended red response version that doubled red-channel sensitivity with color response paralleling that of the human eye.

Now we've made still another advance in Plumbicon technology: a green channel version of the XQ1025. With the new XQ1025G, you can expect an improvement in green channel performance that will be instantly apparent to your viewers . . . and to your advertisers.



Our standard XQ1020G offers 40% modulation depth in the green channel.



Modulation depth under same test conditions is 60% with the new XQ1025G, an improvement of 50%.

As the photographs show, the XQ1025G provides a 50% increase in green channel modulation depth as compared to the XQ1020G you're now using. This increase in modulation depth makes possible a significant improvement in resolution and also greatly reduces the need for electronic signal enhancement in the green channel. The resulting improvement in overall system signal-to-noise ratio now allows the camera to be operated at lower light levels.

The new XQ1025G is physically and electrically interchangeable with the standard XQ1020G. Since it is based on the same design and construction principles as the earlier Plumbicon tubes, it offers the equivalent reliability and long life as the standard versions.

We have prepared a short report on the characteristics of the new tube and on what it means insofar as improvements you can expect from it for your camera. For your free copy, contact: Amperex Electronic Corporation, Electro-Optical Devices Division, Slatersville, Rhode Island 02876. Telephone: 401-762-3800.

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

†Typical measurement: 50%; Range: 40% to 70%



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North American Philips Electronic Component Corporation

For More Details Circle (23) on Reply Card

BROADCAST engineering®

The technical journal of the broadcast-communications industry

in this issue...

- 38 Globecasting.** BE introduces expanded foreign coverage with this entirely new column. Items featured include technical news and happenings from around the world. **Ron Merrell.**
- 45 1974 Buyer's Guide Directory.** Directory section continues to grow with this year's version—the most comprehensive ever. Products with red listings refer to ads in other parts of the magazine. The Reader Service Card in this issue is good for one year.
- 91 Manufacturer's Address Section.** Complete addresses of all manufacturers included in the product directory section. We suggest using the ads to locate telephone numbers.
- 108 Magnetic Tape Head Maintenance.** A comprehensive inside story of how heads are produced and how they should be cared for at the station. **Frank Zeman.**
- 116 Proof of Performance Survey Results.** Author of Survey gives the findings and discusses changes needed in the Rules. **Dennis Ciapura.**

About The Cover

Our cover picture was taken at Trans-America Video Inc., Hollywood. It shows the CMX-300 computer assisted video tape editing system in use with three quads. Picture courtesy of CMX Systems and Bill McDonough.

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Robert E. Hertel, Publisher

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APC-2000 AUTOMATION SYSTEMS

Grass Valley Group television automation systems employ a building-block concept. This approach enables a broadcaster to begin automated operation on a modest scale and expand the system as requirements change.

The basic system provides on-air switching, storage for 16 events, automatic logging, and complete control of telecine and VTR machines. Larger systems accommodate up to 2,000 or more events. A wide variety of both hardware and software options is available to meet individual needs.

APC-2000 systems can also be interfaced with other computer systems. By combining these systems, a user can achieve a completely automated facility which encompasses on-air, traffic, sales, and billing/accounting operations as well as management information services. Consult GVG for further information.



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DIRECT CURRENT FROM D. C.

September, 1974

by Howard T. Head

IEEE Broadcast Symposium

The Annual Fall Symposium of the Broadcast Group of the IEEE will be held at the Washington Hotel in Washington, D.C. on September 19 and 20. Technical sessions will highlight innovations in studio equipment, including a Japanese-developed miniature camera; a new transmitting antenna test range developed by a leading antenna manufacturer; digital recording of TV signals; and problems of reradiation from objects near AM directional antennas.

A special field trip is planned to visit the PBS receiving installation in Washington, D.C. where transmissions from the ATS-6 earth satellite are being received. (See 11/73 D.C.) Luncheon speakers include an address by Ray Spence, FCC Chief Engineer.

Commission Rules on CATV Exclusivity in Poor Reception Area

In a case involving a UHF TV station in Charlottesville, Virginia, just east of the Blue Ridge Mountains, the Commission has ruled that a cable system within the predicted Grade B contour of the TV station is not required to provide network program exclusivity if the actual Grade B contour does not include the cable system community. The cable system is required to carry the signal of the TV station since it is within the specified 35-mile zone, but the Commission's ruling distinguishes between the requirement for carriage and the provision of network program exclusivity.

In this particular case, the facts as to Grade B service were not in dispute, and the Commission's decision provides no guidance as to techniques to be employed in locating the "actual" Grade B contour when it differs from that of the predicted Grade B contour. This problem has been raised in previous cases where there was a dispute as to the facts but has not yet been resolved.

In reaching its decision, the Commission concluded that the TV station would be permitted to demand network program exclusivity if a translator serving the cable system community were installed. Even this presents problems in this special instance, however, since the community is in the "radio quiet zone" where highly directional transmitting antennas are required to protect two sensitive radio telescopes in the West Virginia mountains.

Two Unusual FM Channel Assignments

In two unrelated actions, the Commission has departed from accepted practices in making new FM channels assignments. In a case in Indiana,

It pays to read more than the name on the front.

There's that old saying about judging a book by its cover. The name does not always indicate the quality inside. The same theory holds true for just about any piece of equipment, typewriters, fleetcars or radio broadcast equipment.

To illustrate this point, we have prepared a list of comparisons based on current published data from the five leading manufacturers of stereo audio consoles.

We want you to examine all manufacturers' audio equipment claims. Inquire. Compare. Read the facts, the whole story . . . carefully. Make up your own mind. We feel that only when you have fully evaluated all equipment claims factually, are your best interests served. And ours.

Manufacturer & Model	GATES Stereo 80	CCA 10S	COLLINS IC-10	SPOT-MASTER BESL-1006	SPARTA Centurion II
No. of Std. Program Busses	2	2	2S & Metered Mono	2	3S & Metered Mono

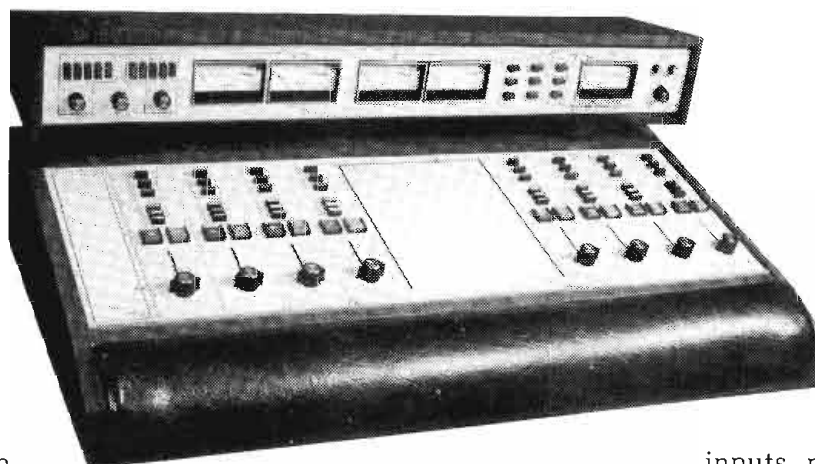
Only the SPARTA CENTURION II gives you three stereo program busses, plus metered monaural output.

Manufacturer & Model	GATES Stereo 80	CCA 10S	COLLINS IC-10	SPOT-MASTER BESL-1006	SPARTA Centurion II
No. of Input Mixers	8	10	10	6 - 10	8 - 12

Only the SPARTA CENTURION II gives you from eight to twelve mixers in the basic console. With extender options for eighteen or twenty-four mixers.

Manufacturer & Model	GATES Stereo 80	CCA 10S	COLLINS IC-10	SPOT-MASTER BESL-1006	SPARTA Centurion II
No. of Input Sources	18 (4M)	20	28	18 - 30	24 to 36, 54 and 72
Input Level Selection	Set 3 Lo 15 Hi	Optional Cards	Selectable Hi-Lo	Optional Modules	Switch Hi-Med-Lo

Only the SPARTA CENTURION II gives you three



inputs per mixer module in every configuration. And every one is switch selectable for high, medium or low level inputs.

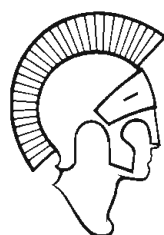
Manufacturer & Model	GATES Stereo 80	CCA 10S	COLLINS IC-10	SPOT-MASTER BESL-1006	SPARTA Centurion II
Mixer Expanders Available	No	No	No	No	Yes

Only the SPARTA CENTURION II gives you the availability of mixer extender options.

Other SPARTA CENTURION II features include: remote turning on/off of all mixers; remote start capability through the mixers; motherboard construction with ground plane PC techniques for elimination of wiring harness; silent operation; audio-follow-video switching; fully interchangeable mixing modules; only three types of amplifiers throughout; optically isolated audio switching; either slide or rotary attenuators as options, at the same price; 25 Watts per channel monitor amplification; five VU meters as standard equipment.

There's much more to the story, theirs and ours, that you should know. We're only too happy to tell you ours. Write or call us collect, today, for all the facts on SPARTA Audio Equipment.

We're in the business of You.



SPARTA
ELECTRONIC CORPORATION

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the Commission has assigned Ch. 221A as an educational channel although the educational band runs only through 220. In making the assignment, the Commission turned down a conflicting request for the assignment of the channel to a nearby community on a regular commercial basis. The case also involved a question of interference to a Ch. 6 TV station.

In a Florida case, the Commission substituted Class C Ch. 274 for Class A Ch. 272 at the request of the Ch. 272 licensee. The licensee had complained of interference from a station four channels removed, although the Commission's FM Technical Standards do not recognize interference for a four-channel separation. In making the change, the Commission took the relatively unusual step of permitting the assignment notwithstanding the fact that the channel substitution would preclude future assignments on three other FM channels in the area.

Short Circuits

Veteran FCC Engineer Harry Fine, an internationally recognized expert in propagation and space communications, has been named Deputy Chief Engineer...The Commission has turned down a petition to require that engineering material submitted to the Commission be prepared only by Registered Professional Engineers...The Commission has set for hearing two applications involving mutual interference between two VHF TV translators in Colorado...The Commission's Laboratory Division has released a report analyzing the response of UHF TV receivers to intermodulation and image interference ("taboos")...The Commission has authorized the sharing of UHF TV Channels 14-20 with the land mobile services in three additional metropolitan areas.

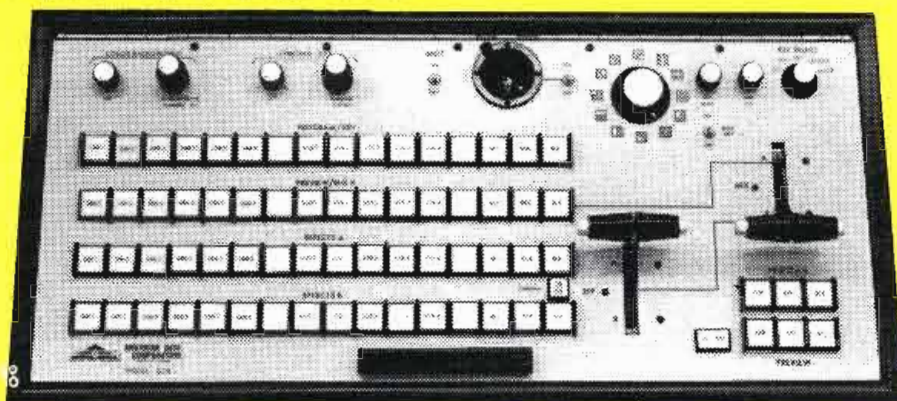
NAFMB will open a four-day convention Oct. 10-13 at the Fairmont Hotel in New Orleans. This is switch for NAFMB who usually has opted for one-day meetings before the NAB convention. This one will include workshops and panel discussions across subjects of interest to owners, managers, engineers, and program syndicators. AM broadcasters also are welcome.

Manufacturers wanting information on exhibit space and/or hospitality suites should contact: Trade Associates, Inc., Suite 1025, 5454 Wisconsin Ave., Washington, D.C. 20015. They can be reached at 202-656-5794.

Central Canada Broadcasters Association will hold their annual convention Oct. 20-22 at the Bonaventure Hotel, Montreal. For further information, write to: Mr. Duffield, CCBA Engineering Section, c/o CFPL Television, P.O. Box 2880, London, Ontario N6A 4H9.

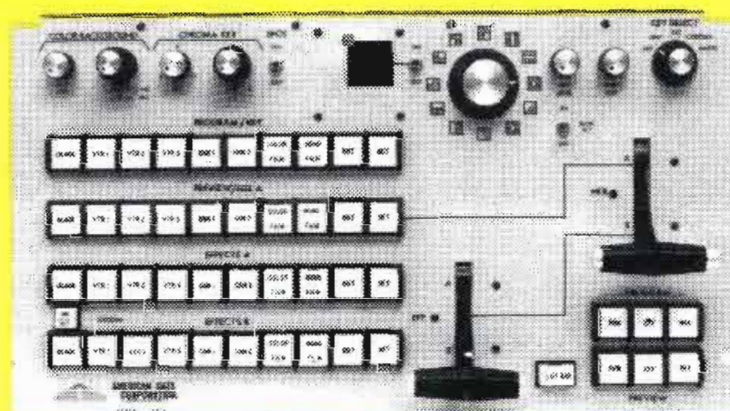
an **ECONOMICAL** Choice!

With the **MAXI-**



\$10,795

or the **mini**



\$8,295

The **MAXI** features 16 inputs and the **mini** has 10. All inputs may be composite or non-composite. Four busses are standard but when combined with an "QBQS" (one bus quad split) the capabilities of an 8 bus system is attained. The keyer is down-stream to the effects enabling wipes (or Quads) to be done behind ALL keys including chroma keys. Other **STANDARD** features are; a program channel processing amplifier, an internal blackburst-color matte generator, a 12 pattern **programmable** special effects generator, a positioner and a spotlight, a cutbar, program and preview output switching, "split handles" on mix and effects, a 3-input keyer with a rate adjustable "blink" feature. All this plus more, much-much more! Ask any one of **over 50** satisfied users of the ADC 556.

OPTIONS?

Not many but there are a few—an RGB chroma keyer, Audio-follow-Video, and OBQS, Pattern modulator, longer control cables.



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Mini-conventions Going Strong

Success begets success. At least it does for the Society of Broadcast Engineers (SBE) and their imaginative mini-conventions. To date they have been very successful, and as each one unfolds, the word comes

on louder and stronger: SBE mini-conventions are important to engineers and manufacturers. And just as surely, the word spreads.

Next up is the New York Chapter 15 mini-convention to be held

October 25-26 at the Tarrytown Hilton in Tarrytown, New York. Best way to get there is to take the New State Thruway to exit 9, take two left turns and you're at the Tarrytown Hilton.

The mini-convention will feature seminars and papers along with a number of equipment exhibits. For further information, we suggest you call John Lyons at 212-335-1600 or Lyn Snyder, convention chairman, at 212-347-2940.

Broadcast Electronics Adds Video Line

Broadcast Electronics Inc., Silver Spring, Maryland, has acquired the Modtec line of video monitors from the Precision Electrical Manufacturing Division of Circuit Science Inc., Minneapolis, Minnesota.

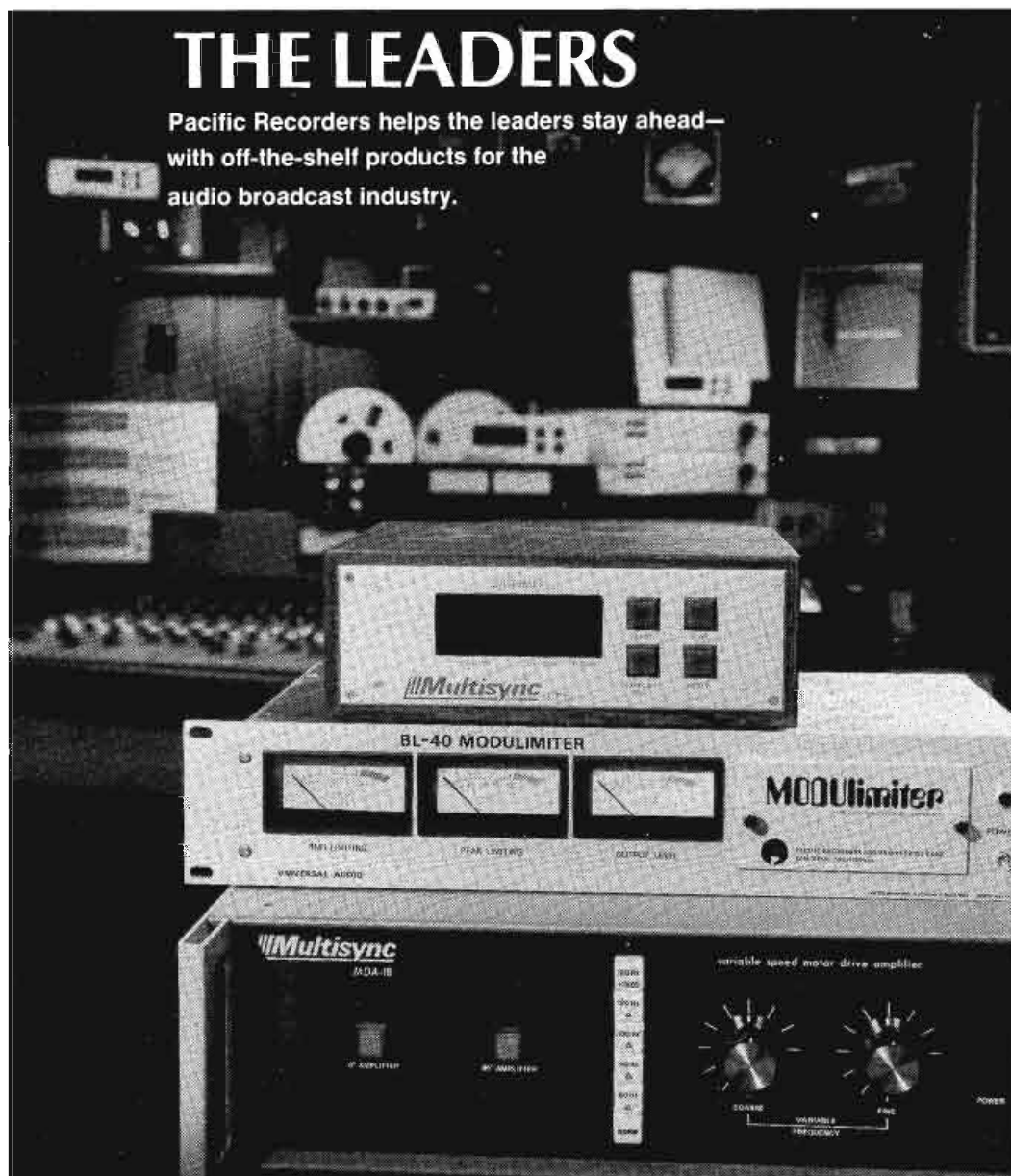
This acquisition involves all of the assets, including inventory, tooling, equipment and the designs of this product line. These assets will be transferred to the Broadcast Electronics facility in Silver Spring, where manufacture of the line will commence shortly.

The Modtec line is a high quality, high resolution solid state monochrome video monitor line, with CRT sizes ranging from 9 inches to 23 inches, and includes the concept of plug-in modules for each of the circuit areas. Each module is directly accessible from the rear of the monitor chassis and is easily removable for maintenance.

Broadcast Electronics is the manufacturer of the full line of Spotmaster audio cartridge systems as well as other related broadcast and industrial audio equipment. These products will be produced by the Spotmaster Division, while the Modtec video monitor line will be manufactured by the Modtec Division.

Send Your Station News To Broadcast Engineering

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THE LEADERS
Pacific Recorders helps the leaders stay ahead—
with off-the-shelf products for the
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Digitimer—a digital stopwatch with large display, silent pushbuttons, display hold, and remote control capability—and a small price.

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Multisync—the ultimate variable speed drive for turntables and tapes—sharpen your sound or save the off-time tapes—Multisync gives a full 3:1 speed range with most synchronous motor driven equipment.

Pacific Recorders is the supplier for all your audio broadcast needs—from complete system design to a spool of tape—
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***Nothing ordinary about
this Gates antenna...***

Here's a duplex television antenna broadcasting two VHF signals simultaneously.

We custom-built it for WTOP-TV and WMAL-TV in Washington, D.C. This Channel 7 and Channel 9 antenna was built and tested on Gates antenna range in Syracuse, New York. During the last five years more than 100 television antennas have been built and tested on this range.

We customize antennas to fit the specific needs of our customers. No matter how complex. And thoroughly test your antenna before delivery.

Call or write for more information on how Gates can custom-design an antenna for your operation.

HARRIS

 **GATES DIVISION**
Quincy, Illinois 62301, U.S.A.

ALL SOLID-STATE AURAL STUDIO-TRANSMITTER LINKS



■ MONAURAL AND
COMPOSITE VERSIONS

■ OPERATION IN ALL STL BANDS—

- 148-174 MHz
- 200-240 MHz
- 300-340 MHz
- 450-470 MHz
- 890-960 MHz

All solid-state aural STL's to fulfill almost every requirement. Moseley Associates has pioneered many STL concepts — solid-state systems, true direct FM modulation, and composite operation (FM stereo on a single link)...just to name a few. Front-panel metering of all important parameters is included on all Moseley STL transmitters and receivers. Subcarrier capability enables wireless remote control, secondary program service, or intercom service.

TRANSMITTER REMOTE CONTROL SYSTEMS

— Analogue —



Fifteen telemetry and thirty command functions are provided by the TRC-15A. The **Model TRC-15AR**, when used in conjunction with a Moseley STL, or other radio link, will provide total wireless operation. The **Model TRC-15AW** is for use on leased telephone, or other wired circuits.

— Digital —

Fully digital remote control of a remotely located transmitter point is provided by the **DCS-2 Digital Control System**. Multiple transmitter site operation—a standard option. **Command, telemetry, and status** provided in groups of thirty channels. **Automatic parameter logging** available. Computer-assisted operation of the DCS-2 is another standard option, and can provide **totally automated plant operation**. The **Model DRS-1 Digital Remote System** provides many of the features of the basic DCS-2 at an affordable price. Up to 30 telemetry functions and 24 status channels to a single transmitter site.



REMOTE PICKUP LINKS

Models RPL-3 and RPL-4 Remote Pickup Links provide unsurpassed audio performance for remote broadcasts. Two full-time microphone and high-level line audio inputs are standard. The RPL-3 and RPL-4 Transmitters are only 4 inches high and weigh a mere 16 pounds—complete with audio mixing and AC/DC power supplies.



For 148 to 470 MHz operation

Other Moseley Products . . .

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Weather Radar Has Become A Lifesaver

To most home TV viewers, broadcasts of weather radar pictures merely help to explain the weatherman's forecasts. But to many viewers of WAAY-TV in Huntsville, Ala., radar is a lifesaver.

In late spring the WAAY-TV radar detected tornados, and the station switched on live pictures of the dread storm funnels approaching the area. Many watchers at home recall that at first they sat stunned by the scenes. Then, recognizing the imminent danger, they fled for their lives.

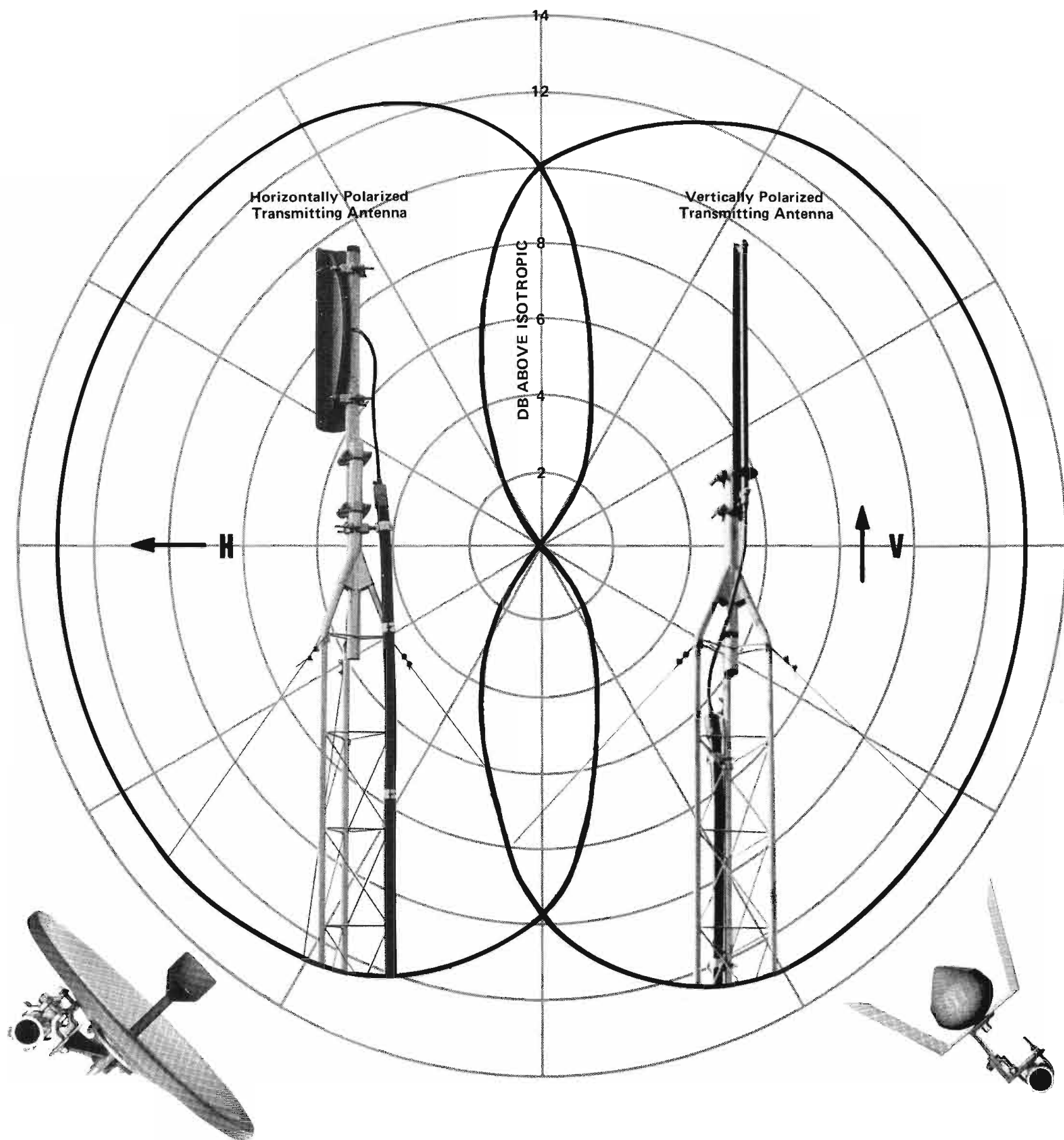
But for the spectacular pictures of successive twisters bearing down on their area, many residents would have chosen to sit out the storms, station officials believe. And the heavy toll of 70 lives lost and some 1,500 homes destroyed or badly damaged might have been even greater.

In the storm's wake the station received nearly 5,000 telegrams, telephone calls, cards and letters from people all over the area, thanking the station for the tornado alerts and its storm news coverage.

The WAAY-TV radar is mounted on the station's broadcasting tower and scans in a full circle some 150 miles out to pick up weather patterns. The radar is a type known as the AVQ-10 which was first developed by RCA for aircraft weather detection and is still used in many planes.

On the night of the disastrous tornado strike this spring, Bob Gay, WAAY-TV Chief Engineer, recalls that the radar detected and tracked five of six successive twisters.

"We picked up one tornado and tracked it as it moved over mountains and through valleys directly toward Huntsville," Gay said. "We were able to give our viewers at least 45 minutes warning. They could see the tornado coming in themselves, and they didn't need any more urging to get out of its way."



FIRST IN MDS ANTENNA SYSTEMS

Andrew is first to offer a complete and proven line of antenna system equipment for the new Multipoint Distribution Service (MDS). We introduced our line of MDS antennas at the first Common Carrier Association for Telecommunications Convention in July, 1972, and are now first to have equipment in service in an actual operating system.

First "on-the-air" MDS station, WO193 in Washington, D.C., uses two orthogonally polarized Andrew antennas with cardioid patterns, as illustrated. This

arrangement provides omni-directional coverage and eliminates blockage of a nearby building.

We are now in a position to ship complete MDS transmitting and receiving antenna systems from stock. For further information, ask your Andrew sales engineer or write for Bulletin 1052B.



ANDREW

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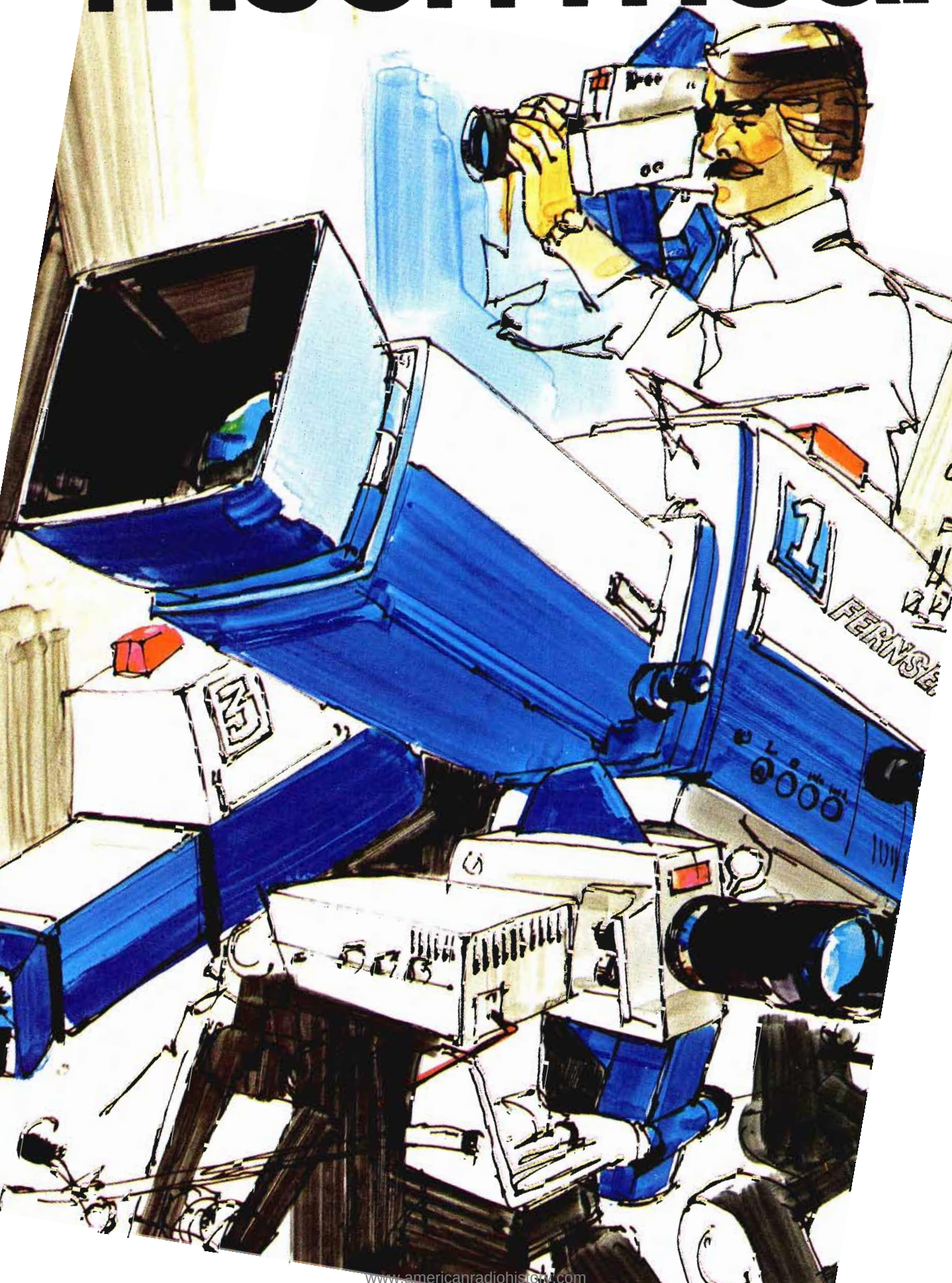
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606 Beech Street
Whitby, Ontario, Canada L1N 5S2

ANDREW ANTENNA SYSTEMS
Lochgelly, Fife
Great Britain KY5 9HG

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rnseh mean



television.

And television means a lot of people depending on you to be the best you're capable of being.

Our best is camera number 1 on your left, and we call it KCU-40.

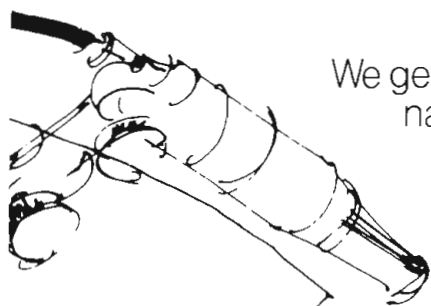
It's the ultimate broadcast-quality color camera with universal application.

Here's why.

We get a true separate luminance system with only three tubes (WRB) in conjunction with a four-channel amplifier.

You get all the benefits of the 4-tube principle, and the operating advantages of a 3-tube camera.

That means you also get perfect picture quality down to the lowest light levels, high sensitivity, superior definition, and high signal to noise ratio.



Finally, and equally important, the entire system is modular in construction and engineered for ease of maintenance; and allows your choice of options and automatics with complete interchangeability between cameras. Now. And in the foreseeable future.

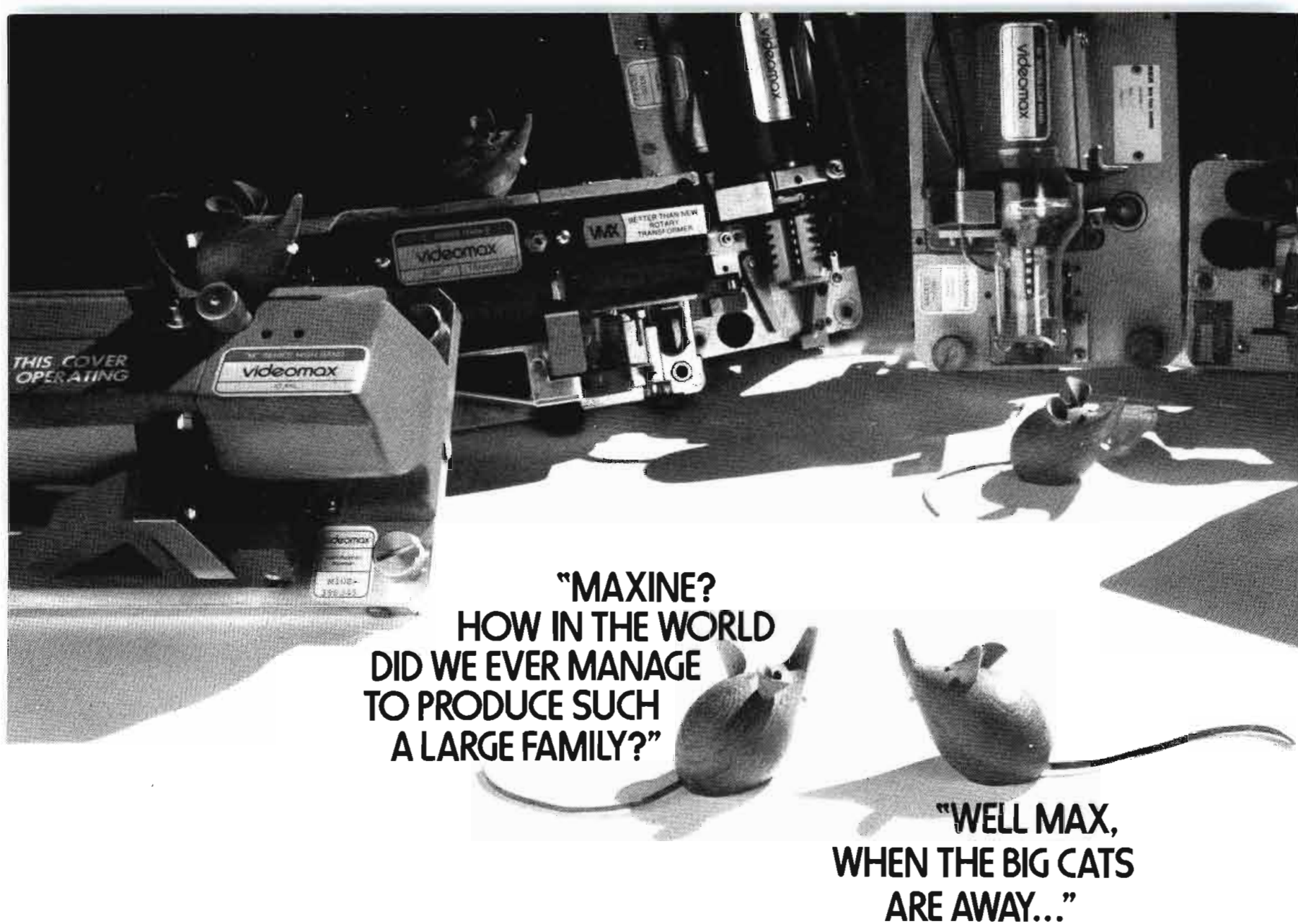
KCU-40. It's the best.

And over 500 of the best are proving that Fernseh means television. All over the world.

We'd welcome the opportunity to demonstrate the superior capabilities of Fernseh television equipment. A call to your nearest office will bring any further information you require.

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WCBD-TV Moves Into Electronic Journalism

WCBD-TV, Channel 2, Charleston, South Carolina, began using portable color video tape exclusively on Monday, July 29th, 1974, according to an announcement made by Carter C. Hardwick, Vice-President and General Manager of the State Telecasting Station. WCBD-TV has been experimenting with the completely electronic system and presently more than 75 percent of all local news coverage is now being accomplished on four AKAI VTS-150 units the station purchased from the R. L. Bryan Company.

Steve Currie, TV-2's Director of Broadcasting, and Walter Nelson, Chief Engineer, developed the system along with engineers from AKAI America, Ltd., Television Microtime, Inc., and the R. L. Bryan Company.

Currie pointed out that WCBD-

TV received the production models of the units from Japan in mid-June and has spent a considerable amount of time putting together a total electronic system for on-the-air use.

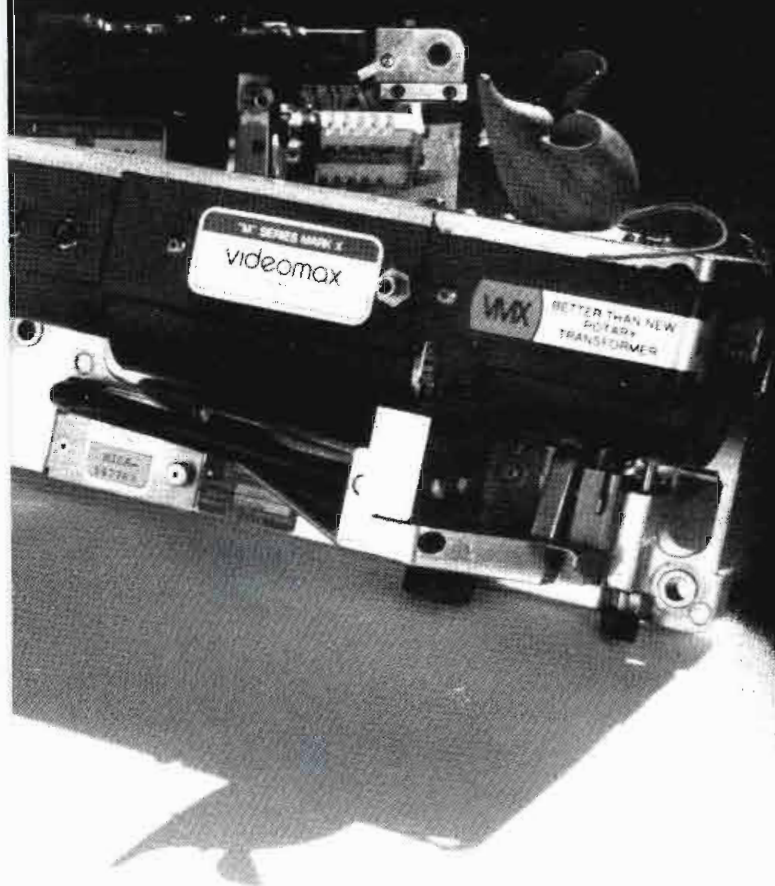
The VTS-150 weighs only 22 pounds, including camera, recorder and built-in batteries. The helical-scan recorder utilizes 1/4-inch Scotch color video tape manufactured by the 3-M Company. AKAI units feature automatic picture and sound editing inside the recorder itself so that it is possible to obtain clean scene changes and total story composition in the field. The camera also contains a built-in microphone, permitting hands-off "wild sound" on all stories. External microphones can be added.

A Microtime time-base-corrector permits conversion of the helical-scan video to broadcast standards

for direct on-air use or dubbing up to quadraplex. Quadraplex dubbing will generally be used for commercial production only.

Adding to a list of other firsts in electronic journalism, this system will make WCBD-TV the first television station in the world to use the AKAI VTS-150 system exclusively for news and commercial production. WCBD-TV will also be the first station ever to use color video tape equipment exclusively; therefore, eliminating all local film production.

The major advantage of the conversion from 16mm film to portable video tape is that video tape eliminates the timely processes of film developing and editing. The new system will allow WCBD-TV to cover news events and present them to viewers within minutes. To prove this point, WCBD-TV's first on-air demonstration of the equipment was taped five minutes after the start of their 6:00 PM "Eyewitness Newscast" and aired at 6:14 PM. The taped demonstration was in the



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system and on the air in less than ten minutes.

WCBD-TV is an affiliate of the ABC Television Network and operates on VHF Channel 2 in Charleston, South Carolina. WCBD-TV is owned and operated by State Telecasting Company, Inc., whose President W. Frank Harden stated "completely electronic journalism is

the most exciting concept we have ever presented to benefit our viewing audience."

State Telecasting is a subsidiary of the State-Record Company, Columbia, South Carolina, and also operates KCBD-TV, Lubbock, Texas, and KSWB-TV, Roswell, New Mexico.

AFCCE Elects Officers For '74-75

Paul L. Wimmer of Jules Cohen & Associates, Washington, D.C., was recently elected as President of the Association of Federal Communications Consulting Engineers for the 1974-75 year.

The AFCCE, at their annual meeting, also elected the following officers: Ogden L. Presholdt of A. D. Ring & Associates, Washington, D.C.—Vice President; Carl E. Smith of Carl E. Smith Consulting

Radio engineers, Cleveland, Ohio—Secretary; and Donald G. Everist of Cohen & Dippell, Washington, D.C.—Treasurer.

NAB Asks Relief From Restraints

The National Association of Broadcasters has urged the U. S. Supreme Court to prevent the Federal Communications Commission from "illegally and unconstitutionally tampering with the

content of radio and television news broadcasts."

Its brief asked the court to affirm a finding by the Third Circuit Court of Appeals that news broadcasts of winning numbers in state-conducted lotteries the FCC has sought to prohibit are protected by the First Amendment.

NAB's friend-of-the-court brief held that the Third Circuit decision is correct; that the First Amendment bars the FCC from "censorship of news reports" and the imposition of any subsequent sanctions.

It said the FCC ruling "imposes an unconstitutional prior restraint on broadcast news reporting;" substitutes the Commission's news judgment for that of licensees, and ignores "the full, unequivocal protection afforded broadcast news by the First Amendment."

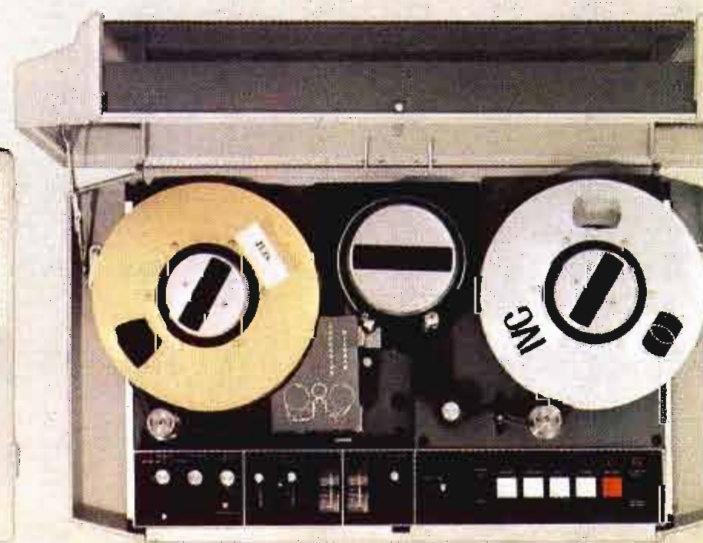
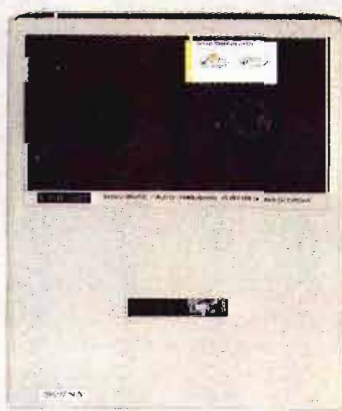
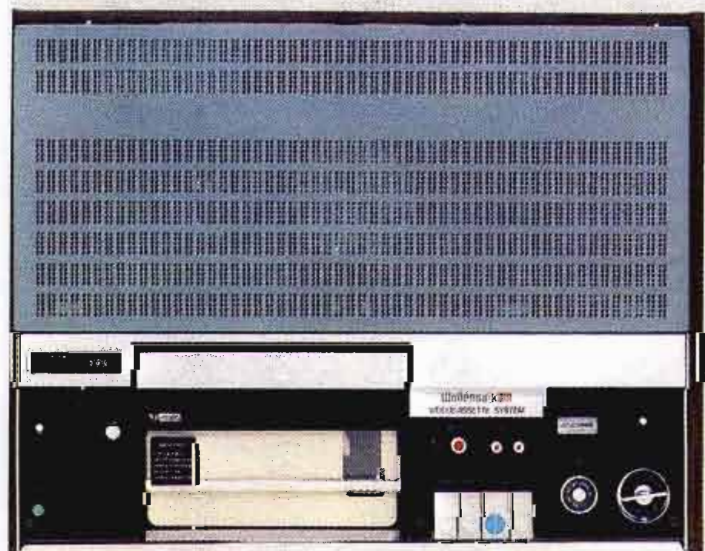
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AKAI's fantastic 5.76-pound lightweight has all the ambitions of a professional heavyweight! Two vidicon tubes for ultra sensitivity—servo controlled iris—built-in microphone—wide angle to telephoto 6X zoom lens—300 line resolution—three-adjustment sensitivity selector—white balance switch for perfect color—electronic viewfinder/instant replay monitor—plus complete compatibility with any VTR system you might have on hand. There's still more. A slight modification, and you have RS-170 and external drive. Another allows you to use a 12-volt battery. All the versatility to improve any VTR system, AC or DC. We modestly think our CCS-150S is the best portable color camera in the world. That's why we use it in our own system. If you want to be convinced, see your local AKAI video dealer; or write AKAI America Ltd., 2139 East Del Amo Boulevard, Compton, California 90220. Telephone (213) 537-3880. Video Department.

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History In The Making

A milestone in communications history will be established when the four radio networks of the American Broadcasting Company begin using the facilities of the American Satellite Corporation. It will mark the first time that a commercial radio network will have the full time use of a domestic communica-

tions satellite for network transmissions within the continental United States.

ABC Radio's Information, Entertainment, Contemporary and FM networks will add the satellite link to its existing land line facilities, to achieve higher quality transmission and greater operating flexibility.

The facilities of the American Satellite Corporation will be used initially for two-way program distribution between the networks' New York master control and its Los Angeles central control. From these points, land lines will carry the network programs to ABC affiliated radio stations for broadcast.

Under the terms of the agreement just signed, American Satellite Corporation will provide the ABC Networks with a high quality 8 KHz satellite communications channel.

"Domestic Satellite services offer unprecedented opportunities for innovation and excellence in communications," commented American Satellite President Emanuel Ethenakis, "and American Satellite Corporation is proud to participate with ABC in establishing another first in communications history."

American Satellite Corporation will commence operations providing voice, data and wideband satellite

(Continued on page 25)

SOLID STATE TOWER FLASHERS

Zero voltage switching increases lamp life 5 to 10 times. Properly mounted, the totally encapsulated FS154 handles 1500 watts at 120VAC. Two lamps can be flashed alternately by adding FA154 auxilliary package.

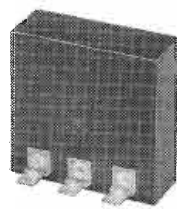
The rugged FS154 offers:

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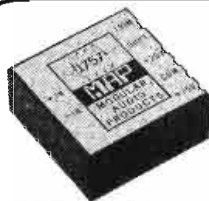
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audio operational amplifier modules:

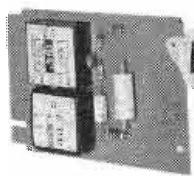
For use in mic preamps; tape-phono preamps; mixers; line amplifiers; equalizers; etc.

- Model 1731 — Equivalent input noise — 129dBm max. as mic preamp
- Model 1757 — Power output to 33dBm RMS as line amplifier
- Model 1791 — Power booster can deliver 8 watts RMS at 50% duty cycle
- Model 2731 — Dual channel Op-Amp. low & medium power applications

pc card mounted amplifiers:

Popular 'Impac' series plug-in card amplifiers for a wide range of console and studio applications, based on MAP's audio Op-Amps.

- AM-27 — Low level mic preamp, low noise, 27dBm output.
- ABL-27 — For medium to high level signals & to bridge a floating or balanced source.
- AL-27A — Multi-purpose, for line, booster, differential, or combining configurations.
- ATP-27 — Very low noise equalized preamp for use with mag tape heads or phono cartridges.
- PM-40A — Versatile power module with adjustable gain, 15 watt RMS output.



panel mounted components:

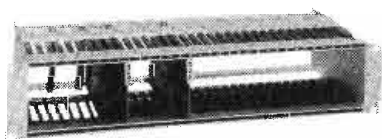
A growing line of controls for equalization, compression, limiting, and expansion based on the state-of-the-art in op-amps and IC's.

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- GME-20 —Graphic module equalizer. Four low and four high frequency selectable equalization points.
- SME-20 —Shelf type equalizer with four frequency shelves controlled by individual switches.
- CL-20 —Lossless compressor-limiter with 10 microsecond attack time, automatic variable release time and variable threshold.

accessories:

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- PD200C—Same as PD100C, with ± 200 mA output.
- PD-2 —Rack mounted ± 15 VDC power supply, 2 amp output.
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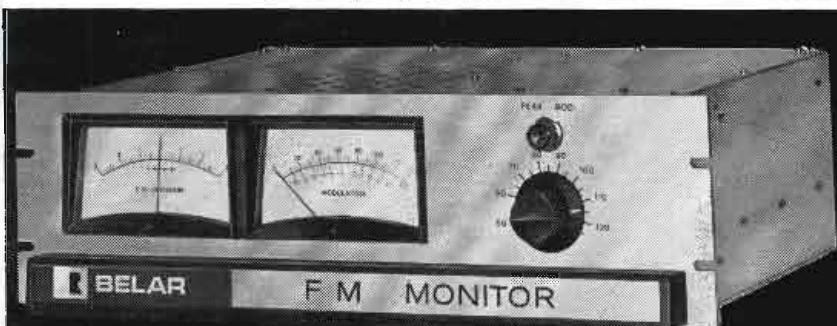
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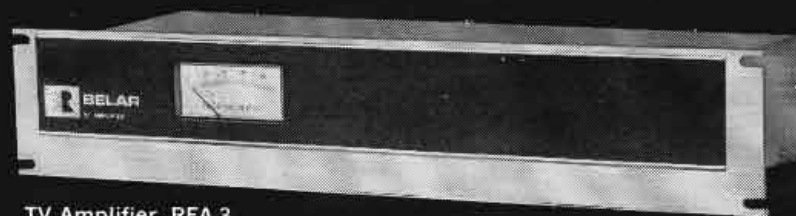
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TV Frequency Monitor, TVM-2,3



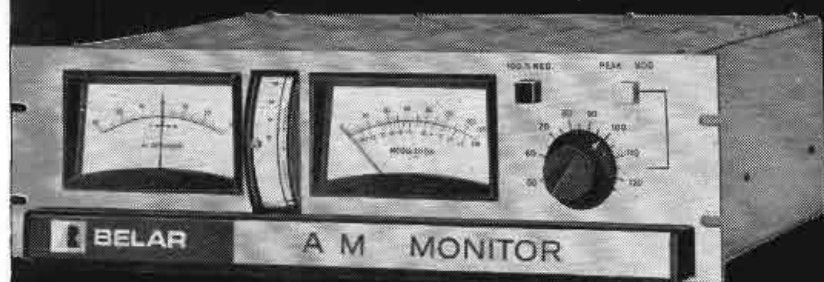
SCA Monitor, SCM-1



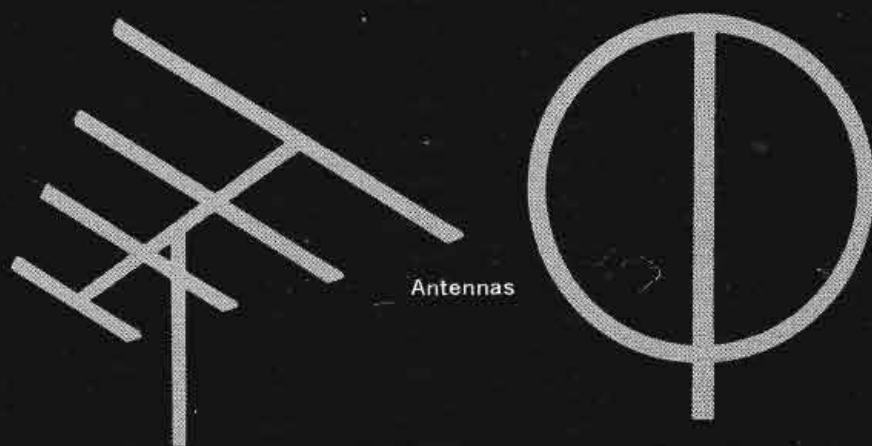
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FM Amplifier, RFA-1



AM Monitor, AMM-1



AM Amplifier, RFA-2

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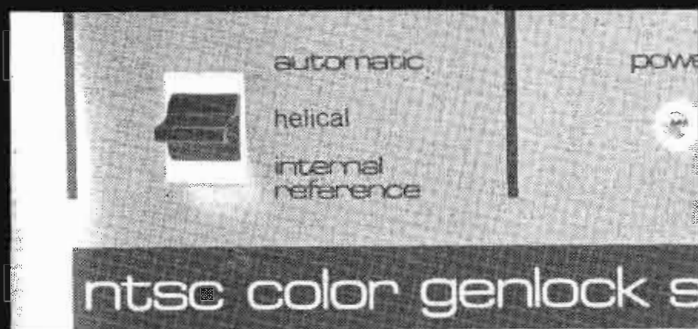
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To a broadcaster, the big news behind Video Aids Model 5000 Sync Generator is it's technology how we managed to build a sync generator with all the EIA RS-170 outputs plus burst flag and color subcarrier at such a low price.

But to the cablecaster who uses a sync generator with genlock (phaselock) by far the best news is how the Model 5000 Option: 01 radically improves genlocking faster than you ever thought possible, and so convenient that you can lock to helical tape recorder outputs that have 1000 or more times the frequency variations of broadcast video. This new mode provides a very wide range genlock that is front panel selected to lock to helical recorder playbacks even with $\pm 1\%$ speed variations, ± 10 microsecond skew and high amplitude transition noise.

**FOR NEW STANDARDS IN VIDEO AIDS
" THINK VACC "**

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Now you can convert your Sony Trinitron^T to a high quality receiver/monitor for only \$129.00. *Video Aids Electro Optical Isolator Kit, Model A-1 Offers: *Low Cost *Easy Installation *Only 8 Wires To Connect *Light and Portable **Monitor/Receiver Flexibility At The Flick Of A Switch *The A-1 Features: Loop-Thru BNC input Connectors/Audio Connector *Isolation From Power Line *Switchable: Video/R.F.

NEW AVAILABLE WINTER 1974

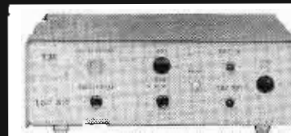
VIDEO LEVEL METER—VACC's model VLM-1 is a small compact unit with red, green and yellow (LED) indicators to show correct video and sync levels. Ideal for schools and other areas where TV waveform monitors are not available, and where TV levels require constant monitoring. Also ideal for monitoring amplitude and sync levels into CATV modulators. Lights indicate when sync and amplitude levels are high (red) normal (green) and too low (yellow). Approximate list price \$295.00.

BURST PHASE METER—VACC's model BPM-1 is a small compact unit which compares color burst phase of color cameras, VTR's processing amplifiers and time base correctors. The BPM-1 is an ideal substitute for most vectorscope needs. Approximate list price \$365.

CROSS PULSE GENERATOR—VACC's model CPG-1 is a low cost (\$350.00 list) crosspulse generator which enables you to use any video monitor to display the cross pulse signal. Ideal aid for checking VTR tension and skew error, observing head switching noise, and line to line jitter. Sync used can be immediately identified for clipping, overshoot, ringing or sync discrepancy in the equalization and seration sync pulses. External sync option is available (\$395 list) to check quadrature playback errors and to verify time base correction when TBC's are in use.

"EDIT AID"TM

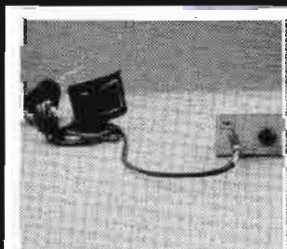
EDIT-AID AR-1: Low-cost editor-programmer. Unit removes common editing errors that develop unless the video tape recorder operator presses his edit and stop pushbuttons at the exact split second. Can program edit-in and edit-out functions precisely at the same place automatically. With the exception of frame-by-frame editing for animation the edit-aid programmer accomplishes most precise editing needs. Can also be used for controlling projectors, recorders or other devices.



\$495.00
Helical and Quad
VTR editor-programmers

Party Lines

PARTY LINE PL1 & PLS-1: Intercom amplifier for use with Western Electric or VACC headsets (Low Z). Unit meets the need for audio intercommunication using a two-way headphone and microphone-type interconnect for audio and video engineers, technical directors, camera personnel etc. Model PLS-1 unit has a supply sufficient to handle up to ten single Model PL-1 units. Model PL-1 can be used without the PLS-1 master unit if 8 to 12 volts DC (negative ground) is available. Normally a party-line system would consist of one master PLS-1 unit and several single PL-1 units. Feature individual volume controls.



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\$40.00



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MINI-PRO!



Little brother to the MX-7000--the MX-5050.



Otari's new Mini-Pro Recorder is everything its name says it is—a compact *professional* recorder. Most important, it's not a warmed over hi-fi recorder with a few semi-professional features tacked on to wow the audiophile. Instead, it's a true professional recorder scaled down in size but not in performance or features.

Who did we design the Mini-Pro for? A whole host of professional users, like the small recording studio, the A/V facility, or the broadcast station that's really beginning to get into production. Or the large studio that needs a compact recorder for its own small studios or its many outside assignments where no-compromise quality is still a requirement. Or for broadcast automation systems where the calculated MTBF of 2000 hours continuous operation can make the difference between success or failure?

How professional is the MX-5050? Check these features: Synchronous reproduce, front panel edit control and mode, two or four channel versions, IC digital control system with motion sensing, optional DC capstan servo system, 15 and 7½ or 7½ and 3¾ ips tape speeds, front adjustable bias, record lockout, built-in test and cue oscillator, head lifters with adjustable-tension cueing feature, plug-in balanced line transformers, built-in mic preamps, Cannon connectors for line input and 600-ohm (+4 dB) output, optional swing-out rack mounting panel, standard reference level calibrate position, and four heads.

Want to know more about this mini with the maxi performance? Or about its MX-7000 big brother, the three-speed machine with built-in test oscillator and some of the best flutter and frequency response specs in the industry? Contact Otari or your nearest Otari Professional Dealer.

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(Continued from page 18)

services between ASC earth stations near New York, Los Angeles and Dallas. Service to San Francisco and Chicago will be instituted initially by leased terrestrial facilities, and upgraded later to full satellite service with ASC owned and operated earth stations. Other ASC earth stations are planned for Seattle, Atlanta and Washington D.C.

Edward F. McLaughlin, President of the ABC Radio Network, said the addition of the satellite link "marks the beginning of a new era in network radio broadcast communications." He added: "We look forward to expansion of our satellite service in conjunction with ASC."

Thomas O'Brien, Vice President and Director of ABC Radio News said: "This new facility puts ABC news into the 21st Century of space age communications."

American Satellite Corporation, with headquarters in Germantown, Maryland, is a subsidiary of Fairchild Industries, Inc., a diversified aerospace and communications, manufacturing and service company.

QUALITY TALKS FOR CJOB

Winnipeg, Manitoba



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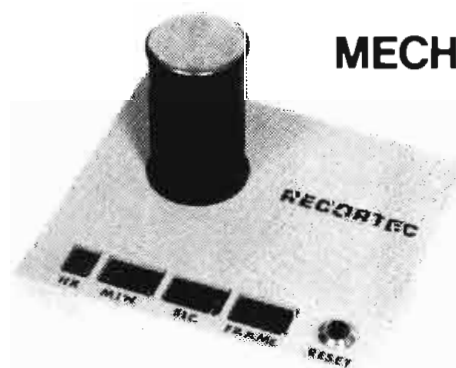
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Video Tape Timer

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MECHANICAL TIMER
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RCA VTR'S



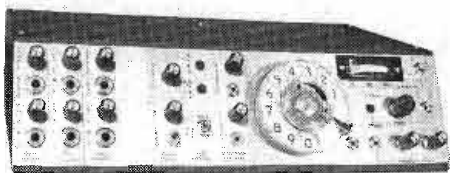
- Hour-minute-second-frame display
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SOCIETY OF BROADCAST ENGINEERS, INC.
P O Box 88123 Indianapolis, Indiana 46208

Mini-convention Is Hot Prospect

A number of SBE chapters have been planning to hold Mini-ventions, including chapters in the Syracuse, Binghamton, Scranton/Wilkes-Barre, Indianapolis, New York City, Pittsburgh, Chicago, and Milwaukee areas.

One Mini-vention will be held on Friday, October 11th at the Owego Treadway Inn, Owego, N.Y., and will be sponsored by three chapters: Binghamton, Syracuse, and Scranton/Wilkes-Barre. The success of last year's Mini-vention, held at the same location by the same group, has spurred interest in a repeat and has stimulated other SBE chapters.

Many equipment manufacturers, suppliers, and representatives who were present at last year's Owego meeting, reported a favorable reaction to the types of contacts

made. They felt that many of those attending were in a position in which they purchased, recommended, or approved the buying of broadcast equipment. The remainder of the engineers attending were only a year or so away from similar responsible positions involving financial decisions.

At the March Annual Meeting of the SBE, President James C. Wulliman appointed Larry Taylor of WENY, Elmira, N.Y., to act as chairman of a committee to coordinate Mini-vention plans by any SBE chapters interested in sponsoring one. Taylor may be contacted at WENY TV for further information on dates for different Mini-ventions, programs, and availability of exhibit space.

Video Tape Conditioner



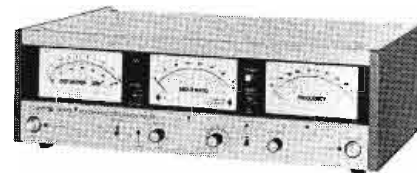
- Provides uniform tape pack
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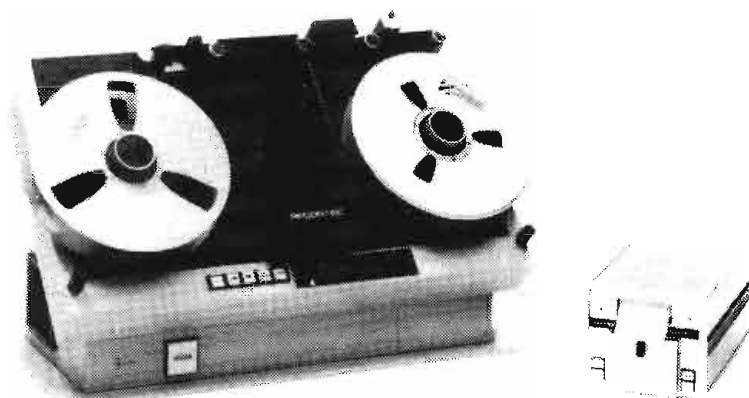
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September, 1974

SBE

Chapter Reports

Chapter 1: Binghamton, N.Y. Chairman: Douglas S. Colborn Horseheads, N.Y. 14845

No summer meetings were scheduled since the June 11th annual outing at Sullivan's Monument, Newtown Battlefield, Newtown State Park, where members and their families enjoyed food, refreshments, and various activities for the day. Preparations continued for the 2nd Annual Mini-vention to be held jointly with Chapters 2 and 22 at the Owego Treadway Inn, Owego, N.Y. on Friday, October 11th; exact hours for the one-day event are not available as of press time, but it will probably run from noon to about 10 PM with even more equipment exhibitors on hand than last year.

Chapter 2: Northeastern Pa. Chairman: Paul Evanosky Pittston, Pa. 18640

The next scheduled meeting for the chapter is September 9th, but no information has been received from the chapter secretary on details. The October meeting will include participation in the regional Mini-vention along with Chapter 1 and 22 on October 11th at the Owego Treadway Inn, Owego, N.Y.

Chapter 9: Phoenix, Az. Chairman: Leon Anglin Phoenix, Az. 85001

The July 19th meeting was held at KOOL-TV Studios, Phoenix; Bill Montgomery of Tektronix presented a program on Vertical Interval Reference signals which included a VTR presentation and discussion on how the system works. This program was of special interest to those in TV broadcasting. It was arranged by Program Chairman, Earl Mehaffey of KTVK. Chapter Chairman Leon Anglin announced that the Annual Christmas Party will be held on Friday, December 13th at the Singing Canary, 921 West Camelback; guest speaker will be Walter Low, owner of radio station KDJI at Holbrook. Plans and discussion about a possible chapter Mini-vention were also part of the business session of the month's meeting. Potentially scheduled for December 7th, the day after the two-day Arizona Broadcasters Convention, the Mini-vention would include manufacturer equipment exhibits. Jim Wortham of

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Neve

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Upcoming SBE Mini-conventions

The Society of Broadcast Engineers is in the process of developing Mini-conventions for 1974 and 1975. One has already been held, and it was a great success.

Next up is a date to remember—October 11. That's the date for the next Mini-convention, and it will be held at the Owego Treadway Inn, Owego, N.Y. Owego is just West of Binghamton. Take exit 65 off Rt. 17. To date, about 25 manufacturers plan to exhibit there.

Neal McNaughten, Chief of the Rules and Standards Division of the Broadcast Bureau will be a guest speaker. If you need further information, we suggest you contact Larry Taylor, Chief Engineer, WENY, Mark Twain Hotel, Elmira, N.Y. 14902. You can reach him at 607-739-3636.

The list that follows includes the names of people to contact relative to upcoming SBE Mini-conventions. The Mini-convention is unique, because it not only allows the engineers to get together with engineers, but it also allows the manufacturers to meet with engineers to discuss industry problems and to explain and demonstrate their new equipment.

Seattle

Harry Lewis, NSCC, 9600 College Way; North Seattle, Washington

Milwaukee

Bob Truscott, WITI, 54-55 N. 22nd Street; Milwaukee, Wisconsin

Boston

Mike Goldberg, WGBH, 125 Western Ave.; Boston, Mass. 02134, (November 1-2)

Chicago

Bradley Anderson, University of Illinois; Box 6998, Chicago, Illinois, (312) 996-7912

Pittsburgh

Hank Kaiser, WWSW, 1 Allegheny Square; Pittsburgh, Pa. 15212, (414) 322-5500, (November 1, Mariott Pkwy East)

Woodside, N.Y.

John M. Lyons, WWRL, 41-30 58th Street; Woodside, N.Y. 11377

KTVK provided some comments based on his experience in convention planning. Al Hillstrom, who is continually active in the SBE both on the local and national level, is heading a group giving further consideration to the matter; further information is available from Bob Golder, KTAR, Chapter Secretary/Treasurer.

The June meeting featured Norm Ritter and Jack Shearer of the 3M Company who provided an illustrated talk on video tape noise and how to eliminate it, the most critical factor in dropout evaluation being tip penetration.

Those recently applying for membership include: Don Larson, DeVry Institute; Edmund Kehoe, Barry Flynn, Robert Adams, and Warren

Chapter Reports

Continued

This New Stanton Advertisement was prepared especially for the Journal of College Radio.



Shown above during a daytime session at WCWP are: William J. Mozer . . . Nancy Toran . . . William Epperhart . . . Joel A. Feltman . . . Alan Boritz . . . Phil Lebowitz . . . Michael A. Phillips.

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Not many college radio stations are as fortunate as WCWP, C. W. Post College, Brookville, L.I., in possessing such a magnificent building and studios. But, college radio stations all over the nation, in common with WCWP, prefer Stanton cartridges for all their turntables.

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William J. Mozer, Director of WCWP, and an engineer at WABC (shown directly above standing in the studio) says:

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SBE Chapter Reports

Bechner, all of KTAR; Ward Belliston, Thatcher; Hubert Beavers, KRIZ; Gregory Ampagoomian; Frank Grabiec, DynaTronics; Wm. Oliver Grieve, KOOL.

Anyone having information of interest to chapter members should submit it to Editor, P.O. Box 615, Phoenix, AZ, 85001; news items will be published in the chapter Newsletter.

Chapter 15: New York, N.Y. Chairman: John M. Lyons Woodside, N.Y. 11377

The chapter's Program Chairman, Art Silver, who is also District Manager/Radio Sales for Gates Harris Intertype, presented the July 11th meeting on Pulse Duration Modulation featuring the new Gates MW-5 AM Transmitter. The meeting, held in the WQXR Presentation Theater, 229 West 43rd St., between 7th and 8th Avenues, was preceded by option-

al dinner in the New York Times cafeteria, 11th floor, same building. Silver's program included lecture, discussion, and slides, and covered techniques for enhancing both loudness and modulation levels as well as improved presence for AM transmitters of any manufacturer. The August 8th meeting, at the same location, will include a special program by Dean Sargent, an independent consultant from Cherry Hill, N.J. Plans for a chapter Mini-vention are also under consideration. Further information on future meetings may be obtained from Chairman Lyons at WWRL, (215) 335-1600.

Chapter 16: Seattle, Wa. Chairman: Harry Lewis N. Seattle, Wa.

No information on chapter activity for the summer months. Usual meetings are on the 2nd Wednesday at the Norselander Restaurant, 300 3rd Avenue, West, Seattle. At the most recent meeting, July 10th, Jim Bjornstad of 3M, Inc. provided slides and demonstrations on an audio mixing console, microphones and audio tape recorders.

Chapter 20: Pittsburgh, Pa. Chairman: Henry R. Kaiser Pittsburgh, Pa. 15212

Details on the November 1st Mini-vention being planned by the chapter were not yet available at deadline time. Latest information can be obtained from Hank Kaiser at (414) 322-5500 or from Earlene Rutledge, Engineering Secretary (414) 391-3000, ext. 208.

Chapter 21: Spokane, Wa. Chairman: T. O. Jorgenson Spokane, Wa.

The June Monday noontime meetings included discussions on the following topics: Small Color TV Cameras; EXPO '74 World's Fair Radio and TV Coverage Plans; New Klystrons and the Varian 30 kW; Helical Scan Time-base Correctors; AM Station Cross-Modulation. The Chapter meets every Monday at noon at the Castle Restaurant. Visitors and nonmembers are welcome. Social half hour and lunch precede technical discussions. Contact Chairman "Jorgy" Jorgenson at (509) 328-9048. Mr. Jorgenson is preparing an article for possible publication and SBE endorsement, on Microwave Path and Equipment Testing.

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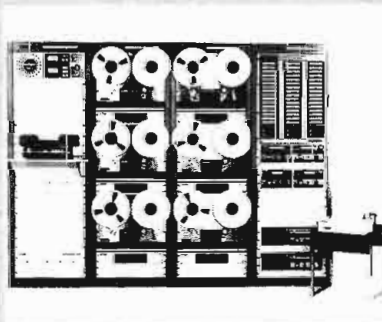
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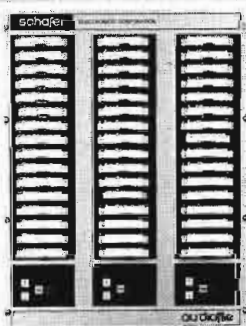
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- A true digital antenna monitor specifically designed for broadcast directional antenna systems.
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SBE Chapter Reports

(Continued from page 30)

Chapter 25: Indianapolis, Ind. Chairman: Joe Messick Indianapolis, Ind. 46202

No reports of meetings during the summer hiatus have been received from this chapter. A Mini-vention in the near future is a possibility. Information on future meetings is available from Mr. Messick at (317) 924-4381 or Bob Wyckoff, (317) 637-5571.

Chapter 32: Tucson, Az. Chairman: Hobart J. "Bart" Paine

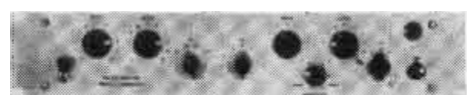
Tucson, Az. 85717

The July 24th meeting, held at KOLD-TV Studios, 115 W. Drachman, featured Bill Roh of Roh's Inc., and TV Microtime and their time base corrector under the direction of speaker Daniel J. Softie, Engineer. The chapter observed its first full year of operation, a year that saw a total of 35 members become active in chapter support. Congratulations are due Chairman Paine, Vice Chairman Richard Heatley, Secretary-Treasurer Charles Glickman, Program Director Eugene Stough, and Memberships Chairman, Wm. D. Roh, and the other key people who worked so hard at forming Chapter 32.

SBE Fellows

In the short 10-year history of the Society of Broadcast Engineers, a number of members have been elevated to the grade of Fellow. The Fellow grade is conferred on those who have rendered conspicuous service or who have rendered signal

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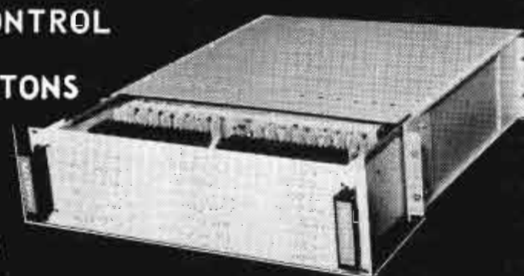
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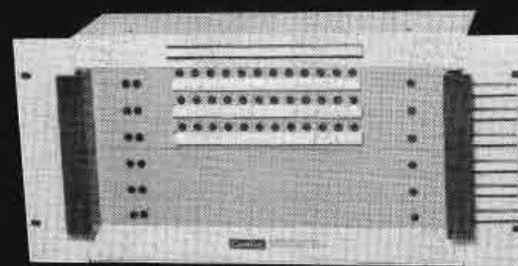
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EIMAC started with the 150T triode, the first reliable high frequency power tube. A whole family of triodes followed.

1940

EIMAC produces the 304TL multiple triode, the heart of World War II pulsed radar equipment.

1943

EIMAC provides quantity production of the secret Zahl tube (VT-158), the "radar tube that changed the war."

1942-1945

EIMAC leads the world in mass production of VHF pulsed power tubes for military radar: over 125,000 tubes per month!

1946

EIMAC introduces the 4-250A family of tetrodes for HF and VHF operation.

1948

EIMAC introduces the external anode 4X150A tetrode for HF and VHF service, followed by the 4X150G coaxial-based version for ECM service.

1955

EIMAC produces the first ceramic-metal tetrode, the 4CX5000A, for broadcast and FM service.

1957

EIMAC introduces the 4CX1000A high gain, external anode tetrode for single side-band HF linear amplifier service.

1961

EIMAC produces the 3-400Z and 3-1000Z high-mu triodes for cathode driven linear amplifier service.

1962

EIMAC introduces the first high power family of 35-100 kW tetrodes for broadcast service.

1966

EIMAC develops the 4CX1500B focused tetrode for high linearity service.

1970

EIMAC produces the 8877 external anode VHF triode for cathode driven service.

1973

EIMAC develops the two-megawatt X-2159 tetrode and the X-2176 triode, the world's most powerful tubes.

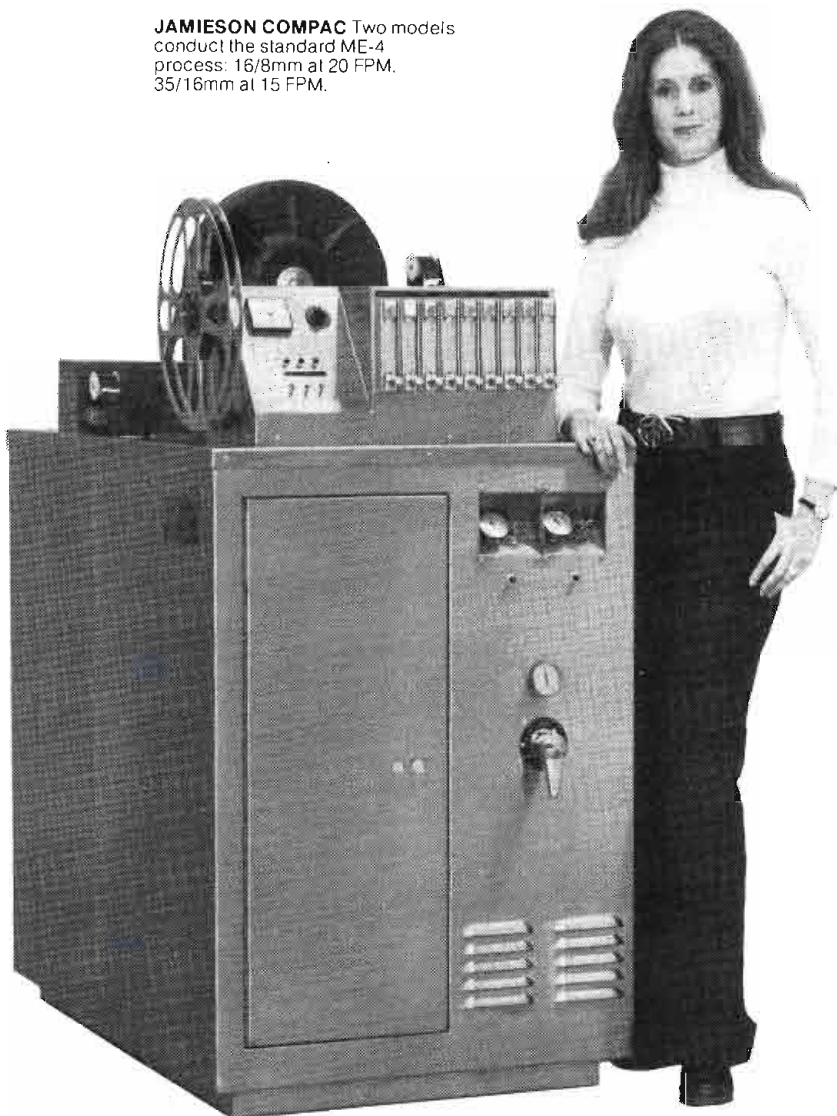
1974

EIMAC introduces a new family of 900 MHz high-mu triodes for land mobile communications.

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We introduced the Compac color film processor three years ago, and since then we've shipped more than one a week.

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Someone you know owns a Compac. Probably a lot of people you know. Why not ask them about it. That's the best way to get an unbiased appraisal of its performance.

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By designing the 280-B electronics around the new high-energy tapes. The S/N ratio is perhaps the best available in any recorder at a comparable price. Up to 72 dB on full track .25" tape at mastering speed. A sharp 68 dB on two-track .25" and four track .50"

The 280-B also features more head room and an increased record level for maximum signal utilizing the high output tapes. And band widths are a very flat ± 2 dB, 30Hz to 18 KHz. It all adds up to greater performance

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The more sophisticated we've made the 280-B, the simpler we've made it for



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transports in Play. **Optac**[™] and the 280-B's new logic circuitry make the exact moves for you at the right time.

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For more detailed information and prices on the 280-B, call or write: Scully/Metrotech, 475 Ellis Street, Mountain View, California 94040. (415) 968-8389. TLX 345524.

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SBE Fellows

(Continued from page 33)

service to the Society. A member cannot apply for the Fellow grade but must be nominated by other members and be approved by the SBE Board of Directors.

In each of the next several issues of **Broadcast Engineering**, with the cooperation of the publisher, the qualification and experience of one of the SBE Fellows will be presented. In this issue we have selected Robert W. Flanders, who has served two terms as President, two terms as Vice President, and is in his second term on the SBE Board of Directors.

Robert W. Flanders is Vice President and Director of Engineering for McGraw-Hill Broadcasting Company, Inc., and Director of Engineering for WRTV, Indianapolis. Mr. Flanders joined the staff of WFBM, predecessor of WRTV, in 1942 after serving in the radio-communications section of the Indiana State Police. He became Assistant Chief Engineer of Channel 6 in 1951, Chief Engineer in 1957, and Director of Engineering in 1960. His McGraw-Hill appointment became effective December 1, 1972.

A graduate of the Naval Research Laboratory, Washington, D.C., he served in the United States Navy during World War II aboard the USS Gillette with the rank of Chief Radio Technician. Returning after the war, Flanders developed and built television equipment with



NEW ALERTALIGHT TELETYPE ALARM

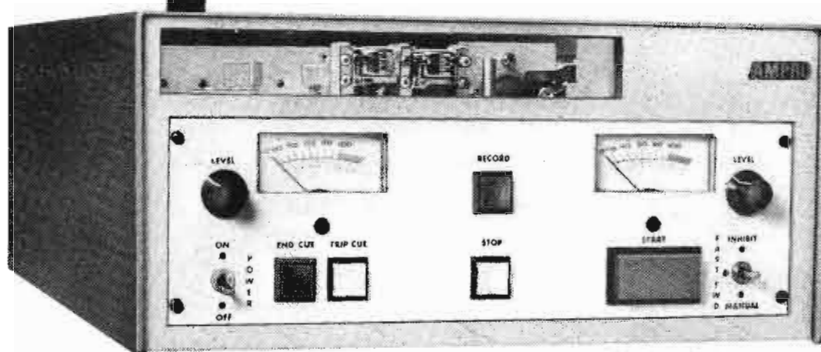
THE MODEL ST104 TELETYPE ALARM HAS ALL SOLID STATE COMPONENTS AND INTEGRATED CIRCUITS; HIGHER ACCURACY AND RELIABILITY COUPLED WITH LONG LIFE; ALERTS STATION PERSONNEL TO NEWS BULLETINS, EMERGENCY WEATHER AND EBS SIGNALS. PRICE ONLY \$95. INCLUDES MOUNTING BRACKET AND CONNECTING CABLE; OPTIONS AVAILABLE. WRITE OR CALL:

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Model CT3551
Recorder/Reproducer.
\$1,375.

... **AMPRO** Automatic Tape Cartridge Recorder/Reproducers are the rugged ones ... the ones with heavy-duty head mounts, die-cast deck and front panel, self-aligning pinch roller and direct drive 4" Motor. Silent, both mechanically and over your program line (-58 dB snr, ref. 400 Hz 3% THD), air-damped solenoid operation assures positive stop/start, gentle tape handling and long cart life. 30 standard stereo/mono models to choose from, non-slip desk enclosure and rack mount. Priced from \$650 to \$1,575.

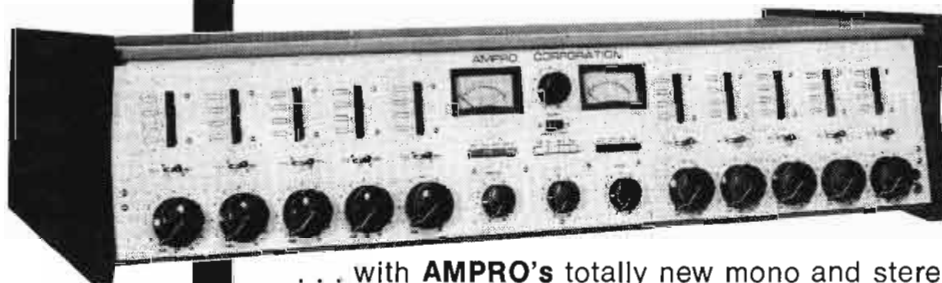
AMPRO also manufacture a complete line of dual mono and stereo consoles and Multi-Cartridge units. Call Alex Meyer collect or write today for details.

AMPRO CORPORATION

2220 Maplewood Ave., Willow Grove, Pa. 19090 • (215) 657-3100
Professional Equipment for Broadcasting Professionals

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the plusses have it



Model AC-10-S
10 Channel
stereo Audio
Console.
\$3,995.

... with **AMPRO's** totally new mono and stereo consoles! Everything the competition has **PLUS:**

- 4 input transformer coupled preamps and step type faders with cue on all channels.
- +24dBm protected transformer coupled outputs.
- Protected monitor with 4 muted outputs and separate phone amp.
- Built-in cue, intercom & remote talkback systems.

PLUS shielded PC board mixing bus to eliminate maintenance problems, 104 dB Mic to Program output and much, much more. 6 standard consoles—dual mono and stereo—6, 8, 10 and 12 channel—priced from \$2,295 to \$4,595. Slide fader configurations also available.

AMPRO also manufacture a complete line of Automatic Tape Cartridge Recorder/Reproducers and Multi-Cartridge units. Call Alex Meyer collect or write today for details.

AMPRO CORPORATION

2220 Maplewood Ave., Willow Grove, Pa. 19090 • (215) 657-3100
Professional Equipment for Broadcasting Professionals

For More Details Circle (232) on Reply Card

See us at NAFMB, New Orleans, October 10—13.

Globecasting

This is the first appearance of Globecasting in Broadcast Engineering magazine. It is intended to bring the world of communications closer together by adding another dimension to the magazine.

We will be bringing you special reports from around the globe on what's happening outside the U.S. We will include news of upcoming international meetings and conventions plus coverage of those meetings.

Meanwhile, we want to encourage organizations, networks, and stations to send us their news. This should be sent to: Ron Merrell, Editorial Director, Broadcast Engineering, 1014 Wyandotte, Kansas City, Mo. 64105. Yes, we'll use your pictures submitted, too.

Independent Radio In United Kingdom

The growth of independent local radio stations continues to grow in the United Kingdom. Birmingham Broadcasting Ltd. (BRMB Radio) is the newest of the IRL services.

Operating on 1151 kHz at Langley Mill near Sutton Coldfield, BRMB uses a four tower directional

array. It's believed to be the first use of a four tower directional array in the United Kingdom.

On the television side, further expansion of colour facilities of Independent Television programme companies includes the modernization by Anglia Television of its colour outside-broadcast unit.

The number of colour TV receiv-

ing licenses in the United Kingdom is now well past the 5-million mark.

Stereo TV Sound In France

From France we hear that a working party set up by the Acoustics Laboratory of the O.R.T.F. has been experimenting with the adaption of stereophonic sound with television. In fact, this group has been experimenting successfully with this idea since 1971 when a musical programme using stereophonic sound with television was broadcast during the Festival of Sound in Paris.

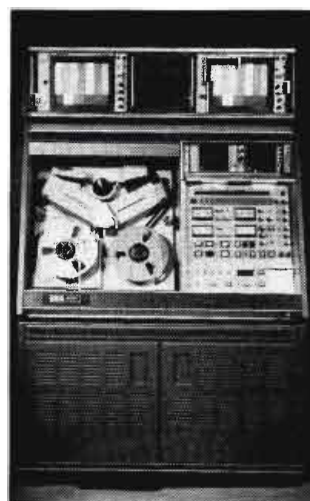
The Transmission Laboratory of the O.R.T.F. is actively working with the European Broadcasting Union on studies of stereo sound for television.

German Cable Experiment

The Deutsche Bundespost has released details of a plan to build an experimental cable distribution system at Nurnberg. The system is designed to deliver 12 television channels and 12 VHF/FM stereo radio

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of broadcast television...**

**with a product line
that challenges
tradition.**



IVC-9000 BROADCAST VIDEO-TAPE RECORDER—New, two-inch, segmented scan VTR, the most significant development in VTR's since broadcast recorders were first introduced. Picture quality better than 15 ips quad. Economy better than 7½ ips quad.



IVC-7000 COLOR CAMERA — Outperforms the best broadcast cameras available, offers wide range of features, yet priced well below other major camera lines.



TBC-2000 DIGITAL SIGNAL PROCESSOR—Latest in state-of-the-art timebase correction products. A no-compromise system that delivers a 56 dB signal-to-noise ratio—the highest in the industry.



IVC-240 FILM CHAIN CAMERA AND 4000A MULTIPLEXER — A price/performance standout with unique multiplexing mirror system and single neutral density filter wheel in the camera.

IVC SALES OFFICES: CALIFORNIA: Sunnyvale, (408) 738-3900; Los Angeles, (213) 344-6001; (714) 508-9130; DISTRICT OF COLUMBIA: (301) 431-2638; GEORGIA: Atlanta, (404) 633-1462; ILLINOIS: Chicago, (312) 729-5160; MICHIGAN: Detroit, (313) 994-3488; MINNESOTA: Minneapolis, (612) 561-4370; MISSOURI: St. Louis, (314) 351-1584; NEW YORK: White Plains, (914) 694-1234; PENNSYLVANIA: Johnstown, (814) 536-7506; TEXAS: Houston, (713) 784-2770; CANADA: Rexdale, Ontario, (416) 749-7539; ENGLAND: Reading, (0734) 585421; FRANCE: Paris, (1) 579-49-14; GERMANY: Darmstadt, 06151-82131; HONG KONG: Kowloon, 3-690416.

services. Initially, it will be tied to 2,200 homes.

The system is similar to many U.S. cable systems already in operation. However, this system will use wideband amplifiers spaced at intervals of 500 to 700 m. Each amplifier will send a pilot signal back upstream to system headquarters, permitting verification of correct operation. In most U.S. systems, outages along the line are brought to the attention of system operators by telephone calls from home viewers.

The Deutsche Bundespost intends to use the system for research into technical and economic aspects of remote utility meter reading, data processing, picture phones, etc.

Australia Goes To Colour

The ABC's plan for conversion to colour will be accomplished in a two phase plan. In phase one will be the conversion of telecine and videotape facilities and apparatus in Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart and Canberra. Phase one is scheduled to be

completed by March 1, 1975.

Phase two covers the conversion of the remainder of the facilities in other regional centres. The plan should be completely enacted by 1978.

Jordan in Colour

Jordan Television is now in the process of going to full colour operation. Television programme transmission were first aired in 1968. Then in April, 1973 Jordanian viewers saw their first colour programme.

All new colour facilities and equipment will be installed outside Amman.

Television In The People's Republic of China

Broadcast Engineering Magazine's Video Editor Joe Roizen is on the road again....this time to assist on the technical side of the Iranian Olympic Games September 1 through 17. From time to time you'll see articles about television in many different countries in this magazine, and our always-on-the-road editor writes most of these.

Recently, Roizen returned from Peking where he was assisting with a video exposition. His comments here give us some idea of what's happening in the People's Republic of China. A more complete report will be printed at a later date.

"Interest in color television by the rank and file Chinese visitors to the fair was very high as evidenced by the large groups that jammed the areas where color monitors were displaying pre-recorded tapes of medical, scientific and industrial programs as well as sports shows, documentaries and live pickup from a small color studio. The technical experts came in small groups, and were given private slide presentations on the SECAM process after which tapes specifically made to illustrate transcoding between SECAM/PAL/NTSC were shown. There were also SECAM/50 and SECAM/60 tapes to show interchangeability between U.S. and European originated color programs."

The Roizen's report that they had to adapt quickly to some very unusual operating conditions while working in the PRC. First, there is the matter of names. No technical visitors gave their names, titles or

affiliations even after being handed the Roizen's own specially printed Chinese language business cards and being asked to sign the guest-book. In the 17 days that the stream of experts came through not a single name was written into the book.

The usual response to the question of who they were was that they were the responsible members of the organization concerned. The second anomaly was that even though the Chinese government had requested a closed-circuit color TV exhibit, most of the questions asked by the technical experts who visited the INTERSECAM booth were related to other subjects in the television field. They were less interested in how to use the equipment on display than in how to build it. The inquiries were mainly about the fabrication techniques for shadow mask tubes, trinitron tubes, general color receiver construction, underwater cameras (presumably for oil exploration), and video tape recorders. In particular, the relative cost of manufacturing color sets for the different standards was a subject for continual review.

The Roizen's report that the response to various programs by Chinese general audiences was about the same as in other countries with sports or minimal entertainment tapes attracting more attention than the scientific or medical ones. Chinese authorities thoroughly reviewed the twenty-six hours of programming brought to the exhibition and then asked that only tapes related to the technical theme of the trade fair be shown.

The exception to this rule were the sports tapes of skiing, basketball and football. Tapes of boxing matches were deleted as were the variety and dramatic shows. One technical tape on which Taiwan appeared in a different color than the PRC was also eliminated, although they indicated it could be shown if the map was erased. About 9 hours of varied programming was cleared for display.

The People's Republic of China has not yet officially selected a color television standard, but they are presently conducting tests in Peking on a modified PAL standard with transmission in color for a few hours, three days a week.

WORLD'S MOST COMPLETE LINE OF TELEVISION

EQUIPMENT: IVC-9000, 960, 800, 700, and VCR-100 Series Recorders; IVC-7000, 500A, 300A, 150, and 90 Series Color Cameras; IVC-240, 210, and 92 Film Chain Cameras; TBC-2000 and IVC-4102 Signal Processors.

Changing the
Picture in
Broadcast
Television

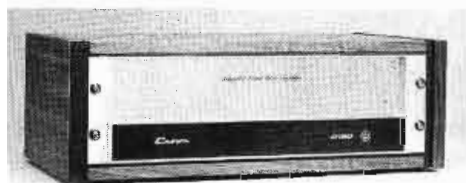


Year after Year... Crown equipment pays

Reliable performance and superior audio quality give you years more valuable service, making that higher original investment a real bargain. Every piece of equipment is ruggedly constructed, rigorously tested and guaranteed to meet or exceed printed specifications. All circuits are outstanding for low noise and distortion, wide bandwidth and high frequency response. It's to your credit when you specify the manufacturer with 26 years experience in broadcast and professional studio equipment.

STUDIO MONITOR AMPLIFIERS

All models have complete internal protection. IM distortion is better than 0.05% from 0.01 watt to full power. All units mount in a 19-inch rack. Three year warranties cover parts, labor and round trip shipping.



D150 delivers 75 watts RMS per channel into 8 ohms; height 5¼ inches.



DC300A delivers 150 watts RMS per channel into 8 ohms, or 600 watts output in monaural operation; height 7 inches.



D60 delivers 30 watts RMS per channel into 8 ohms; height 1¾ inches.

DISTORTION ANALYZER

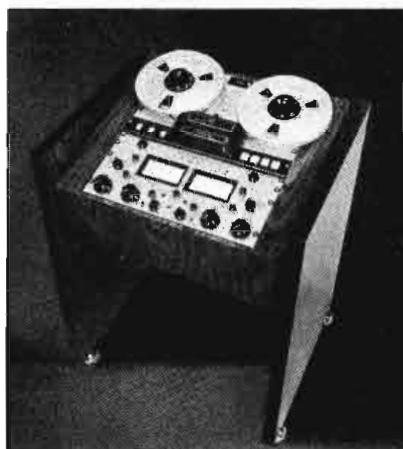
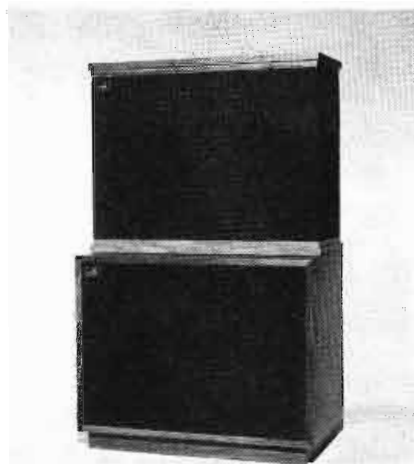
Model IMA tests audio equipment easily, quickly and accurately. Both intermodulation distortion analyzer and internal oscillators are enclosed in one compact unit. Even an inexperienced technician can take ten power level measurements in 5dB steps in just 60 seconds. The ranges are 100, 30, 10, 3, 1, 0.3, and 0.1%.

ES212 STUDIO TRANSDUCER

These superior quality speaker systems have advanced-design electrostatic elements for midrange and treble, acoustic suspension base woofers, for finest possible reproduction for the professional recording studio.

MAGNETIC TAPE EQUIPMENT

All models are designed to work 18 hours a day, 7 days a week for 10 years with three head replacements. Modular construction and plug-in circuit boards mean fast, easy field servicing. These precision instruments will make clean, accurate recordings years after the economical semi-pro decks are retired. All models handle ¼-inch tape and 7-inch and 10½-inch reels. All mount in 19-inch racks. Standard speeds are 15, 7½ and 3¾ ips. There are individual record, erase and play heads for 1 to 4 channels. Over 40 standard models are available with numerous professional accessories.



• • IN THE PRODUCTION STUDIO CX822 MASTER RECORDER

computer logic control for safe, rapid tape handling and editing ■ full remote control optional ■ TracSync available ■ each channel has two mixing inputs and individual bias adjust and equalizers ■ third-head monitor for meters or headphones with A/B switch.

• • IN THE CONTROL ROOM SP722 STUDIO PLAYER

simple tape transport system has only 9 moving parts ■ remote start/stop optional, automatic stop in play mode.



• • ON LOCATION SX822 RECORDER/MIXER

integral mixing facility simplifies setup ■ same tape transport system and meter monitoring as CX822 ■ two mic or line inputs per channel.



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DIGITALS For computer age timing, counting and measuring.

ES 112 Digital Clock:



A six digit, 12 hour clock. Set to the second. Solid state, MSI components with printed circuit board. No moving parts. Silent, seven segment tubes. Built to last a lifetime. Three setting controls. Fast Advance, Slow Advance, Hold. \$130.00

Dimensions: 2 3/4" x 8" wide x 5 5/8" deep.
Case: Etched Aluminum
Electrical: 117 VAC 50/60 Hz 10 W max.
Options: R B P C K

ES 124 Digital Clock: Same as ES 112 except 24 hour display. \$130.00

ES 500 Combination Six Digit Clock/Timer:

A 12 hour clock or timer. 5 controls: Start, Stop, Reset, Fast Advance, Slow Advance. Runs continuously to 12:59:59. Advances to 1:00:00 and continues as clock unless stopped or advanced. Same start, stop, and reset action as ES 400. \$150.00

Dimensions: 2 3/4" x 8" wide x 5 5/8" deep.
Electrical: 117 VAC 60 Hz 8 W max.



Case: Etched Aluminum
Options: R B P K



ES 510 Sixty minute timer:

A four digit timer (59:59). Start, stop and reset controls (Single pole, momentary, push-button). Runs continuously unless stopped or reset. If stopped, display holds time reading. When restarted continues with next count from last displayed figure. Reset while running or stopped. Returns display to all zeros. \$125.00

Dimensions: 2 3/4" x 6" wide x 5 5/8" deep. Case: Etched Aluminum
Electrical: 117 VAC 60 Hz 8 W max. Options: R B P Y Q K



ES 750 thru 759 Programmable:

Combines with standard ESE products on etched aluminum, 19" relay rack mounting panel (3 1/2" high). Single pole form A contact closure (1 Amp contact rating) for length of time program matches time. If control function involves count other than timing, products can be adapted. In most cases we provide interface between count input and event to be displayed.

Thumbwheel Programmer System

ES 750/ES 112 & one 6 digit program	\$305	ES 755/ES 500 & two 4 digit programs	\$397
ES 751/ES 124 & one 6 digit program	\$305	ES 756/ES 510 & one 4 digit program	\$288
ES 752/ES 500 & one 6 digit program	\$340	ES 757/ES 300 & one 4 digit program	\$328
ES 753/ES 112 & two 4 digit programs	\$362	ES 758/ES 510 & two 4 digit program	\$374
ES 754/ES 124 & two 4 digit programs	\$362	ES 759/ES 300 & two 4 digit programs	\$403

ES 770 Programmer/Sequencer

Can be used wherever any sequential programming is required. Has been used for automatic start-up of film projectors and video tape machines, so that proper machine or remote live broadcast comes on exactly at the right time. Front has ten thumbwheel switches, each of which has sixteen positions, and four pushbutton switches for "start," "stop," "re-set," and "intercept." On the rear are two thumbwheel switches, each having ten positions to provide time delays from zero to ten seconds and a 50 pin connector for all input and output information.

Basic price: \$500. Price depends on options chosen.

Dimensions: 3 1/2" high x 19" wide x 8" deep.

Panel: Etched in clear anodized aluminum.

Electrical: 115 Volts AC. 60 Hz.



ES 900 Series Modular Display Units



Priced from \$19.00 to \$94.00

A prototype tool for custom digital instrumentation. Each module consists of a printed circuit board, a seven segment incandescent tube and decoder driver (7447). Many modules feature other TTL devices, as listed, to provide the following additional functions:

- Latch (7475)
- Decade Counter (7490)
- Programmable Up/Down Counter (74192)

A single 5V supply is the only power required for all modules.

Single Digit Modules				Height	Width	Depth	
Connector included.							
	Height	Width	Depth				
ES 901	2"	.9"	3.75"	ES 932/2 Digits/(7475) (7490)	1.75"	1.8"	3.75"
ES 902/(7475)	2"	.9"	3.75"	ES 933/3 Digits/(7475) (7490)	1.75"	2.7"	3.75"
ES 903/(7475) (7490)	2"	.9"	3.75"	ES 934/4 Digits/(7475) (7490)	1.75"	3.6"	3.75"
ES 904/(7475) (74192)	2"	1"	3.75"	ES 935/5 Digits/(7475) (7490)	1.75"	4.5"	3.75"
ES 905/(7490)	2"	.9"	3.75"	ES 936/6 Digits/(7475) (7490)	1.75"	5.4"	3.75"
ES 906/(74192)	2"	1"	3.75"	ES 937/7 Digits/(7475) (7490)	1.75"	6.3"	3.75"
				ES 938/8 Digits/(7475) (7490)	1.75"	7.2"	3.75"
Multiple Digit Modules				ES 942/2 Digits/(7490)	1.75"	1.8"	3.75"
Connector optional.				ES 943/3 Digits/(7490)	1.75"	2.7"	3.75"
	Height	Width	Depth	ES 944/4 Digits/(7490)	1.75"	3.6"	3.75"
ES 912/2 Digits	1.75"	1.8"	3.75"	ES 945/5 Digits/(7490)	1.75"	4.5"	3.75"
ES 913/3 Digits	1.75"	2.7"	3.75"	ES 946/6 Digits/(7490)	1.75"	5.4"	3.75"
ES 914/4 Digits	1.75"	3.6"	3.75"	ES 947/7 Digits/(7490)	1.75"	6.3"	3.75"
ES 915/5 Digits	1.75"	4.5"	3.75"	ES 948/8 Digits/(7490)	1.75"	7.2"	3.75"
ES 916/6 Digits	1.75"	5.4"	3.75"	ES 952/2 Digits/(7475) (74192)	1.75"	1.8"	3.75"
ES 917/7 Digits	1.75"	6.3"	3.75"	ES 953/3 Digits/(7475) (74192)	1.75"	2.7"	3.75"
ES 918/8 Digits	1.75"	7.2"	3.75"	ES 954/4 Digits/(7475) (74192)	1.75"	3.6"	3.75"
ES 922/2 Digits/(7475)	1.75"	1.8"	3.75"	ES 955/5 Digits/(7475) (74192)	1.75"	4.5"	3.75"
ES 923/3 Digits/(7475)	1.75"	2.7"	3.75"	ES 956/6 Digits/(7475) (74192)	1.75"	5.4"	3.75"
ES 924/4 Digits/(7475)	1.75"	3.6"	3.75"	ES 962/2 Digits/(74192)	1.75"	1.8"	3.75"
ES 925/5 Digits/(7475)	1.75"	4.5"	3.75"	ES 963/3 Digits/(74192)	1.75"	2.7"	3.75"
ES 926/6 Digits/(7475)	1.75"	5.4"	3.75"	ES 964/4 Digits/(74192)	1.75"	3.6"	3.75"
ES 927/7 Digits/(7475)	1.75"	6.3"	3.75"	ES 965/5 Digits/(74192)	1.75"	4.5"	3.75"
ES 928/8 Digits/(7475)	1.75"	7.2"	3.75"	ES 966/6 Digits/(74192)	1.75"	5.4"	3.75"

ES 400 Three Digit Ten Minute Timer:

Three controls (Start, Stop, Reset). Runs continuously unless stopped. Displays up to 9:59. If stopped, display will hold time reading. Reset returns display to all zeros. Can be reset while running or stopped. If reset while running, timer will continue to run. \$98.00

Dimensions: 2 3/4" x 6" wide x 5 5/8" deep.
Electrical: 117 VAC 60 Hz 8 W max.



Case: Etched Aluminum
Options: R B P K

ES 300 One hundred minute up/down timer:

Four digit, one hundred minute timer (99:59) with six momentary push-button controls: Count Up, Count Down, Stop, Minutes Advance, Seconds Advance, Reset. Minutes and Seconds can be advanced simultaneously or independently, to pre-set for a specified countdown. Preset time will be automatically held until the timer is started. Counting can be activated up or down from that point or set back to zero. When "Stop" control is pressed, the four digit display is held. Counting direction (up or down) can be changed or time can be reset to zero without stopping the count. Continue to register elapsed time beyond the zero setting unless stopped. \$168.00

Dimensions: 2 3/4" x 8" wide x 5 5/8" deep. Case: Etched Aluminum
Electrical: 117 VAC 60 Hz 10 W max. Options: R B P Y Q K



ES 301 Identical to the ES 300, but with cold cathode planar display. \$185.00

ES 305 Identical to the ES 301, except that tenths of seconds are displayed. Case is 10" wide. All other specifications are the same. \$205.00

ES 310 Fast-set version of the ES 301. Utilizes lever wheel pre-set. Case is 10" wide. All other specifications are the same. \$230.00

ES 315 Fast-set version of the ES 305. \$250.00

ES 712 thru 718 Thumbwheel Programming Units:

Includes comparator circuitry. User provides BCD information to compare to program. When info agrees with program, a single pole form A relay contact closure occurs (1 Amp contact rating). Contact closure is maintained for length of time external BCD information agrees with program.

Dimensions: 2 3/4" x 8" wide x 5 5/8" deep
Case: Etched Aluminum
Electrical: 117 VAC 60 Hz — Power requirements vary with number of digits.



ES 712 — 2 Digits	\$125.00	ES 716 — 6 Digits	\$172.00
ES 713 — 3 Digits	\$138.00	ES 717 — 7 Digits	\$180.00
ES 714 — 4 Digits	\$150.00	ES 718 — 8 Digits	\$200.00
ES 715 — 5 Digits	\$161.00		

Standard Options

... on many ESE digital products, allows a wide range of adaptability from the standard product line:
NOTE: When ordering, add these letter designations to the basic part number.

EXAMPLE:

ES 400 R P B
Basic Part Remote Panel BCD
Number Connector Mount Output

Designation:	Function:
R	Remote Connector
B	Parallel BCD Output (TTL)
P	Panel Mount
Y	Relay Closure
Q	Solid State Outputs
C	Crystal Time Base
K	Kit Available

KITS: Our K series kits allow you to build ESE digitals at much less than the price of an assembled unit. Includes illustrated instructions, parts list, schematic and parts. No special tools needed. Kits can be factory assembled for an additional charge.

Twelve Hour Digital Clock: ES 112K — All features of ES 112. \$46.95 plus opt. alum. case \$7.50

Twenty Four Hour Digital Clock: ES 124K — Same as the ES 112 except tells time through 23:59:59. \$46.95 plus opt. alum. case \$7.50

1 D REMINDER: ES 200K — Opt. to ES 112/124 Reminds operator 9 min. 45 sec. passed since last ID. Mounts on ES 112/124 board. Silent LED flash and opt. audio alarm. Kit \$10.95. Assembled, \$16.95.

Crystal Time Base: ES 201K — Opt. addition to ES 112K, ES 124K, or ES 500K. Mounts on board. Accuracy .002%. \$30.00

Digital Multimeter: ES 210K — Sensitive, accurate, bipolar. Automatic polarity indicator. Displays ohms, volts or amps in five ranges. 100 Microvolts to 500 V. 100 Milliohms to 1 Megohm. 100 Nanoamps to 1 Amp. Optional probe. \$82.00 plus \$12.50 case.

40 MHz Digital Frequency Counters: ES 220K — 5 Digit line freq. time base (1 KHz resolution). \$79.50 plus \$10.00 case.

ES 221K — 6 Digit crystal time base (100 Hz resolution). Not damaged by high power transmission levels. One cable connection to trans. output. Pot for sensitivity adjustment. \$109.50 plus \$10.00 case.

ESE DIGITALS

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A 5 KW FM TRANSMITTER
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A 10 KW FM TRANSMITTER
A 20 KW FM TRANSMITTER
A 25 KW FM TRANSMITTER
A 50 KW FM TRANSMITTER
AN FM RELAY RECEIVER
A STEREO GENERATOR
AN SCA GENERATOR
A BIG STEREO CONSOLE
A LITTLE STEREO CONSOLE
A 1 KW AM TRANSMITTER
A 5 KW AM TRANSMITTER
A 10 KW AM TRANSMITTER
A 50 KW AM TRANSMITTER
A MONAURAL AUDIO CONSOLE
AN AM MODULATION MONITOR
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WOODLYN, PA. 19094
CABLES WILEC

SBE Fellows

(Continued from page 37)

which Channel 6 started broadcasting in 1949. Channel 6 has transmitted color since the days of the "flying wheel" and has been a full color station ever since 1955. Robert Flanders served on the 1967 NAB Engineering Conference Committee and was Chairman of the 1969 committee. Mr. Flanders is a charter member of the Society of Broadcast Engineers.

SBE Notice To All Members

If you have not renewed your SBE membership, now is the time to do so. On Sept. 1, SBE third and final billing was sent to the membership.

Of concern is the large amount of invoices being returned to SBE's national office for lack of a forwarding address or incorrect address advice.

Check your membership card. If it has expired and you have **not** received your dues notice for the current year, please notify the national office.

YOUR COMPLETE SOURCE FOR NEW AND USED BROADCAST EQUIPMENT

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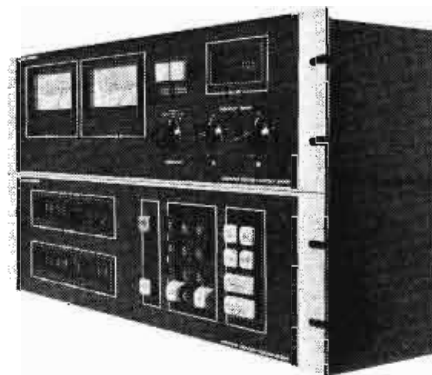
AUTOMATION FOR TODAY!

Audio automation control equipment you've been asking for! For new systems OR as replacements for older ones . . .

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units like:

CD28 Audio Controller and Programmer



Program up to 2,000 events and control 12 audio sources with full random access. Expand, as you expand, to 8,000 events and 92 sources. Will interface with all audio sources having full function remotable capability. And the CD28 is virtually mistake proof . . . easily programmed and operated by even the most inexperienced personnel.

CD25G 25Hz Tone Generator



For production studio use to insert the standard 25Hz automation actuating tone. Simple operation.

- Start button starts tape transport in motion and actuates audio muting circuit to eliminate bias pops and other tape transport start noises.
- Tone button applies 25Hz tone and automatically stops the transport at end of tone. This all solid-state unit has been designed to work from all audio sources providing up to +8dBm line level.

CD25S 25Hz Tone Sensor

Provides control functions for sensing the presence of pre-recorded 25Hz tones on audio material. Features a unique built-in fixed tone alarm with 8 second tone activation allowing flexibility in source switching, automatic re-wind of tape and other features including end-of-tape function.

CD60T Time Announce Control Unit

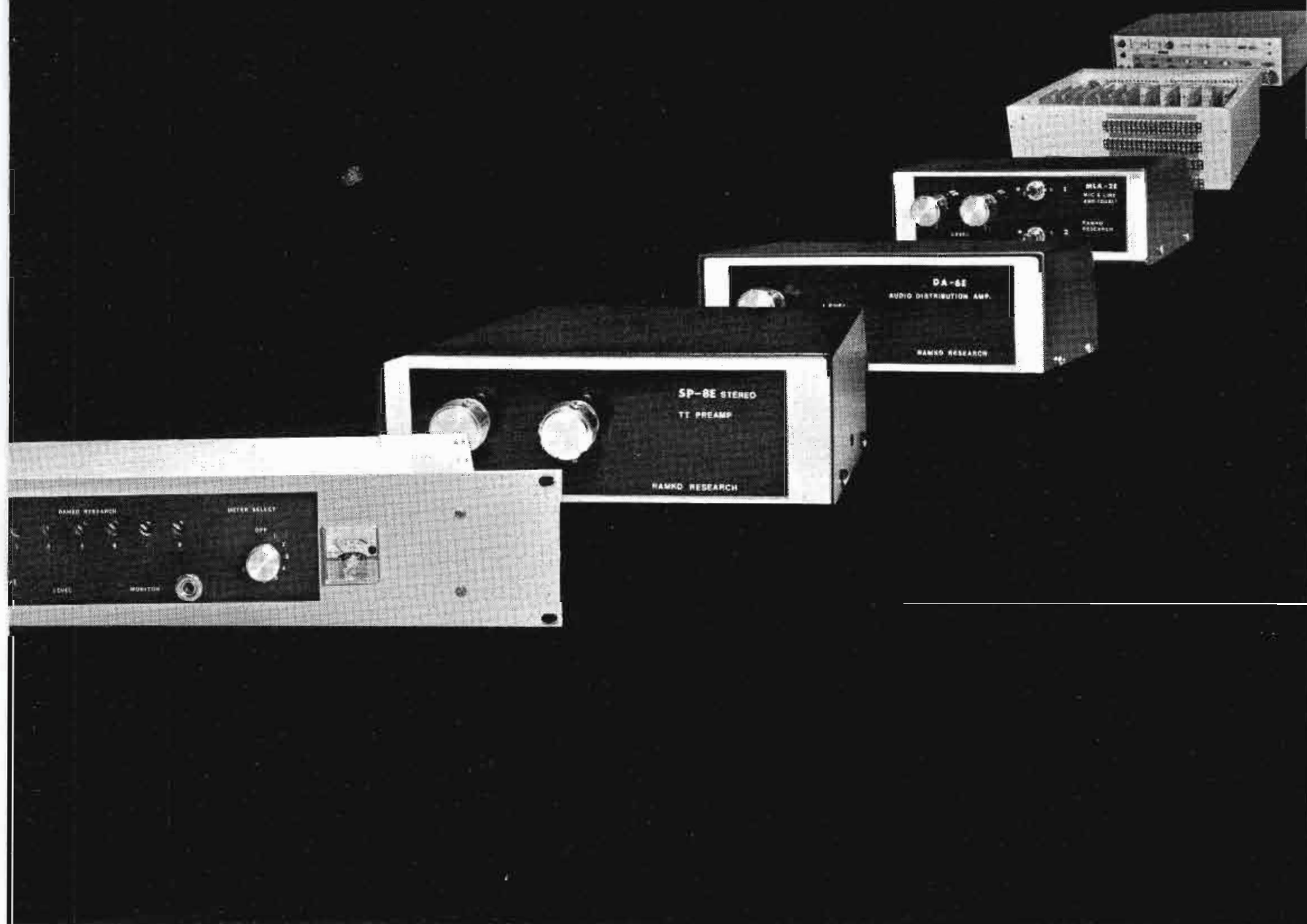
Designed to add versatility to your automation system. Allows the use of 2 single play cart machines, 2 reel-to-reel transports or a combination of cart and reel-to-reel transport for time announcements. Features a built-in power failure interlock . . . will not air a time announcement following a power failure until corrected and reset. Internal IC integrated clock included.

For more information, contact your
control design corporation
rep or the factory.

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ALEXANDRIA, VIRGINIA 22304
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Our new E series audio equipment will improve your sound and cut your costs . . . or your money back!



Advanced audio technology, ten day free evaluation and 2 year guarantee insure your uncompromised satisfaction.

We know that some of you may think our prices and performance a little too good to be true. This is why we're prepared to let you see, hear and test anything you need before committing yourself to buying. You'll find we don't just write good specs, we meet them.

Actual performance exceeds published specs in practically

every instance. If we tell you distortion is 0.05%, it normally runs 0.025%. Response specified at $\pm 0.5\text{db}$ will typically check out at $\pm 0.25\text{db}$. Same for noise, output level, etc.

Quality and reliability? The latest in low noise, wide band integrated circuits, all socket mounted! Capacitors with a known failure rate of about 10 out of 22,100. 8 of these 10 were caught before shipment. Transformers by the worlds best manufacturers. 5% tolerance resistors throughout for long term stability.

See the reverse side of this page for more specific product information. Then, whatever your audio requirements, standard, custom, urgent, or in the future, call collect or write today. You'll be money and performance ahead.

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Sacramento, CA 95823

RAMKO RESEARCH

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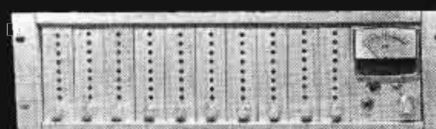
Our new E series audio equipment will improve your sound and cut your costs . . . or your money back!



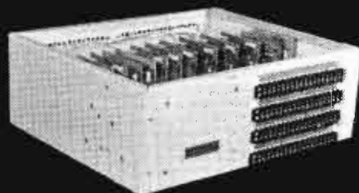
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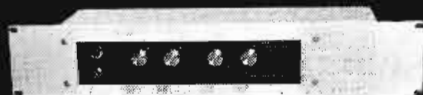
**MIC & LINE
AMPLIFIERS**



AUDIO DISTRIBUTION AMPLIFIERS



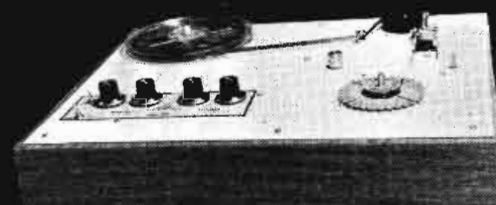
AUDIO CONSOLES & CONTROLLERS



**STUDIO MONITOR
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**REMOTE POWER
CONTROLLERS**



**AUTOMATIC TAPE CARTRIDGE
& CASSETTE LOADERS**

TEN DAY FREE EVALUATION AND 2 YEAR GUARANTEE INSURE YOUR UNCOMPROMISED SATISFACTION

TURNTABLE PREAMPS

Preamps costing almost 3 times more will not compare with these units. RIAA/NAB equalized ± 1 db, 0.5MV sensitivity at 1KHz for +4dbm out, balanced outputs, -75db s/n at 10mv in, 0.05% distortion, +21dbm max. out. Internal power supply.

MP-8E Mono \$86 SP-8E Stereo \$137

MIC & LINE AMPLIFIERS

Dual function and superb performance. Inputs for mic and line, ± 0.5 db response 10Hz-20KHz, 67db gain on mic channel(s) +26db gain on line inputs. Balanced inputs & outputs, +21dbm out max, 0.1% distortion. Internal power supply.

MLA-1E Mono \$98
MLA-2E Dual Mono/Stereo \$139

AUDIO DISTRIBUTION AMPLIFIERS

From 1 in/6 out to 20 in/80 out in one small package. Whatever your distribution requirements we have an answer. All units meet or exceed the following specifications: Balanced bridging/matching inputs, balanced 600ohm outputs, ± 0.5 db response 10Hz-20KHz, ± 3 db 5Hz-40KHz, 26db gain, +21dbm out. max. capability, 0.1% or less distortion, outputs isolated by 80db, hum and noise 90db down referenced to +21dbm out. Internal power supplies.

DA-6/E	Table top. 1 in/6 out.	\$131
DA-6R/E	Rack mount. 1 in/6 out.	\$149
DA-6BR/E	Rack mount. 1 in/6 out. Individual level controls for each output.	\$165
DA-6RS/E	Rack mount. 1 in/6 out stereo or 2 in/12 out mono.	\$229
DA-16BR/E	Rack mount. 1 in/8 out stereo or 2 in/16 out mono. Individual output level controls, selectable metering & headphone monitoring.	\$287
DA-2080/E	Rack mount main frame with protected	

power supply, metering & headphone monitor. Will accept up to 10 slide in modules. Each module has 2 inputs & 8 outputs. Individual output level controls & selectable meter switch. Up to 20 in/80 out.

DA-2080/E	Main Frame	\$150
DA-2080/E	Modules 2 in/8 out	\$135 ea.

AUDIO CONSOLES & CONTROLLERS

Our new series 35 audio controller introduces a new concept in audio mixing. Allows separation of controls from the audio functions. Controls can be placed in any convenient location in the studio, while electronics may be mounted anywhere for easy maintenance & hookup. Remote DC control for completely unaffected audio.

This versatility gives you a custom designed console at a standard production model cost.

Features include; 8 channels, mono, dual channel mono, stereo, dual channel stereo, or combinations; paralleling 2 units for quad, fail safe power supply & plug in interchangeable cards.

Performance specifications are; 0.3% or less distortion, 124dbm equivalent noise on low level channels, approximately 25w power consumption, -70db crosstalk, balanced bridging/matching inputs & response within ± 2 db 20Hz-20KHz. Series 35 audio controllers start at \$1200.

AUTOMATIC TAPE CARTRIDGE AND CASSETTE LOADERS

So easy to use & accurate that our largest winder competitor has been using one of these to load their own carts.

Eliminates guesswork. Set the dials to the length desired. The exact amount of tape is fed onto the cart or cassette hub and then shuts off automatically. Also has exclusive torque control for proper tape pack on different size hubs. Winds at 30 IPS. ACL-25/E \$185

Winders also come in higher speed models (ACL-60 series). Same operation as above but winds at 60 IPS. Accepts 14" pancakes.

ACL-60T/E	(tone stop only)	\$266
ACL-60B/E	(Blank tape loader)	\$331
ACL-60BT/E	(for both prerecorded and blank tape)	\$375

STUDIO MONITOR AMPLIFIERS

Exceptional reproduction! Internal muting. ± 2 db response from 20Hz-40KHz. 25w music power, 20w RMS into 8 ohms. Hum & noise 65db below rated outputs.

Distortion less than 0.25% at less than 20w out, 1% or less at 20w. Works into 4-16ohms. Balanced bridging inputs, variable bass contour, internal overload & short circuit protection.

SMA-50/E	Table top (mono)	\$125
SMA-500/E	Rack mount (mono)	\$142
SMA-1000/E	Rack mount (stereo-40w)	\$196

REMOTE POWER CONTROLLERS (DUAL)

Safe, transient free means of controlling 110V/AC. Turntables, on the air lights, etc.

PR-2	(toggle switch on/off)	\$39
PR-2B	(momentary contact actuation)	\$54

See other side for additional information. Then call or write for further details or an immediate solution to your needs. Thank you for your interest.

RAMKO RESEARCH

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FOR MORE DETAILS CIRCLE (1) ON REPLY CARD

1974 Broadcast Buyer's Guide

The Buyer's Guide keeps on growing. That's because the industry continues to grow and because the new technology opens the door for new and unusual products each year. This is the most complete Guide we've ever printed, and next year it will be even larger.

About the Red Listings

In each Guide issue, you'll find equipment categories that include companies listed in red. The red listing indicates that this company has an ad in this issue featuring an item in that category.

For those of you who are in the closed circuit or CATV industry, you'll find another equipment Guide in the Cable Engineering section. But categories listed there are primarily designed for closed circuit use. So

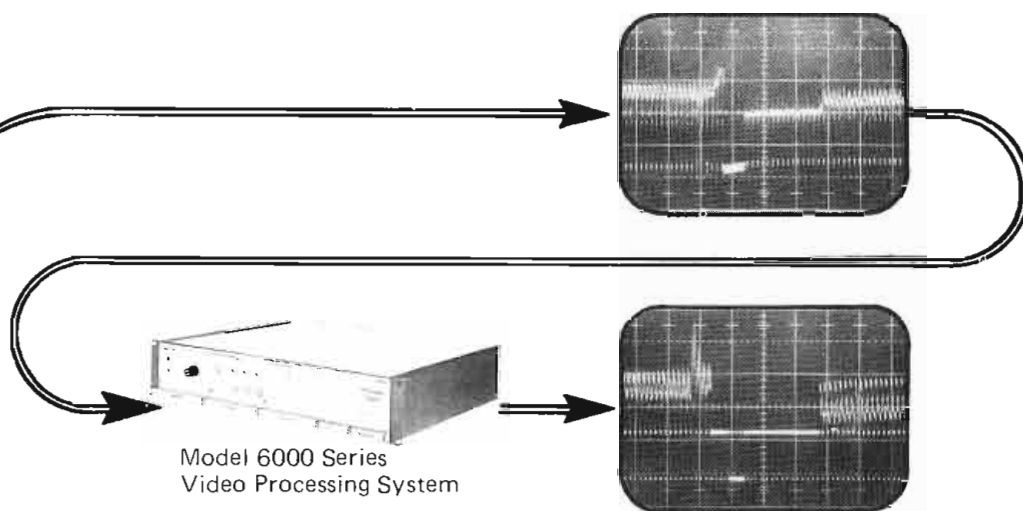
if you can't find the category you need, try the CCTV Guide.

Reader Service Cards

At the bottom of our ads you'll see a line that reads "For more details circle (109) on Reply Card." Each ad has a different identification number, and that number will appear in that line under the ad. In the back of this and all issues of Broadcast Engineering, you'll find a Reader Service Card. Fill in all the blanks and circle up the numbers that correspond to the ads you're interested in. **THESE CARDS CAN BE USED AT ANY TIME DURING THE NEXT 12 MONTHS.**

If you need help immediately in obtaining information, refer to telephone numbers within the ads.

OUR PROC AMP WORKS WITH ANY COLOR OR BLACK & WHITE VTR... 1/2"... 3/4"... 1"... 2"... QUAD... HELICAL SCAN



Does yours? For more information, write or call:

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video products

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Telephone: (215) 643-0250 Telex: 84-6358

Alarm, Fault

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TRACOR, Inc. Instruments Group
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Alarm, Tower Light Failure --See Tower Light Failure Alarms

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Sinai-Johnson
Spotmaster Broadcast Electronics

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American Data Corp. an AIRPAX Company
Burwen Laboratories
Cetec Inc. Subs. Computer Equipment Corp.
Crown International
Gately Electronics
Head Sound, Inc.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Microwave Assoc. Inc.
Modular Audio Products
Moseley Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Rust Corp.

Tele Measurements Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Data Corp. an AIRPAX Company
Audio Designs & Mfg.
Auditronics, Inc.
Broadcast Automation Assoc.
Broadcast Equipment & Supply Co.
CBS Labs
C-COR Electronics, Inc.
Cetec Inc. Subs. Computer Equipment Corp.
Communications Technology, Inc.
Cooke Engineering Co.
Datatek Corp.
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Entron, Inc.
Frontier Engineering Corp. Television and Computer Div.
General Electric Co. Imaging & Display Devices Product Sect.
Harris Corporation Broadcast Equip. Div.
Head Sound, Inc.
Industrial Sciences, Inc.
Jerrold Electronics Corp. CATV Systems Div.
LPB Inc.
Mastertone Company
Microwave Assoc. Inc.
Modular Audio Products
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
Pacific Recorders and Engrg. Corp. Div. 47B
PRD Electronics, Inc. Subsidiary of Harris Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
Ramko Research
Richmond Hill Laboratories Ltd.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
Spectra Sonics
Theta-Com
Tri-Tronics, Inc.
Val-Tronics, Inc.
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.

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American Data Corp. an AIRPAX Company
Applied Electro Mechanics, Inc.
Applied Video Electronics, Inc.
Ball Bros. Research Corp. Miratel Division
CBS Labs

C-COR Electronics, Inc.
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Cooke Engineering Co.
Datatek Corp.
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Entron, Inc.
Farinon Electric
Frontier Engineering Corp. Television and Computer Div.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Hitachi Shibaden Corp. of America
Industrial Sciences, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Lenco Inc. Electronics Division
Microwave Assoc. Inc.
Nasco Television Systems
PRD Electronics, Inc. Subsidiary of Harris Corp.
Rohde & Schwarz Sales Co.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
Sinai-Johnson
TeleMation, Inc.
Theta-Com
Tri-Tronics, Inc.
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
Viscount Industries Ltd.
Visual Educom Inc. Dage/MTI/Infonics Div

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Belar Electronics Lab., Inc.

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American Data Corp. an AIRPAX Company
Applied Electro Mechanics, Inc.
Ball Bros. Research Corp. Miratel Division
CBS Labs
Central Dynamics Corp.
Communications Technology, Inc.
Computer Image Corp.
Grass Valley Group, Inc.
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
Tri-Tronics, Inc.
Video Devices Co.
Video Engineering Co., Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
Ameco Inc.
American Data Corp. an AIRPAX Company
Ampro Corp.
Anixter-Pruzan CATV Division
Audio Designs & Mfg.
Blonder-Tongue Labs.
Broadcast Electronics
Burwen Laboratories

C-COR Electronics, Inc.
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Communication Medias
Communications Technology, Inc.
Cooke Engineering Co.
Entron, Inc.
Frontier Engineering Corp. Television and Computer Div.
Gately Electronics
Harris Corporation Broadcast Equip. Div.
Head Sound, Inc.
Instrument Laboratories
Magnavox Company CATV Division
Marti Electronics
Microwave Assoc. Inc.
Modular Audio Products
Rupert Neve, Inc.
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
OAK Industries Inc. Communications Group
OMNIX
Pulse Dynamics Mfg. Corp. (PDMC)
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Service Company Div.
Richmond Hill Laboratories Ltd.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Rupert Neve Incorporated
Sparta Electronic Corp.
Spectra Sonics
Systems Marketing Corp. And Sono-Mag Corp.
United Recording Electronics Industries
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
VIF International
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.
ZERO-Impedance Systems, Inc.

Amplifier, Masking

Burwen Laboratories
CBS Labs
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Tele Measurements Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Data Corp. an AIRPAX Company
Applied Electro Mechanics, Inc.
Audio Designs & Mfg.
Bell P/A Prod. Corp.
Burwen Laboratories
Central Dynamics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Communications Technology, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Frontier Engineering Corp. Television and Computer Div.
Grass Valley Group, Inc.
Head Sound, Inc.
Lauderdale Electronic Labs
Mastertone Company
MICMIX Audio Products, Inc.
Microwave Assoc. Inc.
Modular Audio Products
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
QRK Electronic Prod.
Quad-Eight Electronics
Richmond Hill Laboratories Ltd.

Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Sarkes Tarzian Inc. Broadcast Equipment Div.
Sinai-Johnson
Systems Engineering Co., Inc.
Ultra Audio Products
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics Div
ZERO-Impedance Systems, Inc.

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American Data Corp. an AIRPAX Company
Ampro Corp.
Belar Electronics Lab., Inc.
Bell P/A Prod. Corp.
Broadcast Electronics
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Communication Medias
Communications Technology, Inc.
Cooke Engineering Co.
Crown International
Electronic Designers Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Frontier Engineering Corp. Television and Computer Div.
Harris Corporation Broadcast Equip. Div.
Head Sound, Inc.
Marti Electronics
Mastertone Company
Microwave Assoc. Inc.
Modular Audio Products
National Electrolab Ltd.
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
QRK Electronic Prod.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Service Company Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Russco Electronics Mfg. Inc.
Scientific Systems, Inc. Broadcast Equipment Div.
Sparta Electronic Corp.
Superscope, Inc.
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.

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American Electronics, Inc.
Audio Designs & Mfg.
Burwen Laboratories
Computer Image Corp.
Frontier Engineering Corp. Television and Computer Div.
Gately Electronics
Gotham Audio Corp.
Head Sound, Inc.
Microwave Assoc. Inc.
Modular Audio Products
Quad-Eight Electronics
RCA Corporation Broadcast Systems Div.

RCA Corporation RCA Service Company Div.
Solitron Devices Inc. Semiconductor Div.
Systems Engineering Co., Inc.
Tektronix Inc.

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Acrodyne Industries Inc.
Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Data Corp. an AIRPAX Company
American Electronic Labs., Inc.
Ampro Corp.
Audio Designs & Mfg.
Belar Electronics Lab., Inc.
Bell P/A Prod. Corp.
Bethany International
Bogen Division Lear Siegler Inc.
Broadcast Electronics
California Instruments Co. Div. of Aiken Ind., Inc.
C-COR Electronics, Inc.
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Communications Technology, Inc.
Continental Electronics Mfg. Co.
Crown International
Electronic Designers Inc.
Fluke, John, Mfg. Co. Inc.
Frontier Engineering Corp. Television and Computer Div.
Harris Corporation Broadcast Equip. Div.
Head Sound, Inc.
Lauderdale Electronic Labs
McMartin Industries
Modular Audio Products
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
North American Radio Corp.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Precision Elect. Inc.
Pulse Dynamics Mfg. Corp. (PDMC)
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
RCA Corporation RCA Service Company Div.
Revox Corporation
RHA Audio Communications Corp.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Sinai-Johnson
Spectra Sonics
Superscope, Inc.
TeleMation, Inc.
Telex Communications, Inc.
Terminal Electronics Corp.
TT Electronics, Inc.
Ward-Beck Systems, Ltd.
ZERO-Impedance Systems, Inc.

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Acrodyne Industries Inc.
American Data Corp. an AIRPAX Company
Ball Bros. Research Corp. Miratel Division
CBS Labs
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Computer Image Corp.
Control Concepts Corporation
Dyma Engineering, Inc.
Dynasciences Corp. Video Products Div.
Fernseh Group, Robert Bosch Corp.
Grass Valley Group, Inc.
Industrial Sciences, Inc.
Marconi Electronics Inc.

Microwave Assoc. Inc.
Mincom Div. 3M Co.
OMNIX
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
Tektronix Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

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Acrodyne Industries Inc.
Alma Engineering Inc.
American Data Corp. an AIRPAX Company
American Electronic Labs., Inc.
Applied Video Electronics, Inc.
Ball Bros. Research Corp. Miratel Division
C-COR Electronics, Inc.
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Comark Industries Inc.
Communications Technology, Inc.
Computer Image Corp.
Cooke Engineering Co.
Datatek Corp.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Fernseh Group, Robert Bosch Corp.
Frontier Engineering Corp. Television and Computer Div.
Grass Valley Group, Inc.
Hewlett Packard Co.
Industrial Sciences, Inc.
Interntl. Nuclear Corp.
Kaitronics Corporation
Kay Elemetrics Corp.
Lenco Inc. Electronics Division
Marconi Electronics Inc.
Microwave Assoc. Inc.
Nasco Television Systems
OMNIX
RCA Corporation Broadcast Systems Div.
RHG Elect Labs, Inc.
Richmond Hill Laboratories Ltd.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

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American Data Corp. an AIRPAX Company
Central Dynamics Corp.
Communications Technology, Inc.
Grass Valley Group, Inc.
Lenco Inc. Electronics Division
Microwave Assoc. Inc.
OMNIX
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
TeleMation, Inc.
Television Equipment Associates
Tri-Tronics, Inc.
Video Accessories Mfg. Co.

Amplifier, Remote

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Data Corp. an AIRPAX Company
Collins Radio Group Rockwell International
Communication Medias
Dyma Engineering, Inc.
Harris Corporation Broadcast Equip. Div.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Orbit Radio and Video
Pulse Dynamics Mfg. Corp. (PDMC)
QRK Electronic Prod.
RCA Corporation Broadcast Systems Div.
Sparta Electronic Corp.
Systems Engineering Co., Inc.
Wilkinson Electronics, Inc.

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Acrodyne Industries Inc.
AEL Communications Corp., Subs.
American Electronic Labs., Inc.
Ameco Inc.
American Electronic Labs., Inc.
Amperex Electronic Corp.
Anixter-Pruzan CATV Division
Belar Electronics Lab., Inc.
Rolane Sales Corp.
Blonder-Tongue Labs.
CCA Electronics Corp.
C-COR Electronics, Inc.
Comark Industries Inc.
FMI/Magnatech Corp A Subsidiary of FM International
General Radio Co.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Hewlett Packard Co.
Kay Elemetrics Corp.
Lauderdale Electronic Labs
Lectronic Res. Labs. Inc.
McMartin Industries
Microwave Assoc. Inc.
Moseley Assoc. Inc.
National Electrolab Ltd.
North American Radio Corp.
OAK Industries Inc. Communications Group
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
RHG Elect Labs, Inc.
Rodelco Corp.
Singer Instrumentation Los Angeles Operation
Singer Co., The Palo Alto Operation
Television Technology Corp.
Time & Frequency Tech., Inc.
Video Engineering Co., Inc.
Wide Band Engineering Co., Inc.
Wilkinson Electronics, Inc.

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Acrodyne Industries Inc.
AEL Communications Corp., Subs.
American Electronic Labs., Inc.
Amperex Electronic Corp.
CCA Electronics Corp.
C-COR Electronics, Inc.
Comark Industries Inc.
Continental Electronics Mfg. Co.
Dyma Engineering, Inc.

Harris Corporation Broadcast Equip. Div.
Heath Co.
LPB Inc.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
National Electrolab Ltd.
North American Radio Corp.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RHG Elect Labs, Inc.
Sinai-Johnson
Television Technology Corp.
Transcom Electronics, Inc.
Transep Corp.
Vitek Electronics Inc.
Wilkinson Electronics, Inc.

Amplifier, RF Peak Limiting

Belar Electronics Lab., Inc.
CBS Labs
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Superscope, Inc.
Wilkinson Electronics, Inc.

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Acrodyne Industries Inc.
AEL Communications Corp., Subs.
American Electronic Labs., Inc.
Ailtech
American Electronic Labs., Inc.
Amperex Electronic Corp.
Belar Electronics Lab., Inc.
Blonder-Tongue Labs.
CCA Electronics Corp.
C-COR Electronics, Inc.
Collins Radio Group Rockwell International
Comark Industries Inc.
Continental Electronics Mfg. Co.
Eimac Div. Varian Associates
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
General Electric Co. Imaging & Display Devices Product Sect.
Harris Corporation Broadcast Equip. Div.
Lectronic Res. Labs. Inc.
McMartin Industries
Microwave Assoc. Inc.
Moseley Assoc. Inc.
National Electrolab Ltd.
North American Radio Corp.
OAK Industries Inc. Communications Group
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Singer Products Co., Inc.
Sintronic Corp.
Sparta Electronic Corp.
Television Technology Corp.
Transcom Electronics, Inc.
Wilkinson Electronics, Inc.

Amplifier, Sensing

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Moseley Assoc. Inc. 10

Mastertone Company
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Tele Measurements Inc.

Amplifier, Stabilizing

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Ball Bros. Research Corp. Miratel Division

California Instruments Co. Div. of
Aiken Ind., Inc.
CBS Labs
Central Dynamics Corp.
Grass Valley Group, Inc.
Internatl. Nuclear Corp.
Marconi Electronics Inc.
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems
Div.

Amplifier, Stereo Limiter

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Harris Corporation 149

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Broadcast Automation Assoc.
Broadcast Electronics
Burwen Laboratories
CBS Labs
Collins Radio Group Rockwell
International
Communication Medias
Gately Electronics
Gotham Audio Corp.
Harris Corporation Broadcast Equip.
Div.
Inovonics
Mastertone Company
Microwave Assoc. Inc.
Rupert Neve, Inc.
Rupert Neve Incorporated
Schafer Electronics Corp.
Spectra Sonics
UREI a URC Company
Wilkinson Electronics, Inc.

Amplifier, TV Video

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Acrodyne Industries Inc.
AEL Communications Corp., Subs.
American Electronic Labs., Inc.
Alma Engineering Inc.
Ameco Inc.
American Data Corp. an AIRPAX
Company
AMP Special Industries
Amperex Electronic Corp.
Applied Video Electronics, Inc.
AVA Electronics Corp.
Ball Bros. Research Corp. Miratel
Division
Belar Electronics Lab., Inc.
Blonder-Tongue Labs.
Catel, a Div. of United Scientific Corp.
CBS Labs
C-COR Electronics, Inc.
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Comark Industries Inc.
Communications Technology, Inc.
Computer Image Corp.
Control Concepts Corporation
Datatek Corp.
Delta-Benco-Cascade Ltd.
Delta Electronics Inc. (N.C.)
DYNALIR Electronics, Inc.
Frontier Engineering Corp. Television
and Computer Div.
Fung Engineering Inc.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
Internatl. Nuclear Corp.
Kay Elemetrics Corp.
Lenco Inc. Electronics Division
Marconi Electronics Inc.
Microwave Assoc. Inc.
Mincom Div. 3M Co.
Nasco Television Systems
OMNIX
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.

Raytheon Company Raytheon Data
Systems Co.
RCA Corporation Broadcast Systems
Div.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast
Equipment Div.
Shintron Co. Inc. Video Products Div.
Singer Products Co., Inc.
Spencer-Kennedy Labs., Inc.
Tektronix Inc.
Tele-Cine Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
TeleMation, Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Video Accessories Mfg. Co.
Vicon Industries, Inc.
Video Engineering Co., Inc.
Viscount Industries Ltd.

Amplifier, Video Sweep

C-COR Electronics, Inc.
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectionic Res. Labs. Inc.
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems
Div.

Amplifier, Zero Studio Delay

Microwave Assoc. Inc.
Television Equipment Associates
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.

Analyzers, Distortion

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Crown International 40

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
B & K Instruments Inc.
Collins Radio Group Rockwell
International
Crown International
Dyma Engineering, Inc.
ELPA Marketing Industries, Inc.
General Radio Co.
Heath Co.
Hewlett Packard Co.
Lectionic Res. Labs. Inc.
The London Company
Marconi Instruments
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Vu-Data Corporation

Analyzers, Harmonic

ELPA Marketing Industries, Inc.
General Radio Co.
Hewlett Packard Co.
Lectionic Res. Labs. Inc.
Marconi Instruments
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Vu-Data Corporation

Analyzers, Intermodulation

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Crown International
Heath Co.
Marconi Instruments
Rohde & Schwarz Sales Co.
Tektronix Inc.
Theta-Com

Analyzers, RF Network

Ailtech
Hewlett Packard Co.
PRD Electronics, Inc. Subsidiary of
Harris Corp.
Rohde & Schwarz Sales Co.
Tektronix Inc.

Wide Band Engineering Co., Inc.

Analyzers, Sideband

Ailtech
Marconi Instruments
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Singer Co., The Palo Alto Operation
Spectrum Instruments, Inc.
Tektronix Inc.

Analyzers, Spectrum

Ailtech
Altec Sound Products
Amber Electro Design, Ltd.
B & K Instruments Inc.
General Radio Co.
Hewlett Packard Co.
Jerrold Electronics Corp. CATV
Systems Div.
Kay Elemetrics Corp.
Marconi Instruments
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Singer Co., The Palo Alto Operation
Spectrum Instruments, Inc.
Spencer-Kennedy Labs., Inc.
Systron-Donner
Tektronix Inc.
Texscan Corp.
Vitek Electronics Inc.

Analyzers, Video

Ailtech
Colorado Video Inc.
Dynascan Corp. B & K Division
PRD Electronics, Inc. Subsidiary of
Harris Corp.
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Spencer-Kennedy Labs., Inc.
Tektronix Inc.

Antenna Alignment Systems, Microwave

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Innovative Television Equipment, Inc.
Nurad, Inc.
Power Waves, Inc.

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Philadelphia Resins Corp.

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Tiner Communications Service, Inc.

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Cablewave Systems Inc. Subs. Phelps
Dodge and Kabelmetal
Collins Radio Group Rockwell
International
Delta Electronics Inc. (Va.)
Moseley Assoc. Inc.
Multronics, Inc.
North American Radio Corp.
Sparta Electronic Corp.

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Admiral Group, Rockwell Int'l.
Ameco Inc.
American Electronic Labs., Inc.
Andrew Corp.
Andrews Tower Inc.
AVA Electronics Corp.
Beaver Electronics, Ltd.
Bogner Broadcast Equipment Corp.
Collins Radio Group Rockwell
International
Continental Electronics Mfg. Co.
Delta Electronics Inc. (Va.)
Electromagnetic Specialties
General Electric Co. Imaging & Display
Devices Product Sect.
Harris Corporation Broadcast Equip.
Div.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Mastertone Company
Micro Communications, Inc.
Microwave Assoc. Inc.
Multronics, Inc.
Nurad, Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Prodelin Inc.
Radio Research Instrument Co., Inc.
RCA Corporation Broadcast Systems
Div.
RF Systems, Inc.
Riker Communications Inc.
Rohde & Schwarz Sales Co.
Scala Radio Corp.
Shively Laboratories, Inc.
Sinai-Johnson
Singer Products Co., Inc.
Sitco Antenna Co.
Sparta Electronic Corp.
Transcom Electronics, Inc.
Triangle Towers & Antennas
Tri-Ex Tower Corp.

Antenna Tuning Units

CCA Electronics Corp.
Collins Radio Group Rockwell
International
Continental Electronics Mfg. Co.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Maury Microwave Corp.
Multronics, Inc.
North American Radio Corp.
Sintronic Corp.
Sparta Electronic Corp.
Transcom Electronics, Inc.
Wilkinson Electronics, Inc.

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Harris Corporation 149

Alford Mfg. Co.
American Electronic Labs., Inc.
Bogner Broadcast Equipment Corp.
Collins Radio Group Rockwell
International
Continental Electronics Mfg. Co.
Electromagnetic Specialties
Harris Corporation Broadcast Equip.
Div.
Innovative Television Equipment, Inc.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Micro Communications, Inc.
Radio Research Instrument Co., Inc.
RF Systems, Inc.
Rohde & Schwarz Sales Co.
Scala Radio Corp.
Shively Laboratories, Inc.
Sparta Electronic Corp.

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Bird Electronic Corp.
Coaxial Dynamics
Collins Radio Group Rockwell International
Continental Electronics Mfg. Co.
Dielectric Communications Div. of Sola Basic
Electro Impulse, Inc.
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Marconi Electronics Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Narda Microwave Corp., The
North American Radio Corp.
Ohmite Mfg. Co.
RCA Corporation Broadcast Systems Div.
Rex Rheostat & Co., Inc.
Rohde & Schwarz Sales Co.
Shively Laboratories, Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

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Collins Radio Group Rockwell International
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
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Moseley Assoc. Inc.
National Electrolab Ltd.
Potomac Instruments, Inc.
Rohde & Schwarz Sales Co.
Scala Radio Corp.
Time & Frequency Tech., Inc.

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Anixter-Pruzan CATV Division
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Belar Electronics Lab., Inc.
Catel, a Div. of United Scientific Corp.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Heath Co.
Jampro Antenna Co. Div. of Computer Equipment Corp.
McMartin Industries
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Missile & Surface Radar Div.
RCA Corporation RCA Service Company Div.
RF Systems, Inc.
Rohde & Schwarz Sales Co.
Saxton Prod. Inc.
Scala Radio Corp.
Sitco Antenna Co.

Antennas, Receiving LF

Andrews Tower Inc.
Delta Electronics Inc. (Va.)

Fluke, John, Mfg. Co. Inc.
Rohde & Schwarz Sales Co.
Time & Frequency Tech., Inc.

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Delta Electronics Inc. (Va.)
Rohde & Schwarz Sales Co.
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Ameco Inc.
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AMP Special Industries
Andrew Corp.
Anixter-Pruzan CATV Division
Beaver Electronics, Ltd.
Blonder-Tongue Labs.
Conway Electronic Enterprises Limited
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Heath Co.
Jerrold Electronics Corp. CATV Systems Div.
Lectronic Res. Labs. Inc.
Moseley Assoc. Inc.
Nurad, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RF Systems, Inc.
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Anixter-Pruzan CATV Division
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Conway Electronic Enterprises Limited
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Heath Co.
Jerrold Electronics Corp. CATV Systems Div.
Lectronic Res. Labs. Inc.
Moseley Assoc. Inc.
Nurad, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RF Systems, Inc.
Riker Communications Inc.
Rohde & Schwarz Sales Co.
Saxton Prod. Inc.
Scala Radio Corp.
Sitco Antenna Co.

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Bogner Broadcast Equipment Corp.
Lectronic Res. Labs. Inc.
Mastertone Company
Maury Microwave Corp.
Narda Microwave Corp., The
Nurad, Inc.
Prodelin Inc.
RF Systems, Inc.

Rohde & Schwarz Sales Co.

Antennas, Remote Indicator

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Harris Corporation Broadcast Equip. Div.
Potomac Instruments, Inc.
Time & Frequency Tech., Inc.

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FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Mastertone Company
Moseley Assoc. Inc.
Nurad, Inc.
RF Systems, Inc.
Scala Radio Corp.
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CCA Electronics Corp.
Collins Radio Group Rockwell International
FMI/Magnatech Corp A Subsidiary of FM International
Mastertone Company
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Scala Radio Corp.
Schafer Electronics Corp.
Wilkinson Electronics, Inc.

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FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Mastertone Company
Micro Communications, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Scala Radio Corp.
Schafer Electronics Corp.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Sintronic Corp.
Sparta Electronic Corp.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

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Belar Electronics Lab., Inc.
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Delta Electronics Inc. (Va.)
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Jampro Antenna Co. Div. of Computer Equipment Corp.
Val-Tronics, Inc.

Antennas, Transmitting MF

Andrews Tower Inc.
Collins Radio Group Rockwell International
Continental Electronics Mfg. Co.
Delta Electronics Inc. (Va.)
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Marconi Electronics Inc.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Shively Laboratories, Inc.

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CCA RF Industries, Inc.
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EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
General Electric Co. Imaging & Display Devices Product Sect.
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Lectronic Res. Labs. Inc.
Marconi Electronics Inc.
Micro Communications, Inc.
Moseley Assoc. Inc.
Nurad, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RCA Corporation Broadcast Systems Div.
RF Systems, Inc.
Rohde & Schwarz Sales Co.
Scala Radio Corp.
Shively Laboratories, Inc.
Sitco Antenna Co.

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Dyma Engineering, Inc.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
General Electric Co. Imaging & Display Devices Product Sect.
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Lectronic Res. Labs. Inc.
Marconi Electronics Inc.
Micro Communications, Inc.
Moseley Assoc. Inc.
Nurad, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RCA Corporation Broadcast Systems Div.
RF Systems, Inc.
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Microwave Assoc. Inc.
Moseley Assoc. Inc.
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Jampro Antenna Co. Div. of Computer Equipment Corp.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Moseley Assoc. Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
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Shively Laboratories, Inc.
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Broadcast Electronics
Broadcast Equipment & Supply Co.
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell International
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Lauderdale Electronic Labs LPB Inc.
Mastertone Company
Micro-Trak Corporation
QRK Electronic Prod.
RCA Corporation Broadcast Systems Div.
Rek-O-Kut Inc.
Russco Electronics Mfg. Inc.
Schafer Electronics Corp.
Shure Brothers Inc.
Singer Products Co., Inc.
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Spotmaster Broadcast Electronics
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Altec Sound Products
Audio Designs & Mfg.
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Duncan Electronics, Inc.
Edison Electronics Div. McGraw-Edison Co.
General Radio Co.
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Leader Instruments Corp.
Marconi Instruments
Rupert Neve, Inc.
Quad-Eight Electronics
RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Rohde & Schwarz Sales Co.
Rupert Neve Incorporated
Sennheiser Electronics Corp.
Shallco, Incorporated
Sinai-Johnson
Soundolier, Inc.
Sparta Electronic Corp.
Systems Engineering Co., Inc.
Tech Laboratories Inc.
Terminal Electronics Corp.
Texscan Corp.
TRW Electronic Supply Co. Div. of TRW
Waters Mfg. Inc.
Weinschel Engineering Co.

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Bird Electronic Corp.
Collins Radio Group Rockwell International
Comark Industries Inc.
Diversified Products Inc.

Edison Electronics Div. McGraw-Edison Co.
General Radio Co.
Harris Corporation Broadcast Equip. Div.
Holland Electronics
Jerold Electronics Corp. CATV Systems Div.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Magnavox Company CATV Division
Narda Microwave Corp., The
PRD Electronics, Inc. Subsidiary of Harris Corp.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Riker Communications Inc.
RMS Electronics, Inc.
Rohde & Schwarz Sales Co.
Shallco, Incorporated
Singer Co., The Palo Alto Operation
Sparta Electronic Corp.
Tech Laboratories Inc.
Tektronix Inc.
Telonic Altair
Texscan Corp.
Trompeter Electronics
Waters Mfg. Inc.
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Electromagnetic Sciences, Inc.
General Radio Co.
Holland Electronics
Narda Microwave Corp., The
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
ROH Corporation
Rohde & Schwarz Sales Co.
Shallco, Incorporated
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Wide Band Engineering Co., Inc.

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General Microwave Corp.
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Hewlett Packard Co.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Maury Microwave Corp.
Microwave Assoc. Inc.
Narda Microwave Corp., The
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Rohde & Schwarz Sales Co.
Shallco, Incorporated
Singer Co., The Palo Alto Operation

Syston-Donner
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American Electronic Labs., Inc.
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Beaver Electronics, Ltd.
Bird Electronic Corp.
Coaxial Dynamics
Comark Industries Inc.
Edison Electronics Div. McGraw-Edison Co.
Electro Impulse, Inc.
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Holland Electronics
Jerold Electronics Corp. CATV Systems Div.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Marconi Instruments
Matrix Systems Corp.
Micro Communications, Inc.
Microwave Assoc. Inc.
Narda Microwave Corp., The
OAK Industries Inc. Communications Group
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation RCA Electronic Components
Riker Communications Inc.
Rohde & Schwarz Sales Co.
Shallco, Incorporated
Sinai-Johnson
Singer Co., The Palo Alto Operation
Syston-Donner
Tech Laboratories Inc.
Telonic Altair
Texscan Corp.
Waters Mfg. Inc.
Weinschel Engineering Co.

Audio Stacks, Rebuilt or Rebuilding Services for VTR

Computer Magnetics Corp.
Minneapolis Magnetics, Inc.

Automation, Camera Control

Ameco Inc.
Bristol Div. of Acco
Cunningham Corp. Subs. of Gleason Works
Fernseh Group, Robert Bosch Corp.
Moseley Assoc. Inc.
Power-Optics Inc.
RCA Corporation Broadcast Systems Div.
Tele-Cine Inc.
Trepac Corp. America

Automation, Color Corrector

Fernseh Group, Robert Bosch Corp.
Harvey Radio Pro A/V Div.
RCA Corporation Broadcast Systems Div.
Television Equipment Associates
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.

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Mincom Div. 3M Co.
Moseley Assoc. Inc.
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Revox Corporation
STEP Corporation
Systems Marketing Corp. And
Sono-Mag Corp.
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Aitken Communications Inc.
Ampro Corp.
Audio Distributor Inc.
Audio Services, Inc.
Autogram Corporation
Bailey Meter Company Subs. Babcock & Wilcox Co.
Broadcast Automation Assoc.
CCA Electronics Corp.
Central Dynamics Corp.
Chrono-Log Corp.
CMX Systems
Concept 70, A Div. of Dyma Engineering, Inc.
Control Design Corp.
ES Enterprises
General Electric Co. Imaging & Display Devices Product Sect.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
IGM
Magna-Tech Electronic Co., Inc.
Mastertone Company
McBee Laboratories
Mincom Div. 3M Co.
Moseley Assoc. Inc.
Peerless Electronics, Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
ROH Corporation
Rust Corp.
Schafer Electronics Corp.
Sparta Electronic Corp.
STEP Corporation
Systems Marketing Corp. And
Sono-Mag Corp.
Tape-Athon Corp.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Trepac Corp. America
Video Accessories Mfg. Co.
Vital Industries Inc.

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Central Dynamics Corp.
Fernseh Group, Robert Bosch Corp.
Harvey Radio Pro A/V Div.
Mincom Div. 3M Co.
Quad-Eight Electronics
RCA Corporation Broadcast Systems Div.
STEP Corporation

Automation, Lighting Control

Berkey-Colortran Inc.
Richmond Hill Laboratories Ltd.
Skirpan Lighting Control Corp.
Video Engineering Co., Inc.

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Broadcast Automation Assoc.
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Chrono-Log Corp.
Collins Radio Group Rockwell International
Concept 70, A Div. of Dyma Engineering, Inc.
Conrac Corporation Cramer Division
Control Design Corp.
Datatron, Inc.
Dynasciences Corp. Video Products Div.
ES Enterprises
General Electric Co. Imaging & Display Devices Product Sect.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
IGM
Jerrold Electronics Corp. CATV Systems Div.
Orbit Radio and Video
Peerless Electronics, Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Schafer Electronics Corp.
Sparta Electronic Corp.
STEP Corporation
Systems Marketing Corp. And
Sono-Mag Corp.
Tape-Athon Corp.
Tektronix Inc.
TeleMation, Inc.
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Theta-Com
Trepac Corp. America
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Ampro Corp.
Autogram Corporation
Broadcast Automation Assoc.
CCA Electronics Corp.
Central Dynamics Corp.
Collins Radio Group Rockwell International
Control Design Corp.
Datatron, Inc.
General Electric Co. Imaging & Display Devices Product Sect.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
IGM
Mastertone Company
McBee Laboratories
Moseley Assoc. Inc.
Peerless Electronics, Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
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Sparta Electronic Corp.
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Time & Frequency Tech., Inc.
Video Sentry System
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ES Enterprises
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Marconi Electronics Inc.
Skirpan Lighting Control Corp.
Spindler & Sauppe, Inc.

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CMX Systems
Cohu, Inc. Electronics Division
Concept 70, A Div. of Dyma Engineering, Inc.
Cunningham Corp. Subs. of Gleason Works
General Electric Co. Imaging & Display Devices Product Sect.
Grass Valley Group, Inc.
IGM
Jerrold Electronics Corp. CATV Systems Div.
Marconi Electronics Inc.
Onan
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Riker Communications Inc.
Schafer Electronics Corp.
Skirpan Lighting Control Corp.
STEP Corporation
Systems Marketing Corp. And
Sono-Mag Corp.
Tech Laboratories Inc.

TeleMation, Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
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Audio Services, Inc.
Autogram Corporation
Broadcast Automation Assoc.
Broadcast Electronics
CCA Electronics Corp.
Central Dynamics Corp.
Collins Radio Group Rockwell International
Control Design Corp.
Delta Electronics Inc. (N.C.)
Harris Corporation Broadcast Equip. Div.
IGM
Mastertone Company
Mincom Div. 3M Co.
Peerless Electronics, Inc.
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
Sparta Electronic Corp.
Systems Marketing Corp. And
Sono-Mag Corp.
Tapecaster TCM, Inc.
Telectro Systems Corp.
VIF International

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Collins Radio Group Rockwell International
Control Design Corp.
Harris Corporation Broadcast Equip. Div.
IGM
Mastertone Company
Mincom Div. 3M Co.
Peerless Electronics, Inc.
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
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Systems Marketing Corp. And
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Telectro Systems Corp.
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Marti Electronics
McBee Laboratories
Moseley Assoc. Inc.
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Div.
Rust Corp.
Sinai-Johnson
Systems Marketing Corp. And
Sono-Mag Corp.
Telectro Systems Corp.
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CMX Systems
Dyma Engineering, Inc.
Dynasciences Corp. Video Products
Div.
Electronic Designers Inc.
ES Enterprises
Fernseh Group, Robert Bosch Corp.
Grass Valley Group, Inc.
Mincom Div. 3M Co.
Orbit Radio and Video
RCA Corporation Broadcast Systems
Div.
TeleMation, Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Video Sentry System

Blowers and Fans

AMCO Engineering Co.
American-Standard Industrial
Products Div.
Bellern Research Corp. Bellidyn Div.
Bud Radio Inc.
Collins Radio Group Rockwell
International
Lauderdale Electronic Labs
Mole Richardson Co.
Stantron Division Wyco Metal Products
Terminal Electronics Corp.

Bridge, Common Point

Collins Radio Group Rockwell
International
Delta Electronics Inc. (Va.)
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Div.
Harvey Radio Pro A/V Div.

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Bud Radio Inc.
CCA Electronics Corp.
Collins Radio Group Rockwell
International
Concept 70, A Div. of Dyma
Engineering, Inc.
Control Design Corp.
Dyma Engineering, Inc.

EMCOR Ingersoll Products
Borg-Warner Corp.
Enclosure Corp.
Equipto
General Devices Co., Inc. Vent-Rak
Div.
Grinnan Fixture Co.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
Lauderdale Electronic Labs
Mastertone Company
Micro-Trak Corporation
Multronics, Inc.
Neumade Prod. Corp.
North American Radio Corp.
Paso Sound Products Inc.
QRK Electronic Prod.
Quad-Eight Electronics
RCA Corporation Broadcast Systems
Div.
Rek-O-Kut Inc.
RMS Electronics, Inc.
Schafer Electronics Corp.
SGL Waber Electric Div. SGL
Industries, Inc.
Soundolier, Inc.
Sparta Electronic Corp.
Stantron Division Wyco Metal Products
Storeel Corp.
TeleMation, Inc.
Vicon Industries, Inc.
Video Engineering Co., Inc.
Wilkinson Electronics, Inc.
Wilson Corp., H.

Cable, Camera

Anixter-Pruzan CATV Division
Asaca Corp. of America
Belden Corp. Electronic Division
Boston Insulated Wire & Cable Co.
Brand-Rex Company
Cohu, Inc. Electronics Division
Fernseh Group, Robert Bosch Corp.
General Cable Corp.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
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Anaconda CATV
Andrew Corp.
A-Tel-A-Matic
Beaver Electronics, Ltd.
Belden Corp. Electronic Division
Blonder-Tongue Labs.
Brand-Rex Company
Cablewave Systems Inc. Subs. Phelps
Dodge and Kabelmetal
Cohu, Inc. Electronics Division
Collins Radio Group Rockwell
International
Comm/Scope Company
Dyma Engineering, Inc.
Essex International Inc.
Communication & CATV Div.
G.C. Electronics
General Cable Corp.
Harvey Radio Pro A/V Div.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Javelin Div. of Apollo Lasers
Jerrold Electronics Corp. CATV
Systems Div.
Lectronic Res. Labs. Inc.
Mastertone Company
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Plastoid Corporation

Prodelin Inc.
RCA Corporation Broadcast Systems
Div.
Revox Corporation
Saxton Prod. Inc.
Shively Laboratories, Inc.
Sinai-Johnson
Singer Products Co., Inc.
Sparta Electronic Corp.
Spencer-Kennedy Labs., Inc.
Theta-Com
Times Wire and Cable Sub. of Insilco
Corp.
Trompeter Electronics
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
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Wilkinson Electronics, Inc.

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Cablewave Systems Inc. Subs. Phelps
Dodge and Kabelmetal
CCA Electronics Corp.
Cohu, Inc. Electronics Division
Collins Radio Group Rockwell
International
Comm/Scope Company
Dyma Engineering, Inc.
Essex International Inc.
Communication & CATV Div.
Gately Electronics
General Cable Corp.
Harvey Radio Pro A/V Div.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Jerrold Electronics Corp. CATV
Systems Div.
Mastertone Company
Micro Communications, Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Plastoid Corporation
Prodelin Inc.
RCA Corporation Broadcast Systems
Div.
Shively Laboratories, Inc.
Sparta Electronic Corp.
Theta-Com
Times Wire and Cable Sub. of Insilco
Corp.
Wilkinson Electronics, Inc.

Cable, Direct Burial

Alpha Wire Corp.
Anixter-Pruzan CATV Division
A-Tel-A-Matic
Beaver Electronics, Ltd.
Belden Corp. Electronic Division
Birnbach Co. Inc.
Brand-Rex Company
Cablewave Systems Inc. Subs. Phelps
Dodge and Kabelmetal
Collins Radio Group Rockwell
International
Comm/Scope Company
Essex International Inc.
Communication & CATV Div.
General Cable Corp.
Harvey Radio Pro A/V Div.
Jerrold Electronics Corp. CATV
Systems Div.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Plastoid Corporation
Sinai-Johnson
Singer Products Co., Inc.
Spencer-Kennedy Labs., Inc.
Theta-Com
Times Wire and Cable Sub. of Insilco
Corp.

Cable, Microphone

Alpha Wire Corp.
Belden Corp. Electronic Division
Birnbach Co. Inc.
Collins Radio Group Rockwell
International
General Cable Corp.
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Lauderdale Electronic Labs
Saxton Prod. Inc.
Sescom, Inc.
Sinai-Johnson
Wilkinson Electronics, Inc.

Cable, Shielded Audio

Alpha Wire Corp.
A-Tel-A-Matic
Belden Corp. Electronic Division
Birnbach Co. Inc.
Boston Insulated Wire & Cable Co.
Brand-Rex Company
Collins Radio Group Rockwell
International
Comm/Scope Company
Essex International Inc.
Communication & CATV Div.
Franz Vertriebs-gesellschaft m.b.H.
G.C. Electronics
General Cable Corp.
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Nortronics Co., Inc. Recorder Care Div.
Prestolite Company
RCA Corporation Broadcast Systems
Div.
Revox Corporation
Saxton Prod. Inc.
Sescom, Inc.
Sinai-Johnson
Singer Products Co., Inc.
Sparta Electronic Corp.
Terminal Electronics Corp.
Times Wire and Cable Sub. of Insilco
Corp.
Video Engineering Co., Inc.
Wilkinson Electronics, Inc.

Cable Laying Equipment

Anixter-Pruzan CATV Division
Contender Corporation
Ditch Witch Div. of Charles Machine
Works, Inc.
Roll-A-Reel
Terminal Electronics Corp.

Cable Locators, Underground

Automation Products Co.
(International Industries, Inc.)
Instrument Laboratories
Scully/Metrotech Divs. of Dictaphone
Corp.

Calibration Service, Instrument

Ameco Inc.
American Electronic Labs., Inc.
Beaver Electronics, Ltd.
Bird Electronic Corp.
B & K Instruments Inc.
CBS Labs
Comm. Radio Monitoring
Eidson Electronic Co.
Instrument Laboratories
National Electrolab Ltd.
Potomac Instruments, Inc.
Tektronix Inc.

Camera Dollies, Stands and Tripods

Anixter-Pruzan CATV Division
Franklyn R. Beemish & Co.
Behrends, Inc.
Berkey-Colortran Inc.
Burke & James
Cohu, Inc. Electronics Division
Comquip, Inc.
Cosmicar Optical Co., Ltd.
Davis & Sanford Co. Inc.
GBC Closed Circuit TV Corp.
Harris Corporation Broadcast Equip.
Div.

Harvey Radio Pro A/V Div.
Image Devices Incorporated
Innovative Television Equipment, Inc.
International Video Corp.
Javelin Div. of Apollo Lasers
Jerold Electronics Corp. CATV
Systems Div.
Listec TV Equip. Corp.
O'Connor Eng. Labs. Inc. Photographic
Division
Paillard Incorporated
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Precision Laboratories Precision Cine
Equipment Corp.
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Riker Communications Inc.
SGL Waber Electric Div. SGL
Industries, Inc.
Sylvania Comm. Electronic
Technology Incorporated HF Photo
Systems Div.
Tele-Cine Inc.
TeleMation, Inc.
Television Products Co. Inc.
Tri-Tronics, Inc.
Victor Duncan, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
Div
Wilson Corp., H.

Camera Housing, Environmental

Asaca Corp. of America
Franklyn R. Beemish & Co.
Cohu, Inc. Electronics Division
Cunningham Corp. Subs. of Gleason
Works
Harvey Radio Pro A/V Div.
Sinai-Johnson
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
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Franklyn R. Beemish & Co.
Burke & James
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Cunningham Corp. Subs. of Gleason
Works
Davis & Sanford Co. Inc.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
Image Devices Incorporated
Innovative Television Equipment, Inc.
Javelin Div. of Apollo Lasers
Listec TV Equip. Corp.
O'Connor Eng. Labs. Inc. Photographic
Division
Paillard Incorporated
Power-Optics Inc.
Quick-Set Inc.
Sinai-Johnson
Technology Incorporated HF Photo
Systems Div.
Tele-Cine Inc.
Tri-Tronics, Inc.
Victor Duncan, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
Div

Camera Remote Control Equipment

Anixter-Pruzan CATV Division
Franklyn R. Beemish & Co.
Bristol Div. of Acco
Catel, a Div. of United Scientific Corp.
Cohu, Inc. Electronics Division
Cunningham Corp. Subs. of Gleason
Works

Fernseh Group, Robert Bosch Corp.
GBC Closed Circuit TV Corp.
Harris Corporation Broadcast Equip.
Div.
Innovative Television Equipment, Inc.
Jerold Electronics Corp. CATV
Systems Div.
Listec TV Equip. Corp.
Moseley Assoc. Inc.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Power-Optics Inc.
RCA Corporation Broadcast Systems
Div.
Sinai-Johnson
Sylvania Comm. Electronic
Tektronix Inc.
Tele-Cine Inc.
TeleMation, Inc.
Tele Measurements Inc.
Trepac Corp. America
Vicon Industries, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
Div

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Ameco Inc.
Ampex Corp. Audio-Video Systems
Division
Anixter-Pruzan CATV Division
Asaca Corp. of America
A-Tel-A-Matic
ATV Research
Cohu, Inc. Electronics Division
Colorado Video Inc.
Computer Image Corp.
Comquip, Inc.
Denson Electronic Corp.
Diebold Incorporated
Echo Science Corp. Subsidiary of
Arvin Systems, Inc.
Fernseh Group, Robert Bosch Corp.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Gen. Electrodynamics
Harvey Radio Pro A/V Div.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Javelin Div. of Apollo Lasers
Jerold Electronics Corp. CATV
Systems Div.
Maze Corporation
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation RCA Electronic
Components
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Riker Communications Inc.
SC Electronics, Inc. Subs. of
Audiotronics Corp.
Sinai-Johnson
Sony Corp. of America VTR Div.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
Teledyne Camera Systems
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Temtron Electronics
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
Div
Westinghouse Electric Corp. Electric
Tube Div.

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Maze Corporation136

Akai America, Ltd.
Anixter-Pruzan CATV Division
A-Tel-A-Matic

Cohu, Inc. Electronics Division
Commercial Elect.
Comquip, Inc.
Denson Electronic Corp.
Fernseh Group, Robert Bosch Corp.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Harvey Radio Pro A/V Div.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems
Div.
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Sony Corp. of America VTR Div.
Teledyne Camera Systems
TeleMation, Inc.
Tele Measurements Inc.
Temtron Electronics
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Westinghouse Electric Corp. Electric
Tube Div.

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Comquip, Inc.
Fernseh Group, Robert Bosch Corp.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
International Video Corp.
Marco Video Systems, Inc.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Rank Cintel, Electronic Systems Div.
Rank Precision Industries Ltd.
RCA Corporation Broadcast Systems
Div.
R. H. Tyler Co. Div. of Weather Scan,
Inc.
TeleMation, Inc.
Tele Measurements Inc.
Temtron Electronics
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
Div

Cameras, Film Cine

ABTO, Inc.
Arriflex Company of America
Behrends, Inc.
Canon USA, Inc. Optics Division
Cohu, Inc. Electronics Division
Comquip, Inc.
Eastman Kodak Co.
Fernseh Group, Robert Bosch Corp.
GAF Corp.
Image Devices Incorporated
Paillard Incorporated
Precision Laboratories Precision Cine
Equipment Corp.
RCA Corporation Broadcast Systems
Div.
Teledyne Camera Systems
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Victor Duncan, Inc.

Cameras, Film Still

ABTO, Inc.
Burke & James

Canon USA, Inc. Optics Division
Comquip, Inc.
Eastman Kodak Co.
GAF Corp.
Paillard Incorporated
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Ultra Audio Products

Cameras, Image Motion Compensation

Dynasciences Corp. Video Products
Div.
GBC Closed Circuit TV Corp.

Cameras, Surveillance

Anixter-Pruzan CATV Division
Asaca Corp. of America
A-Tel-A-Matic
ATV Research
Cohu, Inc. Electronics Division
Comquip, Inc.
Diebold Incorporated
Eastman Kodak Co.
Echo Science Corp. Subsidiary of
Arvin Systems, Inc.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Gen. Electrodynamics
Harvey Radio Pro A/V Div.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
Image Devices Incorporated
Javelin Div. of Apollo Lasers
Lenzar Optics Corp.
Mosler Electronic Systems Div.
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Power-Optics Inc.
Pulse Dynamics Mfg. Corp. (PDMC)
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Electronic
Components
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Riker Communications Inc.
SC Electronics, Inc. Subs. of
Audiotronics Corp.
Sinai-Johnson
Tele-Cine Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
Teledyne Camera Systems
TeleMation, Inc.
Teltron, Inc.
Tri-Tronics, Inc.
Vicon Industries, Inc.
Victor Duncan, Inc.
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Division
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Denson Electronic Corp.
Harvey Radio Pro A/V Div.
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Maze Corporation
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Riker Communications Inc.
Sony Corp. of America VTR Div.
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Tele Measurements Inc.
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Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Marconi Electronics Inc.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Sony Corp. of America VTR Div.
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Temtron Electronics
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Editel Productions
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GBC Closed Circuit TV Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Ikegami Electronics Ind., Inc. of N.Y.
Image Devices Incorporated
International Video Corp.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
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Harvey Radio Pro A/V Div.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Marconi Electronics Inc.

Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
Sony Corp. of America VTR Div.
TeleMation, Inc.
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Image Devices Incorporated
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
RCA Corporation RCA Electronic Components
Sinai-Johnson
Sony Corp. of America VTR Div.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

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Cohu, Inc. Electronics Division
Commercial Elect.
Fernseh Group, Robert Bosch Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
International Video Corp.
Marconi Electronics Inc.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
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Broadcast Electronics
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CCA Electronics Corp.
Cine Sonic Sound Inc.
Collins Radio Group Rockwell International
Control Design Corp.
Dyma Engineering, Inc.
Garron Electronics, Inc.
Harris Corporation Broadcast Equip. Div.
International Tapetronics Corp.
MacKenzie Laboratories, Inc.
Mastertone Company
Maze Corporation
McCurdy Radio Ind. Inc.
QRK Electronic Prod.
RAPID-Q Div. of Garron Electronics
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
Singer Products Co., Inc.

Spotmaster Broadcast Electronics
Systems Engineering Co., Inc.
Systems Marketing Corp. And
Sono-Mag Corp.
Tapex Corporation
Telectro Systems Corp.
Visual Electronics Laboratories
Wilkinson Electronics, Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
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Broadcast Automation Assoc.
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CCA Electronics Corp.
Collins Radio Group Rockwell International
Communication Medias
Control Design Corp.
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
IGM
International Tapetronics Corp.
MacKenzie Laboratories, Inc.
Mastertone Company
Maze Corporation
QRK Electronic Prod.
Radio Mfg. Co. (RMC)
RAPID-Q Div. of Garron Electronics
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
Singer Products Co., Inc.
Spotmaster Broadcast Electronics
Systems Engineering Co., Inc.
Systems Marketing Corp. And
Sono-Mag Corp.
Telectro Systems Corp.
Telex Communications, Inc.
Val-Tronics, Inc.
VIF International
Visual Electronics Laboratories
Wilkinson Electronics, Inc.

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Autogram Corporation
Broadcast Automation Assoc.
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CCA Electronics Corp.
Cine Sonic Sound Inc.
Conrac Corporation Cramer Division
Control Design Corp.
Harris Corporation Broadcast Equip. Div.
IGM
MacKenzie Laboratories, Inc.
Mastertone Company
Maze Corporation
RAPID-Q Div. of Garron Electronics
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.
Systems Marketing Corp. And
Sono-Mag Corp.
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VIF International
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Audio Distributor Inc.
Broadcast Automation Assoc.
Broadcast Electronics
Camex Corp.
CCA Electronics Corp.
Cine Sonic Sound Inc.
Collins Radio Group Rockwell International
Communication Medias
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Control Design Corp.
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Garron Electronics, Inc.
Harris Corporation Broadcast Equip. Div.
IGM
International Tapetronics Corp.
Lauderdale Electronic Labs
LPB Inc.
MacKenzie Laboratories, Inc.
Mastertone Company
Maze Corporation
McCurdy Radio Ind. Inc.
Pacific Recorders and Engrg. Corp. Div. 47B
QRK Electronic Prod.
Radio Mfg. Co. (RMC)
RAPID-Q Div. of Garron Electronics
RCA Corporation Broadcast Systems Div.
Schafer Electronics Corp.
Sharp Electronics Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Superscope, Inc.
Systems Engineering Co., Inc.
Systems Marketing Corp. And
Sono-Mag Corp.
Tapecaster TCM, Inc.
Tapex Corporation
Telectro Systems Corp.
Telex Communications, Inc.
Tri-Tronics
Val-Tronics, Inc.
Visual Electronics Laboratories
Wilkinson Electronics, Inc.

Cartridge Machine Alignment Tape

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Ampro Corp.
Audio Distributor Inc.
Fidelipac Division TelePro Industries, Inc.
Joia Cartridge Service
Lauderdale Electronic Labs
Mastertone Company
Nortronics Co., Inc. Recorder Care Div.
Professional Audio Service
Sparta Electronic Corp.
Tapecaster TCM, Inc.
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Birmingham Tape Cartridge Co., Inc.
Broadcast Electronics
Joa Cartridge Service
Lauderdale Electronic Labs
Marathon Broadcast Equip.
Mastertone Company
Professional Audio Service
Qualitape Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Tapex Corporation
Telectro Systems Corp.

Cartridge Recording Services

Communication Medias
Mastertone Company
Pentagon Industries, Inc.
Qualitape Inc.
Radio Mfg. Co. (RMC)
Schafer Electronics Corp.
Tapex Corporation
Telectro Systems Corp.

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Audio Services, Inc.
Joa Cartridge Service
Lauderdale Electronic Labs
Mastertone Company
Qualitape Inc.
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Tapex Corporation
Video Accessories Mfg. Co.

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Birmingham Tape Cartridge Co., Inc.
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Joa Cartridge Service
Spotmaster Broadcast Electronics
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Aristocart Div. Western Broadcasting Co., Ltd.
Audio Distributor Inc.
Audio Magnetics Corp.
Autogram Corporation
Broadcast Automation Assoc.
Broadcast Electronics
Broadcast Equipment & Supply Co.
BSC Incorporated
Camex Corp.
Capitol Magnetic Products a Div. of Capitol Records
CCA Electronics Corp.
Cine Sonic Sound Inc.
Collins Radio Group Rockwell International
Communication Medias
Conrac Corporation Cramer Division
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Fidelipac Division TelePro Industries, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Gould Inc. Instrument Systems Div.
Harris Corporation Broadcast Equip. Div.
IGM
Joa Cartridge Service
Lauderdale Electronic Labs
LPB Inc.
MaCarta
Marathon Broadcast Equip.
Mastertone Company
Memorex Corporation Audio-Video Group
Professional Audio Service
QRK Electronic Prod.
Qualitape Inc.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Robins/Fairchild Fairchild Sound Equipment Corp.
Schafer Electronics Corp.
Sinai-Johnson
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Engineering Co., Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
Tapex Corporation
Telectro Systems Corp.
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Collins Radio Group Rockwell International
Communication Medias
Duotone Co. Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Harris Corporation Broadcast Equip. Div.
Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
QRK Electronic Prod.
RCA Corporation Broadcast Systems Div.

Rek-O-Kut Inc.
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
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Fidelipac Division TelePro Industries, Inc.
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Franz Vertriebs-gesellschaft m.b.H.
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Lauderdale Electronic Labs
Marathon Broadcast Equip.
Mastertone Company
QRK Electronic Prod.
Qualitape Inc.
Rek-O-Kut Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Stanton Magnetics Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Tapex Corporation
Wilkinson Electronics, Inc.

Cartridges, Videotape

Anixter-Pruzan CATV Division
Audio Magnetics Corp.
Harvey Radio Pro A/V Div.
International Video Corp.
K'SON Corporation
Mincom Div. 3M Co.
Qualitape Inc.
RCA Corporation Broadcast Systems Div.
Sony Corp. of America VTR Div.
Tele Measurements Inc.
3M Company Magnetic Audio/Video Prod. Div.
Tri-Tronics, Inc.

Cassette Machine, Dual Deck

Broadcast Automation Assoc.
Garron Electronics, Inc.
Pentagon Industries, Inc.
RAPID-Q Div. of Garron Electronics
Schafer International

Cassette Machine, Multiple Deck

Broadcast Automation Assoc.
Conrac Corporation Cramer Division
Control Design Corp.
Peerless Electronics, Inc.
Pentagon Industries, Inc.
RAPID-Q Div. of Garron Electronics
Schafer International

Cassette Machine, Random Access

Ampex Corp. Audio-Video Systems Division
Broadcast Automation Assoc.
Conrac Corporation Cramer Division
Control Design Corp.
Garron Electronics, Inc.
Peerless Electronics, Inc.
RAPID-Q Div. of Garron Electronics
Schafer International

Cassette Machine, Single Deck

Admiral Group, Rockwell Int'l.
Broadcast Automation Assoc.
Conrac Corporation Cramer Division
Control Design Corp.
Garron Electronics, Inc.
Lauderdale Electronic Labs
Mincom Div. 3M Co.
RAPID-Q Div. of Garron Electronics
Schafer International
Sharp Electronics Corp.
Superscope, Inc.
TEAC Corp of America
Telex Communications, Inc.

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Capitol Magnetic Products a Div. of Capitol Records
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Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Electronic Engineering Co. of California
Harvey Radio Pro A/V Div.
Kaitronics Corporation
Kansas State Network, Inc.
Marconi Electronics Inc.
Nasco Television Systems
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
TeleMation, Inc.
Telestrator Interand Corp.
Theta-Com
Time & Frequency Tech., Inc.
Ultra Audio Products
Video Accessories Mfg. Co.
Video Data Systems, Inc.
Video Devices Co.
Video Engineering Co., Inc.
Video Sentry System
VIF International

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Comark Industries Inc.
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Grass Valley Group, Inc.
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Shintron Co. Inc. Video Products Div.
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Joa Cartridge Service
Lauderdale Electronic Labs
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Mastertone Company
Memorex Corporation Audio-Video Group
Miller-Stephenson Chemical Co.
Nortronics Co., Inc. Recorder Care Div.
Qualitape Inc.
RCA Corporation RCA Electronic Components
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
Spotmaster Broadcast Electronics
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ES Enterprises

Frontier Engineering Corp. Television and Computer Div.
General Time Service A Talley Industries Co.
Harris Corporation Broadcast Equip. Div.
Harwood Mfg. Co.
Heath Co.
IGM
Lauderdale Electronic Labs
Logiconcepts, Inc.
Micro-Trak Corporation
Racine & Co., Inc., Jules
Radio Mfg. Co. (RMC)
Radio Time Service
Rohde & Schwarz Sales Co.
Seattle Technology
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Standard Electric Time Div. of Johnson Service Co.
Systems Marketing Corp. And Sono-Mag Corp.
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Control Design Corp.
Cooke Engineering Co.
Datametrics
Datatron, Inc.
ES Enterprises
Frontier Engineering Corp. Television and Computer Div.
Kaitronics Corporation
Lauderdale Electronic Labs
Logiconcepts, Inc.
Mastertone Company
Micro-Trak Corporation
Orbit Radio and Video
Pacific Recorders and Engrg. Corp. Div. 47B
Peerless Electronics, Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Quasar Microsystems Inc.
Rohde & Schwarz Sales Co.
Seattle Technology
Sparta Electronic Corp.
Systron-Donner
Tapecaster TCM, Inc.
Time & Frequency Tech., Inc.
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United Systems Corp. Subs. of Monsanto Co.
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Cooke Engineering Co.
Chronotron Systems Div. SLS Capital Corp.
Datametrics

Dyma Engineering, Inc.
ES Enterprises
Frontier Engineering Corp. Television and Computer Div.
Harris Corporation Broadcast Equip. Div.
IGM
Kaitronics Corporation
Logiconcepts, Inc.
Micro-Trak Corporation
Quasar Microsystems Inc.
Radio Mfg. Co. (RMC)
Radio Time Service
Rohde & Schwarz Sales Co.
Schafer Electronics Corp.
Seattle Technology
Standard Electric Time Div. of Johnson Service Co.
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Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Rank Cintel, Electronic Systems Div.
Rank Precision Industries Ltd.
Rank Precision Industries
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Atlantic Research Corp.
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CCA Electronics Corp.
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Dyma Engineering, Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
General Electric Co. Mobile Radio Dept.
Image Devices Incorporated
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Paso Sound Products Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA Corporation Broadcast Systems Div.
Scientific Systems, Inc. Broadcast Equipment Div.
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Singer Instrumentation Los Angeles Operation
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Cablewave Systems Inc. Subs. Phelps Dodge and Kabelmetal
Camex Corp.
Collins Radio Group Rockwell International
Dyma Engineering, Inc.
Farinon Electric
Farinon Electric of Canada, Ltd.
GTE Lenkurt Incorporated
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Narda Microwave Corp., The
North American Radio Corp.
Raytheon Company Raytheon Data Systems Co.
RHG Elect Labs, Inc.
Scientific Systems, Inc. Broadcast Equipment Div.
Scott-Buttner Coastcom, Inc.
Singer Products Co., Inc.
Soladyne Div. Rohr Industries
Tele Measurements Inc.
Theta-Corn
Transcom Electronics, Inc.
Tri-Tronics, Inc.
Varian Beverly Operations

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American Electronic Labs., Inc.
Atlantic Research Corp. Telecommunications Dept.
Bethany International
Camex Corp.
Catel, a Div. of United Scientific Corp.
Collins Radio Group Rockwell International
Dorado Systems
Farinon Electric of Canada, Ltd.
GTE Lenkurt Incorporated
Moseley Assoc. Inc.
Raytheon Company Raytheon Data Systems Co.
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Cablewave Systems Inc. Subs. Phelps
Dodge and Kabelmetal
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell
International
Comm/Scope Company
Dyma Engineering, Inc.
Farinon Electric
Farinon Electric of Canada, Ltd.
GTE Lenkurt Incorporated
Ikegami Electronics Ind., Inc. of N.Y.
Marti Electronics
Mastertone Company
Microwave Assoc. Inc.
Moseley Assoc. Inc.
North American Radio Corp.
RHG Elect Labs, Inc.
Scott-Buttner Coastcom, Inc.
Singer Products Co., Inc.
Soladyne Div. Rohr Industries
Tele Measurements Inc.
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Hewlett Packard Co.
Moseley Assoc. Inc.
Peerless Electronics, Inc.
PRD Electronics, Inc. Subsidiary of
Harris Corp.
Raytheon Company Raytheon Data
Systems Co.
RCA Corporation RCA Missile &
Surface Radar Div.
Recortec Inc.
Schafer Electronics Corp.
STEP Corporation
Systems Marketing Corp. And
Sono-Mag Corp.
Tektronix Inc.
TeleMation, Inc.

Connectors, Cable

Ameco Inc.
AMP Special Industries
Amphenol RF Division
A-Tel-A-Matic
AVA Electronics Corp.

Beaver Electronics, Ltd.
Blonder-Tongue Labs.
Conway Electronic Enterprises Limited
G.C. Electronics
General Radio Co.
Harvey Radio Pro A/V Div.
Hollingsworth Solderless Terminal Co.
Magnavox Company CATV Division
Maury Microwave Corp.
Peerless Electronics, Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Rex Rheostat & Co., Inc.
Switchcraft Inc.
Systems Marketing Corp. And
Sono-Mag Corp.
Tek-Wave, Inc.
Theta-Corn
Times Wire and Cable Sub. of Insilco
Corp.
TRW Electronic Supply Co. Div. of
TRW
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Broadcast Electronics
Broadcast Equipment & Supply Co.
Bud Radio Inc.
Camex Corp.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment
Corp.
Collins Radio Group Rockwell
International
Communication Medias
Concept 70, A Div. of Dyma
Engineering, Inc.
Delta Electronics Inc. (Va.)
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of
FM International
Frontier Engineering Corp. Television
and Computer Div.
Gately Electronics
General Electric Co. Imaging & Display
Devices Product Sect.
Grinnan Fixture Co.
Harris Corporation Broadcast Equip.
Div.
IGM
Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
Maze Corporation
McCurdy Radio Ind. Inc.
McMartin Industries
Rupert Neve, Inc.
Orbit Radio and Video
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.

QRK Electronic Prod.
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems
Div.
Robins/Fairchild Fairchild Sound
Equipment Corp.
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Scientific Systems, Inc. Broadcast
Equipment Div.
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Sphere Electronics
Spotmaster Broadcast Electronics
Systems Engineering Co., Inc.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics
Ultra Audio Products
United Radio Supply Inc.
United Recording Electronics
Industries
UREI a URC Company
Val-Tronics, Inc.
Visual Electronics Laboratories
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.

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LPB Inc.
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McCurdy Radio Ind. Inc.
McMartin Industries
Rupert Neve, Inc.
Orbit Radio and Video
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
QRK Electronic Prod.
Radio Mfg. Co. (RMC)

Ramko Research
RCA Corporation Broadcast Systems
Div.
Robins/Fairchild Fairchild Sound
Equipment Corp.
Rupert Neve Incorporated
Schafer Electronics Corp.
Scientific Systems, Inc. Broadcast
Equipment Div.
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TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics
Ultra Audio Products
United Radio Supply Inc.
United Recording Electronics
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Broadcast Electronics
BSC Incorporated
Bud Radio Inc.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment
Corp.
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Dyma Engineering, Inc.
Frontier Engineering Corp. Television
and Computer Div.
Gately Electronics
General Electric Co. Imaging & Display
Devices Product Sect.
Gotham Audio Corp.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
Head Sound, Inc.
Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
Maze Corporation
McCurdy Radio Ind. Inc.
McMartin Industries
MICMIX Audio Products, Inc.
Rupert Neve, Inc.
Orbit Radio and Video
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
QRK Electronic Prod.
Radio Mfg. Co. (RMC)
Ramko Research

RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Scientific Systems, Inc. Broadcast Equipment Div.
Sennheiser Electronics Corp.
Shure Brothers Inc.
Sinai-Johnson
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Sphere Electronics
Spotmaster Broadcast Electronics
Superscope, Inc.
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Broadcast Automation Assoc.
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BSC Incorporated
Bud Radio Inc.
Camex Corp.
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Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
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Dyma Engineering, Inc.
Elektromesstechnik E. M. T. Wilhelm Franz G. M. B. H.
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Frontier Engineering Corp. Television and Computer Div.
Gately Electronics
General Electric Co. Imaging & Display Devices Product Sect.
Gotham Audio Corp.
Grinnan Fixture Co.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro. A/V Div.
Head Sound, Inc.
IGM
Lang Electronics Inc.
Lauderdale Electronic Labs
Magna-Tech Electronic Co., Inc.
Maze Corporation
McCurdy Radio Ind. Inc.
McMartin Industries
MICMIX Audio Products, Inc.
Nemo Recording Labs
Rupert Neve, Inc.

Orbit Radio and Video
Pacific Recorders and Engrg. Corp. Div. 47B
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
QRK Electronic Prod.
Quad-Eight Electronics
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RCA Corporation Broadcast Systems Div.
Revox Corporation
Robins/Fairchild Fairchild Sound Equipment Corp.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Shure Brothers Inc.
Sinai-Johnson
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Sphere Electronics
Systems Engineering Co., Inc.
TASCAM
TeleMation, Inc.
Total Technology
Ultra Audio Products
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Delta Electronics Inc. (Va.)
Dyma Engineering, Inc.
Frontier Engineering Corp. Television and Computer Div.
Gately Electronics
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display Devices Product Sect.
Harris Corporation Broadcast Equip. Div.
IGM
Interntl. Nuclear Corp.
Lang Electronics Inc.
LPB Inc.
Marconi Electronics Inc.
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McCurdy Radio Ind. Inc.
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Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
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Quad-Eight Electronics
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RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Shintron Co. Inc. Video Products Div.
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Autogram Corporation
Broadcast Automation Assoc.
Broadcast Electronics
BSC Incorporated
Bud Radio Inc.
Camex Corp.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Communication Medias
Concept 70, A Div. of Dyma Engineering, Inc.
Dyma Engineering, Inc.
FMI/Magnatech Corp. A Subsidiary of FM International
Frontier Engineering Corp. Television and Computer Div.
Gotham Audio Corp.
Harris Corporation Broadcast Equip. Div.
Head Sound, Inc.
Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
Maze Corporation
McMartin Industries
Rupert Neve, Inc.
QRK Electronic Prod.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
Rupert Neve Incorporated
Schafer Electronics Corp.
Shure Brothers Inc.
Sinai-Johnson
Sparta Electronic Corp.
Spectra Sonics
Sphere Electronics
Spotmaster Broadcast Electronics
Systems Engineering Co., Inc.
United Recording Electronics Industries
UREI a URC Company
Val-Tronics, Inc.
Visual Electronics Laboratories
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.

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Ampex Corp. Audio-Video Systems Division
Bud Radio Inc.
Central Dynamics Corp.
Communications Technology, Inc.
Dynasciences Corp. Video Products Div.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Gately Electronics
GBC Closed Circuit TV Corp.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Industrial Sciences, Inc.
Interntl. Nuclear Corp.
Jerrold Electronics Corp. CATV Systems Div.
Maze Corporation
Nasco Television Systems
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
Riker Communications Inc.
Shintron Co. Inc. Video Products Div.
TeleMation, Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Ultra Audio Products
Video Accessories Mfg. Co.
Vicon Industries, Inc.
Video Engineering Co., Inc.
Viscount Industries Ltd.
Visual Educom Inc. Dage/MTI/Infonics Div.
Wilson Corp., H.

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Ameco Inc.
American Data Corp. an AIRPAX Company
Anixter-Prusan CATV Division
Applied Video Electronics, Inc.
Bud Radio Inc.
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Dynasciences Corp. Video Products Div.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Gately Electronics
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display Devices Product Sect.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Industrial Sciences, Inc.
Interntl. Nuclear Corp.
Jerrold Electronics Corp. CATV Systems Div.
Marconi Electronics Inc.
Nasco Television Systems
Orbit Radio and Video

Panasonic Video Systems Div.
Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.
Riker Communications Inc.
Shintron Co. Inc. Video Products Div.
Singer Products Co., Inc.
Sylvania Comm. Electronic TeleMation, Inc.
Video Accessories Mfg. Co.
Vicon Industries, Inc.
Video Engineering Co., Inc.
Viscount Industries Ltd.
Visual Educom Inc. Dage/MTI/Infonics Div

Converters

AEL Communications Corp., Subs.
American Electronic Labs., Inc.
American Electronic Labs., Inc.
Anixter-Prizan CATV Division
Berkey-Colortran Inc.
Biomation Corp.
Bristol Div. of Acco
California Instruments Co. Div. of Aiken Ind., Inc.
Catel, a Div. of United Scientific Corp.
C-COR Electronics, Inc.
Fernseh Group, Robert Bosch Corp.
Fung Engineering Inc.
Jerrold Electronics Corp. CATV Systems Div.
K'SON Corporation
Lectronic Res. Labs. Inc.
Magnavox Company CATV Division
Narda Microwave Corp., The
OAK Industries Inc. Communications Group
Topaz Electronics

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American Data Corp. an AIRPAX Company
American Electronic Labs., Inc.
Audio Services, Inc.
Autogram Corporation
Chrono-Log Corp.
Conrac Corporation Cramer Division
Cooke Engineering Co.
Dana Laboratories, Inc.
Dyma Engineering, Inc.
EIP, Inc.
ES Enterprises
Fluke, John, Mfg. Co. Inc.
Gotham Audio Corp.
Hewlett Packard Co.
Holland Electronics
Lauderdale Electronic Labs
Lectronic Res. Labs. Inc.
Pacific Recorders and Engrg. Corp. Div. 47B
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Power Waves, Inc.
Quasar Microsystems Inc.
Systron-Donner
Tapecaster TCM, Inc.
Time & Frequency Tech., Inc.
United Systems Corp. Subs. of Monsanto Co.
Video Accessories Mfg. Co.

Couplers, Hybrid

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Shively Laboratories, Inc.143

Arvin Systems, Inc.
Beaver Electronics, Ltd.
Comark Industries Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Microwave Assoc. Inc.

Narda Microwave Corp., The
Shively Laboratories, Inc.
Wide Band Engineering Co., Inc.

Crystals, Quartz

Colorado Crystal Corp.
Eidson Electronic Co.
Sinai-Johnson

Custom Control Systems

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Audio Services, Inc.
Dyma Engineering, Inc.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Imero Fiorentino Associates, Inc.
IGM
K'SON Corporation
Moseley Assoc. Inc.
Pacific Recorders and Engrg. Corp. Div. 47B
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Sparta Electronic Corp.
Video Accessories Mfg. Co.

Cyclorama, Studio Drapery

Imero Fiorentino Associates, Inc.
Janson Industries

Decoder, Four Channel Stereo

Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Lauderdale Electronic Labs
Sansui Electronics Corp.

Decoders, Tone

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Video Accessories Mfg. Co.109

Alpha Electronic Services Inc.
Audio Services, Inc.
Electronic Designers Inc.
Trepac Corp. America
Video Accessories Mfg. Co.

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American Electronic Labs., Inc.
Catel, a Div. of United Scientific Corp.
GTE Lenkurt Incorporated
Moseley Assoc. Inc.
North American Radio Corp.
Trepac Corp. America

Delay Cartridges, Audio

Allied Broadcast Equip. Div. of Allied Adv. Corp.
Communication Medias
Fidelipac Division TelePro Industries, Inc.
International Tapetronics Corp.
Joa Cartridge Service
Lauderdale Electronic Labs
Marathon Broadcast Equip.
Mastertone Company
Qualitape Inc.
Sparta Electronic Corp.

Delay Lines

Allen Avionics Inc.
Altec Sound Products
Cablewave Systems Inc. Subs. Phelps Dodge and Kabelmetal
Control Concepts Corporation
Dynamics Corp. Video Products Div.
Edison Electronics Div. McGraw-Edison Co.
ESC Electronics Corp.
Eventide Clock Works Inc. Broadcast Products Div.
Franz Vertriebs-gesellschaft m.b.H.
Gotham Audio Corp.
Lectronic Res. Labs. Inc.
Maury Microwave Corp.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Quad-Eight Electronics
Tasker Systems Div. of Whittaker Corp.
Tektronix Inc.
Television Equipment Associates
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Times Wire and Cable Sub. of Insilco Corp.
United Recording Electronics Industries
UREI a URC Company
Walther M. A. Andersen & Assoc., Inc.

Delay Measuring Set, Envelope

Datatek Corp.
Dragnet Engineering Labs., Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Television Equipment Associates

Delay Units, Video

Control Concepts Corporation
Data Disc Inc.
Dynamics Corp. Video Products Div.
Edison Electronics Div. McGraw-Edison Co.
ESC Electronics Corp.
Television Equipment Associates
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Walther M. A. Andersen & Assoc., Inc.

Demagnetizers, Bulk Tape

Allied Broadcast Equip. Div. of Allied Adv. Corp.
Audio Distributor Inc.
Beau Motor Division U.M.C. Electronics Co.
Behrends, Inc.
Broadcast Automation Assoc.
Broadcast Electronics
Communication Medias
Fidelipac Division TelePro Industries, Inc.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
International Tapetronics Corp.
Joa Cartridge Service
Lauderdale Electronic Labs
Marathon Broadcast Equip.
Mastertone Company
Nortronics Co., Inc. Recorder Care Div.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Recordex Corporation
Robins/Fairchild Fairchild Sound Equipment Corp.
Shallco, Incorporated
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Taber Mfg. & Engr. Co.
Val-Tronics, Inc.
VIF International

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Harris Corporation149

Ameco Inc.
Anixter-Prizan CATV Division
Belar Electronics Lab., Inc.
Catel, a Div. of United Scientific Corp.
Comark Industries Inc.
Conrac Div. Conrac Corp.
DYNALIR Electronics, Inc.
Fung Engineering Inc.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Jerrold Electronics Corp. CATV Systems Div.
KRL Electronics, Inc.
Marconi Instruments
Moseley Assoc. Inc.
National Electrolab Ltd.
RCA/Community Telev. Systems
Electronic Industrial Engineering
RCA Corporation Broadcast Systems Div.
RHG Elect Labs, Inc.
Riker Communications Inc.
Rohde & Schwarz Sales Co.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Scott-Buttner Coastcom, Inc.
Sinai-Johnson
Universal Media Corp.
Video Engineering Co., Inc.
World Video Inc.

Detectors, Microwave

American Electronic Labs., Inc.
Amperex Electronic Corp.
Comark Industries Inc.
English Electric Valve North America Ltd.
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Maury Microwave Corp.
Microwave Assoc. Inc.
Mosler Electronic Systems Div.
Narda Microwave Corp., The
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Systron-Donner
Texscan Corp.
Thomson-CSF Electron Tubes
Weinschel Engineering Co.

Detectors, RF

Alford Mfg. Co.
Ameco Inc.
Anixter-Prizan CATV Division
Bird Electronic Corp.
Blonder-Tongue Labs.
CCA Electronics Corp.
Coaxial Dynamics
Comark Industries Inc.
General Microwave Corp.
General Radio Co.
Jerrold Electronics Corp. CATV Systems Div.
Kaitronics Corporation
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Microwave Assoc. Inc.
Narda Microwave Corp., The
National Electrolab Ltd.
North American Radio Corp.
Solitron Devices Inc. Semiconductor Div.
Systron-Donner
Television Technology Corp.
Telonic Altair
Texscan Corp.
Thomson-CSF Electron Tubes
Vitek Electronics Inc.
Wide Band Engineering Co., Inc.

Detectors, Standing Wave

Bird Electronic Corp.
Collins Radio Group Rockwell International
Comark Industries Inc.
General Radio Co.
Hewlett Packard Co.
Lelectron Res. Labs. Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Moseley Assoc. Inc.
Mosier Electronic Systems Div.
Narda Microwave Corp., The
Potomac Instruments, Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Rohde & Schwarz Sales Co.
Telonic Altair
Texscan Corp.
Weinschel Engineering Co.
Wide Band Engineering Co., Inc.

Detectors, Video Presence

Colorado Video Inc.
Comark Industries Inc.
Lenco Inc. Electronics Division
Vicon Industries, Inc.
Vitek Electronics Inc.
Wide Band Engineering Co., Inc.

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CCA Electronics Corp.
CCA RF Industries, Inc.
Collins Radio Group Rockwell International
Comark Industries Inc.
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Electromagnetic Specialties
Jampro Antenna Co. Div. of Computer Equipment Corp.
Micro Communications, Inc.
Microwave Assoc. Inc.
Multronics, Inc.
Narda Microwave Corp., The
North American Radio Corp.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA/Community Telev. Systems
Electronic Industrial Engineering
RCA Corporation Broadcast Systems Div.
Scott-Buttner Coastcom, Inc.
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Echo Science Corp. Subsidiary of Arvin Systems, Inc.
TeleMation, Inc.

Display Equipment, Titling

CBS Labs
Chiron Telesystems Of the Computer Exchange, Inc.
Comquip, Inc.
Data Disc Inc.
Datavision, Inc.

General Television Ntwk.
Hughes Aircraft Company Ind. Prod. Div.-Image Devices
Marconi Electronics Inc.
OMNIX
Photo Research Div. of Kollmorgen Corp.
Reynolds/Leteron Co.
Shintron Co. Inc. Video Products Div.
Sylvania Comm. Electronic
Tektronix Inc.
Teledyne Brown Engineering Co. Science & Engrg. Div.
TeleMation, Inc.
Telestrator Interand Corp.
Theta-Corn
Time & Frequency Tech., Inc.
Ultra Audio Products
Video Data Systems, Inc.
Video Devices Co.
Video Engineering Co., Inc.
Westinghouse Electric Corp. Electric Tube Div.

Display Units, Digital

American Electronic Labs., Inc.
Ball Bros. Research Corp. Miratel Division
California Instruments Co. Div. of Aiken Ind., Inc.
ES Enterprises
General Microwave Corp.
Hughes Aircraft Company Ind. Prod. Div.-Image Devices
IGM
Ikegami Electronics Ind., Inc. of N.Y.
Moseley Assoc. Inc.
Video Accessories Mfg. Co.

Display Units, Time-Temperature-ID

Ameco Inc.
American Data Corp. an AIRPAX Company
Autogram Corporation
Control Design Corp.
Datavision, Inc.
Time & Frequency Tech., Inc.
Video Accessories Mfg. Co.
Video Data Systems, Inc.

Dividers, Frequency

Hartley Prod. Corp.
Microwave Assoc. Inc.
Total Technology
Video Accessories Mfg. Co.

Dividers, Power

Alford Mfg. Co.
American Electronic Labs., Inc.
Bird Electronic Corp.
Collins Radio Group Rockwell International
Dielectric Communications Div. of Sola Basic
Entron, Inc.
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Lelectron Res. Labs. Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Multronics, Inc.
Narda Microwave Corp., The
North American Radio Corp.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA Corporation Broadcast Systems Div.
Scala Radio Corp.
Shively Laboratories, Inc.
Tektronix Inc.
Trompeter Electronics
Weinschel Engineering Co.
Wide Band Engineering Co., Inc.

Dividers, Voltage

Burwen Laboratories

Entron, Inc.
Fluke, John, Mfg. Co. Inc.
General Radio Co.
Hickok Elect. Instrument
ITT Jennings
Lelectron Res. Labs. Inc.
Shallco, Incorporated
Tech Laboratories Inc.

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Envirco
Liberty Industries

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Kaitronics Corporation
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Central Dynamics Corp.
Datametrics
Electronic Engineering Co. of California
Kaitronics Corporation
Video Accessories Mfg. Co.

Editors, Audio Tape

Behrends, Inc.
Broadcast Electronics
Central Dynamics Corp.
Comquip, Inc.
ELPA Marketing Industries, Inc.
Lauderdale Electronic Labs
Marathon Broadcast Equip.
Nemo Recording Labs
Radio Mfg. Co. (RMC)

Editors, Film

Behrends, Inc.
CMX Systems
Comquip, Inc.
Kalart Victor Corp.
Lipsner-Smith Corp.
Magnasync/Moviola Corp.
Neumade Prod. Corp.
Precision Laboratories Precision Cine Equipment Corp.
Victor Duncan, Inc.

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Ampex Corp. Audio-Video Systems Division
Franklyn R. Beemish & Co.
Central Dynamics Corp.
CMX Systems
Datatron, Inc.
Dynasciences Corp. Video Products Div.
Electronic Engineering Co. of California
ELPA Marketing Industries, Inc.
GBC Closed Circuit TV Corp.

Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Kaitronics Corporation
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Tele-Cine Inc.
Video Accessories Mfg. Co.
Video Aids Corp. of Colorado
Video Devices Co.
Video Engineering Co., Inc.

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Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation

Encoding Systems, Quad

CBS Labs
Collins Radio Group Rockwell International
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Gately Electronics
Sansui Electronics Corp.

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Amtron Corp.
Chiron Telesystems Of the Computer Exchange, Inc.
Computer Image Corp.
Dynasciences Corp. Video Products Div.
Fernseh Group, Robert Bosch Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Lenco Inc. Electronics Division
Marco Video Systems, Inc.
Marconi Electronics Inc.
Mincom Div. 3M Co.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

Encoder, Four Channel Stereo

Audio Designs & Mfg.
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Collins Radio Group Rockwell International
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Gately Electronics
Sansui Electronics Corp.

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Audio Services, Inc.
Bogen Division Lear Siegler Inc.
Diversified Products Inc.
Electronic Designers Inc.
Schafer Electronics Corp.
Trepac Corp. America
Video Accessories Mfg. Co.

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Garron Electronics, Inc.
RAPID-Q Div. of Garron Electronics
Schafer Electronics Corp.

Enhancers, TV Image

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CBS Labs
Cohu, Inc. Electronics Division
Dynasciences Corp. Video Products Div.
Fernseh Group, Robert Bosch Corp.
Harris Corporation Broadcast Equip. Div.
OMNIX
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
Shintron Co. Inc. Video Products Div.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

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Altec Sound Products
Audio Designs & Mfg.
Audio Distributor Inc.
Auditronics, Inc.
Broadcast Equipment & Supply Co.
Burwen Laboratories
CBS Labs
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Communication Medias
ESC Electronics Corp.
Gately Electronics
Gotham Audio Corp.
Head Sound, Inc.
Lang Electronics Inc.
Maze Corporation
McCurdy Radio Ind. Inc.
Micro-Trak Corporation
Modular Audio Products
Rupert Neve, Inc.
Orbit Radio and Video
Pulse Techniques Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Rupert Neve Incorporated
Shallco, Incorporated
Sinai-Johnson
Spectra Sonics
Spectrum Instruments, Inc.
Sphere Electronics
Systems Engineering Co., Inc.
Timekeeper
Total Technology
TT Electronics, Inc.
Ultra Audio Products
United Recording Electronics Industries
UREI a URC Company
Ward-Beck Systems, Ltd.

Equalizers, Vertical Aperture

CBS Labs
Dynasciences Corp. Video Products Div.
ESC Electronics Corp.
Fernseh Group, Robert Bosch Corp.
Mincom Div. 3M Co.
RCA Corporation Broadcast Systems Div.
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Ward-Beck Systems, Ltd.

Equalizers, Video

Ameco Inc.
CBS Labs
Communications Technology, Inc.
Cooke Engineering Co.
Datatek Corp.
ESC Electronics Corp.
Grass Valley Group, Inc.
Kappa Networks, Inc.
Lenco Inc. Electronics Division
Maze Corporation
Richmond Hill Laboratories Ltd.
RMS Electronics, Inc.
Video Engineering Co., Inc.

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Broadcast Automation Assoc.
Broadcast Electronics
Collins Radio Group Rockwell International
Communication Medias
Duotone Co. Inc.
Fidelipac Division TelePro Industries, Inc.
Garner Electronics
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
International Tapetronics Corp.
Joa Cartridge Service
Lauderdale Electronic Labs
Mastertone Company
Minneapolis Magnetics, Inc.
Nortonics Co., Inc. Recorder Care Div.
Precision Laboratories Precision Cine Equipment Corp.
RCA Corporation Broadcast Systems Div.
Recordex Corporation
Recortec Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
Sensinol Division UMC Electronics Co.
Shallco, Incorporated
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Taber Mfg. & Engr. Co.
Tapex Corporation
Val-Tronics, Inc.
VIF International

Exciters, AM

Allied Broadcast Equip. Div. of Allied Adv. Corp.
Camex Corp.
CCA Electronics Corp.
Continental Electronics Mfg. Co.
Harris Corporation Broadcast Equip. Div.
Maze Corporation
RCA Corporation Broadcast Systems Div.
Sintronic Corp.
Transcom Electronics, Inc.
Wilkinson Electronics, Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Electronic Labs., Inc.
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Fung Engineering Inc.
Harris Corporation Broadcast Equip. Div.

Mastertone Company
Maze Corporation
McMartin Industries
North American Radio Corp.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Singer Products Co., Inc.
Sintronic Corp.
Sparta Electronic Corp.
Transcom Electronics, Inc.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Exciters, SCA

Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Electronic Labs., Inc.
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Mastertone Company
Maze Corporation
McMartin Industries
Moseley Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Sintronic Corp.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Exciters, Stereo

Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Electronic Labs., Inc.
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Mastertone Company
Maze Corporation
McMartin Industries
Moseley Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Sintronic Corp.
Sparta Electronic Corp.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Film, Photographic

ABTO, Inc.
Agfa-Gevaert Inc.
Comquip, Inc.
Eastman Kodak Co.
GAF Corp.
Image Devices Incorporated

Film Chain Light Level Control

Beston Electronics Inc.
Cohu, Inc. Electronics Division
Harris Corporation Broadcast Equip. Div.
Sony Corp. of America VTR Div.
TeleMation, Inc.
Tri-Tronics, Inc.
The Zei-Mark Corp.

Film Chain System

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Bell & Howell Audio Visual Div.
Blonder-Tongue Labs.
Buhl Optical Co.
Cohu, Inc. Electronics Division
Comquip, Inc.
Fernseh Group, Robert Bosch Corp.
General Electric Co. Imaging & Display Devices Product Sect.

Harris Corporation Broadcast Equip. Div.
International Video Corp.
L-W Photo, Inc.
Marco Video Systems, Inc.
Marconi Electronics Inc.
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Rank Cintel, Electronic Systems Div.
Rank Precision Industries Ltd.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.
The Zei-Mark Corp.

Film Processing Chemicals, B&W

Eastman Kodak Co.
GAF Corp.
Hunt Chemical Corp., Philip A.
RMS Electronics, Inc.

Film Processing Chemicals, Color

Eastman Kodak Co.
GAF Corp.
Hunt Chemical Corp., Philip A.

Film Processing Services

Eastman Kodak Co.
GAF Corp.
Lipsner-Smith Corp.
Palmer Films, Inc., W. A.
Photo Lab Inc.

Film Sound Transfer Equipment

Comquip, Inc.
Magna-Tech Electronic Co., Inc.
RCA Corporation Broadcast Systems Div.

Filters, Active

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Alpha Electronic Services Inc.
American Electronic Labs., Inc.
Audio Services, Inc.
Crown International
Head Sound, Inc.
Multimetrix Industries Div. of Comstron Corp.
Pulse Techniques Inc.
Spectra Sonics
Total Technology
TT Electronics, Inc.
United Recording Electronics Industries
UREI a URC Company

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American Electronic Labs., Inc.
Anixter-Prusan CATV Division
Bird Electronic Corp.
Coaxial Dynamics
Collins Radio Group Rockwell International
Comark Industries Inc.
Continental Electronics Mfg. Co.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Micro Communications, Inc.

Microwave Assoc. Inc.
North American Radio Corp.
RCA Corporation Broadcast Systems
Div.
Shively Laboratories, Inc.
Telonic Altair
TT Electronics, Inc.
Wide Band Engineering Co., Inc.

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Allen Avionics Inc.
Broadcast Automation Assoc.
Burwen Laboratories
Crown International
Diversified Products Inc.
Electro-Voice Inc. Subs. of Gulton
Industries, Inc.
ELPA Marketing Industries, Inc.
Gately Electronics
Gotham Audio Corp.
Head Sound, Inc.
Multimetrix Industries Div. of
Comstron Corp.
Rupert Neve, Inc.
Pulse Techniques Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Rohde & Schwarz Sales Co.
Rupert Neve Incorporated
Solar Electronics Co.
Spectra Sonics
Spectrum Instruments, Inc.
Total Technology
TT Electronics, Inc.
United Recording Electronics
Industries
UREI a URC Company

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B & K Instruments Inc.
Burwen Laboratories
Gately Electronics
Multimetrix Industries Div. of
Comstron Corp.
Rupert Neve, Inc.
Quad-Eight Electronics
Rupert Neve Incorporated
Solar Electronics Co.
TT Electronics, Inc.
UREI a URC Company

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Allen Avionics Inc.
Ameco Inc.
American Electronic Labs., Inc.
Audio-Video Engineering Co.
Bourns, Inc. BPMC Division
Coaxial Dynamics
Comark Industries Inc.
ESC Electronics Corp.
Gately Electronics
Microwave Assoc. Inc.
Multimetrix Industries Div. of
Comstron Corp.
Multronics, Inc.
Pulse Techniques Inc.
Quad-Eight Electronics
Shively Laboratories, Inc.
Solar Electronics Co.
Telonic Altair
Total Technology
TT Electronics, Inc.
UREI a URC Company
Wide Band Engineering Co., Inc.

Filters, Sound Effect

Eventide Clock Works Inc. Broadcast
Products Div.
Gately Electronics
Rupert Neve, Inc.

Pulse Techniques Inc.
Radio Mfg. Co. (RMC)
Rupert Neve Incorporated
TT Electronics, Inc.

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Ameco Inc.
Coaxial Dynamics
Gately Electronics
Gotham Audio Corp.
Microwave Assoc. Inc.
Multimetrix Industries Div. of
Comstron Corp.
Multronics, Inc.
Rupert Neve, Inc.
North American Radio Corp.
Power Waves, Inc.
Pulse Techniques Inc.
Rupert Neve Incorporated
Spectra Sonics
Systron-Donner
Television Equipment Associates
Telonic Altair
Total Technology
TT Electronics, Inc.

Filters, Video

Ameco Inc.
Audio-Video Engineering Co.
Cohu, Inc. Electronics Division
Comark Industries Inc.
Datatek Corp.
ESC Electronics Corp.
Gotham Audio Corp.
Multimetrix Industries Div. of
Comstron Corp.
Scott-Buttner Coastcom, Inc.
Tektronix Inc.
Television Equipment Associates
Temtron Electronics
Theta-Com
TT Electronics, Inc.

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Ailtech
ES Enterprises
Fluke, John, Mfg. Co. Inc.
Gotham Audio Corp.
Hewlett Packard Co.
Rohde & Schwarz Sales Co.
Time & Frequency Tech., Inc.
TRACOR, Inc. Instruments Group

Generators, Audio Sine

Altec Sound Products
Amber Electro Design, Ltd.
Control Design Corp.
Heath Co.
Instrument Laboratories
Leader Instruments Corp.
Marconi Instruments
Rohde & Schwarz Sales Co.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Total Technology

Generators, Audio Sweep

Ailtech
Altec Sound Products
Amber Electro Design, Ltd.
B & K Instruments Inc.
Conway Electronic Enterprises Limited
Dyma Engineering, Inc.
Hewlett Packard Co.

Hickok Elect. Instrument
Leader Instruments Corp.
Marconi Instruments
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
Radio Mfg. Co. (RMC)
Rohde & Schwarz Sales Co.
Telonic Altair
Total Technology
United Recording Electronics
Industries
UREI a URC Company

Generators, Background Color

American Data Corp. an AIRPAX
Company
Applied Electro Mechanics, Inc.
CBS Labs
Central Dynamics Corp.
Communications Technology, Inc.
Dyma Engineering, Inc.
Dynasciences Corp. Video Products
Div.
Grass Valley Group, Inc.
OMNIX
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
Richmond Hill Laboratories Ltd.
Shintron Co. Inc. Video Products Div.
TeleMation, Inc.
Video Accessories Mfg. Co.
Video Data Systems, Inc.

Generators, Burst

Alpha Electronic Services Inc.
American Data Corp. an AIRPAX
Company
Applied Electro Mechanics, Inc.
CBS Labs
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Dranetz Engineering Labs., Inc.
Dyma Engineering, Inc.
Dynasciences Corp. Video Products
Div.
Grass Valley Group, Inc.
Lenco Inc. Electronics Division
OMNIX
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Tektronix Inc.
TeleMation, Inc.
Video Accessories Mfg. Co.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.

Generators, Color Bar

American Data Corp. an AIRPAX
Company
CBS Labs
Cohu, Inc. Electronics Division
Dyma Engineering, Inc.
Dynasciences Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Engineering Associates
Fernseh Group, Robert Bosch Corp.
Heath Co.
Hickok Elect. Instrument
Internatl. Nuclear Corp.
Leader Instruments Corp.
Lectrotech Inc.
Marconi Electronics Inc.
Mincom Div. 3M Co.
OMNIX
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Electronic
Components
Sencore Inc.
Shintron Co. Inc. Video Products Div.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Troy Electronic Sales Co.
Ultra Audio Products

Video Data Systems, Inc.
Video Engineering Co., Inc.

Generators, Color Sync

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Shintron Co. Inc. 142

American Data Corp. an AIRPAX
Company
CBS Labs
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Control Concepts Corporation
Dyma Engineering, Inc.
Dynasciences Corp. Video Products
Div.
Grass Valley Group, Inc.
Lenco Inc. Electronics Division
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Electronic
Components
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Tektronix Inc.
TeleMation, Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Tri-Tronics, Inc.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.

Generators, Convergence

American Data Corp. an AIRPAX
Company
CBS Labs
Dynasciences Corp. Video Products
Div.
Lectrotech Inc.
Lenco Inc. Electronics Division
Tektronix Inc.
TeleMation, Inc.
Tri-Tronics, Inc.
Troy Electronic Sales Co.

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Video Aids Corp. of Colorado

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Corp.** 88

American Data Corp. an AIRPAX
Company
CBS Labs
Central Dynamics Corp.
Communications Technology, Inc.
Control Concepts Corporation
Electronic Designers Inc.
Grass Valley Group, Inc.
Lenco Inc. Electronics Division
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
TeleMation, Inc.
Tri-Tronics, Inc.

Generators, FM Subcarrier

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Allied Broadcast Equip. Div. of Allied
Adv. Corp.
American Electronic Labs., Inc.
Camex Corp.
Catel, a Div. of United Scientific Corp.

CCA Electronics Corp.
Collins Radio Group Rockwell International
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Leader Instruments Corp.
Marti Electronics
Mastertone Company
McMartin Industries
Moseley Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Scott-Buttner Coastcom, Inc.
Singer Products Co., Inc.
Sintron Corp.
Sparta Electronic Corp.
Tektronix Inc.
Wilkinson Electronics, Inc.

Generators, NTSC Signal Test

American Data Corp. an AIRPAX Company
CBS Labs
Dynasciences Corp. Video Products Div.
Marconi Electronics Inc.
Marconi Instruments
OMNIX
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Tektronix Inc.
TeleMation, Inc.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.
VIF International

Generators, Powered (Electric Motor)

Kato Engineering Co.
Onan
Singer Products Co., Inc.

Generators, Powered (Gasoline Engine)

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Kato Engineering Co.
Mole Richardson Co.
Onan
Singer Products Co., Inc.
Val-Tronics, Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
Camex Corp.
CCA Electronics Corp.
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Leader Instruments Corp.
Mastertone Company
McMartin Industries
Moseley Assoc. Inc.
Sparta Electronic Corp.
Tektronix Inc.
Wilkinson Electronics, Inc.

Generators, Signal AF

Ailtech
Altec Sound Products

Control Concepts Corporation
Control Design Corp.
Conway Electronic Enterprises Limited
Delta Electronics Inc. (N.C.)
Dragnet Engineering Labs., Inc.
Dyma Engineering, Inc.
Dynascan Corp. B & K Division
Edison Electronics Div. McGraw-Edison Co.
Eico Elect. Inst. Co., Inc.
General Radio Co.
Harris Corporation Broadcast Equip. Div.
Heath Co.
Hewlett Packard Co.
Instrument Laboratories
Kay Elemetrics Corp.
Leader Instruments Corp.
Electronic Res. Labs. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
ROH Corporation
Rohde & Schwarz Sales Co.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Terminal Electronics Corp.
Texscan Corp.
Total Technology
United Recording Electronics Industries
UREI a URC Company

Generators, Signal Dot Bar

American Data Corp. an AIRPAX Company
CBS Labs
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Control Concepts Corporation
Dyma Engineering, Inc.
Eico Elect. Inst. Co., Inc.
Fernseh Group, Robert Bosch Corp.
Grass Valley Group, Inc.
Heath Co.
Leader Instruments Corp.
Lectrotech Inc.
Marconi Electronics Inc.
OMNIX
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Richmond Hill Laboratories Ltd.
Sencore Inc.
Shintron Co. Inc. Video Products Div.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Troy Electronic Sales Co.
Video Engineering Co., Inc.

Generators, Signal Marker

Blonder-Tongue Labs.
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectrotech Inc.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Troy Electronic Sales Co.

Generators, Signal Pulse

Acrodyne Industries Inc.
Ailtech
American Electronic Labs., Inc.
B & K Instruments Inc.
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Control Concepts Corporation

Delta Electronics Inc. (Va.)
Dragnet Engineering Labs., Inc.
Dynasciences Corp. Video Products Div.
Edison Electronics Div. McGraw-Edison Co.
Fernseh Group, Robert Bosch Corp.
Hewlett Packard Co.
Kay Elemetrics Corp.
Leader Instruments Corp.
Electronic Res. Labs. Inc.
Marconi Electronics Inc.
Narda Microwave Corp., The
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Ryder Magnetic Sales Corp.
Spencer-Kennedy Labs., Inc.
Systron-Donner
Tasker Systems Div. of Whittaker Corp.
Tektronix Inc.
Trepac Corp. America
United Systems Corp. Subs. of Monsanto Co.
Vitek Electronics Inc.

Generators, Signal RF

Acrodyne Industries Inc.
Ailtech
American Electronic Labs., Inc.
Blonder-Tongue Labs.
Boonton Electronics
C-COR Electronics, Inc.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Delta Electronics Inc. (Va.)
Dynascan Corp. B & K Division
Edison Electronics Div. McGraw-Edison Co.
Eico Elect. Inst. Co., Inc.
Engineering Associates
General Radio Co.
Heath Co.
Hewlett Packard Co.
Kay Elemetrics Corp.
Lampkin Lab. Inc.
Leader Instruments Corp.
Electronic Res. Labs. Inc.
Marconi Electronics Inc.
Marconi Instruments
Narda Microwave Corp., The
Potomac Instruments, Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Sadelco, Inc.
Sinai-Johnson
Singer Instrumentation Los Angeles Operation
Singer Co., The Palo Alto Operation
Spencer-Kennedy Labs., Inc.
SPI-ITT Metrix Instruments Div.
Tasker Systems Div. of Whittaker Corp.
Telonic Altair
Texscan Corp.
United Systems Corp. Subs. of Monsanto Co.

Generators, Signal Square Wave

Acrodyne Industries Inc.
Ailtech
American Data Corp. an AIRPAX Company
Conway Electronic Enterprises Limited
Dynascan Corp. B & K Division
Edison Electronics Div. McGraw-Edison Co.
Eico Elect. Inst. Co., Inc.
General Radio Co.
Heath Co.
Hewlett Packard Co.
Leader Instruments Corp.

Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Systron-Donner
Tektronix Inc.
Tele Measurements Inc.
Terminal Electronics Corp.
Total Technology
United Recording Electronics Industries
United Systems Corp. Subs. of Monsanto Co.
UREI a URC Company
Weinschel Engineering Co.

Generators, Signal TV Synchronizing

Ameco Inc.
American Data Corp. an AIRPAX Company
CBS Labs
Central Dynamics Corp.
Chrono-Log Corp.
Cleveland Electronics, Inc.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Communications Technology, Inc.
Control Concepts Corporation
Dyma Engineering, Inc.
DYNALR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Electronic Designers Inc.
Entron, Inc.
Fernseh Group, Robert Bosch Corp.
Grass Valley Group, Inc.
Harvey Radio Pro A/V Div.
Interntl. Nuclear Corp.
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Sylvania Comm. Electronic
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Texscan Corp.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics Div

Generators, Signal VITS

American Data Corp. an AIRPAX Company
CBS Labs
Electronic Designers Inc.
Harvey Radio Pro A/V Div.
Marconi Instruments
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Tele Measurements Inc.
Video Engineering Co., Inc.

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A. F. Associates, Inc.
American Data Corp. an AIRPAX Company
Ball Bros. Research Corp. Miratel Division
Central Dynamics Corp.
Cleveland Electronics, Inc.

Colorado Video Inc.
Communications Technology, Inc.
DYNALIR Electronics, Inc.
Dynamics Corp. Video Products Div.
Grass Valley Group, Inc.
Hitachi Shibaden Corp. of America
Industrial Sciences, Inc.
Internatl. Nuclear Corp.
Leader Instruments Corp.
Marconi Electronics Inc.
MICMIX Audio Products, Inc.
OMNIX
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.
Shintron Co. Inc. Video Products Div.
Sinai-Johnson
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telestrator Interad Corp.
Total Technology
Tri-Tronics, Inc.
Ultra Audio Products
Universal Research Labs
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
Viscount Industries Ltd.
Visual Educom Inc. Dage/MTI/Infonics Div

Generators, Staircase

American Data Corp. an AIRPAX Company
CBS Labs
Colorado Video Inc.
Control Concepts Corporation
OMNIX
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Tektronix Inc.
TeleMation, Inc.
Tri-Tronics, Inc.
Ultra Audio Products
Video Engineering Co., Inc.
VIF International

Generators, Stereo

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
American Electronic Labs., Inc.
Broadcast Automation Assoc.
Camex Corp.
Catel, a Div. of United Scientific Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Fung Engineering Inc.
Heath Co.
Leader Instruments Corp.
The London Company
Mastertone Company
Maze Corporation
Moseley Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Sencore Inc.
Sintron Corp.
Sparta Electronic Corp.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Generators, Subcarrier

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Ameco Inc.

American Data Corp. an AIRPAX Company
ATV Research
Broadcast Automation Assoc.
Camex Corp.
CBS Labs
CCA Electronics Corp.
Cohu, Inc. Electronics Division
Collins Radio Group Rockwell International
Communications Technology, Inc.
Control Concepts Corporation
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Maze Corporation
Moseley Assoc. Inc.
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Sintron Corp.
Sparta Electronic Corp.

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American Data Corp. an AIRPAX Company
CBS Labs
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Communications Technology, Inc.
Control Concepts Corporation
DYNALIR Electronics, Inc.
Dynamics Corp. Video Products Div.
Electronic Designers Inc.
Entron, Inc.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Hitachi Shibaden Corp. of America
Internatl. Nuclear Corp.
Maze Corporation
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.
Rohde & Schwarz Sales Co.
Shintron Co. Inc. Video Products Div.
Tektronix Inc.
TeleMation, Inc.
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Tri-Tronics, Inc.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.

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Mastertone Company
Teledyne Isotopes Energy Systems Division

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Central Dynamics Corp.
CMX Systems
Datametrics
Electronic Engineering Co. of California
Kaitronics Corporation
Scully/Metrotech Divs. of Dictaphone Corp.
Syston-Donner
Time & Frequency Tech., Inc.

Generators, Tone

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Control Design Corp......42
Alpha Electronic Services Inc.
Control Design Corp.
Lauderdale Electronic Labs
Mastertone Company
Singer Instrumentation Los Angeles Operation
Soundolier, Inc.
Total Technology
Trepac Corp. America
Video Accessories Mfg. Co.

Generators, Video Carrier

Ameco Inc.
Entron, Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Theta-Com
TRACOR, Inc. Instruments Group

Generators, Video Sweep

Ailtech
Leader Instruments Corp.
Lectrotech Inc.
Marconi Electronics Inc.
Marconi Instruments
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Telonic Altair
Troy Electronic Sales Co.

Head Alignment Gauge

Ampro Corp.
Fidelipac Division TelePro Industries, Inc.
Joa Cartridge Service
Lauderdale Electronic Labs
Mastertone Company
Sparta Electronic Corp.

Head Cleaning Products, Video

Lauderdale Electronic Labs
Memorex Corporation Audio-Video Group
Nortronics Co., Inc. Recorder Care Div.
VIF International

Head Covers, Videotape

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A. F. Associates, Inc.

Head Nest Rebuilding Services

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Communication Medias
Computer Magnetics Corp.
Harvey Radio Pro A/V Div.
Lipps Inc.
Mastertone Company
Minneapolis Magnetics, Inc.
Radio Mfg. Co. (RMC)
Taber Mfg. & Engr. Co.

Headphones, Announcers Earpiece

Allied Broadcast Equip. Div. of Allied Adv. Corp.
Broadcast Automation Assoc.
Broadcast Electronics

Collins Radio Group Rockwell International
Communication Medias
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Lauderdale Electronic Labs
Mastertone Company
Revox Corporation
Television Equipment Associates
Telex Communications, Inc.
Wilkinson Electronics, Inc.

Headphones, Broadcast Monitoring

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Scintrex Inc......120
Allied Broadcast Equip. Div. of Allied Adv. Corp.
Broadcast Automation Assoc.
Broadcast Electronics
Collins Radio Group Rockwell International
Communication Medias
Conway Electronic Enterprises Limited
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Koss Corp.
Lauderdale Electronic Labs
Mastertone Company
Maze Corporation
Pulse Dynamics Mfg. Corp. (PDMC)
Revox Corporation
Scintrex Inc. Communications Div.
Stanton Magnetics Inc.
Television Equipment Associates
Telex Communications, Inc.
Val-Tronics, Inc.
VIF International
Visual Educom Inc. Dage/MTI/Infonics Div
Wilkinson Electronics, Inc.

Headphones, Mono

AKG Division North Amer. Philips Corp.
Allied Broadcast Equip. Div. of Allied Adv. Corp.
Bell & Howell Audio Visual Div.
Broadcast Automation Assoc.
Broadcast Electronics
Collins Radio Group Rockwell International
Communication Medias
Conway Electronic Enterprises Limited
FMI/Magnatech Corp A Subsidiary of FM International
G.C. Electronics
Gotham Audio Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Heath Co.
Koss Corp.
Lauderdale Electronic Labs
Mastertone Company
Paso Sound Products Inc.
RCA Corporation Broadcast Systems Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Ryder Magnetic Sales Corp.
Scintrex Inc. Communications Div.
Sennheiser Electronics Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.
Stanton Magnetics Inc.
Superscope, Inc.
Systems Engineering Co., Inc.
Television Equipment Associates
Telex Communications, Inc.
Terminal Electronics Corp.
Victor Duncan, Inc.
Video Engineering Co., Inc.
VIF International
Visual Educom Inc. Dage/MTI/Infonics Div
Wilkinson Electronics, Inc.

Headphones, Stereo

Admiral Group, Rockwell Int'l.

AKG Division North Amer. Philips Corp.
 Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Broadcast Automation Assoc.
 Broadcast Electronics
 Collins Radio Group Rockwell International
 Communication Medias
 Conway Electronic Enterprises Limited
 Duotone Co. Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 G.C. Electronics
 Gotham Audio Corp.
 Harris Corporation Broadcast Equip. Div.
 Harvey Radio Pro A/V Div.
 Koss Corp
 Lauderdale Electronic Labs
 Mastertone Company
 RCA Corporation Broadcast Systems Div.
 Revox Corporation
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Ryder Magnetic Sales Corp.
 Sansui Electronics Corp.
 Scintrex Inc. Communications Div.
 Sennheiser Electronics Corp.
 Sparta Electronic Corp.
 Stanton Magnetics Inc.
 Superscope, Inc.
 Systems Engineering Co., Inc.
 Television Equipment Associates
 Telex Communications, Inc.
 Victor Duncan, Inc.
 VIF International
 Wilkinson Electronics, Inc.

Head, Contactor

Nortronics Co., Inc. Recorder Care Div.
 TEAC Corp of America

Heads, Erase Magnetic

Broadcast Automation Assoc.
 Broadcast Electronics
 Cetec Inc. Subs. Computer Equipment Corp.
 Collins Radio Group Rockwell International
 Communication Medias
 Harris Corporation Broadcast Equip. Div.
 Joa Cartridge Service
 Lauderdale Electronic Labs
 Magnusonic Devices Inc.
 Mastertone Company
 Minneapolis Magnetics, Inc.
 Norton Assoc. Inc.
 Nortronics Co., Inc. Recorder Care Div.
 Precision Laboratories Precision Cine Equipment Corp.
 RCA Corporation Broadcast Systems Div.
 Recortec Inc.
 Spin Physics, Inc.
 Spotmaster Broadcast Electronics
 Taber Mfg. & Engr. Co.

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Lipps Inc.
 Norton Assoc. Inc.
 Nortronics Co., Inc. Recorder Care Div.

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 Broadcast Automation Assoc.
 Computer Magnetics Corp.
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 Broadcast Electronics
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 Lauderdale Electronic Labs
 Lipps Inc.
 Minneapolis Magnetics, Inc.
 Norton Assoc. Inc.
 Nortronics Co., Inc. Recorder Care Div.
 Spin Physics, Inc.
 Taber Mfg. & Engr. Co.
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 Tri-Tronics, Inc.
 Val-Tronics, Inc.
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 VIF International

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 Broadcast Electronics
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 Cetec Inc. Subs. Computer Equipment Corp.
 Collins Radio Group Rockwell International
 Communication Medias
 Hitachi Shibaden Corp. of America
 Joa Cartridge Service
 Lauderdale Electronic Labs
 Magnusonic Devices Inc.
 Mastertone Company
 Minneapolis Magnetics, Inc.
 Norton Assoc. Inc.
 Nortronics Co., Inc. Recorder Care Div.
 RCA Corporation Broadcast Systems Div.
 Recordex Corporation
 Spin Physics, Inc.
 Spotmaster Broadcast Electronics
 Taber Mfg. & Engr. Co.
 Tapecaster TCM, Inc.
 Val-Tronics, Inc.
 Video Engineering Co., Inc.
 Videomax Corp.
 Vikron

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 Computer Magnetics Corp.
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 Video Engineering Co., Inc.
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 Electro-Voice Inc. Subs. of Gulton Industries, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Harris Corporation Broadcast Equip. Div.
 Hitachi Shibaden Corp. of America
 Lauderdale Electronic Labs
 Mastertone Company
 Pulse Dynamics Mfg. Corp. (PDMC)
 RCA Corporation Broadcast Systems Div.
 Revox Corporation
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Scintrex Inc. Communications Div.
 Sennheiser Electronics Corp.
 Telectro Systems Corp.
 Television Equipment Associates
 Telex Communications, Inc.
 Val-Tronics, Inc.
 Video Aids Corp. of Colorado
 Video Engineering Co., Inc.
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Bird Electronic Corp.

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 Valad Electric Heating Corp.
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 Anaconda CATV
 Applied Video Electronics, Inc.
 ATV Research
 AVA Electronics Corp.
 Ball Bros. Research Corp. Miratel Division
 Berkey-Colortran Inc.
 Blonder-Tongue Labs.
 Boston Insulated Wire & Cable Co.
 Catel, a Div. of United Scientific Corp.
 Cohu, Inc. Electronics Division
 Colorado Video Inc.
 Communications Technology, Inc.
 Comquip, Inc.

Diebold Incorporated
 DYNAIR Electronics, Inc.
 Echo Science Corp. Subsidiary of Arvin Systems, Inc.
 Fernseh Group, Robert Bosch Corp.
 GBC Closed Circuit TV Corp.
 General Electric Co. Imaging & Display Devices Product Sect.
 Gen. Electrodynamics
 General Television Ntwk.
 Harris Corporation Broadcast Equip. Div.
 Hitachi Shibaden Corp. of America
 Ikegami Electronics Ind., Inc. of N.Y.
 Interntl. Nuclear Corp.
 International Video Corp.
 Janson Industries
 Javelin Div. of Apollo Lasers
 Jos. Schneider & Co. Optische Werke Div.
 Lenzar Optics Corp.
 Nasco Television Systems
 Orbit Radio and Video
 Panasonic Video Systems Div.
 Matsushita Electric Corp. of America
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 RCA Corporation Broadcast Systems Div.
 Riker Communications Inc.
 Rust Corp.
 SC Electronics, Inc. Subs. of Audiotronics Corp.
 Scientific Systems, Inc. Broadcast Equipment Div.
 Shintron Co. Inc. Video Products Div.
 Sony Corp. of America VTR Div.
 Sylvania Comm. Electronic
 Tektronix Inc.
 Tele-Cine Inc.
 Teledyne Brown Engineering Co. Science & Engrg. Div.
 Tele Measurements Inc.
 Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
 Teltron, Inc.
 Video Engineering Co., Inc.
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 Birnbach Co. Inc.
 Continental Electronics Mfg. Co.

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Austin Insulator Div. 24

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 Birnbach Co. Inc.
 Continental Electronics Mfg. Co.

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Ameco Inc.
 American Electronic Labs., Inc.
 Ampere Electronic Corp.
 A-Tel-A-Matic
 English Electric Valve North America Ltd.
 General Electric Co. Imaging & Display Devices Product Sect.
 Harvey Radio Pro A/V Div.
 Heintz and Kaufman Ltd.
 Hewlett Packard Co.
 P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
 Microwave Assoc. Inc.
 Motorola Semiconductor Motorola Inc.
 Raytheon Company Raytheon Data Systems Co.
 RCA Corporation Broadcast Systems Div.
 RCA Corporation RCA Electronic Components

Soliton Devices Inc. Semiconductor Div.
Temtron Electronics
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

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Bogen Division Lear Siegler Inc.
Clear-Com Div. of Lumiere Productions, Inc.
Communications Technology, Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Emerson Elec./Artolier Lighting & Sound Rittenhouse Div.
Fernseh Group, Robert Bosch Corp.
Fisher Berkeley Corp.
G.C. Electronics
Harvey Radio Pro A/V Div.
Heath Co.
Holland Electronics
McMartin Industries
Nasco Television Systems
Paso Sound Products Inc.
Quasar Microsystems Inc.
RCA Corporation Broadcast Systems Div.
ROH Corporation
Scientific Systems, Inc. Broadcast Equipment Div.
Sinai-Johnson
Soundolier, Inc.
Systems Engineering Co., Inc.
Telectro Systems Corp.
Television Equipment Associates
Terminal Electronics Corp.
Ultra Audio Products
Video Aids Corp. of Colorado
Visual Educom Inc. Dage/MTI/Infonics Div.
Visual Electronics Laboratories
Ward-Beck Systems, Ltd.

Isocouplers

Collins Radio Group Rockwell International
Mastertone Company
Sintronic Corp.
Sparta Electronic Corp.
Val-Tronics, Inc.

ITFS System

Alford Mfg. Co.
Andrew Corp.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
RF Systems, Inc.
Varian Beverly Operations

Jack Panel Assemblies

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Audio Designs & Mfg.
Audio Distributor Inc.
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Broadcast Automation Assoc.
Collins Radio Group Rockwell International
Cooke Engineering Co.
Delta Electronics Inc. (Va.)
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Lectronic Res. Labs. Inc.
Mastertone Company
McCurdy Radio Ind. Inc.
Potomac Instruments, Inc.
RCA Corporation Broadcast Systems Div.
Rex Rheostat & Co., Inc.

Switchcraft Inc.
Systems Engineering Co., Inc.
Terminal Electronics Corp.
Trompeter Electronics
Union Connector Co., Inc.
Video Engineering Co., Inc.

Keyers, Video Insert

American Data Corp. an AIRPAX Company
Astrionics Div. Technicolor Corp.
Central Dynamics Corp.
Chiron Telesystems Of the Computer Exchange, Inc.
Communications Technology, Inc.
Grass Valley Group, Inc.
Harvey Radio Pro A/V Div.
Video Accessories Mfg. Co.
Video Devices Co.

Kits

ATV Research
Eico Elect. Inst. Co., Inc.
Engineering Associates
ES Enterprises
Gately Electronics
G.C. Electronics
Heath Co.
Hollingsworth Solderless Terminal Co.
Hughey & Phillips Inc.
Lauderdale Electronic Labs
Lectronic Res. Labs. Inc.
Mole Richardson Co.
Oaktron Industries Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Recortec Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
SPI-ITT Metrix Instruments Div.
Terminal Electronics Corp.
Texwipe Co.
TRW Electronic Supply Co. Div. of TRW
Vaco Products Co.

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Ampro Corp.
Franklyn R. Beemish & Co.
Broadcast Automation Assoc.
Broadcast Equipment Leasing Corp. Div. Anchor Leasing Corp.
Canon USA, Inc. Optics Division
CBS Labs
Collins Radio Group Rockwell International
Communication Medias
Comquip, Inc.
Control Design Corp.
D and S Corley Ltd.
International Tapetronics Corp.
Lauderdale Electronic Labs
Peerless Electronics, Inc.
QRK Electronic Prod.
Schafer Electronics Corp.
Sintronic Corp.
Sparta Electronic Corp.

Tele-Cine Inc.
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A-Tel-A-Matic
ATV Research
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Behrends, Inc.
Buhl Optical Co.
Canon USA, Inc. Optics Division
Cohu, Inc. Electronics Division
Comquip, Inc.
Cosmicar Optical Co., Ltd.
Cunningham Corp. Subs. of Gleason Works
Denson Electronic Corp.
GBC Closed Circuit TV Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Image Devices Incorporated
Javelin Div. of Apollo Lasers
Jerrold Electronics Corp. CATV Systems Div.
Jos. Schneider & Co. Optische Werke Div.
Lenzar Optics Corp.
Maze Corporation
Rank Precision Industries
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Schneider Corp. of America
Sinai-Johnson
Tele-Cine Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Vicon Industries, Inc.
Victor Duncan, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics Div.

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Behrends, Inc.
Buhl Optical Co.
Canon USA, Inc. Optics Division
Cohu, Inc. Electronics Division
Comquip, Inc.
Cosmicar Optical Co., Ltd.
Cunningham Corp. Subs. of Gleason Works
Denson Electronic Corp.
GBC Closed Circuit TV Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Image Devices Incorporated
Javelin Div. of Apollo Lasers
Jerrold Electronics Corp. CATV Systems Div.
Jos. Schneider & Co. Optische Werke Div.
Lenzar Optics Corp.
Maze Corporation
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Rank Precision Industries
RCA Corporation Broadcast Systems Div.

R. H. Tyler Co. Div. of Weather Scan, Inc.
Schneider Corp. of America
Sinai-Johnson
Tele-Cine Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Vicon Industries, Inc.
Victor Duncan, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics Div.

Lighting, Preset Dimmer

Berkey-Colortran Inc.
Janson Industries
Kliegl Bros. Lighting
Richmond Hill Laboratories Ltd.
Skirpan Lighting Control Corp.
Strand Century, Inc.
Tele Measurements Inc.
Video Engineering Co., Inc.

Lighting, TV Controls

Behrends, Inc.
Berkey-Colortran Inc.
Janson Industries
Kliegl Bros. Lighting
Maze Corporation
Mole Richardson Co.
RCA Corporation Broadcast Systems Div.
Richmond Hill Laboratories Ltd.
SGL Waber Electric Div. SGL Industries, Inc.
Skirpan Lighting Control Corp.
Strand Century, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Ultra Audio Products
Utility Tower Co.
Video Engineering Co., Inc.

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Comquip, Inc.
GBC Closed Circuit TV Corp.
GTE Sylvania Inc. Lighting Products Group
Harris Corporation Broadcast Equip. Div.
Harwood Mfg. Co.
Janson Industries
Kliegl Bros. Lighting
Maze Corporation
Mole Richardson Co.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.
Skirpan Lighting Control Corp.
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Tri-Tronics, Inc.
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Behrends, Inc.
Berkey-Colortran Inc.
Imero Fiorentino Associates, Inc.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Image Devices Incorporated
Janson Industries
Kliegl Bros. Lighting
Lauderdale Electronic Labs
Maze Corporation
Mole Richardson Co.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.

Skirpan Lighting Control Corp.
Strand Century, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
Union Connector Co., Inc.
Utility Tower Co.
Video Engineering Co., Inc.

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Andrews Tower Inc.
AVA Electronics Corp.
Collins Radio Group Rockwell
International
Cook Electric Co.
G.C. Electronics
Jerold Electronics Corp. CATV
Systems Div.
Joslyn Electronic Sys.
MCG Electronics Inc.
Saxton Prod. Inc.
Tiner Communications Service, Inc.
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Sintronic Corp.
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B/Ceco Industries
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Comquip, Inc.
GTE Sylvania Inc. Lighting Products
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Kliegl Bros. Lighting
Lauderdale Electronic Labs
Maze Corporation
Mole Richardson Co.
R. H. Tyler Co. Div. of Weather Scan,
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Union Connector Co., Inc.
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Hughey & Phillips Inc.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Lauderdale Electronic Labs
Mastertone Company
Radio Mfg. Co. (RMC)
Tiner Communications Service, Inc.
Triangle Towers & Antennas

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Basic
Fort Worth Tower Co., Inc.
Harris Corporation Broadcast Equip.
Div.
Hughey & Phillips Inc.
Jampro Antenna Co. Div. of Computer
Equipment Corp.
Lauderdale Electronic Labs
Mastertone Company
Rohn Manufacturing Div. of Unarco
Industries Inc.
Sparta Electronic Corp.
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CBS Labs
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment
Corp.
Collins Radio Group Rockwell
International
Communication Medias
FMI/Magnatech Corp A Subsidiary of
FM International
Franz Vertriebs-gesellschaft m.b.H.
Gately Electronics
Gotham Audio Corp.
Harris Corporation Broadcast Equip.
Div.
Harvey Radio Pro A/V Div.
Inovonics
LPB Inc.
Mastertone Company
Modular Audio Products
Rupert Neve, Inc.
Pacific Recorders and Engrg. Corp.
Div. 47B
Precision Elect. Inc.
Ramko Research
Robins/Fairchild Fairchild Sound
Equipment Corp.
Rupert Neve Incorporated
Sparta Electronic Corp.
Spectra Sonics
Spotmaster Broadcast Electronics
UREI a URC Company
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Line Surge Protector

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C-COR Electronics, Inc.
Collins Radio Group Rockwell
International
Cook Electric Co.
Harris Corporation Broadcast Equip.
Div.
Joslyn Electronic Sys.
Mastertone Company
MCG Electronics Inc.
Sintronic Corp.
Temtron Electronics
Wilkinson Electronics, Inc.

Load Resistor, Coaxial

AVA Electronics Corp.
Bird Electronic Corp.
Coaxial Dynamics
Collins Radio Group Rockwell
International
Electro Impulse, Inc.
Electronic Res. Labs. Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Rohde & Schwarz Sales Co.
Weinschel Engineering Co.

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Telecommunications Dept.
Audio Services, Inc.
Collins Radio Group Rockwell
International
IGM
North American Radio Corp.
RCA Corporation Broadcast Systems
Div.
Telatronics
Tiner Communications Service, Inc.
Triangle Towers & Antennas
Tri-Tronics

Maintenance Services, Cartridge Tape

Applied Video Electronics, Inc.
Communication Medias
Harris Corporation Broadcast Equip.
Div.
Joa Cartridge Service
Lauderdale Electronic Labs
Liberty Industries
Marathon Broadcast Equip.
Mastertone Company
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Service
Company Div.
Sparta Electronic Corp.
Taber Mfg. & Engrg. Co.
Tapex Corporation

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American Electronic Labs., Inc.
Atlantic Research Corp.
Telecommunications Dept.
Audio Services, Inc.
Collins Radio Group Rockwell
International
Fort Worth Tower Co., Inc.
IGM
Liberty Industries
North American Radio Corp.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Service
Company Div.
Telatronics
Television Technology Corp.
Tiner Communications Service, Inc.

Triangle Towers & Antennas
Tri-Tronics
Utility Tower Co.

Maintenance Services, Microwave

American Electronic Labs., Inc.
Atlantic Research Corp.
Telecommunications Dept.
Collins Radio Group Rockwell
International
Farinon Electric
Farinon Electric of Canada, Ltd.
Fort Worth Tower Co., Inc.
Liberty Industries
Microwave Assoc. Inc.
Raytheon Company Raytheon Data
Systems Co.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Service
Company Div.
Telatronics
Tiner Communications Service, Inc.
Utility Tower Co.

Maintenance Services, TV

Angenieux Corp. of America
Applied Video Electronics, Inc.
Atlantic Research Corp.
Telecommunications Dept.
Fort Worth Tower Co., Inc.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Liberty Industries
RCA Corporation Broadcast Systems
Div.
RF Systems, Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
Tele Measurements Inc.
Television Technology Corp.
Tiner Communications Service, Inc.
Utility Tower Co.

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Div.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Electronic Res. Labs. Inc.
The London Company
Marconi Instruments
Maze Corporation
RCA Corporation Broadcast Systems
Div.
Val-Tronics, Inc.

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Collins Radio Group Rockwell International
Delta Electronics Inc. (Va.)
Engineering Associates
Harris Corporation Broadcast Equip. Div.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Maze Corporation
Narda Microwave Corp., The
Potomac Instruments, Inc.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Singer Instrumentation Los Angeles Operation
Solar Electronics Co.
Sparta Electronic Corp.
SPI-ITT Metrix Instruments Div.
Terminal Electronics Corp.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Meters, Field Strength TV-UHF

Ameco Inc.
Anixter-Pruzan CATV Division
Arvin Systems, Inc.
Beaver Electronics, Ltd.
Blonder-Tongue Labs.
Castle TV Tuner Service, Inc.
Engineering Associates
Fung Engineering Inc.
Jerrold Electronics Corp. CATV Systems Div.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Maze Corporation
Potomac Instruments, Inc.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Sadelco, Inc.
Sencore Inc.
Sinai-Johnson
Singer Instrumentation Los Angeles Operation
Terminal Electronics Corp.

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Conway Electronic Enterprises Limited
ELPA Marketing Industries, Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gotham Audio Corp.
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
QRK Electronic Prod.
TASCAM
Val-Tronics, Inc.

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B & K Instruments Inc.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Engineering Associates
ES Enterprises
General Radio Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Lampkin Lab. Inc.
Lectronic Res. Labs. Inc.

Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
Singer Instrumentation Los Angeles Operation
SPI-ITT Metrix Instruments Div.
Time & Frequency Tech., Inc.
United Systems Corp. Subs. of Monsanto Co.
Val-Tronics, Inc.
Video Accessories Mfg. Co.

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Conway Electronic Enterprises Limited
Edison Electronics Div. McGraw-Edison Co.
EIP, Inc.
Engineering Associates
ES Enterprises
General Microwave Corp.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Lampkin Lab. Inc.
Lectronic Res. Labs. Inc.
Multronics, Inc.
Narda Microwave Corp., The
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Power Waves, Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
Rohde & Schwarz Sales Co.
Singer Instrumentation Los Angeles Operation
SPI-ITT Metrix Instruments Div.
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Power Waves, Inc.
RCA Corporation Broadcast Systems Div.
Singer Instrumentation Los Angeles Operation
Time & Frequency Tech., Inc.

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Heath Co.
Hickok Elect. Instrument
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RCA Corporation RCA Electronic Components
Simpson Electric Co. Katy Industries Industrial Products Group
Terminal Electronics Corp.
Triplett Corporation
United Systems Corp. Subs. of Monsanto Co.

Meters, Panel Replacement

A-Tel-A-Matic
G.C. Electronics
General Microwave Corp.
Gralex Industries Div. of General Microwave Corp.
Lectronic Res. Labs. Inc.
Simpson Electric Co. Katy Industries Industrial Products Group
Triplett Corporation

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Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Dranetz Engineering Labs., Inc.
Lectronic Res. Labs. Inc.
Rupert Neve, Inc.
Potomac Instruments, Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
RCA Corporation Broadcast Systems Div.
Rupert Neve Incorporated
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Ailtech
A-Tel-A-Matic
Bird Electronic Corp.
Boonton Electronics
CCA Electronics Corp.
Coaxial Dynamics
Collins Radio Group Rockwell International
Dranetz Engineering Labs., Inc.
Electro Impulse, Inc.
Engineering Associates
General Microwave Corp.
Hickok Elect. Instrument
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PRD Electronics, Inc. Subsidiary of Harris Corp.
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Ameco Inc.
Beaver Electronics, Ltd.
Belar Electronics Lab., Inc.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Edison Electronics Div. McGraw-Edison Co.
Head Sound, Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Quad-Eight Electronics

Meters, Spectrum Analyzer

Ailtech
Altec Sound Products
Amber Electro Design, Ltd.
B & K Instruments Inc.
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Philips Test & Measuring Instruments, Inc. a North American Philips Co.
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Bird Electronic Corp.
B & K Instruments Inc.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Delta Electronics Inc. (Va.)
General Radio Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
PRD Electronics, Inc. Subsidiary of Harris Corp.
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Harvey Radio Pro A/V Div.

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Lauderdale Electronic Labs
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Sennheiser Electronics Corp.
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LPB Inc.
Orbit Radio and Video
Paso Sound Products Inc.
RCA Corporation Broadcast Systems Div.
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Ryder Magnetic Sales Corp.
Sennheiser Electronics Corp.
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Tele Measurements Inc.
Television Equipment Associates
Telex Communications, Inc.
Tri-Tronics, Inc.
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GTE Lenkurt Incorporated
Harris Corporation Broadcast Equip. Div.
Ikegami Electronics Ind., Inc. of N.Y.
Mastertone Company
Maze Corporation
Microwave Assoc. Inc.
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Radio Research Instrument Co., Inc.
RCA Corporation Broadcast Systems Div.
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Delta Electronics Inc. (N.C.)
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FMI/Magnatech Corp A Subsidiary of FM International
Gately Electronics
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TASCAM
TEAC Corp of America
TeleMation, Inc.
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 Sencore Inc.
 Sparta Electronic Corp.
 Systems Engineering Co., Inc.
 Ward-Beck Systems, Ltd.
 Wide Band Engineering Co., Inc.

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 Altec Sound Products
 Amber Electro Design, Ltd.
 Audio Designs & Mfg.
 Audio Distributor Inc.
 Autogram Corporation
 Belar Electronics Lab., Inc.
 Communications Technology, Inc.
 Crown International
 Electro-Voice Inc. Subs. of Gulton Industries, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Lauderdale Electronic Labs
 Marti Electronics
 Maze Corporation
 Rupert Neve, Inc.
 Radio Mfg. Co. (RMC)
 RCA Corporation Broadcast Systems Div.
 Robins/Fairchild Fairchild Sound Equipment Corp.

Rupert Neve Incorporated
 Scientific Systems, Inc. Broadcast Equipment Div.
 Sparta Electronic Corp.
 Ward-Beck Systems, Ltd.

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Bird Electronic Corp.
 General Microwave Corp.
 Narda Microwave Corp., The
 North American Radio Corp.
 RCA Corporation Broadcast Systems Div.
 Tektronix Inc.
 Time & Frequency Tech., Inc.
 Wide Band Engineering Co., Inc.

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Belar Electronics Lab., Inc.
 Camex Corp.
 Collins Radio Group Rockwell International
 Dyma Engineering, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Harris Corporation Broadcast Equip. Div.
 Lauderdale Electronic Labs
 Mastertone Company
 Maze Corporation
 McMartin Industries
 RCA Corporation Broadcast Systems Div.
 Sparta Electronic Corp.
 Systems Marketing Corp. And Sono-Mag Corp.
 Time & Frequency Tech., Inc.
 Ultra Audio Products
 Val-Tronics, Inc.

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Anixter-Prizan CATV Division
 Asaca Corp. of America
 Ball Bros. Research Corp. Miratel Division
 Belar Electronics Lab., Inc.
 Cohu, Inc. Electronics Division
 Comquip, Inc.
 Conrac Div. Conrac Corp.
 Cunningham Corp. Subs. of Gleason Works
 Diebold Incorporated
 Electrohome Ltd.
 Fernseh Group, Robert Bosch Corp.
 GBC Closed Circuit TV Corp.
 Harris Corporation Broadcast Equip. Div.
 Harvey Radio Pro A/V Div.
 Hitachi Shibaden Corp. of America
 Ikegami Electronics Ind., Inc. of N.Y.
 Javelin Div. of Apollo Lasers
 Leader Instruments Corp.
 Maze Corporation
 Orbit Radio and Video
 Panasonic Video Systems Div.
 Matsushita Electric Corp. of America
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Q-TV Sales & Distributing Corp.
 Rank Cintel, Electronic Systems Div.
 Rank Precision Industries Ltd.
 Rank Precision Industries
 RCA Corporation RCA Service Company Div.
 R. H. Tyler Co. Div. of Weather Scan, Inc.

SC Electronics, Inc. Subs. of
Audiotechnics Corp.
Sinai-Johnson
Sony Corp. of America VTR Div.
Systems Engineering Co., Inc.
Tektronix Inc.
Tele-Cine Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
Tele Measurements Inc.
Ultra Audio Products
Video Engineering Co., Inc.

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Anixter-Prusan CATV Division
Asaca Corp. of America
Ball Bros. Research Corp. Miratel Division
Belar Electronics Lab., Inc.
Cohu, Inc. Electronics Division
Comquip, Inc.
Conrac Div. Conrac Corp.
Cunningham Corp. Subs. of Gleason Works
Dyma Engineering, Inc.
Electrohome Ltd.
Fernseh Group, Robert Bosch Corp.
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.
Ikegami Electronics Ind., Inc. of N.Y.
Leader Instruments Corp.
Maze Corporation
Orbit Radio and Video
Panasonic Video Systems Div.
Matsushita Electric Corp. of America
Rank Cintel, Electronic Systems Div.
Rank Precision Industries Ltd.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Service Company Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
SC Electronics, Inc. Subs. of Audiotechnics Corp.
Sharp Electronics Corp.
Sony Corp. of America VTR Div.
Systems Engineering Co., Inc.
Tektronix Inc.
Tele-Cine Inc.
Television Equipment Associates
Tri-Tronics, Inc.
Universal Media Corp.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.
World Video Inc.

Monitors, Video Pulse Cross

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Cunningham Corp. Subs. of Gleason Works
Electrohome Ltd.
Orbit Radio and Video
Systems Engineering Co., Inc.
Tektronix Inc.
Tri-Tronics, Inc.
Ultra Audio Products
Universal Media Corp.
Video Engineering Co., Inc.
World Video Inc.

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American Data Corp. an AIRPAX Company
Ball Bros. Research Corp. Miratel Division

California Instruments Co. Div. of Aiken Ind., Inc.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Entron, Inc.
Harris Corporation Broadcast Equip. Div.
Ikegami Electronics Ind., Inc. of N.Y.
Leader Instruments Corp.
Maze Corporation
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Tektronix Inc.
Tele-Cine Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
Tele Measurements Inc.
Tri-Tronics, Inc.
Ultra Audio Products
Video Engineering Co., Inc.
Vu-Data Corporation

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Alford Mfg. Co.
American Electronic Labs., Inc.
Buhl Optical Co.
Collins Radio Group Rockwell International
Comark Industries Inc.
Dorado Systems
GTE Lenkurt Incorporated
Harris Corporation Broadcast Equip. Div.
International Video Corp.
Kalart Victor Corp.
Marco Video Systems, Inc.
Maze Corporation
Micro Communications, Inc.
Moseley Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Scott-Buttner Coastcom, Inc.
Shively Laboratories, Inc.
Solitron Devices Inc. Semiconductor Div.
Sparta Electronic Corp.
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Tri-Tronics, Inc.
TT Electronics, Inc.
The Zei-Mark Corp.

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Moseley Assoc. Inc. 10

Acrodyne Industries Inc.
Moseley Assoc. Inc.
Scientific Systems, Inc. Broadcast Equipment Div.
Scintrex Inc. Communications Div.
Scott-Buttner Coastcom, Inc.
Singer Products Co., Inc.

Networks, Matching Audio

Allen Avionics Inc.
Altec Sound Products
Cetec Inc. Subs. Computer Equipment Corp.
Collins Radio Group Rockwell International
Edison Electronics Div. McGraw-Edison Co.
ESC Electronics Corp.
Gately Electronics
Quad-Eight Electronics
Tele Measurements Inc.
TT Electronics, Inc.

Networks, Matching RF

Alford Mfg. Co.
Allen Avionics Inc.
Collins Radio Group Rockwell International
Comark Industries Inc.
Continental Electronics Mfg. Co.
Edison Electronics Div. McGraw-Edison Co.
Electro Impulse, Inc.
General Radio Co.
Micro Communications, Inc.
Narda Microwave Corp., The
North American Radio Corp.
Sparta Electronic Corp.
TT Electronics, Inc.
Wide Band Engineering Co., Inc.

Networks, Mixing

ROH Corporation

Networks, Phasing --See also Phasing Units

Allen Avionics Inc.
A-Tel-A-Matic
CCA Electronics Corp.
Collins Radio Group Rockwell International
Comark Industries Inc.
Continental Electronics Mfg. Co.
Eventide Clock Works Inc. Broadcast Products Div.
Multronics, Inc.
North American Radio Corp.
Sintronic Corp.
Sparta Electronic Corp.
Tele Measurements Inc.
TT Electronics, Inc.

Ohmmeters

Anixter-Prusan CATV Division
California Instruments Co. Div. of Aiken Ind., Inc.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Edison Electronics Div. McGraw-Edison Co.
ES Enterprises
Fluke, John, Mfg. Co. Inc.
Franz Vertriebs-gesellschaft m.b.H.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
ITT Jennings
Leader Instruments Corp.
Lectionic Res. Labs. Inc.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Triplett Corporation

Operating Impedance Bridge

Delta Electronics Inc. (Va.)
Dragnet Engineering Labs., Inc.
General Radio Co.
Rohde & Schwarz Sales Co.
Val-Tronics, Inc.

Oscillator Transformers

Nortronics Co., Inc. Recorder Care Div.
TT Electronics, Inc.

Oscillators, AM

Ailtech
CCA Electronics Corp.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Dyma Engineering, Inc.
Engineering Associates
Harris Corporation Broadcast Equip. Div.

Heath Co.
Hewlett Packard Co.
Instrument Laboratories
Leader Instruments Corp.
Marconi Instruments
Microwave Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Singer Products Co., Inc.
Trepac Corp. America

Oscillators, FM

Ailtech
Belar Electronics Lab., Inc.
CCA Electronics Corp.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Harris Corporation Broadcast Equip. Div.
Heath Co.
Kay Elemetrics Corp.
Leader Instruments Corp.
Marconi Electronics Inc.
Marconi Instruments
Microwave Assoc. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Singer Co., The Palo Alto Operation
Singer Products Co., Inc.

Oscillators, Tone

Audio Designs & Mfg.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
General Radio Co.
Harris Corporation Broadcast Equip. Div.
Microwave Assoc. Inc.
Rupert Neve, Inc.
Quad-Eight Electronics
Radio Mfg. Co. (RMC)
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Rupert Neve Incorporated
Sphere Electronics
Total Technology
Trepac Corp. America
Video Accessories Mfg. Co.

Oscillators, TV

Ailtech
ATV Research
Heath Co.
Kay Elemetrics Corp.
Lectrotech Inc.
Marconi Instruments
Microwave Assoc. Inc.
RCA Corporation Broadcast Systems Div.
Riker Communications Inc.
Rohde & Schwarz Sales Co.
Tektronix Inc.

Oscilloscope Camera

Conway Electronic Enterprises Limited
Entron, Inc.
Hewlett Packard Co.
Lenzar Optics Corp.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Vu-Data Corporation

Oscilloscope Vector Display

Beston Electronics Inc.
Dynascan Corp. B & K Division
Heath Co.
Lectrotech Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
Sencore Inc.
Tektronix Inc.

Tele-Cine Inc.
Tri-Tronics, Inc.
Troy Electronic Sales Co.
Ultra Audio Products

Oscilloscopes, Dual Trace

Conway Electronic Enterprises Limited
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
Sencore Inc.
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Tele-Cine Inc.
Telonic Altair
Troy Electronic Sales Co.
Vu-Data Corporation

Oscilloscopes, Rack Type

Conway Electronic Enterprises Limited
Hewlett Packard Co.
Hickok Elect. Instrument
Lectronic Res. Labs. Inc.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Tele-Cine Inc.
Video Engineering Co., Inc.
Vu-Data Corporation

Oscilloscopes, Triggered Sweep

Conway Electronic Enterprises Limited
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Electronic
Components
Sencore Inc.
Simpson Electric Co. Katy Industries
Industrial Products Group
Sinai-Johnson
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Tele-Cine Inc.
Troy Electronic Sales Co.
Vu-Data Corporation

Oscilloscopes, Wideband

Conway Electronic Enterprises Limited
Eico Elect. Inst. Co., Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
RCA Corporation Broadcast Systems
Div.
RCA Corporation RCA Electronic
Components
Simpson Electric Co. Katy Industries
Industrial Products Group
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Tele-Cine Inc.
Troy Electronic Sales Co.
Vu-Data Corporation

Oscilloscopes with Plug-ins

California Instruments Co. Div. of
Aiken Ind., Inc.
Conway Electronic Enterprises Limited
Entron, Inc.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
SPI-ITT Metrix Instruments Div.
Tektronix Inc.
Tele-Cine Inc.

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Audio Designs & Mfg.
Audio Services, Inc.
AVA Electronics Corp.
Berkey-Colortran Inc.
Collins Radio Group Rockwell
International
Comark Industries Inc.
Cooke Engineering Co.
Dielectric Communications Div. of Sola
Basic
Harris Corporation Broadcast Equip.
Div.
Hewlett Packard Co.
LPB Inc.
Micro Communications, Inc.
Mincom Div. 3M Co.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Potomac Instruments, Inc.
Quad-Eight Electronics
Rex Rheostat & Co., Inc.
Shively Laboratories, Inc.
Skirpan Lighting Control Corp.
Strand Century, Inc.
Switchcraft Inc.
Terminal Electronics Corp.
Trompeter Electronics
Union Connector Co., Inc.
Video Engineering Co., Inc.

Phase Enhancer, Stereo

Broadcast Automation Assoc.
RAPID-Q Div. of Garron Electronics
Val-Tronics, Inc.

Phasing Units --See also Networks, Phasing

American Electronic Labs., Inc.
A-Tel-A-Matic
CCA Electronics Corp.
Collins Radio Group Rockwell
International
Continental Electronics Mfg. Co.
Multronics, Inc.
North American Radio Corp.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems
Div.
Sintronic Corp.
TT Electronics, Inc.
Wilkinson Electronics, Inc.

Power Supplies, AC

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**Modular Audio
Products 18**

Advanced High Voltage Co., Inc.
Altec Sound Products
Ameco Inc.
American Electronic Labs., Inc.
Anaconda CATV
Anixter-Pruzan CATV Division
A-Tel-A-Matic
Behrends, Inc.
California Instruments Co. Div. of
Aiken Ind., Inc.
C-COR Electronics, Inc.

Cetec Inc. Subs. Computer Equipment
Corp.
Collins Radio Group Rockwell
International
Delta-Benco-Cascade Ltd.
Delta Electronics Inc. (N.C.)
Eico Elect. Inst. Co., Inc.
Engineering Associates
Entron, Inc.
Essex International Inc. RBM Div.
Fisher Berkeley Corp.
Fluke, John, Mfg. Co. Inc.
G.C. Electronics
Heath Co.
Kato Engineering Co.
Lectronic Res. Labs. Inc.
Magnavox Company CATV Division
Modular Audio Products
Mole Richardson Co.
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of
Harris Corp.
Quad-Eight Electronics
Raytheon Company Raytheon Data
Systems Co.
RCA Corporation Broadcast Systems
Div.
Sparta Electronic Corp.
Systems Engineering Co., Inc.
Tektronix Inc.
Terminal Electronics Corp.
Topaz Electronics
Transcom Electronics, Inc.

Power Supplies, Precision

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Advanced High Voltage Co., Inc.
Altec Sound Products
A-Tel-A-Matic
Bristol Div. of Acco
Burwen Laboratories
California Instruments Co. Div. of
Aiken Ind., Inc.
Cetec Inc. Subs. Computer Equipment
Corp.
Collins Radio Group Rockwell
International
Engineering Associates
Fluke, John, Mfg. Co. Inc.
Head Sound, Inc.
Heath Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Modular Audio Products
Philips Test & Measuring Instruments,
Inc. a North American Philips Co.
PRD Electronics, Inc. Subsidiary of
Harris Corp.
Precision Laboratories Precision Cine
Equipment Corp.
Raytheon Company Raytheon Data
Systems Co.
RCA Corporation Broadcast Systems
Div.
ROH Corporation
Sencore Inc.
Sinai-Johnson
Spectra Sonics
Tektronix Inc.
Transcom Electronics, Inc.
Troy Electronic Sales Co.

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Altec Sound Products
American Data Corp. an AIRPAX
Company
Ampro Corp.
Audio Designs & Mfg.
Autogram Corporation

Bell P/A Prod. Corp.
B & K Instruments Inc.
Bogen Division Lear Siegler Inc.
Broadcast Electronics
Burwen Laboratories
Camex Corp.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment
Corp.
Collins Radio Group Rockwell
International
Communication Medias
Communications Technology, Inc.
Concept 70, A Div. of Dyma
Engineering, Inc.
Cooke Engineering Co.
Crown International
Delta Electronics Inc. (N.C.)
Delta Electronics Inc. (Va.)
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Electronic Designers Inc.
FMI/Magnatech Corp A Subsidiary of
FM International
Gately Electronics
General Electric Co. Imaging & Display
Devices Product Sect.
Harris Corporation Broadcast Equip.
Div.
Head Sound, Inc.
Interntl. Nuclear Corp.
Lang Electronics Inc.
Lauderdale Electronic Labs
Leader Instruments Corp.
LPB Inc.
Mastertone Company
Maze Corporation
McCurdy Radio Ind. Inc.
McMartin Industries
Micro-Trak Corporation
Modular Audio Products
Rupert Neve, Inc.
Orbit Radio and Video
Paso Sound Products Inc.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
PRD Electronics, Inc. Subsidiary of
Harris Corp.
Precision Elect. Inc.
Precision Laboratories Precision Cine
Equipment Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
QRK Electronic Prod.
Quad-Eight Electronics
Ramko Research
RCA Corporation Broadcast Systems
Div.
RHA Audio Communications Corp.
Robins/Fairchild Fairchild Sound
Equipment Corp.
ROH Corporation
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Schafer Electronics Corp.
Scientific Systems, Inc. Broadcast
Equipment Div.
Sescom, Inc.
Shure Brothers Inc.
Sinai-Johnson
Sparta Electronic Corp.
Spectra Sonics
Sphere Electronics
Spotmaster Broadcast Electronics
Stanton Magnetics Inc.
Superscope, Inc.
Systems Engineering Co., Inc.
Systems Marketing Corp. And
Sono-Mag Corp.
Tape-Athon Corp.
Telex Communications, Inc.
Total Technology
Tri-Tronics
United Recording Electronics
Industries
UREI a URC Company
Video Engineering Co., Inc.
VIF International
Ward-Beck Systems, Ltd.
Wilkinson Electronics, Inc.
ZERO-Impedance Systems, Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Ampco Corp.
 Audio Distributor Inc.
 Autogram Corporation
 Broadcast Automation Assoc.
 Broadcast Electronics
 Burwen Laboratories
 Camex Corp.
 CCA Electronics Corp.
 Collins Radio Group Rockwell International
 Communication Medias
 Dyma Engineering, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Gately Electronics
 Grinnan Fixture Co.
 Harris Corporation Broadcast Equip. Div.
 Head Sound, Inc.
 Lauderdale Electronic Labs
 LPB Inc.
 Mastertone Company
 Maze Corporation
 Micro-Trak Corporation
 Modular Audio Products
 Rupert Neve, Inc.
 Pulse Dynamics Mfg. Corp. (PDMC)
 QRK Electronic Prod.
 Quad-Eight Electronics
 Radio Mfg. Co. (RMC)
 Ramko Research
 RCA Corporation Broadcast Systems Div.
 Rek-O-Kut Inc.
 Robins/Fairchild Fairchild Sound Equipment Corp.
 ROH Corporation
 Rupert Neve Incorporated
 Russco Electronics Mfg. Inc.
 Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Stanton Magnetics Inc.
 Systems Engineering Co., Inc.
 Tri-Tronics
 Video Engineering Co., Inc.
 Ward-Beck Systems, Ltd.
 Wilkinson Electronics, Inc.

Preamplifiers, Video

Acrodyne Industries Inc.
 Ameco Inc.
 AMF Electrical Products Development Division
 C-COR Electronics, Inc.
 Fernseh Group, Robert Bosch Corp.
 Gen. Electrodynamics
 Internatl. Nuclear Corp.
 Maze Corporation
 Microwave Assoc. Inc.
 OMNIX
 Philips Broadcast Equipment Corp.
 Subs. North American Philips Corp.
 RCA Corporation Broadcast Systems Div.
 Riker Communications Inc.
 Shintron Co. Inc. Video Products Div.
 Tele Measurements Inc.
 Video Engineering Co., Inc.

Pressurization Equipment, Transmission Line

Andrew Corp.
 Anixter-Pruzan CATV Division
 Cablewave Systems Inc. Subs. Phelps Dodge and Kabelmetal
 Collins Radio Group Rockwell International
 Cook Electric Co.
 Dielectric Communications Div. of Sola Basic
 Harris Corporation Broadcast Equip. Div.
 Jampro Antenna Co. Div. of Computer Equipment Corp.

Micro Communications, Inc.
 Prodelin Inc.
 RCA Corporation Broadcast Systems Div.
 Sparta Electronic Corp.
 Wilkinson Electronics, Inc.

Probes, Oscilloscope

Conway Electronic Enterprises Limited
 Dynascan Corp. B & K Division
 Eico Elect. Inst. Co., Inc.
 Heath Co.
 Hewlett Packard Co.
 Hickok Elect. Instrument
 ITT Jennings
 Leader Instruments Corp.
 Lectronic Res. Labs. Inc.
 Lectrotech Inc.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 RCA Corporation Broadcast Systems Div.
 RCA Corporation RCA Electronic Components
 Sencore Inc.
 SPI-ITT Metrix Instruments Div.
 Tektronix Inc.
 Terminal Electronics Corp.
 Texscan Corp.
 Troy Electronic Sales Co.

Processors, Bleach Regeneration

CPAC Profit Recovery Systems Div. of CPAC

Processors, Film B&W

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Jamieson Film Co. 35

Comquip, Inc.
 Eastman Kodak Co.
 Filmline Corp.
 Jamieson Film Co.
 Precision Laboratories Precision Cine Equipment Corp.
 Technology Incorporated HF Photo Systems Div.
 Treise Engineering

Processors, Film Color

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Jamieson Film Co. 35

Comquip, Inc.
 Eastman Kodak Co.
 Filmline Corp.
 Jamieson Film Co.
 Precision Laboratories Precision Cine Equipment Corp.
 Technology Incorporated HF Photo Systems Div.
 Treise Engineering

Processors, Pollution Control

CPAC Profit Recovery Systems Div. of CPAC

Processors, Silver Recovery Unit

CPAC Profit Recovery Systems Div. of CPAC
 Eastman Kodak Co.
 Filmline Corp.
 Technology Incorporated HF Photo Systems Div.

Processors, VTR

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Dynasciences Corp. 45

Dynasciences Corp. Video Products Div.
 Mincom Div. 3M Co.
 TeleMation, Inc.
 Television Microtime, Inc. Subs.
 Andersen Laboratories, Inc.

Production Systems, AM or FM Remote or Studio

Audio Designs & Mfg.
 Broadcast Equipment & Supply Co.
 Control Design Corp.
 Imero Fiorentino Associates, Inc.
 Mastertone Company
 Maze Corporation
 Moseley Assoc. Inc.
 RCA Corporation Broadcast Systems Div.
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Sparta Electronic Corp.

Programmed Music

Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Cine Sonic Sound Inc.
 Control Design Corp.
 Sinai-Johnson
 Tape-Athon Corp.
 VIF International

Programmers, Patchboard/Thumbwheel

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Schafer Electronics Corp. 30

Communications Technology, Inc.
 ES Enterprises
 Schafer Electronics Corp.

Projector Conversion, B&W to Color

Behrends, Inc.

Projector Lamps

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Sitler's Supplies, Inc.

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ABTO, Inc.
 Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Arriflex Company of America
 Behrends, Inc.
 Bell & Howell Audio Visual Div.
 Buhl Optical Co.
 Canon USA, Inc. Optics Division
 Cohu, Inc. Electronics Division
 Comquip, Inc.
 Eastman Kodak Co.
 Fernseh Group, Robert Bosch Corp.
 GAF Corp.
 Harris Corporation Broadcast Equip. Div.
 Kalart Victor Corp.
 Lipsner-Smith Corp.
 L-W Photo, Inc.
 Magna-Tech Electronic Co., Inc.
 Paillard Incorporated
 Palmer Films, Inc., W. A.
 Philips Broadcast Equipment Corp.
 Subs. North American Philips Corp.
 Precision Laboratories Precision Cine Equipment Corp.
 Rank Cintel, Electronic Systems Div.
 Rank Precision Industries Ltd.
 RCA Corporation Broadcast Systems Div.
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Video Engineering Co., Inc.
 The Zei-Mark Corp.

Projectors, Film Cassette Loading

Canon USA, Inc. Optics Division
 Comquip, Inc.

RCA Corporation Broadcast Systems Div.

Projectors, Film Rear

Behrends, Inc.
 Comquip, Inc.
 Kalart Victor Corp.
 Video Engineering Co., Inc.
 Wilson Corp., H.

Projectors, Slide

ABTO, Inc.
 Buhl Optical Co.
 Canon USA, Inc. Optics Division
 Christie Electric Corp.
 Comquip, Inc.
 Eastman Kodak Co.
 GAF Corp.
 Harris Corporation Broadcast Equip. Div.
 Kliegl Bros. Lighting
 Listec TV Equip. Corp.
 RCA Corporation Broadcast Systems Div.
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Spindler & Sauppe, Inc.
 The Zei-Mark Corp.

Projectors, TV Large Screen

Comquip, Inc.
 GBC Closed Circuit TV Corp.
 General Television Ntwk.
 Janson Industries
 Kalart Victor Corp.
 K'SON Corporation
 Sony Corp. of America VTR Div.
 Tele Measurements Inc.
 Video Engineering Co., Inc.
 Video Sentry System

Projectors, Video Test Slide

Canon USA, Inc. Optics Division
 Fernseh Group, Robert Bosch Corp.
 Photo Research Div. of Kollmorgen Corp.
 Spindler & Sauppe, Inc.

Prompters

Ultra Audio Products

Quadraphonic Systems

Admiral Group, Rockwell Int'l.
 Catel, a Div. of United Scientific Corp.
 CBS Labs
 Concept 70, A Div. of Dyma Engineering, Inc.
 Dyma Engineering, Inc.
 Gately Electronics
 Heath Co.
 Rupert Neve, Inc.
 RCA Corporation Broadcast Systems Div.
 Rupert Neve Incorporated
 Telestrator Interand Corp.
 ZERO-Impedance Systems, Inc.

Radar, Weather

Enterprise Electronics Corp.
 Microwave Assoc. Inc.
 Radio Research Instrument Co., Inc.
 Raytheon Company Raytheon Data Systems Co.
 RCA Corporation Broadcast Systems Div.
 RF Systems, Inc.

Radomes

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Harris Corporation	149
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Advance Industries
American Electronic Labs., Inc.
Andrew Corp.
Collins Radio Group Rockwell International
FMI/Magnatech Corp A Subsidiary of FM International
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Micro Communications, Inc.
Nurad, Inc.
Prodelin Inc.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Missile & Surface Radar Div.
Shively Laboratories, Inc.
Triangle Towers & Antennas
Wilkinson Electronics, Inc.

Receivers, AM

Admiral Group, Rockwell Int'l.
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Conway Electronic Enterprises Limited
FMI/Magnatech Corp A Subsidiary of FM International
Heath Co.
KRL Electronics, Inc.
Lauderdale Electronic Labs
Marconi Instruments
National Electrolab Ltd.
Potomac Instruments, Inc.
Precision Elect. Inc.
RHA Audio Communications Corp.
RHG Elect Labs, Inc.
Singer Products Co., Inc.
Time & Frequency Tech., Inc.
Transcom Electronics, Inc.
Wilkinson Electronics, Inc.

Receivers, Data

GTE Lenkurt Incorporated
K'SON Corporation
Transcom Electronics, Inc.
Trepac Corp. America

Receivers, EBS

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
FMI/Magnatech Corp A Subsidiary of FM International
Mastertone Company
McMartin Industries
Tri-Tronics
Val-Tronics, Inc.

Receivers, FM

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Wilkinson Electronics, Inc.	42

Admiral Group, Rockwell Int'l.
Allied Broadcast Equip. Div. of Allied Adv. Corp.
Altec Sound Products
Ameco Inc.
Bell P/A Prod. Corp.
B & K Instruments Inc.
Bogen Division Lear Siegler Inc.
Catel, a Div. of United Scientific Corp.
Eico Elect. Inst. Co., Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Gotham Audio Corp.
GTE Lenkurt Incorporated
Heath Co.
Lauderdale Electronic Labs
Lectronic Res. Labs. Inc.

Marconi Instruments
Marti Electronics
McMartin Industries
Permadyne Electronics Corp.
Potomac Instruments, Inc.
Precision Elect. Inc.
RCA Corporation RCA Service Company Div.
RHG Elect Labs, Inc.
Sansui Electronics Corp.
Singer Products Co., Inc.
Superscope, Inc.
Temtron Electronics
Time & Frequency Tech., Inc.
Transcom Electronics, Inc.
Tri-Tronics
Wilkinson Electronics, Inc.

Receivers, HF

American Electronic Labs., Inc.
B & K Instruments Inc.
Collins Radio Group Rockwell International
Conway Electronic Enterprises Limited
Engineering Associates
Heath Co.
KRL Electronics, Inc.
Marconi Electronics Inc.
Marconi Instruments
Narda Microwave Corp., The
PRD Electronics, Inc. Subsidiary of Harris Corp.
RHG Elect Labs, Inc.
Rohde & Schwarz Sales Co.
Singer Products Co., Inc.
Transcom Electronics, Inc.

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TerraCom

Receivers, Multiplex

Admiral Group, Rockwell Int'l.
Allied Broadcast Equip. Div. of Allied Adv. Corp.
Altec Sound Products
Eico Elect. Inst. Co., Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Gotham Audio Corp.
GTE Lenkurt Incorporated
Heath Co.
Johnson Electronics, Inc.
Lauderdale Electronic Labs
McMartin Industries
Moseley Assoc. Inc.
Permadyne Electronics Corp.
Precision Elect. Inc.
Singer Products Co., Inc.
Superscope, Inc.
Transcom Electronics, Inc.
Trepac Corp. America

Receivers, SCA

Allied Broadcast Equip. Div. of Allied Adv. Corp.
Eico Elect. Inst. Co., Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Johnson Electronics, Inc.
Mastertone Company
McMartin Industries
Moseley Assoc. Inc.
Permadyne Electronics Corp.
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.

Receivers, Time Signal

Catel, a Div. of United Scientific Corp.
Electrohome Ltd.
Lectronic Res. Labs. Inc.
Radio Mfg. Co. (RMC)
SIMEX/COAST NAVIGATION SCHOOL
Time & Frequency Tech., Inc.
Total Technology
Video Accessories Mfg. Co.

Receivers, TV Color

Admiral Group, Rockwell Int'l.
Anixter-Pruzan CATV Division
Cohu, Inc. Electronics Division
Cunningham Corp. Subs. of Gleason Works
Electrohome Ltd.
Harvey Radio Pro A/V Div.
Heath Co.
Image Devices Incorporated
Jerrold Electronics Corp. CATV Systems Div.
Maze Corporation
Panasonic Video Systems Div.
Matsushita Electric Corp. of America
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Service Company Div.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Sharp Electronics Corp.
Sony Corp. of America VTR Div.
Sylvania Comm. Electronic
Tele Measurements Inc.
Tri-Tronics, Inc.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.

Receivers, TV Monochrome

Admiral Group, Rockwell Int'l.
Anixter-Pruzan CATV Division
Cohu, Inc. Electronics Division
Cunningham Corp. Subs. of Gleason Works
Harvey Radio Pro A/V Div.
Heath Co.
Maze Corporation
Nemo Recording Labs
Panasonic Video Systems Div.
Matsushita Electric Corp. of America
Rank Precision Industries
SC Electronics, Inc. Subs. of Audiotronics Corp.
Sony Corp. of America VTR Div.
Sylvania Comm. Electronic
Tri-Tronics, Inc.
Video Engineering Co., Inc.

Receivers, 162.55 MHz Weather

Admiral Group, Rockwell Int'l.
Catel, a Div. of United Scientific Corp.

Recorder Care Kits, Video

Lauderdale Electronic Labs
Nortronics Co., Inc. Recorder Care Div.
Ultra Audio Products

Recorder Drive Motor Power Supply

Maze Corporation
Pacific Recorders and Engrg. Corp.
Div. 47B

Recorder Reconditioning, Videotape

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A. F. Associates, Inc.

Recorder Replacement Motor

Beau Motor Division U.M.C. Electronics Co.
Broadcast Automation Assoc.
Lauderdale Electronic Labs
Mastertone Company
Maze Corporation
Tapecaster TCM, Inc.
Telectro Systems Corp.
VIF International

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Tapex Corporation	117
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Allied Broadcast Equip. Div. of Allied Adv. Corp.
Ampex Corp. Audio-Video Systems Division
Audio Distributor Inc.
Autogram Corporation
Behrends, Inc.
Broadcast Automation Assoc.
Broadcast Electronics
Camex Corp.
Collins Radio Group Rockwell International
Communication Medias
Comquip, Inc.
Control Design Corp.
Crown International
Electro Sound, Inc.
ELPA Marketing Industries, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Gotham Audio Corp.
Harris Corporation Broadcast Equip. Div.
Heath Co.
Image Devices Incorporated
International Tapetronics Corp.
Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
Maze Corporation
Minneapolis Magnetics, Inc.
Norelco, Philips Bst. Equip. Corp.
Subs. North American Philips Corp.
Otari of America, Ltd.
Pentagon Industries, Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
Revox Corporation
Schafer Electronics Corp.
Scully/Metrotech Divs. of Dictaphone Corp.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Superscope, Inc.
Systems Engineering Co., Inc.
Tape-Athon Corp.
Tapecaster TCM, Inc.
Tapex Corporation
TASCAM
TEAC Corp of America
Telectro Systems Corp.
Telex Communications, Inc.
Tri-Tronics, Inc.
Val-Tronics, Inc.
Victor Duncan, Inc.
VIF International
Wilkinson Electronics, Inc.

Recorders, Camera Tape to Film

Behrends, Inc.
Comquip, Inc.
Image Devices Incorporated
Palmer Films, Inc., W. A.
Teledyne Camera Systems
Victor Duncan, Inc.

Recorders, Cassette

Admiral Group, Rockwell Int'l.
Allied Broadcast Equip. Div. of Allied Adv. Corp.
Audio Distributor Inc.
Behrends, Inc.

Canon USA, Inc. Optics Division
 Cetec Inc. Subs. Computer Equipment Corp.
 Comquip, Inc.
 Conrac Corporation Cramer Division
 Control Design Corp.
 Heath Co.
 Image Devices Incorporated
 K'SON Corporation
 Lauderdale Electronic Labs
 Mincom Div. 3M Co.
 Minneapolis Magnetics, Inc.
 Panasonic Video Systems Div.
 Matsushita Electric Corp. of America
 Pentagon Industries, Inc.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 RAPID-Q Div. of Garron Electronics
 RCA Corporation Broadcast Systems Div.
 Recordex Corporation
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Sansui Electronics Corp.
 SC Electronics, Inc. Subs. of Audiotronics Corp.
 Schafer International
 Sharp Electronics Corp.
 Superscope, Inc.
 Telectro Systems Corp.
 TeleMation, Inc.
 Telex Communications, Inc.
 Victor Duncan, Inc.

Recorders, Cassette, Video

TeleMation, Inc.

Recorders, Disc Magnetic

Ampex Corp. Audio-Video Systems Division
 Colorado Video Inc.
 Data Disc Inc.
 Echo Science Corp. Subsidiary of Arvin Systems, Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 TeleMation, Inc.

Recorders, Film Light

Magna-Tech Electronic Co., Inc.
 RCA Corporation Broadcast Systems Div.

Recorders, Film Magnetic

Behrends, Inc.
 Cetec Inc. Subs. Computer Equipment Corp.
 Comquip, Inc.
 Image Devices Incorporated
 Magna-Tech Electronic Co., Inc.
 Precision Laboratories Precision Cine Equipment Corp.
 RCA Corporation Broadcast Systems Div.
 Tele-Cine Inc.
 Victor Duncan, Inc.

Recorders, Logging Magnetic

Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Broadcast Automation Assoc.
 CCA Electronics Corp.
 Control Design Corp.
 Gould Inc. Instrument Systems Div.
 Harvey Radio Pro A/V Div.
 Lang Electronics Inc.
 Maze Corporation
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 Radio Mfg. Co. (RMC)
 RCA Corporation Broadcast Systems Div.
 Scully/Metrotech Divs. of Dictaphone Corp.
 Sinai-Johnson
 Soundsciber Corporation
 Systems Marketing Corp. And Sono-Mag Corp.
 Tape-Athon Corp.

Telectro Systems Corp.
 VIF International

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Autogram Corporation
 B & K Instruments Inc.
 Broadcast Automation Assoc.
 CCA Electronics Corp.
 Collins Radio Group Rockwell International
 Control Design Corp.
 Data Disc Inc.
 Echo Science Corp. Subsidiary of Arvin Systems, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 LPB Inc.
 Mastertone Company
 Maze Corporation
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 Radio Mfg. Co. (RMC)
 RCA Corporation Broadcast Systems Div.
 Revox Corporation
 Schafer Electronics Corp.
 Scully/Metrotech Divs. of Dictaphone Corp.
 Singer Products Co., Inc.
 Soundsciber Corporation
 Sparta Electronic Corp.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tape-Athon Corp.
 Telectro Systems Corp.
 Telex Communications, Inc.
 VIF International

Recorders, Paper Logging and Graphic

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Moseley Assoc. Inc. 10

Biomation Corp.
 Bristol Div. of Acco
 Collins Radio Group Rockwell International
 Control Design Corp.
 Fluke, John, Mfg. Co. Inc.
 General Radio Co.
 Gould Inc. Instrument Systems Div.
 Gulton Industries, Inc. Measurement & Control Systems Div.
 Heath Co.
 Lectronic Res. Labs. Inc.
 Moseley Assoc. Inc.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 Rohde & Schwarz Sales Co.
 Rust Corp.
 Simpson Electric Co. Katy Industries
 Industrial Products Group
 Systems Marketing Corp. And Sono-Mag Corp.
 Telestrator Interand Corp.
 Vitek Electronics Inc.

Recorders, Program Logging

Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Broadcast Automation Assoc.
 Central Dynamics Corp.
 Communication Medias
 Radio Mfg. Co. (RMC)
 Schafer Electronics Corp.
 Scully/Metrotech Divs. of Dictaphone Corp.
 Tape-Athon Corp.
 Telectro Systems Corp.
 Val-Tronics, Inc.
 Video Sentry System
 VIF International

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Ampex Corp. Audio-Video Systems Division
 Ampro Corp.
 Arriflex Company of America
 Audio Distributor Inc.
 Behrends, Inc.
 Bell & Howell Audio Visual Div.
 B & K Instruments Inc.
 Broadcast Automation Assoc.
 Broadcast Electronics
 Broadcast Equipment & Supply Co.
 Califone International, Inc.
 Camex Corp.
 CCA Electronics Corp.
 Cetec Inc. Subs. Computer Equipment Corp.
 Cine Sonic Sound Inc.
 Collins Radio Group Rockwell International
 Communication Medias
 Comquip, Inc.
 Conrac Corporation Cramer Division
 Control Design Corp.
 Crown International
 Denson Electronic Corp.
 Electro Sound, Inc.
 ELPA Marketing Industries, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Gotham Audio Corp.
 Harris Corporation Broadcast Equip. Div.
 Harvey Radio Pro A/V Div.
 IGM
 Image Devices Incorporated
 Inovonics
 International Tapetronics Corp.
 Lang Electronics Inc.
 Lauderdale Electronic Labs
 Magna-Tech Electronic Co., Inc.
 Mastertone Company
 Maze Corporation
 Minneapolis Magnetics, Inc.
 Nemo Recording Labs
 Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
 Orbit Radio and Video
 Otari of America, Ltd.
 Pentagon Industries, Inc.
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Radio Mfg. Co. (RMC)
 RAPID-Q Div. of Garron Electronics
 RCA Corporation Broadcast Systems Div.
 Recordex Corporation
 Revox Corporation
 Ryder Magnetic Sales Corp.
 SC Electronics, Inc. Subs. of Audiotronics Corp.
 Schafer Electronics Corp.
 Scientific Systems, Inc. Broadcast Equipment Div.
 Scully/Metrotech Divs. of Dictaphone Corp.
 Sharp Electronics Corp.
 Sinai-Johnson
 Singer Products Co., Inc.
 Soundsciber Corporation
 Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Superscope, Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tape-Athon Corp.

Tapex Corporation
 TASCAM
 TEAC Corp of America
 Telectro Systems Corp.
 Tele Measurements Inc.
 Telex Communications, Inc.
 Val-Tronics, Inc.
 Victor Duncan, Inc.
 VIF International
 Wilkinson Electronics, Inc.

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Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Ampro Corp.
 Audio Distributor Inc.
 Autogram Corporation
 Bell & Howell Audio Visual Div.
 Broadcast Automation Assoc.
 Broadcast Electronics
 Broadcast Equipment & Supply Co.
 Camex Corp.
 CCA Electronics Corp.
 Cetec Inc. Subs. Computer Equipment Corp.
 Collins Radio Group Rockwell International
 Communication Medias
 Conrac Corporation Cramer Division
 Contel Mfg. Div. of Continental Electronic Wholesale Corp.
 Control Design Corp.
 Dyma Engineering, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Franz Vertriebs-gesellschaft m.b.H.
 Garron Electronics, Inc.
 Harris Corporation Broadcast Equip. Div.
 IGM
 Image Devices Incorporated
 International Tapetronics Corp.
 Lang Electronics Inc.
 Lauderdale Electronic Labs
 MaCarta
 MacKenzie Laboratories, Inc.
 Mastertone Company
 Maze Corporation
 Nemo Recording Labs
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 QRK Electronic Prod.
 RAPID-Q Div. of Garron Electronics
 RCA Corporation Broadcast Systems Div.
 Recordex Corporation
 Schafer Electronics Corp.
 Sharp Electronics Corp.
 Singer Products Co., Inc.
 Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Superscope, Inc.
 Systems Engineering Co., Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tapecaster TCM, Inc.
 Tapex Corporation
 Telectro Systems Corp.
 Tele Measurements Inc.
 Telex Communications, Inc.
 Val-Tronics, Inc.
 Wilkinson Electronics, Inc.

Recorders, Time Base Corrector

Ampex Corp. Audio-Video Systems Division
 Harvey Radio Pro A/V Div.
 International Video Corp.
 Tri-Tronics, Inc.

Recorders, Video Kinescope

Comquip, Inc.
Palmer Films, Inc., W. A.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems
Div.
Teledyne Camera Systems
Tele Measurements Inc.

Recorders, Videotape Cartridge

Comquip, Inc.
Harvey Radio Pro A/V Div.
Hitachi Shibaden Corp. of America
Image Devices Incorporated
International Video Corp.
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems
Div.
Sinai-Johnson
Sony Corp. of America VTR Div.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

Recorders, Videotape Clean Air Hood

Envirco
Liberty Industries
RCA Corporation Broadcast Systems
Div.
Television Equipment Associates

Recorders, Videotape Helical

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Akai America, Ltd. 16-17
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Akai America, Ltd.
Ampex Corp. Audio-Video Systems
Division
Comquip, Inc.
Echo Science Corp. Subsidiary of
Arvin Systems, Inc.
Fernseh Group, Robert Bosch Corp.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
International Video Corp.
Maze Corporation
Norelco, Philips Bcst. Equip. Corp.
Subs. North American Philips Corp.
Rank Cintel, Electronic Systems Div.
Rank Precision Industries Ltd.
Sinai-Johnson
Sony Corp. of America VTR Div.
Tri-Tronics, Inc.
Video Engineering Co., Inc.

Recorders, Videotape Quad

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RCA Corporation 85

Ampex Corp. Audio-Video Systems
Division
Comquip, Inc.
Maze Corporation
RCA Corporation Broadcast Systems
Div.

Recording Services, Audio Tape

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Alto Communications Inc.
Ampro Corp.
Audio Magnetics Corp.
The CnB Studios
Mastertone Company
Nemo Recording Labs
Orbit Radio and Video
Pentagon Industries, Inc.
Qualitape Inc.
Radio Mfg. Co. (RMC)
Ryder Magnetic Sales Corp.
Schafer Electronics Corp.
Superscope, Inc.
Tape-Athon Corp.
Ultra Audio Products

United Recording Electronics
Industries

Recording Services, Videotape to Film

Mediatech, Inc.
Palmer Films, Inc., W. A.

Recording Synchronizers

Electronic Engineering Co. of California
Magna-Tech Electronic Co., Inc.
Quad-Eight Electronics
Ryder Magnetic Sales Corp.

Reels, Cable and Mike

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Clifford B. Hannay & Son, Inc.
Industrial Electric Reel, Inc.
RCA Corporation Broadcast Systems
Div.
Roll-A-Reel
Ryder Magnetic Sales Corp.

Reels, Magnetic Tape

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Polyline Corp. 143

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Audio Distributor Inc.
Audio Magnetics Corp.
Broadcast Automation Assoc.
Broadcast Electronics
Capitol Magnetic Products a Div. of
Capitol Records
Collins Radio Group Rockwell
International
Communication Medias
Duotone Co. Inc.
Harvey Radio Pro A/V Div.
Lauderdale Electronic Labs
Mastertone Company
Memorex Corporation Audio-Video
Group
Pentagon Industries, Inc.
Polyline Corp.
Qualitape Inc.
Recordex Corporation
Robins/Fairchild Fairchild Sound
Equipment Corp.
Schafer Electronics Corp.
Spotmaster Broadcast Electronics
TEAC Corp of America
3M Company Magnetic Audio/Video
Prod. Div.
Wilkinson Electronics, Inc.

Reels, Video Tape

Audio Magnetics Corp.
Comquip, Inc.
Harvey Radio Pro A/V Div.
Lauderdale Electronic Labs
Memorex Corporation Audio-Video
Group
Polyline Corp.
Qualitape Inc.
Recordex Corporation
Robins/Fairchild Fairchild Sound
Equipment Corp.
Sony Corp. of America VTR Div.
3M Company Magnetic Audio/Video
Prod. Div.

Reflectors, Passive

Advance Industries
Andrews Tower Inc.
Collins Radio Group Rockwell
International
Fort Worth Tower Co., Inc.
Rohn Manufacturing Div. of Unarco
Industries Inc.
Utility Tower Co.

Regulators, Voltage

Ameco Inc.

California Instruments Co. Div. of
Aiken Ind., Inc.
Collins Radio Group Rockwell
International
General Radio Co.
Kato Engineering Co.
Electronic Res. Labs. Inc.
Northlake Engineering, Inc.
Temtron Electronics
Terminal Electronics Corp.
Topaz Electronics
Total Technology

Remote Control Monitors, VIT

Harris Corporation Broadcast Equip.
Div.
Marconi Instruments

Remote Control Systems

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Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Alpha Electronic Services Inc.
Ampro Corp.
Audio Services, Inc.
Behrends, Inc.
Belar Electronics Lab., Inc.
Bristol Div. of Acco
CCA Electronics Corp.
Central Dynamics Corp.
Collins Radio Group Rockwell
International
Continental Electronics Mfg. Co.
Dorado Systems
Engineering Associates
ES Enterprises
FMI/Magnatech Corp A Subsidiary of
FM International
Harris Corporation Broadcast Equip.
Div.
Magna-Tech Electronic Co., Inc.
Marti Electronics
Mastertone Company
Maze Corporation
McBee Laboratories
Moseley Assoc. Inc.
National Electrolab Ltd.
North American Radio Corp.
RCA Corporation Broadcast Systems
Div.
Robins/Fairchild Fairchild Sound
Equipment Corp.
ROH Corporation
Rust Corp.
Ryder Magnetic Sales Corp.
Sparta Electronic Corp.
Systems Marketing Corp. And
Sono-Mag Corp.
Tele-Cine Inc.
Trepac Corp. America
Val-Tronics, Inc.
Video Accessories Mfg. Co.
Video Engineering Co., Inc.
Wilkinson Electronics, Inc.

Remote Pickup Systems, Radio

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Delta Electronics Inc.
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Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Camex Corp.
CCA Electronics Corp.
Collins Radio Group Rockwell
International
Delta Electronics Inc. (Va.)
FMI/Magnatech Corp A Subsidiary of
FM International
Marti Electronics
Mastertone Company
Maze Corporation
McMartin Industries
Moseley Assoc. Inc.

Pulse Dynamics Mfg. Corp. (PDMC)
Schafer Electronics Corp.
Sparta Electronic Corp.
Val-Tronics, Inc.
Wilkinson Electronics, Inc.

Reverberation Systems

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AKG Division North Amer. Philips
Corp.
Audio Distributor Inc.
B & K Instruments Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gotham Audio Corp.
Lauderdale Electronic Labs
MICMIX Audio Products, Inc.
Quad-Eight Electronics
Robins/Fairchild Fairchild Sound
Equipment Corp.
Sparta Electronic Corp.
Systems Engineering Co., Inc.
TASCAM
Val-Tronics, Inc.

Rewinders, Film

Behrends, Inc.
Comquip, Inc.
Image Devices Incorporated
Kalart Victor Corp.
Neumade Prod. Corp.
Precision Laboratories Precision Cine
Equipment Corp.
RCA Corporation Broadcast Systems
Div.

Rewinders, Tape

Allied Broadcast Equip. Div. of Allied
Adv. Corp.
Broadcast Automation Assoc.
Marathon Broadcast Equip.
Neumade Prod. Corp.
Pentagon Industries, Inc.
Radio Mfg. Co. (RMC)
Ramko Research
RCA Corporation Broadcast Systems
Div.
Recordex Corporation
Recordex Inc.
Robins/Fairchild Fairchild Sound
Equipment Corp.
Schafer Electronics Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.
Ultra Audio Products

Safety Devices, Ladder

Air Space Devices Inc.
Anixter-Pruzan CATV Division
Antenna Products Company
Rohn Manufacturing Div. of Unarco
Industries Inc.
Triangle Towers & Antennas

Scramblers, Speech

KRL Electronics, Inc.
Singer Products Co., Inc.

Screens, Projection Front

Behrends, Inc.
Comquip, Inc.
Eastman Kodak Co.
Q-TV Sales & Distributing Corp.
Raven Screen Corp.
Tele Measurements Inc.
Video Engineering Co., Inc.

Screens, Projection Rear

Behrends, Inc.
Raven Screen Corp.
Tele Measurements Inc.
Video Engineering Co., Inc.
Wilson Corp., H.

Semiconductors, IC's

Amperex Electronic Corp.
A-Tel-A-Matic
Calvert Electronics Power Tube Div.
English Electric Valve North America Ltd.
Harvey Radio Pro A/V Div.
Hewlett Packard Co.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Solitron Devices Inc. Semiconductor Div.
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

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Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Collins Radio Group Rockwell International
Electronic Devices, Inc.
English Electric Valve North America Ltd.
Heintz and Kaufman Ltd.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Temtron Electronics
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

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A-Tel-A-Matic
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Calvert Electronics Power Tube Div.
Collins Radio Group Rockwell International
English Electric Valve North America Ltd.
Heintz and Kaufman Ltd.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
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Wilkinson Electronics, Inc.

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Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Collins Radio Group Rockwell International
Electronic Devices, Inc.
English Electric Valve North America Ltd.

Heintz and Kaufman Ltd.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

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Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Collins Radio Group Rockwell International
Electronic Devices, Inc.
English Electric Valve North America Ltd.
Heintz and Kaufman Ltd.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.
Wilkinson Electronics, Inc.

Semiconductors, Thyristor

Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
English Electric Valve North America Ltd.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

Semiconductors, Transistor AF

Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Heintz and Kaufman Ltd.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Temtron Electronics
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

Semiconductors, Transistor FET

A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Heintz and Kaufman Ltd.
P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.

RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Temtron Electronics
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

Semiconductors, Transistor General

Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
Hewlett Packard Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Temtron Electronics
Terminal Electronics Corp.
Texas Instrument Components Group
Thor Electronics Corp.

Semiconductors, Transistor RF

Amperex Electronic Corp.
A-Tel-A-Matic
Birnback Co. Inc.
Calvert Electronics Power Tube Div.
English Electric Valve North America Ltd.
Heintz and Kaufman Ltd.
Hewlett Packard Co.
Microwave Assoc. Inc.
Motorola Semiconduct Motorola Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Terminal Electronics Corp.
Texas Instrument Components Group
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Storeel Corp.

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Hewlett Packard Co.
Electronic Res. Labs. Inc.
Maury Microwave Corp.
Micro Communications, Inc.
Microwave Assoc. Inc.
Narda Microwave Corp., The
Raytheon Company Raytheon Data Systems Co.
Systron-Donner
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Weinschel Engineering Co.

Slow Scan TV Systems

ATV Research
Colorado Video Inc.
Gen. Electrodynamics
Harris Corporation Broadcast Equip. Div.
Harvey Radio Pro A/V Div.

Hughes Aircraft Company Ind. Prod. Div.-Image Devices
ITT Aerospace/Optical Div.
Teledyne Brown Engineering Co. Science & Engrg. Div.
Telestrator Interand Corp.
Teltron, Inc.

Sound Effect Systems

Gotham Audio Corp.
Radio Mfg. Co. (RMC)
Total Technology
Universal Research Labs

Sound Systems, Automatic Level Control

Robins/Fairchild Fairchild Sound Equipment Corp.

Sound Systems, Outdoor

Altec Sound Products
Ancha Electronics Inc.
Atlas Sound
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Cetec Inc. Subs. Computer Equipment Corp.
Concept 70, A Div. of Dyma Engineering, Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Head Sound, Inc.
Jensen Sound Laboratories Div.
Pemcor, Inc.
Maze Corporation
McMartin Industries
Microwave Assoc. Inc.
Norelco, Philips Bcast. Equip. Corp. Subs. North American Philips Corp.
Paso Sound Products Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
Q-TV Sales & Distributing Corp.
RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
Shure Brothers Inc.
Sinai-Johnson
Spectra Sonics
Terminal Electronics Corp.
Ultra Audio Products

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Applied Electro Mechanics, Inc.
Atlas Sound
Audio Distributor Inc.
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Califone International, Inc.
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Custom Craft Designs
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Gately Electronics
Head Sound, Inc.
Jensen Sound Laboratories Div.
Pemcor, Inc.
Maze Corporation
McMartin Industries
Modular Audio Products
Rupert Neve, Inc.
Paso Sound Products Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
Q-TV Sales & Distributing Corp.
RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.

Rupert Neve Incorporated
Sharp Electronics Corp.
Shure Brothers Inc.
Sinai-Johnson
Singer Products Co., Inc.
Spectra Sonics
Tape-Athon Corp.
Terminal Electronics Corp.
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Altec Sound Products
Ampro Corp.
Ancha Electronics Inc.
Audio Designs & Mfg.
Behrends, Inc.
Broadcast Electronics
CCA Electronics Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Cleveland Electronics, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Crown International
Delta Electronics Inc. (N.C.)
Dyma Engineering, Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Gately Electronics
Gotham Audio Corp.
Jensen Sound Laboratories Div.
Pemcor, Inc.
Magna-Tech Electronic Co., Inc.
Maze Corporation
McMartin Industries
Rupert Neve, Inc.
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
Paso Sound Products Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
Quad-Eight Electronics
RCA Corporation Broadcast Systems Div.
Robins/Fairchild Fairchild Sound Equipment Corp.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Systems Engineering Co., Inc.
Total Technology
(Trusonic) ACS Inc.
Video Aids Corp. of Colorado
Ward-Beck Systems, Ltd.

Sound Systems, Theater

Altec Sound Products
Ancha Electronics Inc.
Atlas Sound
Audio Designs & Mfg.
Audio Distributor Inc.
Behrends, Inc.
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Cetec Inc. Subs. Computer Equipment Corp.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Delta Electronics Inc. (N.C.)
Electro Sound, Inc.
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
Gately Electronics
Head Sound, Inc.
Jensen Sound Laboratories Div.
Pemcor, Inc.
Maze Corporation
Rupert Neve, Inc.
Paso Sound Products Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Q-TV Sales & Distributing Corp.
Quad-Eight Electronics
RCA Corporation Broadcast Systems Div.

Robins/Fairchild Fairchild Sound Equipment Corp.
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Broadcast Electronics
Camex Corp.
Cetec Inc. Subs. Computer Equipment Corp.
Cleveland Electronics, Inc.
Collins Radio Group Rockwell International
Communication Medias
Comquip, Inc.
Crown International
Electro-Voice Inc. Subs. of Gulton Industries, Inc.
G.C. Electronics
Gotham Audio Corp.
Hartley Prod. Corp.
Heath Co.
Jensen Sound Laboratories Div.
Pemcor, Inc.
Koss Corp
Lauderdale Electronic Labs
Maze Corporation
Micro-Trak Corporation
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
Oaktron Industries Inc.
Paso Sound Products Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp. (PDMC)
QRK Electronic Prod.
RCA Corporation Broadcast Systems Div.
Sansui Electronics Corp.
Scientific Systems, Inc. Broadcast Equipment Div.
Sinai-Johnson
Singer Products Co., Inc.
Soundolier, Inc.
Sparta Electronic Corp.
Superscope, Inc.
Systems Engineering Co., Inc.
TEAC Corp of America
Tele Measurements Inc.
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Electromagnetic Sciences, Inc.
Farinon Electric
Farinon Electric of Canada, Ltd.
FMI/Magnatech Corp A Subsidiary of FM International
General Electric Co. Imaging & Display Devices Product Sect.
GTE Lenkurt Incorporated
Harris Corporation Broadcast Equip. Div.

Ikegami Electronics Ind., Inc. of N.Y.
Marti Electronics
Mastertone Company
Maze Corporation
McMartin Industries
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Nurad, Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation Broadcast Systems Div.
RHG Elect Labs, Inc.
Scott-Buttner Coastcom, Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Trepac Corp. America
Val-Tronics, Inc.
Varian Beverly Operations
Wilkinson Electronics, Inc.

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CCA Electronics Corp.
Collins Radio Group Rockwell International
Farinon Electric
Farinon Electric of Canada, Ltd.
FMI/Magnatech Corp A Subsidiary of FM International
Fung Engineering Inc.
GTE Lenkurt Incorporated
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Bethany International
Camex Corp.
Central Dynamics Corp.
Cohu, Inc. Electronics Division

Communications Technology, Inc.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Cunningham Corp. Subs. of Gleason Works
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Echo Science Corp. Subsidiary of Arvin Systems, Inc.
Essex International Inc. RBM Div.
Fung Engineering Inc.
GBC Closed Circuit TV Corp.
Grass Valley Group, Inc.
Harris Corporation Broadcast Equip. Div.
Holland Electronics
Industrial Sciences, Inc.
Internatl. Nuclear Corp.
Javelin Div. of Apollo Lasers
Kay Elemetrics Corp.
Marconi Electronics Inc.
Maze Corporation
McCurdy Radio Ind. Inc.
Nasco Television Systems
Rupert Neve, Inc.
OMNIX
RCA Corporation Broadcast Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Ltd.
Riker Communications Inc.
Robins/Fairchild Fairchild Sound Equipment Corp.
ROH Corporation
Rupert Neve Incorporated
Seacor Inc.
Shintron Co. Inc. Video Products Div.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
TeleMation, Inc.
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Theta-Com
Total Technology
Tri-Tronics, Inc.
Video Accessories Mfg. Co.
Vicon Industries, Inc.
Video Aids Corp. of Colorado
Video Engineering Co., Inc.
Viscount Industries Ltd.
Visual Electronics Laboratories
Ward-Beck Systems, Ltd.

Switches

Alco Electronic Products, Inc.
American Electronic Labs., Inc.
AMP Special Industries
Amperex Electronic Corp.
Birnbach Co. Inc.
Edison Electronics Div. McGraw-Edison Co.
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Switchcraft Inc.
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American Electronic Labs., Inc.
Amphenol RF Division
Andrew Corp.
A-Tel-A-Matic
Beaver Electronics, Ltd.
Bird Electronic Corp.
Blonder-Tongue Labs.
Collins Radio Group Rockwell International
Comark Industries Inc.
Delta Electronics Inc. (Va.)
Dielectric Communications Div. of Sola Basic
Electronic Inst. & Spec.
Fung Engineering Inc.
General Microwave Corp.

Harris Corporation Broadcast Equip. Div.
 ITT Jennings
 Jampro Antenna Co. Div. of Computer Equipment Corp.
 Kay Elemetrics Corp.
 Lectronic Res. Labs. Inc.
 Magnecraft Electric Co.
 Matrix Systems Corp.
 Micro Communications, Inc.
 Microwave Assoc. Inc.
 Narda Microwave Corp., The
 OAK Industries Inc. Communications Group
 Prodelin Inc.
 RCA/Community Telev. Systems Electronic Industrial Engineering
 RCA Corporation Broadcast Systems Div.
 Richmond Hill Laboratories Ltd.
 Rohde & Schwarz Sales Co.
 Shively Laboratories, Inc.
 Singer Products Co., Inc.
 Sparta Electronic Corp.
 Systron-Donner
 Telonic Altair
 Terminal Electronics Corp.
 Texscan Corp.
 Trompeter Electronics
 Vitek Electronics Inc.
 Wide Band Engineering Co., Inc.

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 Fernseh Group, Robert Bosch Corp.
 Internatl. Nuclear Corp.
 Marconi Electronics Inc.
 Matrix Systems Corp.
 RCA Corporation Broadcast Systems Div.
 Richmond Hill Laboratories Ltd.
 Rust Corp.
 Tape-Athon Corp.
 TeleMation, Inc.
 Trompeter Electronics
 Video Engineering Co., Inc.
 Viscount Industries Ltd.

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 Andrew Corp.
 Audio Services, Inc.
 Broadcast Automation Assoc.
 Central Dynamics Corp.
 Cleveland Electronics, Inc.
 CMX Systems
 Cohu, Inc. Electronics Division
 Communications Technology, Inc.
 Concept 70, A Div. of Dyma Engineering, Inc.
 Cunningham Corp. Subs. of Gleason Works
 Datatek Corp.
 Delta Electronics Inc. (Va.)
 Dyma Engineering, Inc.
 DYNAIR Electronics, Inc.
 Fernseh Group, Robert Bosch Corp.
 Grass Valley Group, Inc.
 GTE Lenkurt Incorporated
 Harris Corporation Broadcast Equip. Div.
 Holland Electronics
 IGM
 Industrial Sciences, Inc.
 Internatl. Nuclear Corp.

International Video Corp.
 ITT General Controls
 Javelin Div. of Apollo Lasers
 Marco Video Systems, Inc.
 Marconi Electronics Inc.
 Mastertone Company
 Matrix Systems Corp.
 Maze Corporation
 McCurdy Radio Ind. Inc.
 Multronics, Inc.
 Nasco Television Systems
 OMNIX
 Q-TV Sales & Distributing Corp.
 RCA Corporation Broadcast Systems Div.
 Richmond Hill Laboratories Ltd.
 Riker Communications Inc.
 Robins/Fairchild Fairchild Sound Equipment Corp.
 ROH Corporation
 Schafer Electronics Corp.
 Switchcraft Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tech Laboratories Inc.
 TeleMation, Inc.
 Trepac Corp. America
 Trompeter Electronics
 Vicon Industries, Inc.
 Video Engineering Co., Inc.
 Viscount Industries Ltd.
 Visual Electronics Laboratories
 Vital Industries Inc.

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 Nippon Electric Co., Ltd.
 TeleMation, Inc.

Systems Research and Development

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 Audio Services, Inc.
 Comquip, Inc.
 Lauderdale Electronic Labs
 OMNIX

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 Ampex Corp. Audio-Video Systems Division
 Audio Distributor Inc.
 Audio Magnetics Corp.
 Behrends, Inc.
 Birmingham Tape Cartridge Co., Inc.
 Broadcast Automation Assoc.
 Broadcast Electronics
 BSC Incorporated
 Capitol Magnetic Products a Div. of Capitol Records
 CCA Electronics Corp.
 Collins Radio Group Rockwell International
 Communication Medias
 Comquip, Inc.
 Duotone Co. Inc.
 Elektromesstechnik E M T Wilhelm Franz G M B H
 Fuji Photo Film USA, Inc. Video Tape Div.
 Harris Corporation Broadcast Equip. Div.

Image Devices Incorporated
 Irish Magnetic Recording Tape Div.
 Morhan Nat'l. Sales Co. Inc.
 Joa Cartridge Service
 Karex, Inc. Subs. of Rohm and Haas Co.
 Lauderdale Electronic Labs
 P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
 Mastertone Company
 Memorex Corporation Audio-Video Group
 Otari of America, Ltd.
 Pacific Recorders and Engrg. Corp. Div. 47B
 Pentagon Industries, Inc.
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Q-TV Sales & Distributing Corp.
 Qualitape Inc.
 RCA Corporation Broadcast Systems Div.
 RCA Corporation RCA Electronic Components
 Recordex Corporation
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Ryder Magnetic Sales Corp.
 Sinai-Johnson
 Singer Products Co., Inc.
 Soundscribe Corporation
 Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Superscope, Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tapex Corporation
 TDK Electronics Corp.
 Tele Measurements Inc.
 3M Company Magnetic Audio/Video Prod. Div.
 Val-Tronics, Inc.
 Victor Duncan, Inc.
 VIF International
 Wilkinson Electronics, Inc.

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 Broadcast Automation Assoc.
 Broadcast Electronics
 BSC Incorporated
 Capitol Magnetic Products a Div. of Capitol Records
 Cine Sonic Sound Inc.
 Collins Radio Group Rockwell International
 Communication Medias
 Conrac Corporation Cramer Division
 Contel Mfg. Div. of Continental Electronic Wholesale Corp.
 Fidelipac Division TelePro Industries, Inc.
 Fuji Photo Film USA, Inc. Video Tape Div.
 Harris Corporation Broadcast Equip. Div.
 IGM
 Irish Magnetic Recording Tape Div.
 Morhan Nat'l. Sales Co. Inc.
 Joa Cartridge Service
 Lauderdale Electronic Labs
 P. R. Mallory & Co. Inc. Mallory Distributor Products Co.
 Marathon Broadcast Equip.
 Mastertone Company
 Memorex Corporation Audio-Video Group
 Nemo Recording Labs
 QRK Electronic Prod.

Q-TV Sales & Distributing Corp.
 Qualitape Inc.
 RCA Corporation Broadcast Systems Div.
 RCA Corporation RCA Electronic Components
 Recordex Corporation
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Sinai-Johnson
 Singer Products Co., Inc.
 Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Superscope, Inc.
 Systems Engineering Co., Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tapecaster TCM, Inc.
 Tapex Corporation
 TDK Electronics Corp.
 3M Company Magnetic Audio/Video Prod. Div.
 Val-Tronics, Inc.
 Wilkinson Electronics, Inc.

Tape, Magnetic Recording Computer

Asaca Corp. of America
 Memorex Corporation Audio-Video Group
 RCA Corporation Broadcast Systems Div.
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Systems Marketing Corp. And Sono-Mag Corp.
 TDK Electronics Corp.

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Ampex Corp. Audio-Video Systems Division
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 Conway Electronic Enterprises Limited
 Fidelipac Division TelePro Industries, Inc.
 G.C. Electronics
 Lauderdale Electronic Labs
 Mastertone Company
 Nortronics Co., Inc. Recorder Care Div.
 RCA Corporation Broadcast Systems Div.
 Systems Marketing Corp. And Sono-Mag Corp.
 Taber Mfg. & Engr. Co.
 Tapex Corporation
 TASCAM
 Telectro Systems Corp.
 Val-Tronics, Inc.
 Victor Duncan, Inc.
 VIF International

Tape, Magnetic Recording Video

Ampex Corp. Audio-Video Systems Division
 Anixter-Pruzan CATV Division
 Audio Magnetics Corp.
 BSC Incorporated
 Computer Image Corp.
 Comquip, Inc.
 Fuji Photo Film USA, Inc. Video Tape Div.
 GBC Closed Circuit TV Corp.
 Harvey Radio Pro A/V Div.
 Hitachi Shibaden Corp. of America
 Image Devices Incorporated
 Irish Magnetic Recording Tape Div.
 Morhan Nat'l. Sales Co. Inc.
 Javelin Div. of Apollo Lasers
 Karex, Inc. Subs. of Rohm and Haas Co.
 K'SON Corporation
 Maxwell Corp. of America
 Memorex Corporation Audio-Video Group
 Panasonic Video Systems Div.
 Matsushita Electric Corp. of America
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Qualitape Inc.

RCA Corporation Broadcast Systems Div.
 Recordex Corporation
 R. H. Tyler Co. Div. of Weather Scan, Inc.
 Sony Corp. of America VTR Div.
 TDK Electronics Corp.
 Tele Measurements Inc.
 3M Company Magnetic Audio/Video Prod. Div.
 Tri-Tronics, Inc.
 Video Engineering Co., Inc.

Tape, Recording Logging

Broadcast Automation Assoc.
 Capitol Magnetic Products a Div. of Capitol Records
 Cine Sonic Sound Inc.
 Lauderdale Electronic Labs
 Maze Corporation
 Memorex Corporation Audio-Video Group
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Qualitape Inc.
 RCA Corporation Broadcast Systems Div.
 Singer Products Co., Inc.
 Soundscriber Corporation
 Sparta Electronic Corp.
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 Ramko Research
 Spotmaster Broadcast Electronics
 Ultra Audio Products

Tape Cassettes

Allied Broadcast Equip. Div. of Allied Adv. Corp.
 Audio Magnetics Corp.
 Capitol Magnetic Products a Div. of Capitol Records
 Fuji Photo Film USA, Inc. Video Tape Div.
 Image Devices Incorporated
 Irish Magnetic Recording Tape Div. Morhan Nat'l. Sales Co. Inc.
 Karex, Inc. Subs. of Rohm and Haas Co.
 Mastertone Company
 Minneapolis Magnetics, Inc.
 Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
 Qualitape Inc.
 RCA Corporation RCA Electronic Components
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Sinai-Johnson
 Systems Engineering Co., Inc.
 3M Company Magnetic Audio/Video Prod. Div.
 Video Engineering Co., Inc.

Tape Cleaners

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 Lauderdale Electronic Labs
 Lipsner-Smith Corp.
 Miller-Stephenson Chemical Co.
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 Cine Sonic Sound Inc.
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 Communication Medias
 Comquip, Inc.
 Conrac Corporation Cramer Division
 Control Design Corp.
 Crown International
 ELPA Marketing Industries, Inc.
 FMI/Magnatech Corp A Subsidiary of FM International
 Garron Electronics, Inc.
 Glenburn Corp. Consumer Products Div.
 Gotham Audio Corp.
 Gould Inc. Instrument Systems Div.
 Harris Corporation Broadcast Equip. Div.
 IGM
 International Tapetronics Corp.
 Lang Electronics Inc.
 Lauderdale Electronic Labs
 Mastertone Company
 Minneapolis Magnetics, Inc.
 Otari of America, Ltd.
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
 Q-TV Sales & Distributing Corp.
 Radio Mfg. Co. (RMC)
 RAPID-Q Div. of Garron Electronics
 RCA Corporation Broadcast Systems Div.
 Recortec Corporation
 Sansui Electronics Corp.
 Schafer Electronics Corp.
 Scully/Metrotech Divs. of Dictaphone Corp.
 Sharp Electronics Corp.
 Singer Products Co., Inc.
 Soundscriber Corporation

Sparta Electronic Corp.
 Spotmaster Broadcast Electronics
 Superscope, Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
 Tape-Athon Corp.
 Tapecaster TCM, Inc.
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 Mastertone Company
 Maze Corporation
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 Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp.
 Orbit Radio and Video
 Pentagon Industries, Inc.
 Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
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 Recortec Inc.
 SC Electronics, Inc. Subs. of Audiotronics Corp.
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 Mastertone Company
 Micro-Trak Corporation
 Neumade Prod. Corp.
 Professional Audio Service
 QRK Electronic Prod.
 RMS Electronics, Inc.
 Robins/Fairchild Fairchild Sound Equipment Corp.
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 Electro Sound, Inc.
 Electro-Voice Inc. Subs. of Gulton Industries, Inc.
 ELPA Marketing Industries, Inc.
 Fidelipac Division TelePro Industries, Inc.
 Garron Electronics, Inc.
 G.C. Electronics
 Lauderdale Electronic Labs
 Mastertone Company
 Micro-Trak Corporation
 Nortronics Co., Inc. Recorder Care Div.
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 Qualitape Inc.
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 Recortec Inc.
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 Robins/Fairchild Fairchild Sound Equipment Corp.
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 Fidelipac Division TelePro Industries, Inc.
 G.C. Electronics
 Joa Cartridge Service
 Lauderdale Electronic Labs
 Mastertone Company
 Nagy Research Products
 Nortronics Co., Inc. Recorder Care Div.
 Revox Corporation
 Robins/Fairchild Fairchild Sound Equipment Corp.
 Spotmaster Broadcast Electronics
 Victor Duncan, Inc.

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 Broadcast Electronics
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 Cook Electric Co.
 Crown International
 Gould Inc. Instrument Systems Div.
 Harris Corporation Broadcast Equip. Div.
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 Maze Corporation
 Minneapolis Magnetics, Inc.
 Radio Mfg. Co. (RMC)
 Recordex Corporation
 Sparta Electronic Corp.
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 Image Devices Incorporated
 Telecommunications Industries Ltd.
 Video Engineering Co., Inc.

Test Records

Ameco Inc.
 B & K Instruments Inc.
 CBS Labs
 G.C. Electronics
 Gotham Audio Corp.
 Lauderdale Electronic Labs
 Mastertone Company
 RCA Corporation Broadcast Systems Div.

Test Sets, Multifunction

Ailtech
 American Data Corp. an AIRPAX Company
 CBS Labs
 Conway Electronic Enterprises Limited
 ELPA Marketing Industries, Inc.
 Kay Elemetrics Corp.
 OMNIX
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.
 ROH Corporation
 Sadelco, Inc.
 Singer Instrumentation Los Angeles Operation
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 VIF International

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Acrodyne Industries Inc.
 American Electronic Labs., Inc.
 Conway Electronic Enterprises Limited
 Datatron, Inc.
 Delta Electronics Inc. (N.C.)
 Delta Electronics Inc. (Va.)
 Eico Elect. Inst. Co., Inc.
 Heath Co.
 Hickok Elect. Instrument
 Leader Instruments Corp.
 Lectronic Res. Labs. Inc.
 Lectrotech Inc.
 Philips Test & Measuring Instruments, Inc. a North American Philips Co.

PRD Electronics, Inc. Subsidiary of Harris Corp.
 Ramko Research
 RCA Corporation Broadcast Systems Div.
 RCA Corporation RCA Electronic Components
 Rohde & Schwarz Sales Co.
 Sencore Inc.
 Sinai-Johnson
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 Lectrotech Inc.
 RCA Corporation Broadcast Systems Div.
 Sencore Inc.
 Sinai-Johnson
 Singer Products Co., Inc.
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 Standard Electric Time Div. of Johnson Service Co.
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 Heath Co.
 Image Devices Incorporated
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 P. K. Neuses Inc.
 Systems Marketing Corp. And Sono-Mag Corp.
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 Radio Mfg. Co. (RMC)
 Rohn Manufacturing Div. of Unarco Industries Inc.
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Collins Radio Group Rockwell International
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E Z Way Prod. Inc.
FMI/Magnatech Corp A Subsidiary of FM International
Fort Worth Tower Co., Inc.
G.C. Electronics
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.

Kline Iron & Steel Co. Tower Division
Mastertone Company
RCA Corporation Broadcast Systems Div.
RF Systems, Inc.
Rohn Manufacturing Div. of Unarco Industries Inc.
Sparta Electronic Corp.
Stainless, Incorporated
Swager Tower Corp.
Tiner Communications Service, Inc.
Triangle Towers & Antennas
Tri-Ex Tower Corp.
Up Right Scaffolds
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Advance Industries
Allied Tower Company, Inc.
Ameco Inc.
Andrews Tower Inc.
Anixter-Prusan CATV Division
Antenna Products Company
Beaver Electronics, Ltd.
E Z Way Prod. Inc.
RF Systems, Inc.
Rohn Manufacturing Div. of Unarco Industries Inc.
Singer Products Co., Inc.
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Fort Worth Tower Co., Inc.
Harris Corporation Broadcast Equip. Div.
Jampro Antenna Co. Div. of Computer Equipment Corp.
Kline Iron & Steel Co. Tower Division
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Kline Iron & Steel Co. Tower Division
Mastertone Company
RCA Corporation Broadcast Systems Div.
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RCA Corporation Broadcast Systems Div.
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Singer Products Co., Inc.
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Jampro Antenna Co. Div. of Computer Equipment Corp.
Marconi Electronics Inc.
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Dyma Engineering, Inc.
FMI/Magnatech Corp A Subsidiary of FM International
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Jampro Antenna Co. Div. of Computer Equipment Corp.
Lectronic Res. Labs. Inc.
Mastertone Company
Maury Microwave Corp.
Micro Communications, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Radio Mfg. Co. (RMC)
RCA Corporation Broadcast Systems Div.
Saxton Prod. Inc.
Shively Laboratories, Inc.
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Cablewave Systems Inc. Subs. Phelps Dodge and Kabelmetal
GTE Lenkurt Incorporated

Electronic Res. Labs. Inc.
RCA Corporation Broadcast Systems
Div.
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Maze Corporation
North American Radio Corp.
Radio Mfg. Co. (RMC)
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Div.
Mastertone Company
Radio Mfg. Co. (RMC)
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Marconi Electronics Inc.
Mastertone Company
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RCA Corporation Broadcast Systems
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Communications, Inc.
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Harris Corporation Broadcast Equip.
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Orbit Radio and Video
RCA Corporation Broadcast Systems
Div.
Rohde & Schwarz Sales Co.
Television Technology Corp.
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Rolane Sales Corp.
CCA Electronics Corp.
Delta-Benco-Cascade Ltd.
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Harris Corporation Broadcast Equip.
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RCA Corporation Broadcast Systems
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Varian Beverly Operations

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Div.
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CCA Electronics Corp.
EMCEE Broadcast Products Div. of
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Anaconda CATV
Atlantic Research Corp.
Telecommunications Dept.
Audio Services, Inc.
Beaver Electronics, Ltd.
Broadcast Automation Assoc.
CCA Electronics Corp.
Comquip, Inc.
EMCEE Broadcast Products Div. of
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Communications, Inc.
Grinnan Fixture Co.
Microwave Assoc. Inc.
Peerless Electronics, Inc.
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Audio Distributor Inc.
Broadcast Automation Assoc.
Broadcast Electronics
Broadcast Equipment & Supply Co.
Camex Corp.
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Collins Radio Group Rockwell
International
Dyma Engineering, Inc.
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Subs. North American Philips Corp.
Orbit Radio and Video
QRK Electronic Prod.
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Rek-O-Kut Inc.
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Sansui Electronics Corp.
Schafer Electronics Corp.
Sinai-Johnson
Singer Products Co., Inc.
Sintronic Corp.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Stanton Magnetics Inc.
Systems Engineering Co., Inc.
Val-Tronics, Inc.
Video Engineering Co., Inc.
Wilkinson Electronics, Inc.

TV Systems, Closed Circuit

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A. F. Associates, Inc.

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American Data Corp. an AIRPAX
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Anixter-Pruzan CATV Division
Applied Video Electronics, Inc.
A-Tel-A-Matic
Atlantic Research Corp.
Telecommunications Dept.
ATV Research
AVA Electronics Corp.
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Catel, a Div. of United Scientific Corp.
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Colorado Video Inc.
Communications Technology, Inc.
Comquip, Inc.
Cunningham Corp. Subs. of Gleason
Works
Davis & Sanford Co. Inc.
Delta Electronics Inc. (N.C.)
Denson Electronic Corp.
DYNAIR Electronics, Inc.
Echo Science Corp. Subsidiary of
Arvin Systems, Inc.
Fernseh Group, Robert Bosch Corp.
GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Gen. Electrodynamics
General Television Ntwk.
Harris Corporation Broadcast Equip.
Div.
Hitachi Shibaden Corp. of America
Ikegami Electronics Ind., Inc. of N.Y.
Internatl. Nuclear Corp.
International Video Corp.
Janson Industries
Javelin Div. of Apollo Lasers
Jerrold Electronics Corp. CATV
Systems Div.
K'SON Corporation
Lenzar Optics Corp.
Marconi Electronics Inc.
Mosler Electronic Systems Div.
Nasco Television Systems
Orbit Radio and Video
Panasonic Video Systems Div.
Matsushita Electric Corp. of
America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation Broadcast Systems
Div.
Riker Communications Inc.
SC Electronics, Inc. Subs. of
Audiotronics Corp.
Sinai-Johnson
Sylvania Comm. Electronic
Tele-Cine Inc.
Teledyne Brown Engineering Co.
Science & Engrg. Div.
TeleMation, Inc.
Tele Measurements Inc.
Television Microtime, Inc. Subs.
Andersen Laboratories, Inc.
Teltron, Inc.
Temtron Electronics
Tri-Tronics, Inc.
Varian Beverly Operations
Vicon Industries, Inc.
Video Engineering Co., Inc.
Video Sentry System
Visual Educom Inc. Dage/MTI/Infonics
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Heintz and Kaufman Ltd.
Hughes Aircraft Company Ind. Prod.
Div.-Image Devices

RCA Corporation RCA Electronic
Components
Tele Measurements Inc.
Teltron, Inc.
Temtron Electronics
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Thor Electronics Corp.
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Amperex Electronic Corp.
Calvert Electronics Power Tube Div.
Comquip, Inc.
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Div.
Hitachi Shibaden Corp. of America
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
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Teltron, Inc.
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Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics
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Vacuum Tubes, Camera Silicon Array

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Amperex Electronic Corp.
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ATV Research
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English Electric Valve North America
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GBC Closed Circuit TV Corp.
General Electric Co. Imaging & Display
Devices Product Sect.
Gen. Electrodynamics
Harris Corporation Broadcast Equip.
Div.
Heintz and Kaufman Ltd.
Hitachi Shibaden Corp. of America
Hughes Aircraft Company Ind. Prod.
Div.-Image Devices
ITT Electro-Optical Products Div.
Javelin Div. of Apollo Lasers
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
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Texas Instrument Components Group
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Heintz and Kaufman Ltd.
Hughes Aircraft Company Ind. Prod.
Div.-Image Devices
Lectronic Res. Labs. Inc.
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Terminal Electronics Corp.
Thor Electronics Corp.
Video Engineering Co., Inc.

Vacuum Tubes, Cathode Ray TV Color

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Terminal Electronics Corp.
Thor Electronics Corp.
Video Engineering Co., Inc.
Westinghouse Electric Corp. Electric
Tube Div.

Vacuum Tubes, Cathode Ray TV Monochrome

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Terminal Electronics Corp.
Thor Electronics Corp.
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Electronic Res. Labs. Inc.
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Thomson-CSF Electron Tubes
Thor Electronics Corp.
Val-Tronics, Inc.
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Electronic Res. Labs. Inc.
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Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
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Thor Electronics Corp.
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Heintz and Kaufman Ltd.
Temtron Electronics
Thor Electronics Corp.
Westinghouse Electric Corp. Electric Tube Div.

Vector Display, Color

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Beston Electronics Inc.
Lectrotech Inc.
Tele-Cine Inc.
Troy Electronic Sales Co.
Ultra Audio Products

Viewfinder for Closed Circuit Cameras

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R. H. Tyler Co. Div. of Weather Scan, Inc.
TeleMation, Inc.
Tri-Tronics, Inc.
Video Engineering Co., Inc.
Visual Educom Inc. Dage/MTI/Infonics Div

Voltmeters, AC

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California Instruments Co. Div. of Aiken Ind., Inc.
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Dragnet Engineering Labs., Inc.
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Fluke, John, Mfg. Co. Inc.
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Hewlett Packard Co.
Hickok Elect. Instrument
Instrument Laboratories
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Electronic Res. Labs. Inc.
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Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
SPI-ITT Metrix Instruments Div.
Systron-Donner
Triplett Corporation

Voltmeters, DC

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California Instruments Co. Div. of Aiken Ind., Inc.
Conway Electronic Enterprises Limited
Dana Laboratories, Inc.
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Fluke, John, Mfg. Co. Inc.
Gralex Industries Div. of General Microwave Corp.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
International Instrument Div. Sigma Instruments, Inc.
ITT Jennings
Leader Instruments Corp.
Electronic Res. Labs. Inc.
Lectrotech Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
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RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
SPI-ITT Metrix Instruments Div.
Systron-Donner
Triplett Corporation

Voltmeters, FET

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Dynascan Corp. B & K Division
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Leader Instruments Corp.
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RCA Corporation RCA Electronic Components
Sencore Inc.
Simpson Electric Co. Katy Industries Industrial Products Group
SPI-ITT Metrix Instruments Div.
Triplett Corporation

Voltmeters, Vacuum Tube

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Boonton Electronics
Conway Electronic Enterprises Limited
Dynascan Corp. B & K Division
Eico Elect. Inst. Co., Inc.
Gralex Industries Div. of General Microwave Corp.
Heath Co.
Hewlett Packard Co.
Instrument Laboratories
Leader Instruments Corp.
Electronic Res. Labs. Inc.
Philips Test & Measuring Instruments, Inc. a North American Philips Co.
RCA Corporation Broadcast Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
SPI-ITT Metrix Instruments Div.
Triplett Corporation
United Recording Electronics Industries

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Boonton Electronics
Coaxial Dynamics
Conway Electronic Enterprises Limited
Dielectric Communications Div. of Sola Basic
Eico Elect. Inst. Co., Inc.
Electro Impulse, Inc.
General Microwave Corp.
Instrument Laboratories
Electronic Res. Labs. Inc.
Micro Communications, Inc.
RCA Corporation Broadcast Systems Div.
Rohde & Schwarz Sales Co.
Simpson Electric Co. Katy Industries Industrial Products Group
SPI-ITT Metrix Instruments Div.
Transel Corp.
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Comark Industries Inc.
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English Electric Valve North America Ltd.
Electronic Res. Labs. Inc.
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Lauderdale Electronic Labs
LPB Inc.
Mastertone Company
R. H. Tyler Co. Div. of Weather Scan, Inc.
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Texas Electronics

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Ameco Inc.
Applied Video Electronics, Inc.
A-Tel-A-Matic
Audio Accessories Inc.
AVA Electronics Corp.
Beaver Electronics, Ltd.
Belden Corp. Electronic Division
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Cablewave Systems Inc. Subs. Phelps Dodge and Kabelmetal
Concept 70, A Div. of Dyma Engineering, Inc.
Dyma Engineering, Inc.
K'SON Corporation
RCA Corporation Broadcast Systems Div.
Rex Rheostat & Co., Inc.
Saxton Prod. Inc.
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Systems Marketing Corp. And Sono-Mag Corp.
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High Blood Pressure Is a Joke.

... a *bad* joke. High blood pressure—doctors call it hypertension—is a silent, mysterious disease. It cripples and kills without warning. One in seven adult Americans has it, and half don't know it. There are no special symptoms, but when your blood pressure goes up and stays up, it's no laughing matter. Untreated, it can lead to heart attack, stroke and kidney failure. This year alone, 900,000 will die from these diseases. Your doctor can detect hypertension, and can usually

control it. So get a checkup. And follow your doctor's orders. No one else can do it for you. Right? Meanwhile, the Heart Association is working hard to learn what causes hypertension and how it can be cured . . . to find people with high blood pressure and get them under treatment. We're doing it through research, education and community programs. Your contribution to the Heart Fund will keep us working. No joke.

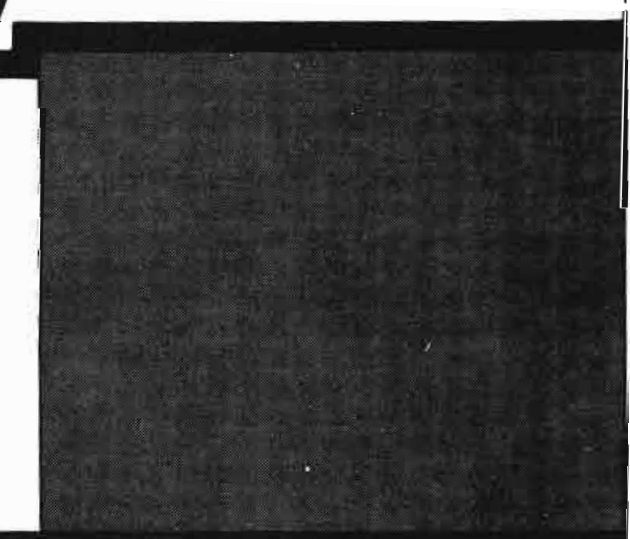
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Sarnoff Calls For Satellite Sharing

RCA Chairman Robert W. Sarnoff called for greater sharing of satellites by government and commercial users and better planning of all satellite developments to avoid growing confusion and needless duplication of effort in space.

He told the Armed Forces Communications and Electronics Association that new technology is adding many new capabilities to individual spacecraft and opening the way to multipurpose systems for functions that now require many separate vehicles and costly launchings. He added that systems dedicated to a single function or user soon will be unjustifiable and wasteful, except for a few highly specialized defense requirements.

"A change of this order will represent a quantum leap forward in space technology," said Sarnoff. "It will open a broad range of opportunities that can be properly exploited only if we have in advance a clear idea of what we wish to achieve."

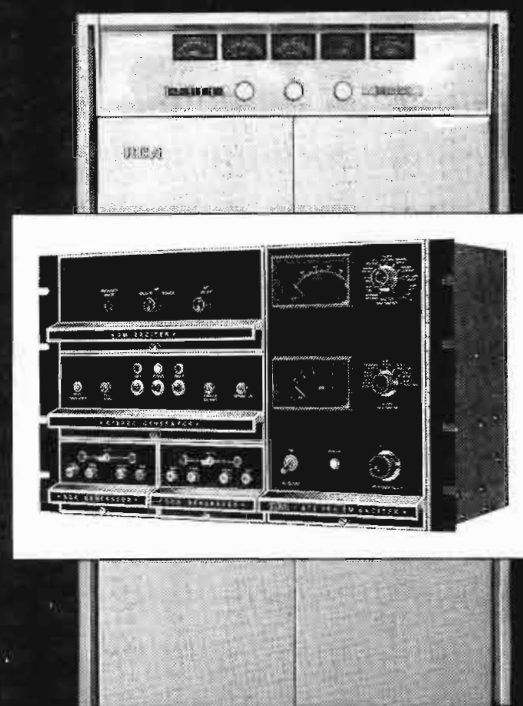
The RCA executive, who received AFCEA's Distinguished Service Gold Metal, stated that the speed of change underscores the need for a far more organized approach to the use of new communications and electronics technology.

He reiterated his call for the establishment by Congress of a new independent agency—a Science and Technology Board—to coordinate the diverse research and development activities of the government and to maintain close ties with the general scientific and engineering community.

"Within its broad policy context, this agency would, of course, concern itself with the disarray that now obscures the future of our communications and electronics technology," he said. "All users of communications—military, commercial, and private—would benefit from the more orderly flow of development and application that would result."

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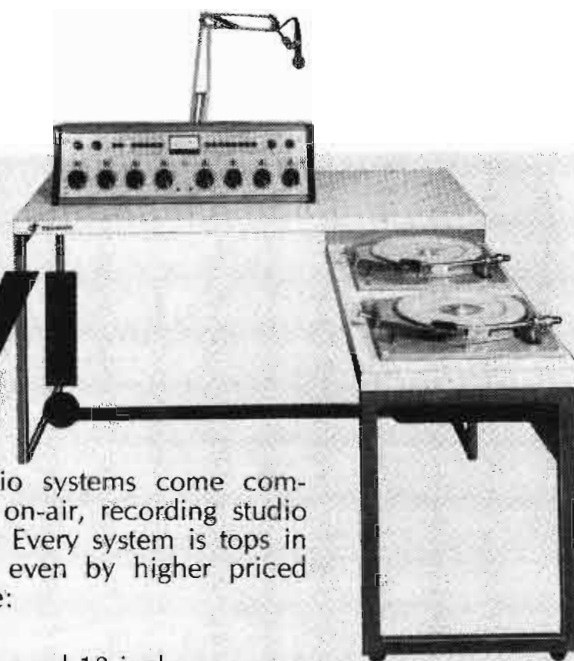
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Sarnoff cited the prospect of new public and private ventures to apply the latest technology to new satellites for communications, weather surveillance, resource studies, navigation, national security, and even direct broadcasting. He called for the establishment of a relationship among all of these activities, pointing as an example to the question of satellites in geostationary orbit.

"Space may seem unlimited, but desirable locations are not," he said.

He explained that geostationary satellites must be spaced about 100 miles apart to avoid colliding, and that communications satellites operating in the same frequency range—as they do now—must be kept from 1,200 to 2,000 miles apart to prevent mutual interference. This provides room for only eight to thirteen in the orbital segment covering North America and Hawaii.

The use of higher frequencies could reduce these distances and make possible perhaps 20 or more satellites, he said.

"New technology promises to open higher frequency ranges in the near future," he added. "It may then be possible to reduce the distance between such satellites by as much as half. The resulting population of perhaps twenty or more satellites might seem to be more than enough for any of our communications needs. But is anyone today prepared to say with certainty that our future demands will not exceed even this capacity?"

Sarnoff said that space is just one aspect of the broader problem, but it is characteristic of the way the United States uses all of its scientific resources and technological skills.

"Even now—three decades after the first nuclear chain reaction, 26 years after the dawn of the solid state revolution, 16 years into the Space Age—the United States is without a coherent long-range policy and program in science and technology," he added.

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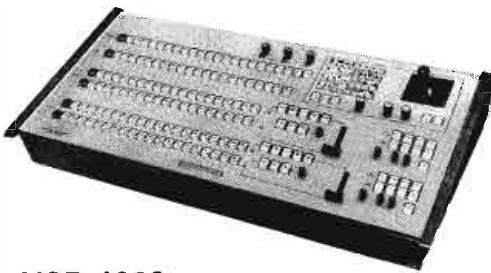
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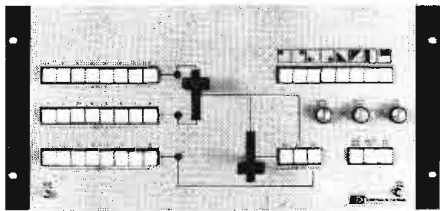
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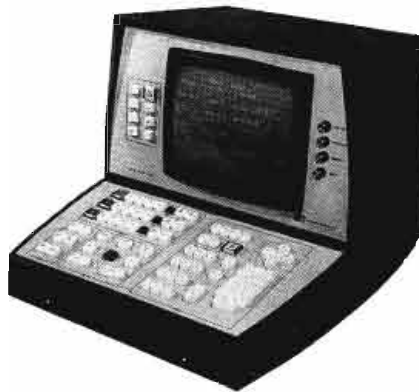
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Electro-Voice Inc. Subs. of Gulton Industries, Inc. 639 Cecil St. Buchanan Mich. 49107

ELPA Marketing Industries, Inc. New Hyde Park N. Y. 11040

EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc. P.O. Box 116 White Haven Pa. 18661

EMCOR Ingersoll Products Borg-Warner Corp. 1000 W. 120th St. Chicago Ill. 60643

Emerson Elec./Artolier Lighting & Sound Rittenhouse Div. Quaker Mtg. House Rd. Honeoye Falls N.Y. 14472

Enclosure Corp. 1701 Industrial Blvd. Pennsauken N.J. 08110

Engineering Associates R. R. 2 Arcanum Ohio 45304

English Electric Valve North America Ltd. 24 Ronson Drive Rexdale Ont., Canada W9W 1B4

Enterprise Electronics Corp. Box 1216 Enterprise Ala. 36330

Entron, Inc. 70-31 84th St. Glendale N. Y. 11227

Enviroc Box 6468 Albuquerque N. M. 87107

Equipto 225 S. Highland Aurora Ill. 60507

ES Enterprises 10418 S. La Cienega Blvd. Inglewood Calif. 90304

ESC Electronics Corp. 534 Bergen Blvd. Palisades Park N. J. 07650

Essex International Inc. Communication & CATV Div. 6235 S. Harlem Ave. Chicago Ill. 60638

Essex International Inc. RBM Div. 131 Godfrey St. Logansport Ind. 46947

Eventide Clock Works Inc. Broadcast Products Div. 265 West 54th St. New York N. Y. 10019

E Z Way Prod. Inc. Box 17196 Tampa Fla. 33612

F

Farinon Electric 1691 Bayport Ave. San Carlos Calif. 94070

Farinon Electric of Canada, Ltd. 657 Orly Ave. Dorval Que., Canada H9P 1G1

Feller Vacuum Form Studios 381 Canal Place Bronx N. Y. 10451

Fernseh Group, Robert Bosch Corp. 279 Midland Ave. Saddle Brook N.J. 07662

Fidelipac Division TelePro Industries, Inc. 3 Olney Ave. Cherry Hill N. J. 08034

Filmline Corp. 43 Erna Street Milford Conn. 06460

Imero Fiorentino Associates, Inc. 10 West 66th St. New York N. Y. 10023

Fisher Berkeley Corp. 5800 Christie Ave. Emeryville Cal. 94608

Fluke, John, Mfg. Co. Inc. Box 7428 Seattle Wash. 98133

FMI/Magnatech Corp A Subsidiary of FM International 3601 Park Center Blvd. Minneapolis Minn. 55416

Fort Worth Tower Co., Inc. 5201 Bridge St., Box 8597 Ft. Worth Tex. 76112

Franz Vertriebs-gesellschaft m.b.H.
POB 1520 D-763-Lahr-1 West
Germany

Freeland Products Co. 3233 Conti St.
New Orleans La. 70119

**Frontier Engineering Corp. Television
and Computer Div.** Box 265 Flor-
ham Park N.J. 07932

**Fuji Photo Film USA, Inc. Video Tape
Div.** 350 5th Ave. New York N. Y.
10001

Fung Engineering Inc. 111 Glenn Way
Belmont Calif. 94002

G

GAF Corp. 140 W. 51 Street New York
N.Y. 10020

Garner Electronics 4200 No. 48th St.
Lincoln Nebr. 68504

Garron Electronics, Inc. 1216 Kifer
Rd. Sunnyvale Calif. 94086

Gately Electronics 57 W. Hillcrest Ave.
Haverstown Pa. 19083

GBC Closed Circuit TV Corp. 74 Fifth
Ave. New York N.Y. 10011

G.C. Electronics 400 S. Wyman St.
Rockford Ill. 61101

General Cable Corp. 500 West Put-
nam Ave. Greenwich Conn. 06830

**General Devices Co., Inc. Vent-Rak
Div.** 525 S. Webster Ave. Indianapo-
lis Ind. 46219

**General Electric Co. Imaging & Display
Devices Product Sect.** 104 Bldg. 7,
Electronics Park Syracuse N. Y.
13201

**General Electric Co. Mobile Radio
Dept.** Box 4197 Lynchburg Va.
24502

Gen. Electrodynamics 4430 Forest
Lane Garland Tex. 75040

General Microwave Corp. 155 Marine
St. Farmingdale N.Y. 11735

General Radio Co. 300 Baker Ave.
Concord Mass. 01742

General Television Ntwk. 520 W. Eight
Mile Rd. Ferndale Mich. 48220

**General Time Service A Talley Indus-
tries Co.** Box 4067 Mesa Ariz.
85201

**Glenburn Corp. Consumer Products
Div.** 4 North St. Walldwick N.J.
07463

Gotham Audio Corp. 741 Washington
St. New York N.Y. 10014

Gould Inc. Instrument Systems Div.
3631 Perkins Ave. Cleveland Ohio
44114

**Gralex Industries Div. of General Mi-
crowave Corp.** 155 Marine St. Far-
mingdale N. Y. 11735

Grass Valley Group, Inc. P.O. Box
1114 Grass Valley Cal. 95945

Greenlee Tool Co. 2136 12th St.
Rockford Ill. 61101

Grinnan Fixture Co. 16041 George-
town St. N.E. Minerva Ohio 44657

GTE Lenkurt Incorporated 1105
County Road San Carlos Calif.
94070

**GTE Sylvania Inc. Lighting Products
Group** 100 Endicott St. Danvers
Mass. 01923

**Gulton Industries, Inc. Measurement
& Control Systems Div.** Gulton In-
dustrial Park East Greenwich R.I.
02818

H

Clifford B. Hannay & Son, Inc. 402
Main St. Westerlo N.Y. 12193

**Harris Corporation Broadcast Equip.
Div.** 123 Hampshire Street Quincy
Ill. 62301

Hartley Prod. Corp. Barnert Place Ho
Ho Kus N.J. 07423

Harvey Radio Pro A/V Div. 23 W. 45th
St. New York N.Y. 10036

Harwood Mfg. Co. 1800 W. Fullerton
Chicago Ill. 60614

Head Sound, Inc. 722 Brooks St. Ann
Arbor Mich. 48103

Heath Co. Benton Harbor Mich.
49022

Heintz and Kaufman Ltd. 3650 Hay-
den Ave. Culver City Cal. 90230

Hewlett Packard Co. 1501 Page Mill
Rd. Palo Alto Cal. 94304

Hickok Elect. Instrument 10514 Du-
pont Ave. Cleveland Ohio 44108

Hitachi Shibaden Corp. of America
58-25 Brooklyn Queens Exp. Wood-
side N.Y. 11377

Holland Electronics 842 East 94th St.
Brooklyn N. Y. 11236

Hollingsworth Solderless Terminal Co.
Nutt & French Creek Rds. Phoenix-
ville Pa. 19460

**Hughes Aircraft Company Ind. Prod.
Div.-Image Devices** 6855 El
Camino Real Carlsbad Calif. 92008

Hughey & Phillips Inc. 3050 N. Cali-
fornia St. Burbank Cal. 91505

**Hunt Chemical Corp., Philip A. Roose-
velt Place Palisades Park N.J.**
07650

I

IGM Box 943, 3950 Home Rd. Belling-
ham Wash. 98225

Ikegami Electronics Ind., Inc. of N.Y.
35-27 31st St. Long Island City N.
Y. 11106

Image Devices Incorporated Box 38-
517 Miami Fla. 33138

Industrial Electric Reel, Inc. 1125
Jackson St. Omaha Neb. 68102

Industrial Sciences, Inc. Box 296 Cor-
nelia Ga. 30531

Innovative Television Equipment, Inc.
P.O. Box 681 Woodland Hills Cal.
91364

Inovonics 1630 Dell Ave. Campbell
Calif. 95008

Instrument Laboratories 315 W. Wal-
ton Place Chicago Ill. 60610

**International Instrument Div. Sigma
Instruments, Inc.** 88 Marsh Hill Rd.
Orange Conn. 06477

Interntl. Nuclear Corp. 608 Norris
Ave. Nashville Tenn. 37204

International Tapetronics Corp. Box
241 Bloomington Ill. 61701

International Video Corp. 990 Al-
manor Ave. Sunnyvale Cal. 94086

**Irish Magnetic Recording Tape Div.
Morhan Nat'l. Sales Co. Inc.**
270-78 Newtown Road Plainview N.
Y. 11803

ITT Aerospace/Optical Div. 3700 E.
Pontiac St. Fort Wayne Ind. 46803

ITT Electron Tube Div. Box 100 Easton
Pa. 18042

ITT Electro-Optical Products Div. Box
7065 Roanoke Va. 24019

ITT General Controls 801 Allen Ave.
Glendale Calif. 91201

ITT Jennings 970 McLaughlin Ave.
San Jose Cal. 95116

J

Jamieson Film Co. 6911 Forest Park
Rd. Dallas Texas 75235

**Jampro Antenna Co. Div. of Computer
Equipment Corp.** 6939 Power Inn
Road Sacramento Cal. 95828

Janson Industries Box 8110 Canton
Ohio 44711

Javelin Div. of Apollo Lasers 6357
Arizona Circle Los Angeles Calif.
90045

**Jensen Sound Laboratories Div. Pem-
cor, Inc.** 4310 Trans World Road
Schiller Park Ill. 60146

Jensen Tools & Alloys 4117 N. 44th
St. Phoenix Ariz. 85018

**Jerrold Electronics Corp. CATV Sys-
tems Div.** 401 Walnut St. Phila-
delphia Pa. 19105

Joa Cartridge Service Box 7112 Phila-
delphia Pa. 19117

Johnson Electronics, Inc. P.O. Box 7
Casselberry Fla. 32707

Jones Int'l. Ltd. 880 Continental Bank
Bldg. Englewood Colo. 80110

**Jos. Schneider & Co. Optische Werke
Div.** P.O. Box 947 6550 Bad Kreuz-
nach West Germany

Joslyn Electronic Sys. Box 817 Goleta
Cal. 93017

K

Kaitronics Corporation Box 556 Bel-
mont Calif. 94002

Kalart Victor Corp. Hultenius St. Plain-
ville Conn. 06062

Kansas State Network, Inc. Box 333
Wichita Kans. 67201

Kappa Networks, Inc. 165 Rosevelt
Ave. Carteret N.J. 07008

**Karex, Inc. Subs. of Rohm and Haas
Co.** 1262 Lawrence Station Rd. Sun-
nyvale Calif. 94086

Kato Engineering Co. 1415 First Ave.
Mankato Minn. 56001

Kay Elemetrics Corp. 12 Maple Ave.
Pine Brook N.J. 07058

Kliegl Bros. Lighting 32-32 48th Ave.
Long Island City N.Y. 11101

Kline Iron & Steel Co. Tower Division
Box 1013 Columbia S.C. 29202

Koss Corp 4129 N. Port Washington
Ave. Milwaukee Wis. 53212

KRL Electronics, Inc. Box 72 Freeport
N.Y. 11520

K'SON Corporation 250 E. Emerson
Ave. Orange Calif. 92665

L

Lampkin Lab. Inc. Box 9048 Braden-
ton Fla. 33506

Lang Electronics Inc. 14 E. 39th St.
New York N.Y. 10016

Lauderdale Electronic Labs 16 S.W.
13th St. Fort Lauderdale Fla.
33315

Leader Instruments Corp. 151 DuPont
St. Plainview N.Y. 11803

Electronic Res. Labs. Inc. 1423 Ferry
Ave. BE Camden N.J. 08104

Lectrotech Inc. 5810 N. Western Ave.
Chicago Ill. 60659

Lenco Inc. Electronics Division 319 W.
Main St. Jackson Mo. 63755

Lenzar Optics Corp. 210 Brant Rd.
Lake Park Fla. 33403

Liberty Industries 598 Deming Road
Berlin Conn. 06037

Lightning Elimination Assoc., Inc.
9102 Firestone Blvd. Downey Calif.
90241

Lipps Inc. 1630 Euclid St. Santa
Monica Cal. 90404

Lipsner-Smith Corp. 6735 N. Honore
St. Chicago Ill. 60626

Listec TV Equip. Corp. 35 Cain Dr.
Plainview N.Y. 11803

Logiconcepts, Inc. 3831 Catalina St.
Los Alamitos Calif. 90720

The London Company 811 Sharon
Drive Cleveland Ohio 44145

LPB Inc. 520 Lincoln Hwy. Frazer Pa.
19355

L-W Photo, Inc. 15451 Cabrito Road
Van Nuys Cal. 91406

M

MaCarta 709 Railroad Ave. West Des
Moines Iowa 50265

**Machlett Laboratories Subs. of
Raytheon Co. Inc.** 1063 Hope St.
Stamford Conn. 06907

MacKenzie Laboratories, Inc. 5507 N.
Peck Road Arcadia Calif. 91006

Magnasync/Moviola Corp. 5539 Riv-
erton Ave. North Hollywood Calif.
91601

Magna-Tech Electronic Co., Inc. 630
Ninth Ave. New York N.Y. 10036

Magnavox Company CATV Division
100 Fairgrounds Dr. Manlius N. Y.
13104

Magnecraft Electric Co. 5575 N.
Lynch Ave. Chicago Ill. 60630

Magnusonic Devices Inc. 290 Duffy
Ave. Hicksville N.Y. 11801

**P. R. Mallory & Co. Inc. Mallory Dis-
tributor Products Co.** Box 1284 In-
dianapolis Ind. 46201

Marathon Broadcast Equip. 3 Electron-
ics Ave. Danvers Ind. Pk. Danvers
Mass. 01923

Marco Video Systems, Inc. 6114
North 20th St. Philadelphia Pa.
19138

Marconi Electronics Inc. 500 Execu-
tive Blvd. Elmsford N.Y. 10523

Marconi Instruments 111 Cedar Lane
Englewood N.J. 07631

Marti Electronics P.O. Box 661, 1501
N. Main St. Cleburne Tex. 76031

Mastertone Company 1105 Maple
West Des Moines Iowa 50265

Matrix Systems Corp. 20426 Corisco
St. Chatsworth Cal. 91311

Maury Microwave Corp. 8610 Helms
Ave. Cucamonga Calif. 91730

Maxwell Corp. of America 130 West
Commercial Ave. Moonachie N. J.
07074

Maze Corporation Box 6636 Birming-
ham Ala. 35210

McBee Laboratories 5151 Wisconsin Ave. NW Washington D. C. 20016
McCurdy Radio Ind. Inc. 1051 Clinton St. Buffalo N.Y. 14206
MCG Electronics Inc. 279 Skidmore Rd. Deer Park N.Y. 11729
McMartin Industries 4500 South 76th St. Omaha Neb. 68127
Mediatech, Inc. 824 Busse Highway Park Ridge Ill. 60068
Memorex Corporation Audio-Video Group 1200 Memorex Drive Santa Clara Cal. 95052
MICMIX Audio Products, Inc. 9990 Monroe Dr., Suite 222 Dallas Texas 75220
Micro Communications, Inc. RFD 3, Grenier Field Manchester N.H. 03103
Micro-Trak Corporation 620 Race St. Holyoke Mass. 01040
Microwave Assoc. Inc. South Ave., NW Industrial Prk. Burlington Mass. 01803
Miller-Stephenson Chemical Co. Box 628 Danbury Conn. 06810
Mincom Div. 3M Co. 300 South Lewis Rd. Camarillo Cal. 93010
Minneapolis Magnetics, Inc. 8125 Pleasant Ave. S. Minneapolis Minn. 55420
Modular Audio Products 1385 Lakeland Ave. Bohemia N. Y. 11716
Mole Richardson Co. 937 N. Sycamore Ave. Hollywood Cal. 90038
Moseley Assoc. Inc. 111 Castilian Drive Goleta Cal. 93017
Mosler Electronic Systems Div. 9 South St. Danbury Conn. 06810
Motorola Semiconduct Motorola Inc. 5005 E. McDowell Rd. Phoenix Ariz. 85008
Mountain West Alarm 4215 North 16th St. Phoenix Ariz. 85016
Multimetrix Industries Div. of Comstron Corp. 120-30 Jamaica Ave. Richmond Hill N.Y. 11418
Multronics, Inc. 12307 Washington Ave. Rockville Md. 20852

N

Nagy Research Products Box 289 McLean Va. 22101
Narda Microwave Corp., The 75 Commercial St. Plainview N.Y. 11803
Nasco Television Systems 947 Janesville Ave. Fort Atkinson Wis. 53538
National Electrolab Ltd. Box 68 Blaine Wash. 98230
Nemo Recording Labs Box 505 Times Sq. Sta. New York N.Y. 10036
Neumade Prod. Corp. 720 White Plains Rd. Scarsdale N.Y. 10583
P. K. Neuses Inc. 1401 Rohlwing Rd. Rolling Meadow Ill. 60008
Rupert Neve, Inc. Berkshire Industrial Park Bethel Conn. 06801
Nippon Electric Co., Ltd. P. O. Box 1 Takanawa, Tokyo Japan
Norelco, Philips Bcst. Equip. Corp. Subs. North American Philips Corp. One Philips Prkwy. Montvale N. J. 07645
North American Radio Corp. 3814 Marquis Dr., Suite 111 Garland Tex. 75042

Northlake Engineering, Inc. 999 Anita Ave. Antioch Ill. 60002
Norton Assoc. Inc. 10 Ditomas Court Copaigue N.Y. 11726
Nortronics Co., Inc. Recorder Care Div. 8101 Tenth Ave. N. Minneapolis Minn. 55427
Nurad, Inc. 2165 David Park Dr. Baltimore Md. 21211

O

OAK Industries Inc. Communications Group Crystal Lake Ill. 60014
Oaktron Industries Inc. 930 30th St. Monroe Wis. 53566
O'Connor Eng. Labs. Inc. Photographic Division 100 Kalmus Drive Costa Mesa Cal. 92627
Ohmite Mfg. Co. 3601 Howard St. Skokie Ill. 60076
OMNIX 12234 W. Pico Blvd. Los Angeles Calif. 90064
Onan 1400 73rd Avenue NE Minneapolis Minn. 55432
On-Guard Corp. of America 350 Gotham Parkway Carlstadt N.J. 07072
Orbit Radio and Video Box 1644 Louisville Ky. 40201
Otari of America, Ltd. 8295 S. La Cienega Blvd. Inglewood Calif. 90301

P

Pacific Recorders and Engrg. Corp. Div. 47B 11760 Sorrento Valley Rd. San Diego Calif. 92121
Paillard Incorporated 1900 Lower Rd. Linden N.J. 07036
Palmer Films, Inc., W. A. 611 Howard St. San Francisco Cal. 94105
Panasonic Video Systems Div. Matsushita Electric Corp. of America Box 3980 Grand Central Sta. New York N.Y. 10017
Paso Sound Products Inc. 251 Park Ave. S. New York N.Y. 10010
Peerless Electronics, Inc. 12011 Coit Rd., Suite 103 Dallas Texas 75230
Pentagon Industries, Inc. 4751 N. Olcott Ave. Chicago Ill. 60656
Permadynne Electronics Corp. 2929 N. Southport Chicago Ill. 60657
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc. Rte. 79 Marlboro N.J. 07746
Philadelphia Resins Corp. 20 Commerce Dr. Montgomeryville Pa. 18936
Philips Broadcast Equipment Corp. Subs. North American Philips Corp. One Philips Prkwy. Montvale N.J. 07645
Philips Test & Measuring Instruments, Inc. a North American Philips Co. 400 Crossways Park Dr. Woodbury N. Y. 11797
Photo Lab Inc. 3825 Georgia Ave. NW. Washington D.C. 20011
Photo Research Div. of Kollmorgen Corp. 3000 N. Hollywood Way Burbank Cal. 91505
Plastoid Corporation 42-61 24th St. Long Island City N. Y. 11101
Polyline Corp. 1241 Rand Road Des Plaines Ill. 60016

Potomac Instruments, Inc. 932 Philadelphia Ave. Silver Spring Md. 20910
Power-Optics Inc. Box 266 Fairview Village Pa. 19409
Power Waves, Inc. Box 1353 Asbury Park N. J. 07712
PRD Electronics, Inc. Subsidiary of Harris Corp. 6801 Jericho Turnpike Syosset N. Y. 11791
Precision Elect. Inc. 9101 King St. Franklin Park Ill. 60131
Precision Laboratories Precision Cine Equipment Corp. 999 East 46th St. Brooklyn N.Y. 11203
Prestolite Company Port Huron Mich. 48060
Prodelin Inc. Box 131 Hightstown N.J. 08520
Professional Audio Service Box 1953 Fort Worth Texas 76101
Pulse Dynamics Mfg. Corp. (PDMC) Depot & Fulton Sts. Colchester Ill. 62326
Pulse Techniques Inc. 1411 Palisade Ave. Teaneck N.J. 07666

Q

QRK Electronic Prod. 1568 N. Sierra Vista Fresno Calif. 93703
Q-TV Sales & Distributing Corp. 342 W. 40th St. New York N.Y. 10018
Quad-Eight Electronics 11929 Vose St. North Hollywood Calif. 91605
Qualitape Inc. 101 Broadway Runnemedes N. J. 08078
Quasar Microsystems Inc. 448 Suffolk Ave. Brentwood N.Y. 11717
Quick-Set Inc. 3650 Woodhead Drive Northbrook Ill. 60062

R

Racine & Co., Inc., Jules 85 Executive Blvd. Elmsford N.Y. 10523
Radio Mfg. Co. (RMC) 4702 SW 75 Ave. Miami Fla. 33155
Radio Research Instrument Co., Inc. 3 Quincy St. Norwalk Conn. 06850
Radio Time Service Box 6613 Tucson Ariz. 85733
Ramko Research 3516-C LaGrande Blvd. Sacramento Calif. 95823
Rank Cintel, Electronic Systems Div. Rank Precision Industries Ltd. Watton Road Ware Herts., England SG12 0 AE
Rank Precision Industries 411 Jarvis ave Des Plaines Ill. 60018
RAPID-Q Div. of Garron Electronics 1216 Kifer Rd. Sunnyvale Calif. 94086
Raven Screen Corp. 124 East 124th St. New York N.Y. 10035
Raytheon Company Raytheon Data Systems Co. 1415 Providence Turnpike Norwood Mass. 02062
RCA/Community Telev. Systems Electronic Industrial Engineering 7355 Fulton Ave. North Hollywood Calif. 91605
RCA Corporation Broadcast Systems Div. Front and Cooper Streets Camden N.J. 08102
RCA Corporation RCA Electronic Components 415 S. Fifth St. Harrison N.J. 07029

RCA Corporation RCA Missile & Surface Radar Div. Marne Hwy. & Borton Landing Rd. Moorestown N. J. 08057
RCA Corporation RCA Service Company Div. Cherry Hill Offices Camden N.J. 08101
Recordex Corporation 1300 Booth Ave. NW Atlanta Ga. 30318
Recortec Inc. 777 Palomar Ave. Sunnyvale Calif. 94086
Red Comet Inc. Box 272 Littleton Colo. 80120
Rek-O-Kut Inc. 1568 N. Sierra Vista Ave. Fresno Calif. 93703
Revex Corporation 155 Michael Dr. Syosset N. Y. 11791
Rex Rheostat & Co., Inc. 149 Babylon Turnpike Roosevelt N. Y. 11575
Reynolds/Leteron Co. 9830 San Fernando Rd. Pacoima Calif. 91331
RF Systems, Inc. 155 King St. Cohasset Mass. 02025
RHA Audio Communications Corp. 625 60th Street West New York N. J. 07093
RHG Elect Labs, Inc. 161 E. Industry Court Deer Park N.Y. 11729
R. H. Tyler Co. Div. of Weather Scan, Inc. Loop 132 & Hwy. 79 Olney Tex. 76374
Richmond Hill Laboratories Ltd. 1240 Ellesmere Rd. Scarborough Ont., Canada M1P 2X4
Riker Communications Inc. 142 Central Ave. Clark N.J. 07066
RMS Electronics, Inc. 50 Antin Place Bronx N. Y. 10462
Robins/Fairchild Fairchild Sound Equipment Corp. 75 Austin Blvd. Commack N. Y. 11725
Rodann Electronics Mfg. Co. 133 S. Brea Blvd. Brea Calif. 92621
Rodelco Corp. 356 A Comac Road Deer Park N.Y. 11729
ROH Corporation 107 Technology Park Norcross Ga. 30071
Rohde & Schwarz Sales Co. 111 Lexington Ave. Passaic N.J. 07055
Rohn Manufacturing Div. of Unarco Industries Inc. Box 2000 Peoria Ill. 61601
Roll-A-Reel 7386 Reading Road Cincinnati Ohio 45237
Rupert Neve Incorporated Berkshire Industrial Park Bethel Conn. 06801
Russco Electronics Mfg. Inc. 1070 Brookhaven Drive Clovis Cal. 93612
Rust Corp. 168 Tremont St. Everett Mass. 02149
Ryder Magnetic Sales Corp. 1147 N. Vine St. Hollywood Cal. 90038

S

Sadelco, Inc. 299 Park Ave. Weehawken N. J. 07087
Howard W. Sams & Co., Inc. 4300 West 62nd St. Indianapolis Ind. 46268
Sansui Electronics Corp. 55-11 Queens Blvd. Woodside N. Y. 11377
Sarkes Tarzian Inc. Broadcast Equipment Div. East Hillside Dr. Bloomington Ind. 47401
Saxton Prod. Inc. 215 N. Route 303 Congers N.Y. 10920

SC Electronics, Inc. Subs. of Audio-
tronics Corp. 530 Fifth Ave., N.W.
 St. Paul Minn. 55112

Scala Radio Corp. 1970 Republic Ave.
 San Leandro Cal. 94577

Schafer Electronics Corp. 75 Castilian
 Drive Goleta Calif. 93017

Schafer International 1355 Harbor
 Drive San Diego Calif. 92101

Schneider Corp. of America 154 Lodi
 St. Hackensack N.J. 07601

Scientific Systems, Inc. Broadcast
Equipment Div. 191 Westfield Ave.
 Clark N. J. 07066

Scintrex Inc. Communications Div.
 Amherst Industrial Park Tonawanda
 N.Y. 14150

Scott-Buttner Coastcom, Inc. 2346
 Stanwell Drive Concord Calif.
 94520

Scully/Metrotech Divs. of Dictaphone
Corp. 475 Ellis St. Mountain View
 Cal. 94040

Seacor Inc. 598 Broadway Norwood N.
 J. 07648

Seattle Technology Box 70258 Seattle
 Wash. 98107

Sencore Inc. 3200 Sencore Drive
 Sioux Falls S. D. 57107

Sennheiser Electronics Corp. 10 West
 37th St. New York N. Y. 10018

Senstrol Division UMC Electronics Co.
 460 Sackett Point Rd. North Haven
 Conn. 06473

Sescom, Inc. Box 4155 Inglewood
 Calif. 90309

SGL Waber Electric Div. SGL Indus-
tries, Inc. 300 Harvard Ave. West-
 ville N. J. 08093

Shallco, Incorporated Hwy. 301 South,
 P.O. Box 1089 Smithfield N.C.
 27577

Sharp Electronics Corp. 10 Keystone
 Place Paramus N.J. 07652

Shintron Co. Inc. Video Products Div.
 144 Rogers St. Cambridge Mass.
 02142

Shively Laboratories, Inc. Route 302
 Raymond Me. 04071

Shure Brothers Inc. 222 Hartrey Ave.
 Evanston Ill. 60204

SIMEX/COAST NAVIGATION
SCHOOL Drawer Y - 418 E. Canon
 Perdido Santa Barbara Calif. 93102

Simpson Electric Co. Katy Industries
Industrial Products Group 5200 W.
 Kinzie Chicago Ill. 60644

Sinai-Johnson Box 5218 Redwood
 City Calif. 94063

Singer Instrumentation Los Angeles
Operation 5340 Alla Rd. Los An-
 geles Calif. 90066

Singer Co., The Palo Alto Operation
 3176 Porter Dr. Palo Alto Calif.
 94304

Singer Products Co., Inc. One World
 Trade Center Suite 2365 New York
 N.Y. 10048

Sintronic Corp. 705 Haverford Ave.
 Bryn Mawr, Pa. 19010

Sitco Antenna Co. Box 20456 Port-
 land Ore. 97220

Sitler's Supplies, Inc. Box 10-B Wash-
 ington Iowa 52353

Skirpan Lighting Control Corp. 41-43
 24th St. Long Island City N.Y.
 11101

Soladyne Div. Rohr Industries 7455
 Convoy Court San Diego Calif.
 92111

Solar Electronics Co. 901 N. Highland
 Ave. Hollywood Calif. 90038

Solitron Devices Inc. Semiconductor
Div. 8808 Balboa Ave. San Diego
 Calif. 92123

Sony Corp. of America VTR Div. 9 W.
 57th St. New York N.Y. 10019

Soundolier, Inc. 9380 Watson Indus-
 trial Park St. Louis Mo. 63126

Soundsciber Corporation 680 Third
 Ave. West Haven Conn. 06516

Sparta Electronic Corp. 5851 Florin
 Perkins Rd. Sacramento Cal. 95828

Spectra Sonics 770 Wall Ave. Ogden
 Utah 84404

Spectrum Instruments, Inc. 35 Grand
 St. New Rochelle N. Y. 10801

Spencer-Kennedy Labs., Inc. 8 Gill St.
 Woburn Mass. 01801

Sphere Electronics 20211G Prairie
 Chatsworth Calif. 91311

Spindler & Sauppe, Inc. 13034 Sati-
 coy St. North Hollywood Cal. 91605

Spin Physics, Inc. 11633 Sorrento Val-
 ley Rd. San Diego Calif. 92121

SPI-ITT Metrix Instruments Div. P.O.
 Box 30 74010 Annecy France

Spotmaster Broadcast Electronics
 8810 Brookville Rd. Silver Spring
 Md. 20910

SSAC Precision Products, Inc. Box
 395 Liverpool N.Y. 13088

Stainless, Incorporated Third & Mont-
 gomery Sts. North Wales Pa. 19454

Standard Electric Time Div. of Johnson
Service Co. 89 Logan St. Springfield
 Mass. 01101

Stanton Magnetics Inc. Terminal Drive
 Plainview N.Y. 11803

Stantron Division Wyco Metal Pro-
ducts 6914 Beck Ave. North Holly-
 wood Calif. 91605

STEP Corporation P.O. Box 527 Hav-
 ertown Pa. 19083

Storeel Corp. 4993 New Peachtree
 Rd. Atlanta Ga. 30341

Strand Century, Inc. 20 Bushes Lane
 Elmwood Park N. J. 07407

Superscope, Inc. 8150 Vineland Ave.
 Sun Valley Calif. 91352

Swager Tower Corp. Box 656 Fremont
 Ind. 46737

Switchcraft Inc. 5555 N. Elston Ave.
 Chicago Ill. 60630

Sylvania Comm. Electronic Box 268
 Burlington Rd. Bedford Mass.
 01730

Sylvania Semiconductor 100 Sylvan
 Road Woburn Mass. 01801

Systems Engineering Co., Inc. Box
 49224 Atlanta Ga. 30329

Systems Marketing Corp. And Sono-
Mag Corp. 1013 West Washington
 St. Bloomington Ill. 61701

Systron-Donner 10 Systron Dr. Con-
 cord Calif. 94518

T

Taber Mfg. & Engr. Co. 2081 Edison
 Ave. San Leandro Cal. 94577

Tape-Athon Corp. 502 S. Isis Ingle-
 wood Cal. 90301

Tapecaster TCM, Inc. Box 662 Rock-
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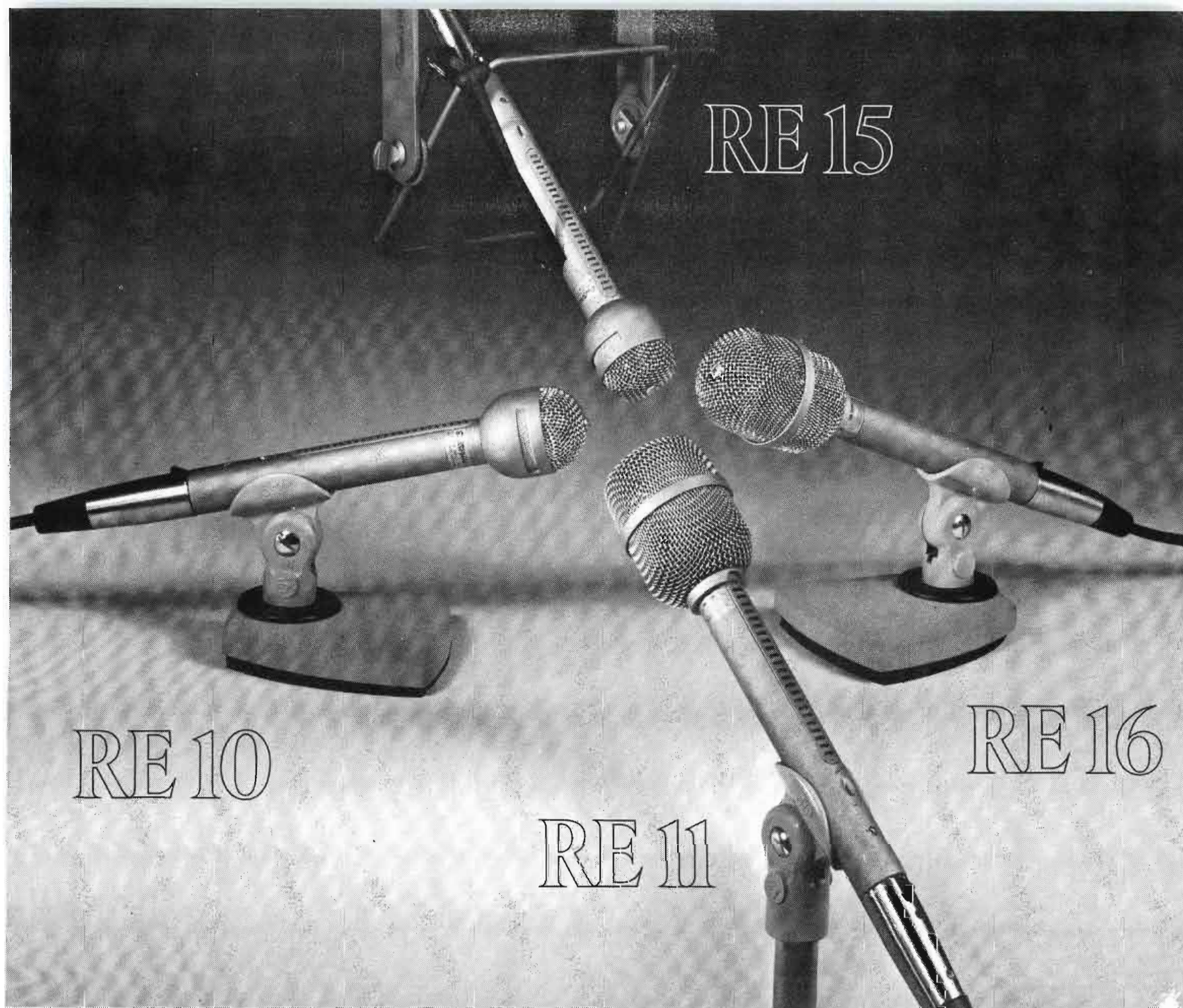


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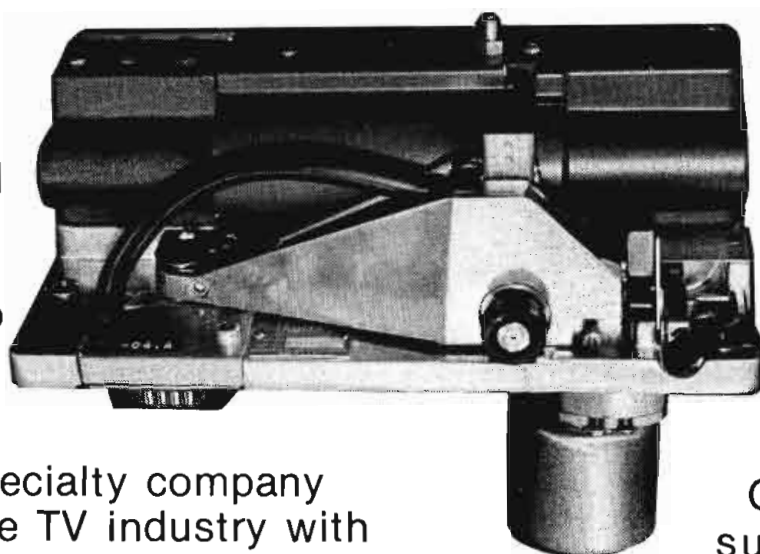
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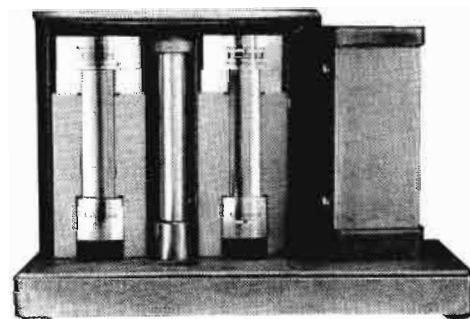
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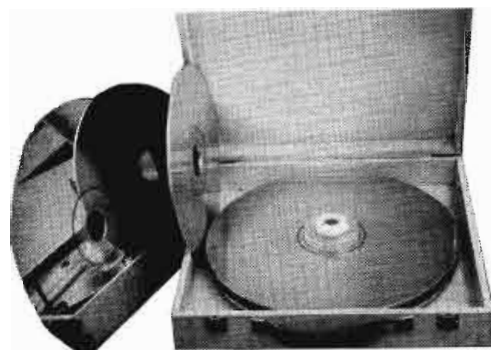


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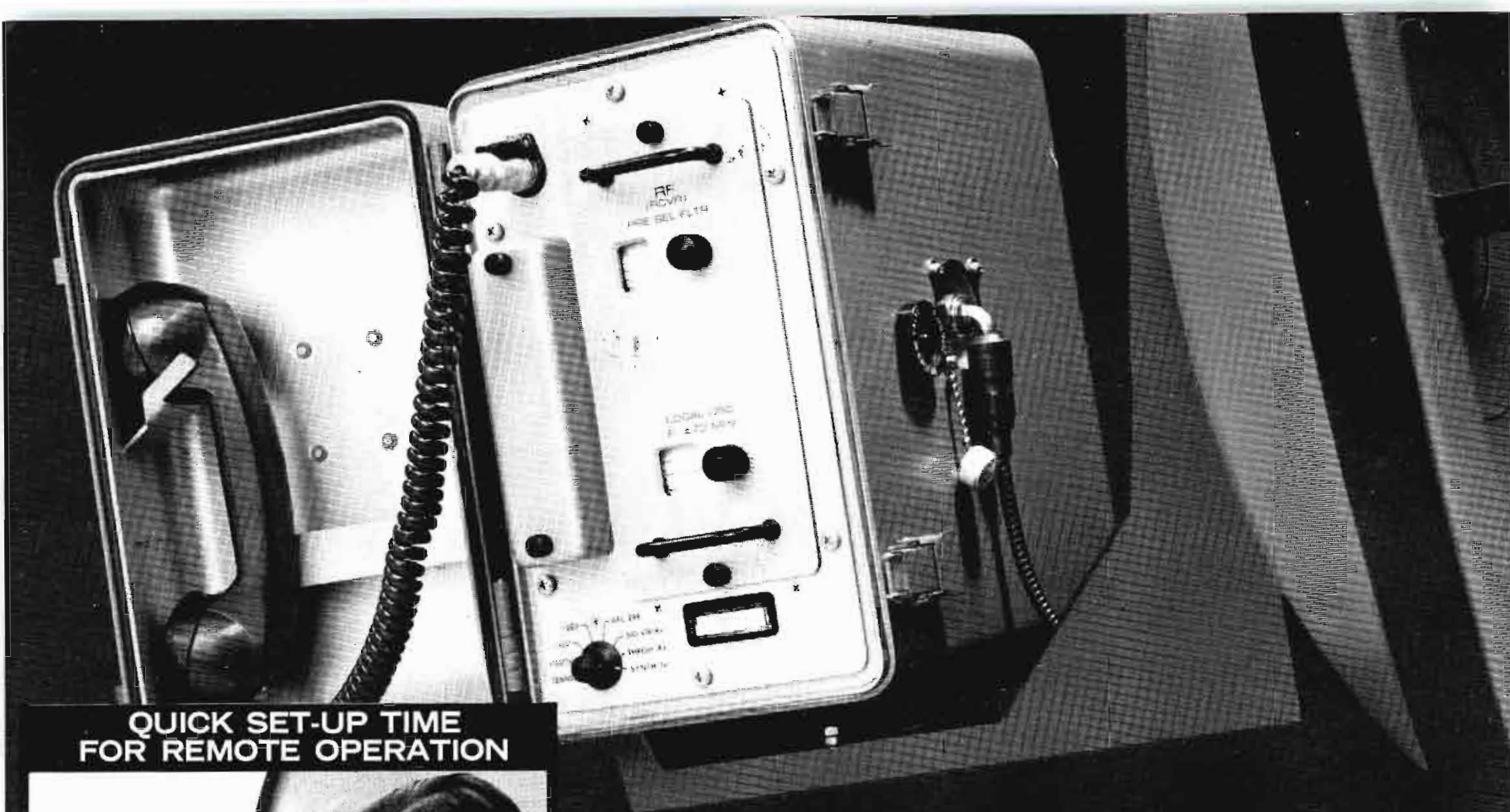
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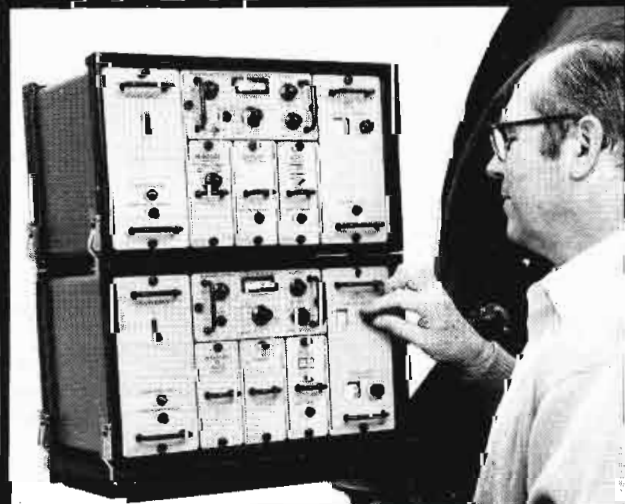
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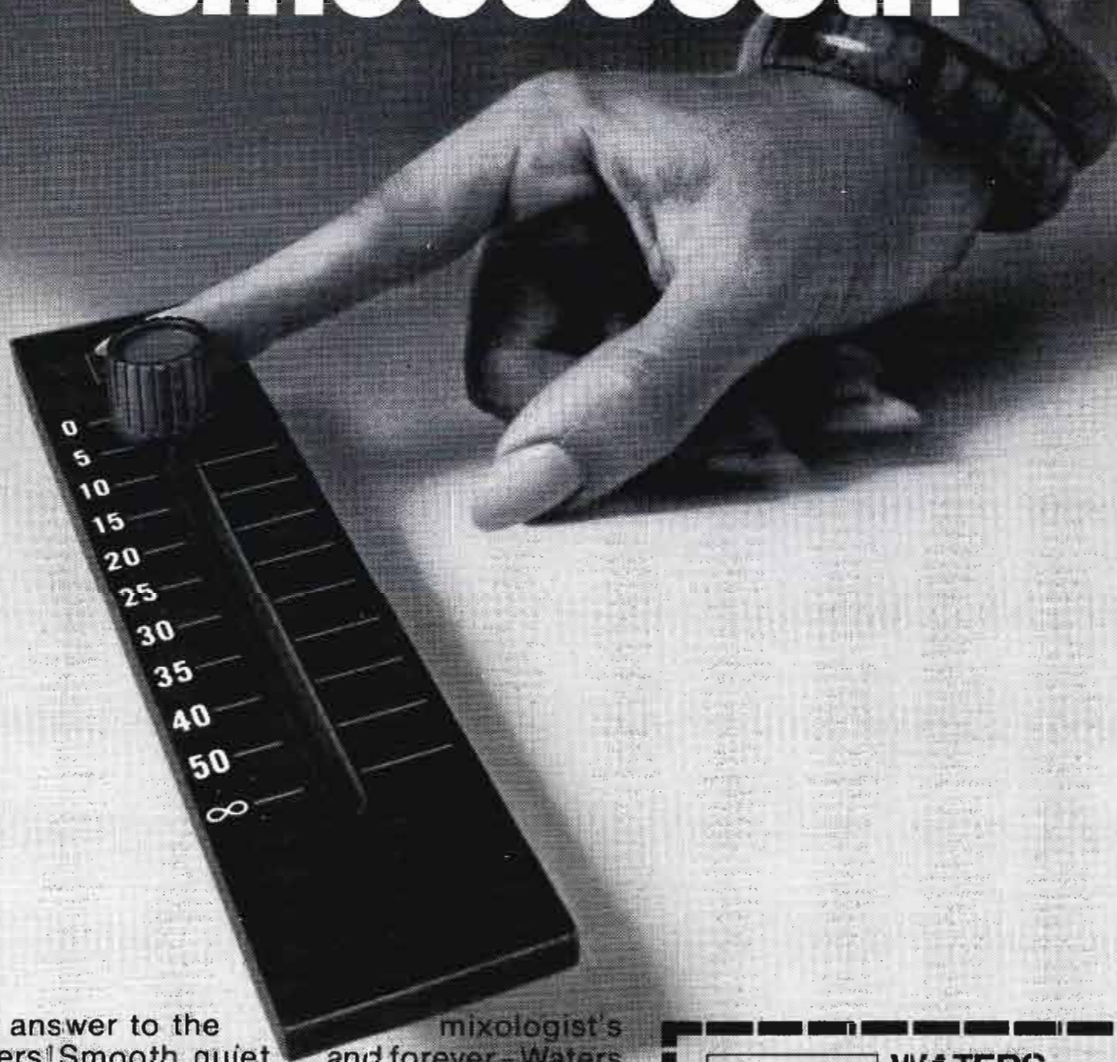
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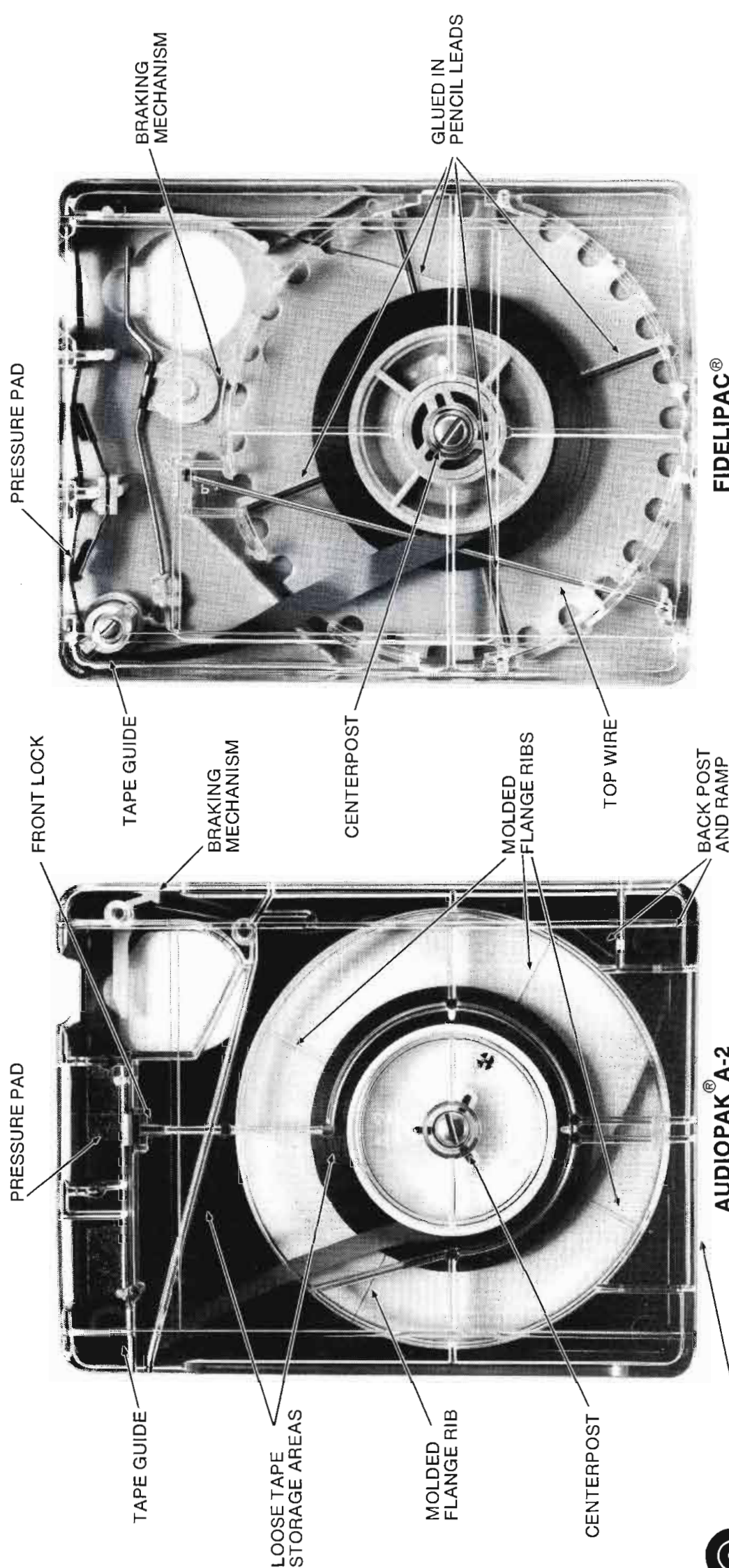
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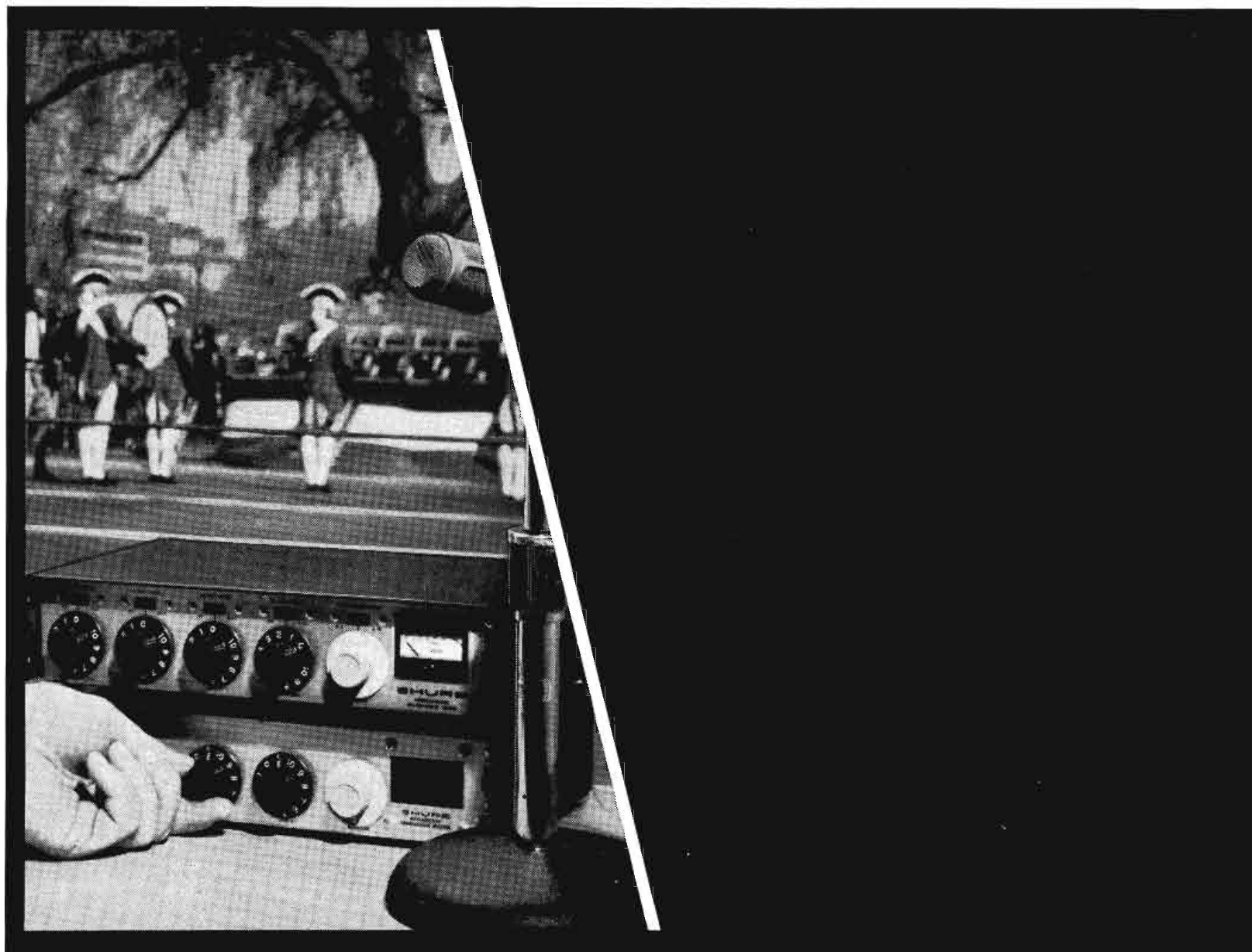
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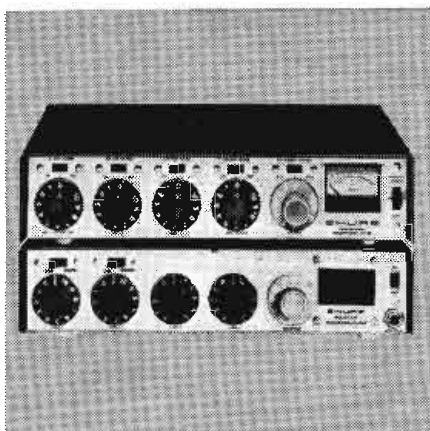
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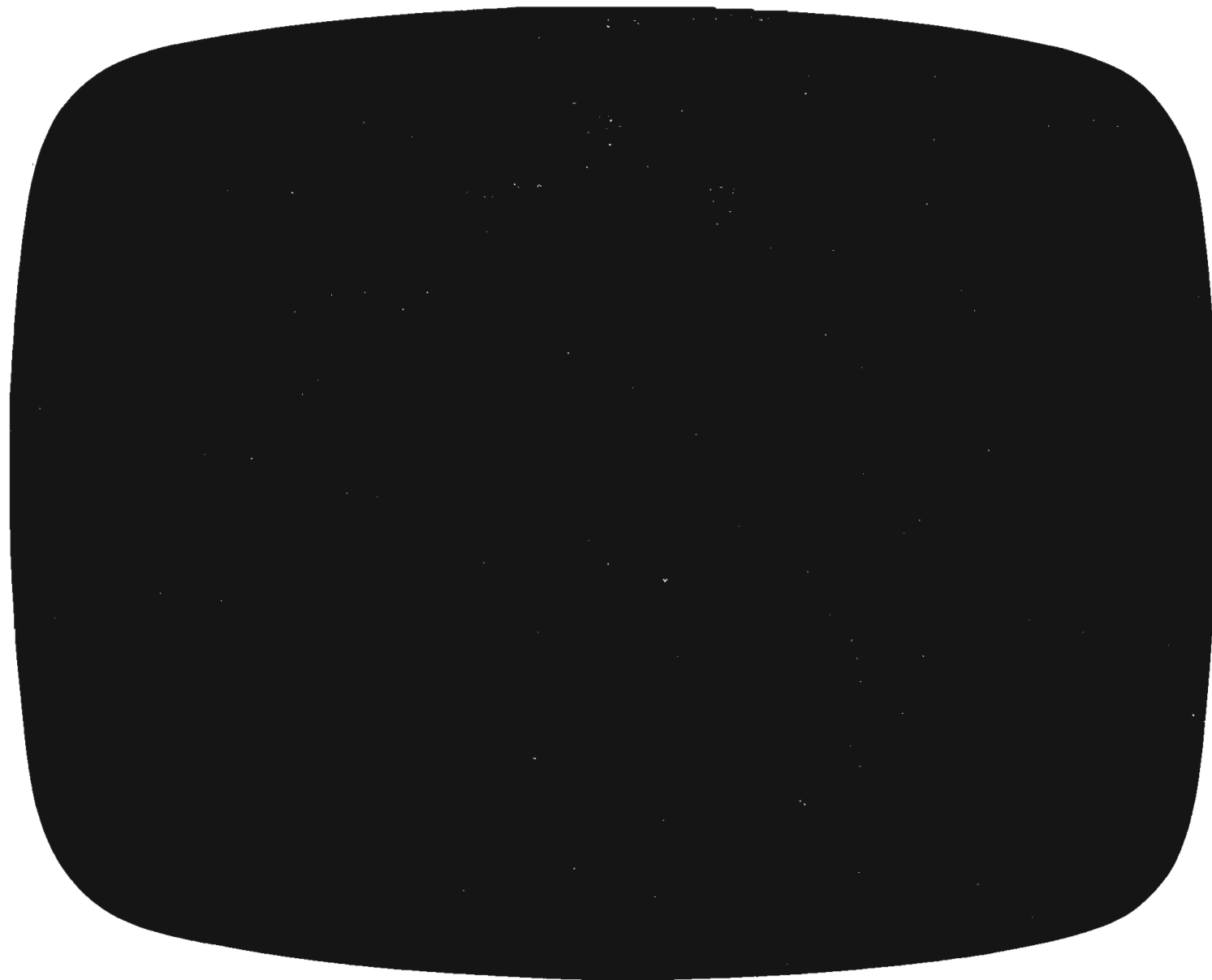


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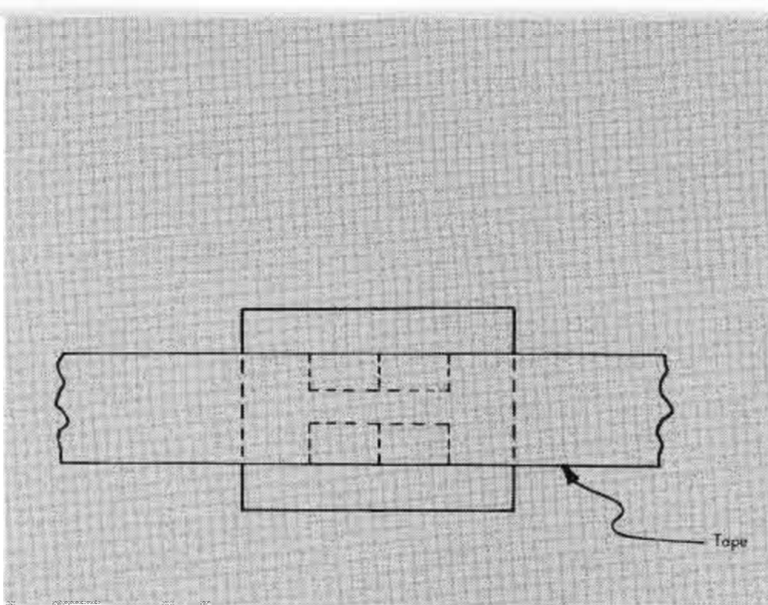


Figure 1. Correct Height Adjustment (Front View)

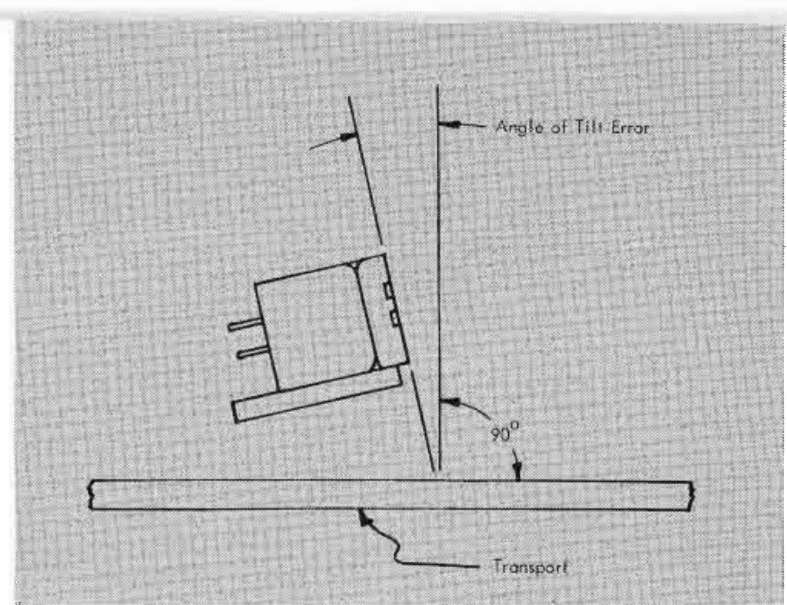


Figure 2. Misaligned Zenith Adjustment (Side View)

Magnetic tape head maintenance considerations

By Frank Zeman
President, Minneapolis Magnetics

Photos by Gene Borman
Line Drawings by Robert Homer

The use of magnetic tape as the preferred medium for audio work in broadcasting is continually increasing. Today, many stations are approaching total automation of program material. . . .an innovation made possible by some highly creative ideas which have been coupled with standard approaches. . . .but all of it is based around magnetic tape.

Despite this tremendous dependence on tape, there is a great deal of misinformation, confusion and downright fear on the part of many technicians when it comes to the rather small, touchy component which makes it all possible. . . .the magnetic tape head. Stalwart types who wouldn't bat an eyelash about digging into the innards of a bewildering array of highly complex and sophisticated gear will start twitching and dive into the nearest storm cellar before getting involved in any way with the heads on their tape equipment.

How It Came To Be

Why should this be so? How did it come about, and what can be done to correct it? A little history might be of help in understanding how it happened.

When professional tape recording equipment first appeared on the market (and for a good many years thereafter), the head assembly was assigned a mystique which it has held ever since. Heads were strictly a no-no, insofar as poking and probing were concerned. They were usually housed in a formidable protective enclosure, shielded as much from wandering fingers as stray hum fields. A careful check of the operating and service manual supplied with the equipment would furnish practically no information about the heads themselves. Other than indicating the single screw or nut to turn for azimuthing the head gap, the manuals were almost useless. The mere thought of the owner trying to replace his own heads was severely frowned upon and this added to the mystery of just what went on inside that head housing.

As time marched on, manufacturers of professional tape equipment tended to make it more and more imperative that head replacement was strictly a job for the factory and should not be attempted in the field. Fortunately for all of us, this trend has been sharply reversed in recent years. While it is still difficult to get precise information about the heads used in a given machine, the

situation is improving and shows promise of continuing in that direction.

Trading Secrets

Just to complicate matters further, those of us who are in the business of producing magnetic tape heads for use on professional equipment haven't exactly bared our souls either. It is hard for me to think of a single head manufacturer who has ever disclosed any of the processes he uses to get his product together. It's true that many things are proprietary and closely held "trade secrets", but it is no excuse for our failure to outline the basic procedures used. Making magnetic tape heads is an art, not a science, and this should be kept in mind.

Another thing which we believe has helped to perpetuate this shroud of secrecy is the fact that a well-made, professional tape head will give excellent performance over an extended period of time. So little trouble is encountered with such heads (until they near the end of their useful life), they are almost always the very last thing to be looked at in attempting to correct performance problems. I have personally seen recording and reproducing amplifiers checked to a fare-thee-well in a frantic search for a defective part when the whole

CABLE engineering

in this issue

Industry News.....CE-4 CCTV Product Guide.....CE-8B
Manufacturers Address List.....CE-13



Cover up

The Davis Mini-Sneaker® goes all the way to plant service lines without a telltale trail!

Without question the Davis Mini-Sneaker is the finest machine for planting housedrops in the industry! It moves in—even beyond yard gates—to plant telephone lines, CATV cable, even sprinkler systems, then is gone without leaving a tattletale trail! Its oscillating knife action slices through the ground with vibration isolated from the top chute to protect delicate lines. Its patented suspension system also isolates vibration from the machine. Hydraulic down-pressure assures that lines are buried at a constant depth while patented skid shoes hold both sides of the cut in place minimizing turf damage for the perfect cover up. And there are no exposed drive lines to catch on loose clothing or objects. It

buries to depths of 18" at infinitely variable speeds to 200 fpm! The exclusive Mono-Stick puts complete command of speed, steering, directional travel and braking in one hand. Hydra-Static drive, limited-slip differentials and hydraulic articulation provide exceptional stability, and maneuverability around any obstacle, even in restricted and confined areas. As on all Davis machines, the Mini-Sneaker is covered by the 6-months parts and labor warranty—finest in the industry. In Davis Country, we

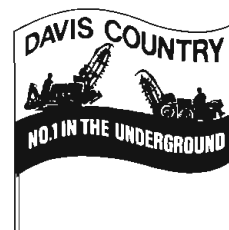
don't just talk about quality. We're doing something about it! See your Davis dealer, or write Davis Manufacturing and go all the way with the Mini-Sneaker.

Davis Manufacturing

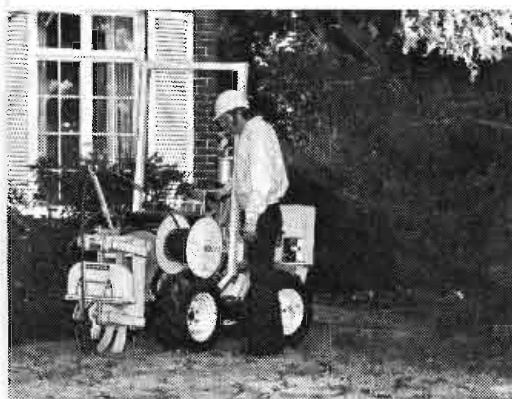
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CE-2

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Part of the new-generation family, built around the LDH-20, is the LDH-16 Compact Color Telecine System.

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*Reg. TM N.V. Philips of Holland

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CTIC hits cable transfers

The Federal Communications Commission should prohibit the transfers of cable television franchises from one company to another when construction of the cable system has not begun, according to comments filed independently by four staff members of the Cable Television Information Center.

W. Bowman Cutter, the center's executive director, and staff members Edwin A. Deagle, Jr., Velories A. Figures and John C. McGuire filed the comments in response to the FCC's notice relative to an inquiry on the need for new regulations in the area of transfers of control of cable television franchisees (Docket 20023).

The group told the commission "To sell such franchises is profit without **any** justification from governmental largesse. Such sales

represent trafficking. . .for which we can conceive of no excuse. They should be flatly prohibited by the Commission, again in the interest of promoting and protecting a reasoned local selection process."

The four urged the FCC to adopt a rule requiring all cable TV franchises to contain a provision requiring the local franchise authority to pass on transfers of control. "To require franchising authorities to undertake a fairly elaborate franchise selection process and then to permit the entire process to be subverted by not preventing the franchisee from selling out to the highest bidder is to ignore the national interest that prompted adoption of the original franchise selection rules," they stated. "Long ago, the United State Supreme Court characterized a franchise as a

right, privilege or power of public concern, which ought not to be exercised by private individuals at their mere will and pleasure."

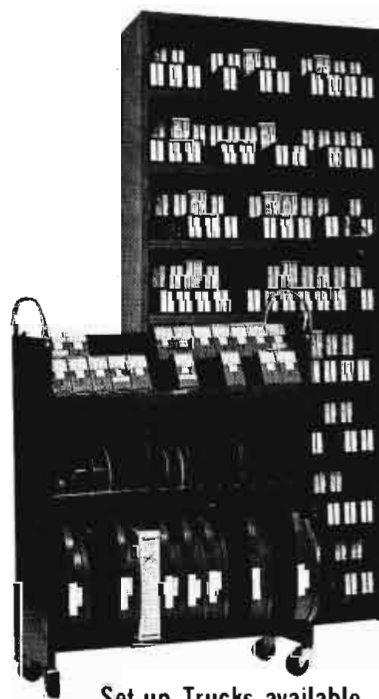
Under such a rule, transfers of control would be broadly defined by the commission and would be presumed when an acquisition or accumulation of 10 per cent of the voting shares of the franchisee by a person or a group of persons occurred. Narrower definitions by franchising authorities would be permitted. And once the presumption is raised, it could be rebutted at the local level.

The filing noted that large cable companies "may be extremely displeased with the prospect of being screened by several hundred city councils," but that this measure is "justified by each local government's interest in having a

(continued on page CE-8)

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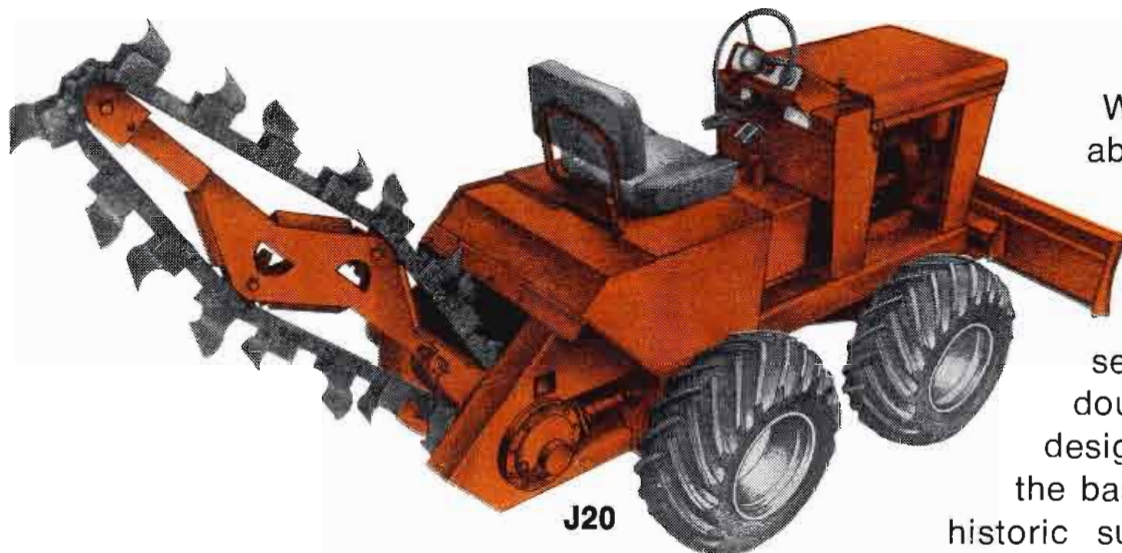
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J20

We've been talking a lot lately about the Ditch Witch Modularmatic concept and what it means to the underground construction industry. The Modularmatic series does provide a tremendous range of job functions; all designed and developed around the basic soundness of design and historic success of the Ditch Witch trencher series. We're mighty proud of it

and what it offers, but we realize there are times when the many capabilities of the Modularmatics are not needed. That's why we manufacture our standard line of trenchers.

DON'T FORGET OUR TRENCHERS!

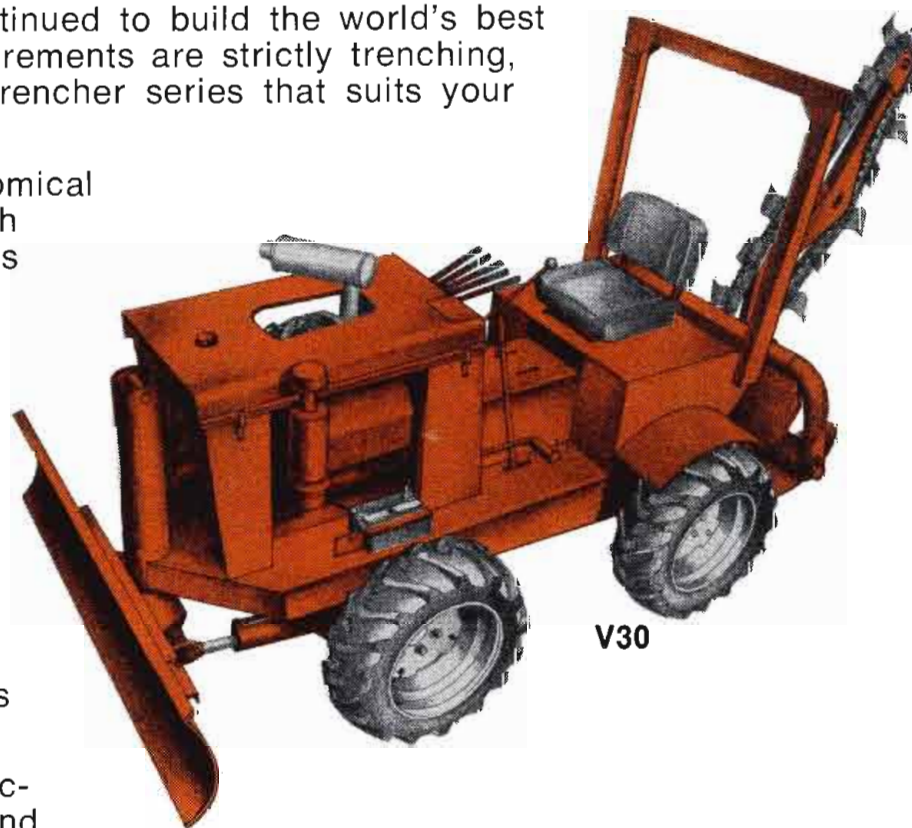
Ditch Witch designed and built the world's first service-line trencher more than 20 years ago. We've continued to build the world's best trenchers ever since. If your job requirements are strictly trenching, there's a model in the Ditch Witch trencher series that suits your needs exactly.

For example, we offer two economical handlebar models, the C and M. Both are self-propelled with power plants ranging from 7- to 12½ horsepower.

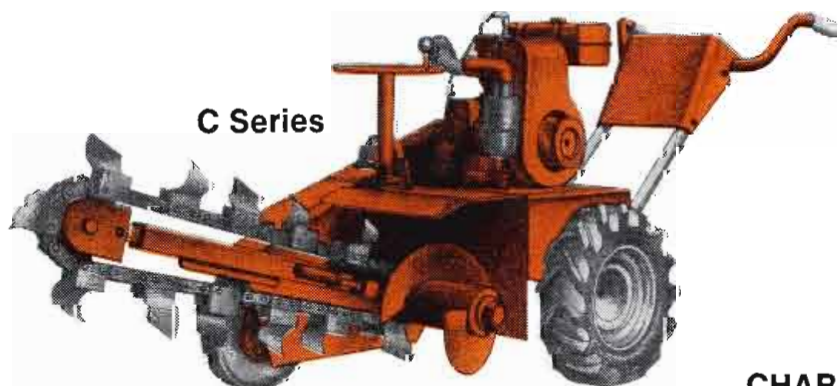
If you need a four-wheel-drive machine with full hydraulic control, including power steering, we have the 18-horsepower J20 and 30-horsepower V30.

Should you need a larger trencher, one of our Modularmatic models, equipped as a trencher, gives you the best machine in its class — plus the option of adding other capabilities later.

Whatever your underground construction needs, look first to Ditch Witch and "Don't forget our trenchers!"



V30



C Series

Ditch Witch . . . equipment from 7 - to 195-HP.

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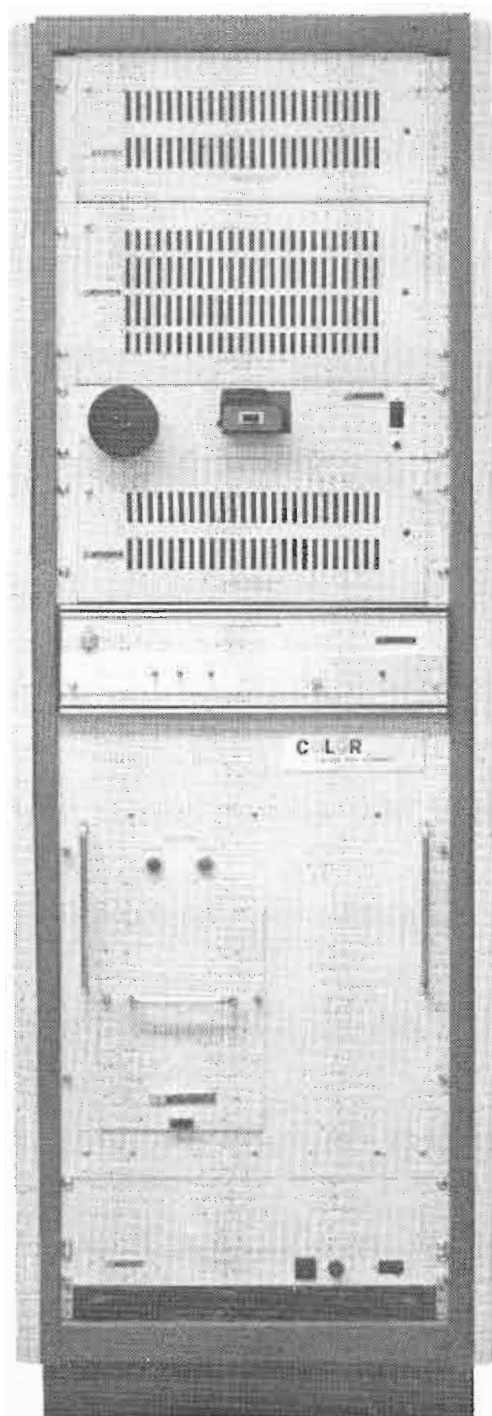
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For More Details Circle (123) on Reply Card

Getting the word straight

Telling it like it is sometimes means admitting a mistake. We hope this extra information on automation will eliminate any misconceptions that might have come from the July automation article. Ed.



Programatic 3000 computer rack

We want to report a mix-up...

In Ken Lawson's article entitled, "Automatic Programming for Cable: A Model for the '70's," appearing in the July issue of **Cable Engineering**, we featured some historic museum pieces which were mechanical forerunners of the electronic automated program devices of today. While we are proud of these pioneering efforts (the original TeleMation Weather Channel and News Channel), readers might have surmised from the picture caption that these are the products of the day. Nothing could be further from the truth!

These devices only represent the beginning of automated services programming for Cable TV.

Today's automatic programming equipment is highly sophisticated and offers multiple service capabilities. Systems like the TeleMation Programatic 3000 can display many channels simultaneously with a vast amount of information all sorted, scheduled and presented automati-

cally by a computer—the heart of the system.

Today's "Weather Channel" is a combination aerospace-design weather station and electronic character generator. Today's "News Channel" can be captured from the broadcast newswire services, sorted for locale, by subject, and displayed on several channels specifically designated to present single-topic information—again via character generation equipment and computer.

There's a big difference in automated systems of yesterday and today's electronic entries—we've come a long way in developing automatic program origination equipment!

This multiple-channel program origination and control system—the Programatic 3000—is computer-controlled and offers cable operators an opportunity to present their subscribers with a broad spectrum of information services and local-interest programming—automatically.



TCG-1432 Character Generator

THE WINEGARD CABLEMATE TV SIGNAL SELECTOR HELPS SWITCH CATV PROSPECTS INTO SUBSCRIBERS.



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Winegard introduces an exclusive new switch with a unique circuitry designed to help turn CATV prospects into CATV subscribers. We call it the Cablemate TV Signal Selector.

And that's exactly what it does. Helps your customer select the signal he wants. Cable when he wants cable. Antenna when he wants antenna.

Which means you get extra help in converting a prospect into a subscriber. Especially all those prospects who want the many advantages of cable TV but aren't ready to give up their TV antennas.

Cablemate is also helpful in the event of a possible outage. So no matter how infrequent or how brief the interruption, your subscriber keeps his temper. And you keep your subscriber.

Cablemate, of course, is not an ordinary switch. It has specially designed circuitry with 58db isolation to prevent interference between cable and antenna signals.

And best of all, everything that Cablemate does, it does reasonably. Because Winegard has kept costs in line and produced Cablemate at a low price.

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communications service of public concern conveyed to its citizens by responsible persons of its choosing." It continued, "to allay concerns of this nature, we have suggested that local authorities be required to act with expedition and without caprice."

The group noted that transfers of control take place in several different ways including sale to a subsidiary, sale of a local company to a national one, mergers and public sales of stock. "The illusion that no change has taken place if the corporate name, stationary, office, etc. remain the same is just that, pure illusion. A company derives its personality and policies from those who control it—be they management or dominant members of the board," they stressed. They added, "The insult to the local government is compounded when control is transferred to one of the losers in the franchising contest. Such cases do exist; they are not isolated instances."

The four urged the FCC to amend its rules to read as follows:

The franchise shall contain a provision giving the franchising authority the power to approve or disapprove transfers to control of the franchisee.

Any such transfer which does not have the approval of the franchising authority within six (6) months of the occurrence of the transfer shall, at the option of the franchising authority render the franchise invalid. The franchising authority shall act in a public proceeding, shall proceed with expedition and shall not arbitrarily withhold approval. A rebuttable presumption that a transfer of control has occurred shall arise upon the acquisition or accumulation by any person or group of persons of 10 per cent of the voting shares of the entity to which the franchise was awarded.

The Cable Television Information Center, a part of The Urban Institute, is a private, nonprofit advisory group which assists local governments in the development of cable television in the public interest.

NCTA Opposes Government Regs

The National Cable Television Association has vigorously opposed

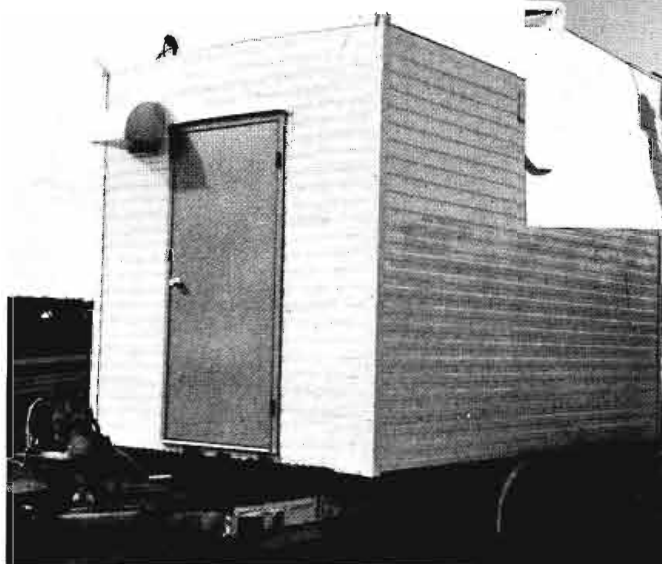
governmental restrictions which have denied American consumers the right to a greater choice of television programming and have retarded the growth of both the cable and pay cable television industries.

In a strongly worded resolution, the NCTA Board of Directors meeting in Washington, D.C. unanimously went on record as opposing any governmental restrictions on the exhibition of feature films and series on pay cable television. The association also said that the cable industry should have the right, under the present FCC regulations, to present sporting events which are not being broadcast on television.

The cable industry trade association proposed that during a four year period the industry collect such information about the marketplace experience which the Federal Communications Commission deems necessary to determine whether any restrictions are appropriate on exhibition of feature films and series on pay cable.

With respect to restrictions on sports programming, Foster added that it is not in the public interest to deprive the American consumer of the right to view sports events which are not being broadcast.

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Local Origination Resistance Still A Factor

The Federal Communications Commission should no longer require all cable TV systems with 3,500 or more subscribers to provide locally originated programs and, instead, ought to impose a reasonable requirement on those systems to furnish access facilities, according to comments filed independently by five members of the Cable Television Information Center and the Rand Corporation.

W. Bowman Cutter, executive director of the Cable Television Information Center, Edwin A. Deagle, Jr., the center's director of analysis, and Leland L. Johnson, Walter S. Baer and Henry Geller, all of the Rand Corporation, filed the comments in response to the FCC's notice inviting views on the mandatory origination requirement of its cable TV rules (Section 76.201). Their comments reflect the views of the individuals, and not those of the organizations they represent nor their funding sources.

The group premised its filing by stating that "the key public interest requirement is that the cable system provide a first or additional outlet for public expression—not that the system owner himself present programming fare." They further noted that the present rule requiring cable systems to operate to a significant extent as a local outlet by origination cablecasting, was inconsistent with the public interest for three reasons. First, it may impose higher costs and thus interfere with the system's basic purpose of providing TV service and access. Second, it may not be desirable to draft the system operator to become in effect a broadcaster. Third, it is contrary to the recommendation of the President's Cabinet Committee on Cable Communications that "control of cable distribution facilities should be separated from control of programming and other services provided over the channels on those distribution facilities."

The five said that the rules

concerning access for systems in the 100 largest television markets should continue to apply to those systems. For those systems outside the major markets, which presently are not required to furnish access facilities, they suggested rules "without most of the more complex and burdensome requirements imposed on the cable systems in the major markets."

Based upon data furnished in the filing, the group concluded that any system with 3,500 or more subscribers could provide a "minimal access operation" for "well below \$10,000 a year." They stressed that the provision of such minimal facilities will, at the least, provide "the opportunity to hear the public official report to the community, or a debate between candidates or partisans on some local issue" where it has heretofore been denied.

Finally, the comments called for "an experiment—namely, the elimination of the fairness and equal opportunities obligations as to all nonbroadcast cable operations, with a report at appropriate periods whether the access channels have been fully effective in meeting such obligations." The group urged the commission not to automatically incorporate "concepts developed for the regulation of the broadcaster as a public trustee on one channel. Cable calls for different regulatory treatment because of its larger number of available channels."

Co-Ownership Plea Submitted to FCC By NAB

The National Association of Broadcasters told the Federal Communications Commission that there is no basis to require divestiture of co-owned newspapers and broadcast properties and urged the Commission to dismiss its proceedings.

At a recent hearing, NAB was represented by special counsel

Lee Loevinger, former FCC Commissioner and former head of the Justice Department's Antitrust Division. He was accompanied by John Summers, NAB general counsel, and John Dimling, NAB vice president and director of research.

Loevinger said the presence of Dimling was of particular significance because the evidence presented was based on research rather than just legal arguments. He said legal arguments have been presented to the Commission many times in the past.

The special counsel said the FCC should "decide this matter on the basis of the evidence before it and not simply on the basis of hypotheses or speculation."

Loevinger reviewed seven volumes of exhibits that previously had been filed by NAB:

—A survey of mass communications in the United States as of 1970, which is the first and, as far as is known, the only census of all media in all of the more than 200 television markets.

—An economic analysis of the price effects of cross ownership upon advertising. Loevinger said this analysis destroys the hypotheses by the Justice Department that cross ownership may have some effect in raising advertising prices.

—A study by Dr. Sterling of the School of Communications of Temple University regarding the concentration of ownership of broadcasting stations and newspapers in the top one-hundred markets from 1922 to 1970. This study shows media concentration is at an all-time low.

—A study of the turnover of trafficking in broadcast licenses of pioneer AM and TV stations which shows that media owners were much more stable in holding on to broadcasting licenses than non-media owners.

—A study by NAB's Research Department of transfers of broadcasting stations from 1970 through April 14, 1974, which shows substantial net reduction in cross ownership.

—A content analysis by the Director of the Ohio University Broadcast Research Center of the news coverage of newspapers affiliated with stations in the same market.

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Entron, Inc.
Environmental Comm., Inc.
GTE Sylvania
Jerrold Elect. Corp.
Magnavox
Teleng Inc.
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TV Cable Supply Co., Inc.

Amplifiers, Two-Way

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Davco Elect. Corp.
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Antenna Changeover Switch

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Antennas, FM

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Blonder-Tongue Labs., Inc.
Broadcast Automation Assoc.
Cablewave Systems, Inc.
Cush Craft Corp.
Davco Elect. Corp.
Ft. Worth Tower Co., Inc.
Gates Radio
Hy-Gain Elect. Corp.
Jampro Antenna Co.
Jerrold Elect. Corp.
KLM Elect.
Lindsay Specialty Prods. Ltd.
Maspro Co., Inc.
RF Systems, Inc.
Riker Video
RMS Elect., Inc.

Rohde & Schwarz Sales Co.
Saxton Prods., Inc.
Scala Radio Corp.
Scientific-Atlanta, Inc.
Sitco Antenna Co.
Sparta Elect. Corp.
TACO Div.
TV Cable Supply Co., Inc.
Winegard Co.

Antennas, Single Channel

Advance Indust., Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
Blonder-Tongue Labs., Inc.
Cablewave Systems Inc.
C-COR Elect., Inc.
Cush Craft Corp.
Davco Elect. Corp.
Gates Radio
Hy-Gain Elect. Corp.
Jampro Antenna Co.
Jerrold Elect. Corp.
JFD Systems Div.
KLM Elect.
Lindsay Specialty Prods. Ltd.
Maspro Co., Inc.
Radiation Devices Co.
RF Systems, Inc.
Riker Video
RMS Elect., Inc.
Scala Radio Corp.
Scientific-Atlanta, Inc.
Sitco Antenna Co.
TACO Div.
TV Cable Supply Co., Inc.
Winegard Co.

Antennas, VHF-UHF

Advance Indust., Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
Blonder-Tongue Labs., Inc.
Cablewave Systems Inc.
C-COR Elect., Inc.
Cush Craft Corp.
Davco Elect. Corp.
Gates Radio
Hy-Gain Elect. Corp.
Jampro Antenna Co.
Jerrold Elect. Corp.
JFD Systems Div.
KLM Elect.
Lindsay Specialty Prods. Ltd.
Radiation Devices Co.
RCA Corp.
RF Systems, Inc.
Riker Video
RMS Elect., Inc.
Rohde & Schwarz Sales Co.
Saxton Prods., Inc.
Scala Radio Corp.
Scientific-Atlanta, Inc.
Sitco Antenna Co.
Soladyne Internatl., Inc.
TACO Div.
TV Cable Supply Co., Inc.
Winegard Co.

Audio Equipment

Able Comm. & Elect.
Amer. Data Corp.
Anixter-Pruzan

B&K Instr., Inc.
Broadcast Automation Assoc.
Broadcast Elect., Inc.
CBS Labs.
Coastcom
Comspace Corp.
Davco Elect. Corp.
Electrohome, Ltd.
Electro-Voice, Inc.
Fairchild MOD
F&B/Ceco of Calif., Inc.
Gates Radio
Gotham Audio Corp.
Kay Elemetrics Corp.
McGraw-Edison Co.
Nelson-Hershfield Elect.
Noram Comm. Ltd.
Rohde & Schwarz Sales Co.
Soladyne Internatl., Inc.
Sparta Elect. Corp.
Tapecaster TCM
Telaudio Centre
Tele-Cine Inc.
Telemation, Inc.
Telemet
Television Equipment Assoc.
Television Microtime Inc.
Ultra Audio Prods.
Video Eng. Co., Inc.
VIF Internatl.
Visual Elect. Labs.
Vital Indust. Inc.

Automatic Programming Equipment

Ameco, Inc.
Amer. Data Corp.
Anixter-Pruzan
Broadcast Automation Assoc.
Broadcast Elect., Inc.
Concise Instr. Design Ltd.
Davco Elect. Corp.
Dynasciences Corp.
Gates Radio
Jerrold Elect. Corp.
Phasecom Corp.
Sparta Elect. Corp.
Spectra-Vision Corp.
Tape-Athon Corp.
Techno Prods. Co.
Telemation, Inc.
Television Microtime Inc.
Video Data Systems, Inc.
VIF Internatl.
Vital Indust. Inc.

Background Music Equip.

Tape-Athon Corp.

Cable Accessories

Alpha Wire Corp.
Ameco, Inc.
Amer. Technology Co., Inc.
Anixter-Pruzan
Antsco Corp.
AVA Elect. & Machine Corp.
Beaver Elect. Ltd.
Belden Corp.
Boston Insulated Wire & Cable Co., Ltd.
British Insulated Callender's Cables Ltd.

Buckeye Telephone & Supply Co.
Cablewave Systems Inc.
Cerro Comm.
Comm/Scope Corp.
Davco Elect. Corp.
Entron, Inc.
Essex Elect. Systems
General Cable Corp.
Gilbert Eng. Co., Inc.
Jampro Antenna Co.
Jerrold Elect. Corp.
Kay Elemetrics Corp.
LRC Elect., Inc.
Noram Comm. Ltd.
Panduit Corp.
Preform Line Prods. Co.
Prodelin Inc.
RMS Elect., Inc.
Sigmaform Corp.
Soladyne Internatl., Inc.
Southern Telephone Supply Co.
Telsta/General Cable Apparatus Div.
Temtron Elect.
Theta-Com of Calif.
Tocom, Inc.
TV Cable Supply Co., Inc.
Utility Tool Corp.
Utility Tower Co.
Westay Co.
Winegard Co.

Cable Burial Equipment

Ditch WitchPage CE-5
DavisPage CE-2

Anixter-Pruzan
Buckeye Telephone & Supply Co.
Cleveland Trenchers Div.
Davco Elect. Corp.
Davis Mfg.
Ditch Witch
Terra Equipment Co.

Cable Coaxial, Line

Alpha Wire Corp.
Anaconda CATV
Anixter-Pruzan
Berkshire Electric Cable Co.
Blonder-Tongue Labs., Inc.
Boston Insulated Wire and Cable Co., Ltd.
Brand-Rex Co.
British Insulated Callender's Cables Ltd.
Broadcast Automation Assoc.
Cerro Comm.
Copperweld Corp.
Davco Elect. Corp.
General Cable Corp.
Noram Comm. Ltd.
Phelps Dodge Comm. Co.
Prodelin Inc.
Saxton Prods., Inc.
Times Wire & Cable Co.

Cable Coaxial, Drop

Alpha Wire Corp.

Anaconda CATV
Anixter-Pruzan
Berkshire Electric Cable Co.
Blonder-Tongue Labs., Inc.
Brand-Rex Co.
British Insulated Callender's
Cables Ltd.
Cerro Comm.
Copperweld Corp.
Davco Elect. Corp.
General Cable Corp.
Noram Comm. Ltd.
Saxton Prods., Inc.
Times Wire & Cable Co.

Cable Locators, Underground

Anixter-Pruzan
Davco Elect. Corp.
Scully/Metrotech

Cable, Messenger Wire

Alpha Wire Corp.
Anixter-Pruzan
Belden Corp.
Berkshire Electric Cable Co.
Brand-Rex Co.
Buckeye Telephone &
Supply Co.
Cerro Comm.
Copperweld Corp.
Davco Elect. Corp.
General Cable Corp.
Noram Comm. Ltd.
Phelps Dodge Comm. Co.
Southern Telephone
Supply Co.
Systems Wire & Cable, Inc.
TV Cable Supply Co., Inc.

Camera Tubes

Temtron Page CE-4

Cameras, B/W

Ameco, Inc.
Ampex Corp.
Anixter-Pruzan
Audiotronics Corp.
Avtel Corp.
Cohu, Inc.
Davco Elect. Corp.
Diamond Power Specialty
Corp.
Echo Science Corp.
F&B/Ceco of Calif., Inc.
Gates Radio
GBC Closed Circuit TV Corp.
GPL-TV
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
Javelin Elect. Co.
Jerrold Elect. Corp.
JFD Systems Div.
K'Son Corp.
Nelson-Hershfield Elect.
Noram Comm. Ltd.
Panasonic VTR/CCTV
Philips Bcst. Equip. Corp.
Sony Corp. of Amer.
Southern Telephone
Supply Co.

Telaudio Centre
Telemation, Inc.
Temtron Elect.
R. H. Tyler Co.
Video Eng. Co., Inc.
Visual Educom Inc.

Cameras, Color

Philips Page CE-3

Ampex Corp.
Anixter-Pruzan
Avtel Corp.
Cohu, Inc.
Commercial Elect. Inc.
Davco Elect. Corp.
Diamond Power Specialty
Corp.
F&B/Ceco of Calif., Inc.
Gates Radio
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
Magnavox
The Magnavox Co.,
Video Systems
Noram Comm. Ltd.
Panasonic VTR/CCTV
Philips Bcst. Equip. Corp.
RCA Corp.
Sony Corp. of Amer.
Southern Telephone
Supply Co.
Telaudio Centre
Tele-Cine Inc.
Telemation, Inc.
Temtron Elect.
Video Eng. Co., Inc.

Cameras, Industrial CCTV

Ampex Corp.
Anixter-Pruzan
Cohu, Inc.
Davco Elect. Corp.
Echo Science Corp.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
Javelin Elect. Co.
The Magnavox Co.,
Video Systems
Noram Comm. Ltd.
Stereotronics Television Co.
Telemation, Inc.
Temtron Elect.
Video Eng. Co., Inc.
Visual Educom Inc.

Channel Preamps

Ameco, Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
C-COR Elect., Inc.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Entron, Inc.
Environmental Comm., Inc.
Fung Eng. Co.
Jerrold Elect. Corp.
JFD Systems Div.

Lindsay Specialty Prods. Ltd.
TV Cable Supply Co., Inc.
Winegard Co.

Character Generators

Anixter-Pruzan
Datavision Inc.
Davco Elect. Corp.
GBC Closed Circuit TV Corp.
Interand Corp.
Kansas State Network, Inc.
Laird Telemedia, Inc.
Metrodata Corp.
MSI Television
Systron-Donner Corp.
Telemation, Inc.
Telemet
Video Data Systems, Inc.
Video Eng. Co., Inc.
VIF Internatl.

Colorizers

Amer. Data Corp.
Anixter-Pruzan
Dynasciences Corp.
Laird Telemedia, Inc.
Metrodata Corp.
Telemation, Inc.
Telemet
Television Microtime Inc.
Video Eng. Co., Inc.
Vital Indust. Inc.

Consoles & Accessories

Alma Eng.
Anixter-Pruzan
Avtel Corp.
Beston Elect.
Broadcast Automation Assoc.
Broadcast Elect., Inc.
Cohu, Inc.
Fairchild MOD
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
GPL-TV
Int. Video Corp.
Javelin Elect. Co.
Nelson-Hershfield Elect.
Noram Comm. Ltd.
Panasonic VTR/CCTV
Shintron Co. Inc.
Sparta Elect. Corp.
Telaudio Centre
Telemation, Inc.
Television Microtime Inc.
Ultra Audio Prods.
Video Eng. Co., Inc.
Visual Educom Inc.
Vital Indust. Inc.

Converters

Able Comm. & Elect.
AEL Comm. Corp.
Ameco, Inc.
Anixter-Pruzan
C-COR Elect., Inc.
Comspace Corp.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Elect. Indust. Eng., Inc.

Entron, Inc.
Environmental Comm., Inc.
F&B/Ceco of Calif., Inc.
Fung Eng. Co.
GTE Sylvania
Jerrold Elect. Corp.
JFD Systems Div.
K'Son Corp.
Lindsay Specialty Prods. Ltd.
Magnavox
Maspro Co., Inc.
Oak Indust.
Phasecom Corp.
RMS Elect., Inc.
Teleng Inc.
Terado Corp.
Tomco Comm. Inc.
TV Cable Supply Co., Inc.

Delay Units

Anixter-Pruzan
Broadcast Automation Assoc.
McGraw-Edison Co.
Television Equipment Assoc.
Television Microtime Inc.

Demodulators

Ameco, Inc.
Anixter-Pruzan
Audiotronics Corp.
Catel
Coastcom
Davco Elect. Corp.
Dynair Elect., Inc.
Elect. Indust. Eng., Inc.
Environmental Comm., Inc.
F&B/Ceco of Calif., Inc.
Fung Eng. Co.
Jerrold Elect. Corp.
JFD Systems Div.
Leaming Indust. Corp.
Nelson-Hershfield Elect.
Radiation Devices Co.
Rohde & Schwarz Sales Co.
SC Elect., Inc.
Telemet
Video Eng. Co., Inc.

Directional Couplers

Ameco, Inc.
Amer. Technology Co., Inc.
Anaconda CATV
Anixter-Pruzan
Antsco Corp.
AVA Elect. & Machine Corp.
Beaver Elect. Ltd.
Blonder-Tongue Labs., Inc.
Buckeye Telephone &
Supply Co.
C-COR Elect., Inc.
Cerro Comm.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Dolphin Comm. Corp.
Entron, Inc.
Environmental Comm., Inc.
Jampro Antenna Co.
Jerrold Elect. Corp.
Lindsay Specialty Prods. Ltd.
Magnavox
MPI Co.
RMS Elect., Inc.

Rohde & Schwarz Sales Co.
Southern Telephone Supply
Co.
Theta-Com of Calif.
Tocom, Inc.
TV Cable Supply Co., Inc.

Drop Cables

Aberdeen Co.
Alpha Wire Corp.
Anaconda CATV
Anixter-Prizan
Belden Corp.
Buckeye Telephone &
Supply Co.
Canada Wire & Cable
Co., Ltd.
Cerro Comm.
Comm/Scope Corp.
Copperweld Corp.
Davco Elect. Corp.
Essex Elect. Systems
General Cable Corp.
Noram Comm. Ltd.
Southern Telephone
Supply Co.
Theta-Com of Calif.
TV Cable Supply Co., Inc.

Encoder, Video

Amer. Data Corp.
Anixter-Prizan
Cohu, Inc.
Commercial Elect. Inc.
Telemation, Inc.
Video Eng. Co., Inc.

Equalizers

Ameco, Inc.
Anaconda Elect.
Anixter-Prizan
B&K Instr., Inc.
Broadcast Automation Assoc.
Buckeye Telephone &
Supply Co.
C-COR Elect., Inc.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Dynair Elect., Inc.
F&B/Ceco of Calif., Inc.
Jerrold Elect Corp.
Lindsay Specialty Prods. Ltd.
Magnavox
Telemet
Theta-Com of Calif.
TV Cable Supply Co., Inc.
Video Eng. Co., Inc.

Feeder & Trunk Cables

Alpha Wire Corp.
Anaconda CATV
Anixter-Prizan
Buckeye Telephone &
Supply Co.
Cerro Comm.
Comm/Scope Corp.
Davco Elect. Corp.
Jerrold Elect. Corp.
Noram Comm. Ltd.

Southern Telephone
Supply Co.
Theta-Com of Calif.
TV Cable Supply Co., Inc.

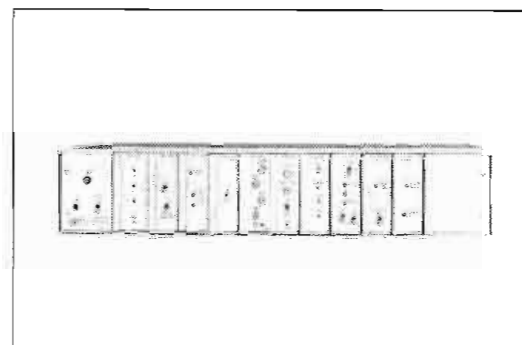
Field Strength Meters

Ameco, Inc.
Anixter-Prizan
B&K Instr., Inc.
Beaver Elect. Ltd.
Blonder-Tongue Labs., Inc.
Cascade Elect. Ltd.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Fung Eng. Co.
Jerrold Elect. Corp.
McGraw-Edison Co.
Potomac Instr., Inc.
Radiation Devices Co.
Riker Video
Rohde & Schwarz Sales Co.
Sadelco, Inc.
Sencore Inc.
Temtron Elect.
Vikoa, Inc.

Film Chain Equipment

Anixter-Prizan
Avtel Corp.
Cohu, Inc.
Commercial Elect. Inc.
Comspace Corp.
Davco Elect. Corp.
Eastman Kodak
F&B/Ceco of Calif., Inc.

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RCA Corp.
Spindler & Sauppe, Inc.
Telaudio Centre
Telemation, Inc.
Temtron Elect.
R. H. Tyler Co.
Video Eng. Co., Inc.

FM Processing Equipment

Anixter-Pruzan
Catel
CBS Labs.
Davco Elect. Corp.
Environmental Comm., Inc.
Fung Eng. Co.
Jerrold Elect. Corp.

Generators, Carrier

Ameco, Inc.
Anixter-Pruzan
Blonder-Tongue Labs., Inc.
C-COR Elect., Inc.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Fung Eng. Co.
Jerrold Elect. Corp.
McGraw-Edison Co.
Rohde & Schwarz Sales Co.
Southern Telephone
Supply Co.
Telemation, Inc.
Telemet
Teleng Inc.
Theta-Com of Calif.

Generators, Character

GBC Closed Circuit TV Corp.

Generators, Special Effects

Amer. Data Corp.
Anixter-Pruzan
Ball Bros. Research Corp.
Dynair Elect., Inc.
Dynasciences Corp.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of America
Interand Corp.
Telemation, Inc.
Telemet
Video Eng. Co., Inc.
Viscount Indust. Ltd.
Visual Educom Inc.
Vital Indust. Inc.

Generators, Sync

Amer. Data Corp.
Anixter-Pruzan
CBS Labs.
Cohu, Inc.
Commercial Elect. Inc.

Comspace Corp.
Davco Elect. Corp.
Dynascan Corp.
Dynasciences Corp.
Echo Science Corp.
Entron, Inc.
F&B/Ceco of Calif., Inc.
Hitachi Shibaden Corp.
of Amer.
Panasonic VTR/CCTV
Rohde & Schwarz Sales Co.
Telemation, Inc.
Telemet
Television Microtime Inc.
TV Cable Supply Co., Inc.
Video Aids Corp. of Colo.
Video Eng. Co., Inc.
Visual Educom Inc.
Vital Indust. Inc.

Generators, Test

Ameco, Inc.
Amer. Data Corp.
Anixter-Pruzan
B&K Instr., Inc.
CBS Labs.
Dix Hills Elect., Inc.
Dynascan Corp.
Kay Elemetrics Corp.
McGraw-Edison Co.
Rohde & Schwarz Sales Co.
Telemet
Theta-Com of Calif.
Video Eng. Co., Inc.

Headend Buildings

Anixter-Pruzan
Beaver Elect. Ltd.
Ft. Worth Tower Co., Inc.
Microwave Systems Co.
Noram Comm. Ltd.
Steffen, Inc.
Walker-Parkersburg

Headend Controls

Ameco, Inc.
Anixter-Pruzan
Cascade Elect. Ltd.
Davco Elect. Corp.
Elect. Indust. Eng., Inc.
Jerrold Elect. Corp.
Phasecom Corp.
Scientific-Atlanta, Inc.

Headend Systems

Ameco, Inc.
Anixter-Pruzan
Avtel Corp.
Cascade Elect. Ltd.
Davco Elect. Corp.
Dynair Elect., Inc.
Eastman Kodak Co.
Elect. Indust. Eng., Inc.
Entron, Inc.
Fung Eng. Co.
Jerrold Elect. Corp.
Metrodata Corp.
Phasecom Corp.
Scientific-Atlanta, Inc.
TV Cable Supply Co., Inc.

Helical VTR DOC

MincomPage CE-9

Hum Stop Coils

Anixter-Pruzan

Lenses, TV Camera

Angenieux Corp. of Amer.
Anixter-Pruzan
Cohu, Inc.
Cunningham Corp.
Davco Elect. Corp.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Int. Video Corp.
Javelin Elect. Co.
Noram Comm. Ltd.
Panasonic VTR/CCTV
Rank Precision Indust. Inc.
RCA Corp.
Southern Telephone
Supply Co.
Stereotronics Television Co.
Tele-Cine Inc.
Video Eng. Co., Inc.

Lights, Studio

Anixter-Pruzan
Berkey Colortran, Inc.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Alan Gordon Enterprises, Inc.
Kliegl Bros. Lighting
Co., Inc.
Noram Comm. Ltd.
RCA Corp.
Telaudio Centre
Video Eng. Co., Inc.
Vital Indust. Inc.

Meters, RF Volts

Anixter-Pruzan
B&K Instr., Inc.
Davco Elect. Corp.
Fung Eng. Co.
Radiation Devices Co.
Rohde & Schwarz Sales Co.

Microwave Relay Equip.

Anixter-Pruzan
Buckeye Telephone &
Supply Co.
Environmental Comm., Inc.
Ft. Worth Tower Co., Inc.
GTE Sylvania
Innovative Television
Equip., Inc.
Microwave Systems Co.
PRD Elect., Inc.
Prodelin Inc.
RCA Corp.
Soladyne Internatl., Inc.

Mixers

Ameco, Inc.
Amer. Data Corp.
Anixter-Pruzan
Davco Elect. Corp.
McGraw-Edison Co.
Shure Bros., Inc.

Modulators, Audio

Able Comm. & Elect.
Ameco, Inc.
Anixter-Pruzan
Blonder-Tongue Labs., Inc.
Catel
Coastcom
Davco Elect. Corp.
Dynair Elect., Inc.
Elect. Indust. Eng., Inc.
Fung Eng. Co.
Jerrold Elect. Corp.
Leaming Indust. Corp.
Noram Comm. Ltd.
Phasecom Corp.
Video Eng. Co., Inc.

Modulators, Video

Ameco, Inc.
Anixter-Pruzan
Blonder-Tongue Labs., Inc.
Catel
Davco Elect. Corp.
Dynair Elect., Inc.
Elect. Indust. Eng., Inc.
F&B/Ceco of Calif., Inc.
Fung Eng. Co.
Hitachi Shibaden Corp.
of Amer.
Jerrold Elect. Corp.
JFD Systems Div.
Nelson-Hershfield Elect.
Noram Comm. Ltd.
Phasecom Corp.
Rohde & Schwarz Sales Co.
Telemet
Tocom, Inc.
Video Eng. Co., Inc.

Monitor Conversion Kits (For Receivers)

Anixter-Pruzan

Monitors, Video

Anixter-Pruzan
Audiotronics Corp.
Ball Bros. Research Corp.
Beston Elect. Inc.
Broadcast Elect., Inc.
Comspace Corp.
Conrac Corp.
Davco Elect. Corp.
Electrohome, Ltd.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Javelin Elect. Co.
Jerrold Elect. Corp.
Magnavox
The Magnavox Co.,
Video Systems
Nelson-Hershfield Elect.
Noram Comm. Ltd.
Panasonic VTR/CCTV
RCA Corp.
SC Elect., Inc.
Shintron Co. Inc.
Southern Telephone
Supply Co.
Tele-Cine Inc.

Ultra Audio Prods.
Video Aids Corp. of Colo.
Video Eng. Co., Inc.
Visual Educom Inc.
Vital Indust. Inc.
World Video, Inc.

Monitors, Waveform

Amer. Data Corp.
Anixter-Pruzan
Avtel Corp.
Ball Bros. Research Corp.
Beston Elect. Inc.
B&K Instr., Inc.
Rohde & Schwarz Sales Co.
Telaudio Centre
Ultra Audio Prods.
Video Eng. Co., Inc.
Visual Educom Inc.

Non-Duplications Switchers

Alaun Engineering
Amer. Data Corp.
Anixter-Pruzan
Avtel Corp.
Davco Elect. Corp.
Phasecom Corp.
RCA Corp.
Rich Labs., Inc.
Rust Corp.
Telemation, Inc.

Optical Multiplexer

Anixter-Pruzan
Cohu, Inc.
Eastman Kodak Co.
Int. Video Corp.
Laird Telemedia, Inc.
Telemation, Inc.
Video Eng. Co., Inc.

Pedestals

Quick-Set Page CE-9

Aberdeen Co.
Anixter-Pruzan
Buckeye Telephone
& Supply Co.
Davco Elect. Corp.
F&B/Ceco of Calif., Inc.
General Cable Corp.
Jerrold Elect. Corp.
Innovative Television
Equipment Inc.
Int. Video Corp.
Noram Comm. Ltd.
RCA Corp.
Southern Telephone
Supply Co.
Tele-Cine Inc.
TV Cable Supply Co., Inc.
Video Eng. Co., Inc.

Pole Line Hardware

Aberdeen Co.
Anixter-Pruzan
Buckeye Telephone &
Supply Co.
A. B. Chance Co.

Davco Elect. Corp.
General Cable Corp.
GTE Sylvania
Noram Comm. Ltd.
Preform Line Prods. Co.
Reliable Electric
Southern Telephone
Supply Co.
Telsta/General Cable
Apparatus Div.
TV Cable Supply Co., Inc.
Utilities Service Co.
Westay Co.

Power Couplers

Ameco, Inc.
Anaconda CATV
Anixter-Pruzan
Beaver Elect. Ltd.
British Insulated Callender's
Cables Ltd.
Entron, Inc.
Jerrold Elect. Corp.
Theta-Com of Calif.

Power Supplies

Alma Eng.
Ameco, Inc.
Anaconda CATV
Anixter-Pruzan
Beaver Elect. Ltd.
British Insulated Callender's
Cables Ltd.
Buckeye Telephone &
Supply Co.
Cerro Comm.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Dynascan Corp.
Entron, Inc.
GTE Sylvania
Jerrold Elect. Corp.
Magnavox
Maspro Co., Inc.
MSI Television
Sawyer Indust., Inc.
Soladyne Internatl., Inc.
Sola Electric
Southern Telephone
Supply Co.
Systron-Donner Corp.
Terado Corp.
Tocom, Inc.
Tomco Comm. Inc.
TV Cable Supply Co., Inc.
Wilmore Elect. Co., Inc.

Preamps, Single Channel

Ameco, Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
C-COR Elect., Inc.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Entron, Inc.
Environmental Comm., Inc.
Jerrold Elect. Corp.
JFD Systems Div.
Maspro Co., Inc.
Riker Video
Tomco Comm. Inc.
TV Cable Supply Co., Inc.

Winegard Co.

Recorders, Audio

Ampex Corp.
Anixter-Pruzan
Audiotronics Corp.
B&K Instr., Inc.
Broadcast Automation Assoc.
Broadcast Elect., Inc.
Davco Elect. Corp.
F&B/Ceco of Calif., Inc.
Gotham Audio Corp.
Noram Comm. Ltd.
RCA Corp.
Scully/Metrotech
Sparta Elect. Corp.
Tape-Athon Corp.
Telaudio Centre
Video Eng. Co., Inc.
VIF Internatl.

Recorders, Video Tape

Ampex Corp.
Anixter-Pruzan
Avtel Corp.
Davco Elect. Corp.
Diamond Power Specialty
Corp.
Echo Science Corp.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
3M Co., Mincom Div.
Noram Comm. Ltd.
Panasonic VTR/CCTV
RCA Corp.
Sony Corp. of America
Southern Telephone
Supply Co.
Telemation, Inc.
R. H. Tyler Co.
Video Eng. Co., Inc.

Scramblers, Unscramblers

Anixter-Pruzan
Techno Prods. Co.

Signal Corrector (Video)

Anixter-Pruzan
Telemet
Television Equip. Assoc.
Video Eng. Co., Inc.
Television Microtime Inc.

Signal Processor

Ameco, Inc.
Anixter-Pruzan
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.

Signal Strength Meter

Ameco, Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
Blonder-Tongue Labs., Inc.
Davco Elect. Corp.
Echo Science Corp.
Fung Eng. Co.

McGraw-Edison Co.
Radiation Devices Co.
Winegard Co.

Specialty Parts

Temtron Page CE-4

Splitting & Mixing Networks

Ameco, Inc.
Anixter-Pruzan
AVA Elect. & Machine Corp.
Beaver Elect. Ltd.
Cerro Comm.
C-COR Elect. Corp.
Delta-Benco-Cascade Ltd.
Dolphin Comm. Corp.
Entron, Inc.
Jerrold Elect. Corp.
JFD Systems Div.
Magnavox
Maspro Co., Inc.
MPI Co.
TV Cable Supply Co., Inc.

Sweep Systems

Anixter-Pruzan
Avantek, Inc.
Jerrold Elect. Corp.
Kay Elemetrics Corp.
Noram Comm. Ltd.
Rohde & Schwarz Sales Co.
Systron-Donner Corp.
Theta-Com of Calif.

Switchers

Alma Eng.
Amer. Data Corp.
Anixter-Pruzan
Ball Bros. Research Corp.
Beston Elect. Inc.
Cablewave Systems, Inc.
Cohu, Inc.
Cunningham Corp.
Davco Elect. Corp.
Dynair Elect., Inc.
Dynasciences Corp.
Echo Science Corp.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Jerrold Elect. Corp.
Kay Elemetrics Corp.
Matrix Systems Corp.
Noram Comm. Ltd.
Philips Bcst. Equip. Corp.
RCA Corp.
Rohde & Schwarz Sales Co.
Rust Corp.
Shintron Co. Inc.
Telemation, Inc.
Telemet
Video Aids Corp. of Colo.
Video Eng. Co., Inc.
Viscount Indust. Ltd.
Vital Indust. Inc.

Systems Research & Development

Ameco, Inc.
Beaver Elect. Ltd.
C-COR Elect., Inc.
Davco Elect. Corp.
Echo Science Corp.

Int. Video Corp.
Noram Comm. Ltd.
Radiation Devices Co.
Rosner Television
Systems, Inc.
Stereotronics Television Co.
Techno Prods. Co.

Tape & Film Racks

Storeel **Page CE-4**

Tap-offs

Ameco, Inc.
Anixter-Pruzan
AVA Elect. & Machine Corp.
Beaver Elect. Ltd.
Buckeye Telephone &
Supply Co.
Cerro Comm.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Entron, Inc.
Jerrold Elect. Corp.
JFD Systems Div.
Magnavox
Maspro Co., Inc.
MPI Co.
Preform Line Prods. Co.
Riker Video
RMS Elect., Inc.
Southern Telephone Supply
Co.
Theta-Com of Calif.
TV Cable Supply Co., Inc.
Winegard Co.

Taps, Directional

Aberdeen Co.
Ameco, Inc.
Amer. Technology Co., Inc.
Anaconda CATV
Anixter-Pruzan
Antsco Corp.
AVA Elect. & Machine Corp.
Beaver Elect. Ltd.
Buckeye Telephone &
Supply Co.
C-COR Elect., Inc.
Cerro Comm.
Davco Elect. Corp.
Delta-Benco-Cascade Ltd.
Dolphin Comm. Corp.
Echo Science Corp.
Entron, Inc.
GTE Sylvania
Jerrold Elect. Corp.
JFD Systems Div.
Lindsay Specialty Prods. Ltd.
Magnavox
RMS Elect., Inc.
Southern Telephone
Supply Co.
Theta-Com of Calif.
Tocom, Inc.
TV Cable Supply Co., Inc.
Winegard Co.

Time Base Correctors

Ampex Corp.
Anixter-Pruzan
Dynasciences Corp.
GTE Sylvania
Int. Video Corp.
Kansas State Network, Inc.
Telemation, Inc.

Television Microtime Inc.
Video Eng. Co., Inc.
VIF Internatl.

Title Edgers

Anixter-Pruzan
Telemation, Inc.
Video Eng. Co., Inc.
Vital Indust. Inc.

Title Inserters

Amer. Data Corp.
Anixter-Pruzan
Datavision Inc.
Interand Corp.
Kansas State Network, Inc.
Laird Telemedia, Inc.
MSI Television
Telemation, Inc.
Telemet
Video Data Systems, Inc.
Video Eng. Co., Inc.
Vital Indust. Inc.

Towers & Accessories

Fort Worth
Tower **Page CE-8**

Advance Indust., Inc.
Allied Tower, Inc.
Andrews Tower, Inc.
Anixter-Pruzan
Beaver Elect. Ltd.
Buckeye Telephone &
Supply Co.
Copperweld Corp.
Davco Elect. Corp.
E-Z Way Prods., Inc.
Ft. Worth Tower Co., Inc.
Gates Radio
Grasis Fabricating Co.
Halline Utility Equip.
Jampro Antenna Co.
McCabe-Power Body Co.
Microfect Co., Inc.
Path Prods. Inc.
RCA Corp.
Rohn Mfg.
Soladyne Internatl., Inc.
Stainless, Inc.
Swager Tower Corp.
Tiner Comm. Service, Inc.
Tri-Ex Tower Corp.
TV Cable Supply Co., Inc.
Up-Right Scaffolds
Utility Tower Co.

Tower Service

Fort Worth
Tower **Page CE-8**

Advance Indust., Inc.
Allied Tower Co., Inc.
Ft. Worth Tower Co., Inc.
Noram Comm. Ltd.
Rohn Mfg.
Stainless, Inc.
Swager Tower Corp.
Tiner Comm. Service, Inc.
Tri-Ex Tower Corp.

Trucks, Ladder & Bucket

Buckeye Telephone &
Supply Co.

A. B. Chance Co.
General Cable Corp.
Halline Utility Equip.
McCabe-Power Body Co.
Telsta/General Cable
Apparatus Div.
Time Mfg. Co.
Utility Body Co.
Van Ladder, Inc.

Two-Way Home Terminal Equip.

Anixter-Pruzan
AVA Elect. & Machine
Corp.
Cascade Elect. Ltd.
Catel
Elect. Indust. Eng., Inc.
Jerrold Elect. Corp.
K'Son Corp.
Magnavox
RMS Elect., Inc.
Television Audience
Response System Div.
Tocom, Inc.

Video Equip. & Accessories

Amer. Data Corp.
Anixter-Pruzan
Audio-Video Eng. Co.
Avtel Corp.
Beston Elect. Inc.
CBS Labs.
Cunningham Corp.
Data Disc, Inc.
Davco Elect. Corp.
Diamond Power Specialty
Corp.
Dynair Elect., Inc.
Dynasciences Corp.
Echo Science Corp.
Electrohome, Ltd.
F&B/Ceco of Calif., Inc.
Gates Radio
GBC Closed Circuit TV
Corp.
Hitachi Shibaden Corp.
of Amer.
Innovative Television
Equip., Inc.
Interand Corp.
Int. Video Corp.
Javelin Elect. Co.
Kalart Victor Corp.
The Magnavox Co.,
Video Systems
Noram Comm. Ltd.
Panasonic VTR/CCTV
Philips Bcst. Equip. Corp.
RCA Corp.
Riker Video
Rohde & Schwarz Sales Co.
Saxton Prod., Inc.
Shintron Co. Inc.
Sony Corp. of Amer.
Spectra-Vision Corp.
Stereotronics Television Co.
Techno Prods. Co.
Telaudio Centre
Tele-Cine Inc.
Telemation, Inc.
Telesync Corp.
Television Equip. Assoc.

Television Microtime Inc.
Temtron Elect.
Ultra Audio Prods.
Video Aids Corp. of Colo.
Video Eng. Co., Inc.
Visual Elect. Labs.

Video Equip. & Editor

Anixter-Pruzan
Dynasciences Corp.
Echo Science Corp.
F&B/Ceco of Calif., Inc.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
3M Co., Mincom Div.
Panasonic VTR/CCTV
RCA Corp.
Spectra-Vision Corp.
Telemation, Inc.
Telemet
Telesync Corp.
Video Aids Corp. of Colo.
Video Eng. Co., Inc.

Video Tape

Ampex Corp.
Anixter-Pruzan
Davco Elect. Corp.
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
3M Co., Magnetic
Audio/Video Prods. Div.
Memorex Corp.
Noram Comm. Ltd.
Telemation, Inc.
Temtron Elect.
Video Eng. Co., Inc.

VTR Heads

Ampex Corp.
Anixter-Pruzan
GBC Closed Circuit TV Corp.
Hitachi Shibaden Corp.
of Amer.
Int. Video Corp.
Noram Comm. Ltd.
Spin Physics, Inc.
Video Eng. Co., Inc.

Weather Units

Ameco, Inc.
Anixter-Pruzan
Avtel Corp.
Buckeye Telephone &
Supply Co.
Catel
Concise Instr. Design Ltd.
Davco Elect. Corp.
Kansas State Network, Inc.
Laird Telemedia, Inc.
MSI Television
Soladyne Internatl., Inc.
Telestrator Indust., Inc.
Texas Elect., Inc.
Texas Instr. Inc.
R. H. Tyler Co.

Manufacturer's address list

A

Aberdeen Company
P.O. Box 2663
Culver City, Cal. 90230

Able Comm. & Elect.
P.O. Box 236
Palm Harbor, Fla. 33563

Advance Indust., Inc.
Lunar Comm.
2301 Bridgeport Dr.
P.O. Box 1410
Sioux City, Ia. 51102

AEL Comm. Corp.
Subs. of Amer. Elect. Labs.
P.O. Box 507
Lansdale, Pa. 19446

Akai Amer., Ltd.
2139 E. Del Amo Blvd.
Compton, Cal. 90220

Alaun Engineering
515 South Palm
Alhambra, Cal. 91802

Allied Tower Co., Inc.
P.O. Box 331
809 Kansas St.
S. Houston, Tex. 77587

Alma Engineering
7990 Dagget St.
San Diego, Cal. 92111

Alpha Wire Corp.
711 Ledgerwood Ave.
Elizabeth, N.J. 07207

Ameco, Inc.
2960 Grand Ave.
P.O. Box 13741
Phoenix, Ariz. 85002

Amer. Data Corp.
An Airpax Co.
315 Wynn Dr.
P.O. Box 5228
Huntsville, Ala. 35805

Amer. Technology Co., Inc.
3630 W. Clarendon St.
Phoenix, Ariz. 85019

Ampex Corporation
Audio-Video Systems Div.
401 Broadway
Redwood City, Cal. 94063

Anaconda CATV
7465 Lampson Ave.
Garden Grove, Cal. 92641

Andrew Corp.
10500 W. 153rd St.
Orland Park, Ill. 60462

Andrews Tower, Inc.
1420 Layton Ave.
Ft. Worth, Tex. 76117

Angenieux Corp. of
Amer., Inc.
440 Merrick Rd.
Oceanside, N.Y. 11572

Anixter-Pruzan
1963 1st Ave. South
Seattle, Wash. 98134

Antsco Corporation
Antsco Antenna Access.
17 West Sierra Madre Blvd.
P.O. Box 188
Sierra Madre, Cal. 91024

Audiotronics Corp.
Video Systems Div.
7428 Bellaire Ave.
N. Hollywood, Cal. 91605

Audio-Video Eng. Co.
65 Nancy Blvd.
Merrick, N.Y. 11566

AVA Elect. & Machine Corp.
242 Pembroke Ave.
Lansdowne, Pa. 19050

Avantek, Inc.
3175 Bowers Ave.
Santa Clara, Cal. 95051

Avtel Corp.
44 Railroad Ave.
Glen Head, N.Y. 11545

B

Ball Brothers Research Corp.
Miratel Drive
1633 Terrace Dr.
St. Paul, Minn. 55113

Beaver Elect. Ltd.
70 Ronson Dr.
Rexdale, Ontario
Canada M9W-1B8

Belden Corp.
Richmond, Ind. 47374

Berkey Colortran, Inc.
1015 Chestnut St.
Burbank, Cal. 91502

Berkshire Elect. Cable Co.
River Rd.
Leeds, Mass. 01053

Beston Elect. Inc.
9024 W. 51st Terr.
Shawnee, Kans. 66203

B & K Instruments, Inc.
5111 W. 164th St.
Cleveland, Ohio 44142

Blonder-Tongue Labs., Inc.
One Jake Brown Rd.
Old Bridge, N.J. 08857

Boston Insulated Wire
and Cable Co., Ltd.
9545 Cote De Liesse
Dorval, Quebec
Canada H9P 1A5

Brand-Rex Co.
P.O. Box 498
Willimantic, Conn. 06226

British Insulated
Callender's Cables Ltd.
P.O. Box 5
21 Bloomsburg St.
London WC1B 3Qn, England

Broadcast Automation Assoc.
5199 N.E. 12th Ave.
Ft. Lauderdale, Fla. 33308

Broadcast Elect., Inc.
8810 Brookville Rd.
Silver Spring, Md. 20910

Buckeye Telephone
& Supply Co.
1250 Kinnear Rd.
Columbus, Ohio 43221

C

Cablewave Systems Inc.
60 Dodge Ave.
North Haven, Conn. 06473

Cambridge Prods., Corp.
101 Foley St.
Somerville, Mass. 02145

Canada Wire &
Cable Co., Ltd.
147 Laird Dr.
Toronto, Ontario, Canada

Cascade Cable Constr., Inc.
P.O. Box 677
Wenatchee, Wash. 98801

Cascade Elect. Ltd.
1111 C Street
Bellingham, Wash. 98225

Catel
Div. of United Scientific
1030 W. Evelyn
Sunnyvale, Cal. 94086

CBS Laboratories
227 High Ridge Rd.
Stamford, Conn. 06905

C-COR Elect., Inc.
60 Decibel Rd.
State College, Pa. 16801

Reader

Service

Card

In This

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Cerro Comm.
Div. of Cerro Corp.
Halls Mill Rd.
Freehold, N.J. 07728

A. B. Chance Co.
210 N. Allen St.
Centralia, Mo. 65240

Cleveland Trencher Div.
20100 St. Clair Ave.
Cleveland, Ohio 44117

Coastcom
2346 Stanwell Dr.
Concord, Cal. 94520

Cohu, Inc.
Electronics Div.
P.O. Box 623
San Diego, Cal. 92112

Collins Radio Co.
1200 N. Alma Rd.
Richardson, Tex. 75080

Commercial Elect. Inc.
880 Maude Ave.
Mountain View, Cal. 94040

Comm/Scope Corp.
P.O. Box 2406
15 N. Center St.
Hickory, N.C. 28601

Comspace Corp.
350 Great Neck Rd.
Farmingdale, N.Y. 11735

Concise Inst. Design Ltd.
260 Geary Ave.
Toronto, 170, Ontario,
Canada

Conrac Corp.
Conrac Div.
600 N. Rimsdale Ave.
Covina, Cal. 91722

Consolidated Video Systems
3300 Edward Ave.
Santa Clara, Cal. 95050

Copperweld Corp.
Copperweld Bimetallics Div.
Box 1000
Glassport, Pa. 15045

Coral
7700 River Rd.
North Bergen, N.J. 07047

Cunningham Corp.
10 Carriage St.
Honeoye Falls, N.Y. 14472

Cush Craft Corp.
621 Hayward St.
Manchester, N.H. 03103

D

Data Disc, Inc.
686 W. Maude Ave.
Sunnyvale, Cal. 94086

Datavision Inc.
15932 Shady Grove Rd.
Gaithersburg, Md. 20760

Davco Elect. Corp.
2150 E. Harrison St.
Batesville, Ark. 72501

Davis Manufacturing
1500 S. McLean Blvd.
P.O. Box 1801
Wichita, Kans. 67213

Delts-Benco-Cascade Ltd.
124 Belfield Rd.
Rexdale,
Ontario, Canada M9W1G1

Diamond Power
Specialty Corp.
P.O. Box 415
East Main Pike
Lancaster, Ohio 43130

Ditch Witch
The Charles
Machine Works, Inc.
P.O. Box 66
Perry, Okla. 73077

Dix Hills Elect., Inc.
25 N. Mall
Plainview, N.Y. 11803

Dolphin Comm. Corp.
181 Church St.
Pugheepsie, N.Y. 12502

Dynair Elect., Inc.
6360 Federal Blvd.
San Diego, Cal. 92114

Dynascan Corp.
1801 W. Belle Plaine Ave.
Chicago, Ill. 60613

Dynasciences Corp.
Scientific Systems Div.
Township Line Rd.
Blue Bell, Pa. 19422

E

Eastman Kodak Co.
343 State St.
Rochester, N.Y. 14650

Echo Science Corp.
An Arvin Systems, Inc. Co.
485 E. Middlefield Rd.
Mountain View, Cal. 94040

Electrohome, Ltd.
809 Wellington North
Kitchener, Ontario, Canada

Elect. Indust.
Engineering, Inc.
A Div. of RCA Corp.
7355 Fulton Ave.
N. Hollywood, Cal. 91605

Electro-Voice, Inc.
Subs. of Gulton Ind. Inc.
600 Cecil St.
Buchanan, Mich. 49107

Entron, Inc.
70-31 84th St.
Glendale, N.Y. 11227

Environmental Comm., Inc.
Cable Television
Components Div.
2718 S. Grand Ave.
Santa Ana, Cal. 92705

Essex Elect. Systems
6235 S. Harlem Ave.
Chicago, Ill. 60638

Essex Internatl., Inc.
Comm. and CATV Div.
6235 S. Harlem Ave.
Chicago, Ill. 60638

E-Z Way Prods., Inc.
Commercial Div.
13155 Nebraska Ave.
P.O. Box 17196
Tampa, Fla. 33612

F

Fairchild MOD
423 National Ave.
Mountain View, Cal. 95111

F&B/Ceco of Calif., Inc.
7051 Santa Monica Blvd.
Hollywood, Cal. 90038

Ft. Worth Tower Co., Inc.
5201 Bridge St.
P.O. Box 8597
Ft. Worth, Tex. 76112

Fung Engineering Co.
111 Glenn Way
Belmont, Cal. 94002

G

Gamco Indust., Inc.
317 Cox St.
Roselle, N.J. 07203

Gates Radio
123 Hampshire Street
Quincy, Ill. 62301

GBC Closed Circuit TV Corp.
74 Fifth Ave.
New York, N.Y. 10011

General Cable Corp.
500 W. Putnam Ave.
Greenwich, Conn. 06830

Gilbert Eng. Co., Inc.
3700 N. 36th Ave.
Phoenix, Ariz. 85019

Gotham Audio Corp.
741 Washington Street
New York, N.Y. 10014

Alan Gordon Enterprises, Inc.
5362 Cahuenga Blvd.
N. Hollywood, Cal. 91601

GPL-TV, Link Div.
The Singer Co.
Binghamton, N.Y. 13902

Grasis Fabricating Co.
5601 Gardner Ave.
Kansas City, Mo. 64120

GTE Sylvania
CATV Operations
114 S. Oregon
El Paso, Tex. 79901

H

Hallline Utility Equip.
P.O. Box 5854
St. Louis, Mo. 63134

Hatichi Shibaden
Corp. of Amer.
58-25 Brooklyn-Queens
Expwy.
Woodside, N.Y. 11377

Hy-Gain Elect. Corp.
8601 N.E. Hwy. 6
Lincoln, Neb. 68507

I

Innovative Television
Equip., Inc.
P.O. Box 681
Woodland Hills, Cal. 91634

Interand Corp.
Telestrator Div.
450 East Ohio St.
Chicago, Ill. 60611

Int. Indust., Inc.
P.O. Box 9882
Austin, Tex. 78766

Int. Video Corp.
990 Alamanor Ave.
Sunnyvale, Cal. 94086

ITT Aerospace/Optical Div.
3700 E. Pontiac St.
Ft. Wayne, Inc. 46803

ITT Cannon Electric
666 E. Dyer Rd.
Santa Ana, Cal. 92702

J

Jampro Antenna Co.
Computer Equip. Corp.
6939 Power Inn Rd.
Sacramento, Cal. 95828

Javelin Elect. Co.
Div. of Apollo Lasers, Inc.
6357 Arizona Circle
Los Angeles, Cal. 90045

Jerrold Elect. Corp.
CATV Systems Div.
200 Witmer Rd.
Horsham, Pa. 19044

JFD Systems Div. of
Riker Comm.
142 Central Ave.
Clark, N.J. 07066

JVC Indust., Inc.
50-36 56th Rd.
Maspeth, N.Y. 11378

K

Kalart Victor Corp.
Hultenius St.
Plainville, Conn. 06062

Kansas State Network, Inc.
833 N. Main
P.O. Box 333
Wichita, Kans. 67203

Kay Elemetrics Corp.
12 Maple Ave.
Pine Brook, N.J. 07058

Kliegl Bros.
Lighting Co., Inc.
32-32 48th Ave.
L.I.C., N.Y. 11101

KLM Electronics
1600 Decker Ave.
San Martin, Cal. 95046

K'Son Corporation
250 E. Emerson Ave.
Orange, Cal. 92665

L

Laird Telemedia, Inc.
2125 S.W. Temple
Salt Lake City, Utah 84115

Leaming Indust. Corp.
3740 Campus Dr.
Newport Beach, Cal. 92660

Lindsay Specialty Prods. Ltd.
50 Mary W.
Lindsay, Ontario, Canada

LRC Elect., Inc.
901 S. Ave.
Horseheads, N.Y. 14845

L-W Photo, Inc.
15451 Cabrito Rd.
Van Nuys, Cal. 91406

M

Magnavox
CATV Div.
100 Fairgrounds Dr.
Manlius, N.Y. 13104

The Magnavox Co.
Video Systems
1700 Magnavox Way
Ft. Wayne, Ind. 46804

Maspro Co., Inc.
Asada, Nissin,
Nagoya-shigai, Japan

Matrix Systems Corp.
9411 Lurline Ave.
Chatsworth, Cal. 91311

McCabe-Power Body Co.
8900 Frost Ave.
St. Louis, Mo. 63134

McGraw-Edison Co.
Edison Elect.
Grenier Field
Manchester, N.H. 03103

3M Company
Magnetic Audio/Video
Prod. Div.
3M Center, Bldg. 224-61
St. Paul, Minn. 55101

3M Company
Mincom Div.
300 S. Lewis Rd.
Camarillo, Cal. 93010

Memorex Corp.
Audio-Video Group
1200 Memorex Dr.
Santa Clara, Cal. 95052

Metrodata Corp.
1250 Mercer
Seattle, Wash. 98109

Microlect Co., Inc.
3575 25th St., S.E.
Salem, Ore.

Microwave Systems Co.
15860 W. 5th Ave.
Golden, Colo. 80401

Mid-State Comm., Inc.
40 N. 7th Ave.
Beech Grove, Ind. 46107

MPI Company
1524 Frankford Ave.
Philadelphia, Pa. 19125

MSI Television
4788 S. State St.
Salt Lake City, Utah 84107

N

Nelson-Hershfield Elect.
1848 W. Campbell Ave.
Phoenix, Ariz. 85015

Noram Comm. Ltd.
70 Ronson Dr.
Rexdale, Ont.,
Canada M9W 1B8

O

Oak Indust. Inc.
Crystal Lake, Ill. 60014

Operations International
15860 W. 5th Ave.
Golden, Colo. 80401

P

Panasonic VTR/CCTV
of Matsushita
Elect. Corp. of Amer.
P.O. Box 3980
Grand Central Station
New York, N.Y. 10017

Panduit Corp.
17301 Ridgeland Ave.
Tinley Park, Ill. 60477

Path Products Inc.
P.O. Box 399
Jacksonville, Tex. 75766

Phasecom Corp.
13130 S. Yukon Ave.
Hawthorne, Cal. 90250

Phelps Dodge Comm. Co.
441 Sawmill River Rd.
Yonkers, N.Y. 10702

Philips Bcst. Equip. Corp.
One Philips Parkway
Montvale, N.J. 07645

Plastoid Corp.
42-61 24th St.
L.I.C., N.Y. 11101

Potomac Instr., Inc.
932 Philadelphia Ave.
Silver Spring, Md. 20910

PRD Elect., Inc.
1200 Prospect Ave.
Westbury L.I., N.Y. 11590

Preform Line Prods. Co.
5349 St. Clair Ave.
Cleveland, Ohio 44103

Prodelin Inc.
P.O. Box 131
Hightstown, N.J. 08520

Pyramid Indust. Inc.
2612 W. Encanto Blvd.
Phoenix, Ariz. 85009

Q

Quick-Set Inc.
3650 Woodhead Dr.
Northbrook, Ill. 60062

R

Radiation Devices Co.
P.O. Box 8450
Baltimore, Md. 21234

Rank Precision Indust. Inc.
260 N. Tr. 303
W. Nyack, N.Y. 10994

RCA Corporation
Comm. Systems Div.
Front & Cooper Sts.
Building 2-5
Camden, N.J. 08102

Reliable Electric
11333 W. Addison
Franklin Pk., Ill. 60131

RF Systems, Inc.
155 King St.
Cohasset, Mass. 02025

Rich Laboratories, Inc.
105 Pasatiempo Dr.
Santa Cruz, Cal. 95060

Riker Video
142 Central Ave.
Clark, N.J. 07066

RMS Elect., Inc.
50 Antin Place
Bronx, N.Y. 10462

Rohde & Schwarz Sales Co.
111 Lexington Ave.
Passaic, N.J. 07055

Rohn Manufacturing
Div. of Unarco Indust., Inc.
P.O. Box 2000
Peoria, Ill. 61601

Rosner Television
Systems, Inc.
250 W. 57 St.
New York, N.Y. 10019

Rust Corp.
168 Tremont St.
Everett, Mass. 02149

S

Sadelco, Inc.
299 Park Ave.
Weehawken, N.J. 07087

Sawyer Indust., Inc.
Glentronics Div.
748 E. Alosta Ave.
Glendora, Cal. 91740

Saxton Prods., Inc.
215 N. Route 303
Congers, N.Y. 10920

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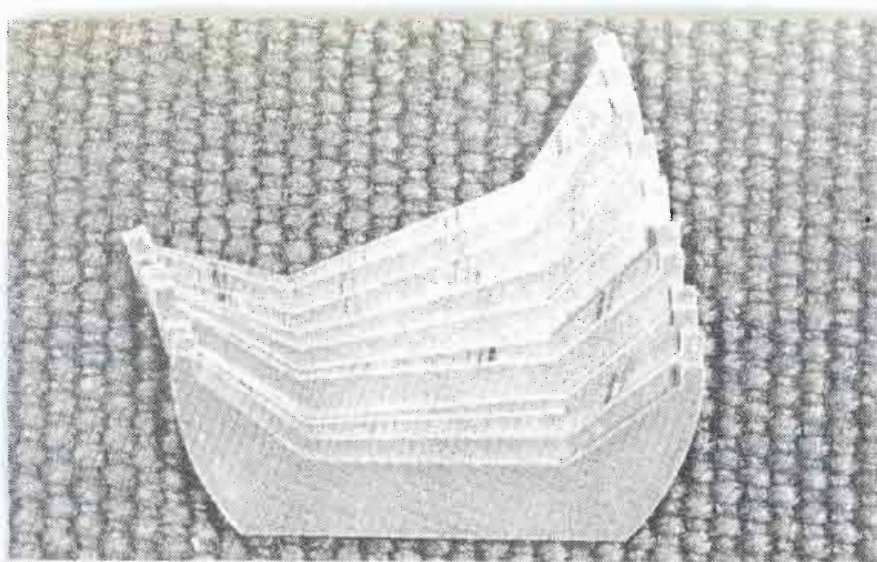


Fig. A Loose laminations

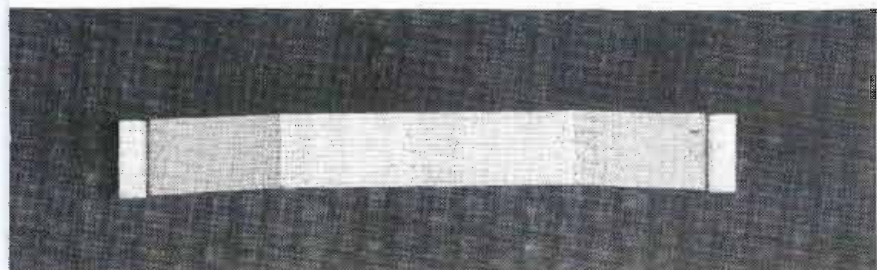


Fig. B Half stack or core

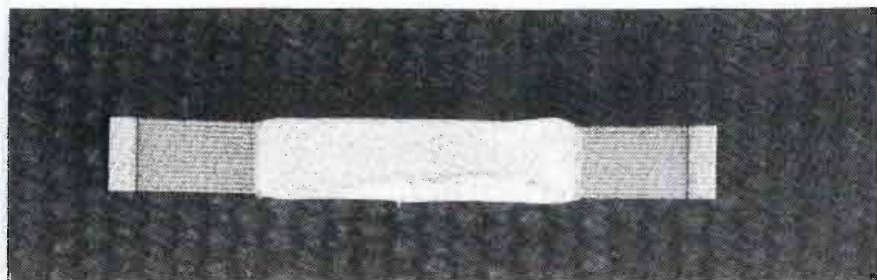


Fig. C Stack with insulation

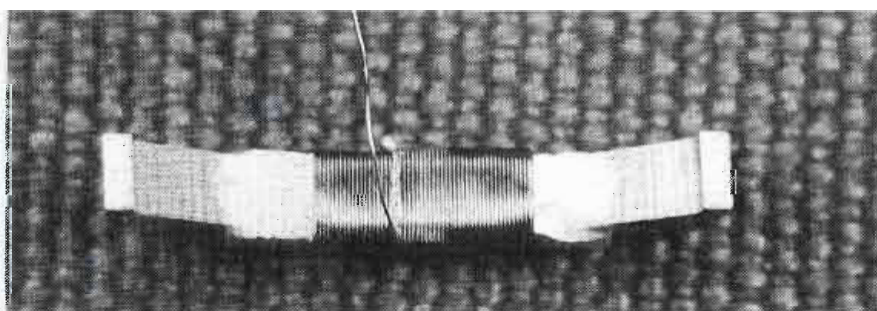


Fig. D Stack with coil

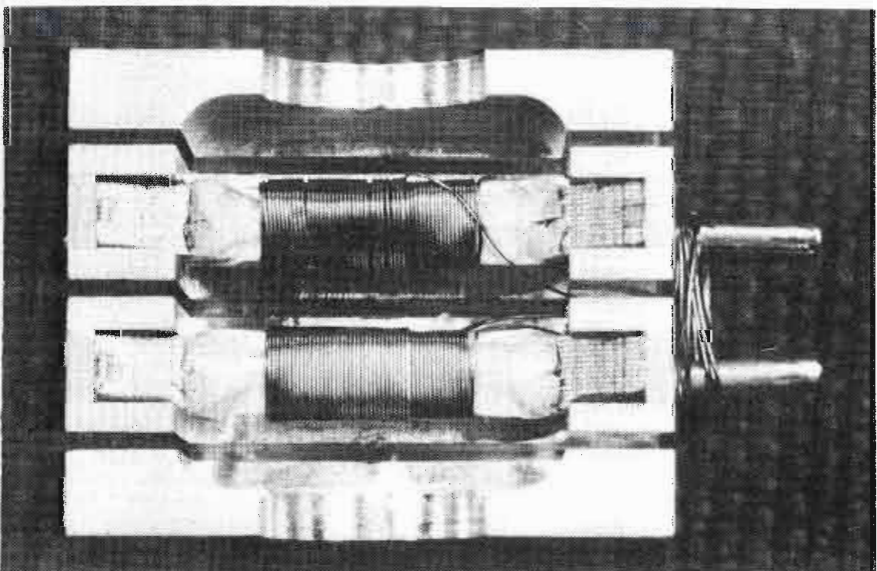


Fig. E Half section, stereo head



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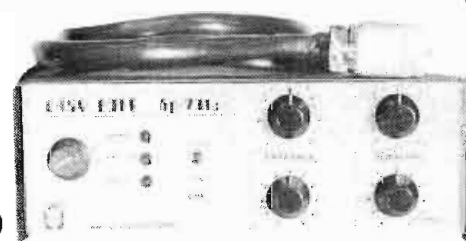
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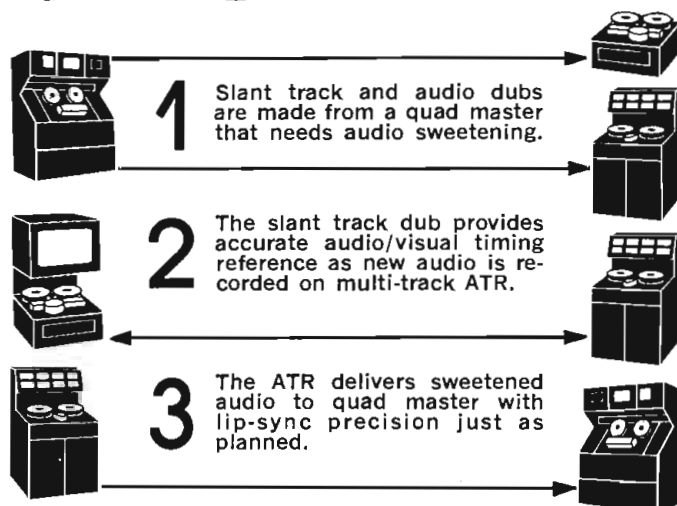


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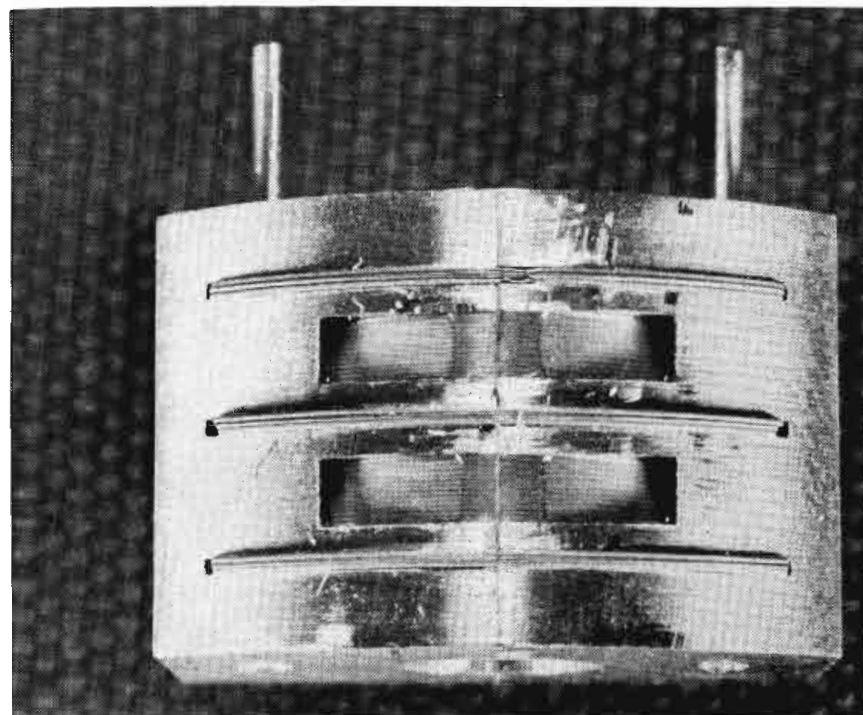


Fig. F Complete head before finishing

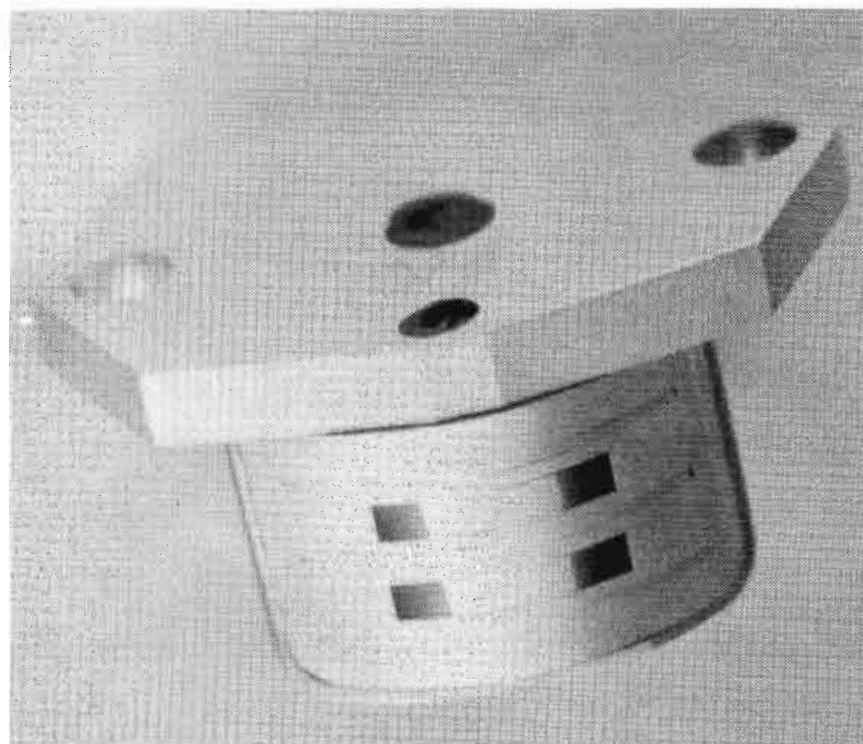


Fig. G Finished head

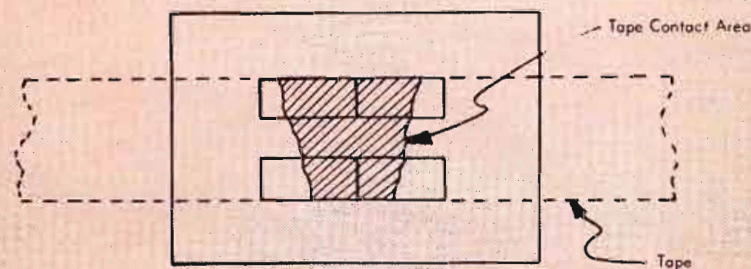


Figure 3.

Figure 3. Keystone Wear Pattern (Front View)

difficulty centered on a worn-out tape head. In a way, this is a left-handed compliment to the tape head business, but it doesn't do much to relieve the frustration of spending many hours looking at everything **except** the tape head!

Before we get into the maintenance considerations, let's spend a few moments getting acquainted with the item we propose to lavish this maintenance on. To us, a magnetic tape head intended for use in professional audio work must meet certain basic requirements which, by definition, put it in the professional class. First, it must be designed to perform in accordance with the specifications of the equipment it is intended for. Second, it must be built to deliver that performance over a very lengthy span of time without frequent re-alignment of the electronics. Third, it must not drastically change characteristics during its useful life. And last, it must do all these things and still be competitive in cost. That is quite an order!

Now let's take a look at what a tape head is made of. Figure A shows a group of loose laminations ready for use in making up a stack or core. These lams are produced by high precision stamping dies. Various thicknesses are used. These are .006".

The metal is a high permeability alloy called HyMu 80 or HyMu 800. After stamping, each lamination is given a high temperature anneal and is then slowly and gradually cooled. This process gives the material its high permeability. Before annealing, the metal is quite tough. . . .comparable to stainless steel. After annealing, it is very soft and quite strain sensitive. Mishandling damages the permeability so the laminations must be handled with great care. For this discussion (although not technically accurate), permeability may be defined as that property which enables a material to become highly magnetized when in the presence of a magnetic field, but to lose its magnetism when the field is removed. Were this not the case, it would be impossible to make a high quality recording, because the head (if it remained

magnetized after the field were removed) would start erasing the recording just made in much the same way a bar magnet would.

Figure B is a photograph of a finished half stack or core. Each lamination is clearly recognizable and the entire surface of each lam is coated with an oxide which serves as an insulator between it and all the other lams in the stack. This is done to keep eddy currents at a low level.

Figure C shows a finished half stack with insulation around it. The coil will be wound directly on the insulation, as shown in Figure D.

Figure E is a photograph of a half section. It contains the precision core holder and two half stacks with the coils. A mating half section will be used to complete the head. The entire top surface shown will be lapped to very close tolerances, and then polished. The shields which go above, between and below the two channels of the head are now installed and the mating half section assembled to it.

Figure F shows an assembled head with the gap material protruding at the center. Right now it's an ugly little thing, but grinding, lapping and polishing will turn it into a thing of beauty. The head is now potted to completely encapsulate the interior and ready it for finishing. From this point on, everything had better be strictly "go" because no corrections or changes are possible. Should any injury or defect show up now, the whole head must be scrapped.

Head Face Contour

The next step is to decide the contour to be used on the head face. Which shall it be, cylindrical or hyperbolic? Both have their merits and disadvantages. A hyperbolic contour is a decided advantage in situations where tape contact with the gap is a problem due to low back tension on the tape. The big disadvantage is that the contact **area** is quite small and wear of the head is greatly accelerated by concentration of the tape over a relatively small area of the head face. Since most professional tape recorders use a considerable amount of back tension to hold the

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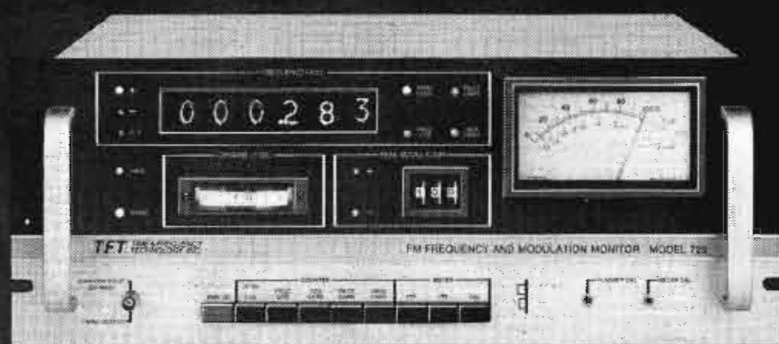
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tape firmly against the heads, we use a cylindrical contour on all our heads intended for use with these machines. This greatly reduces the rate of wear. By also leaving .025" depth of metal at the gap, long life is assured.

The classic and humbling example in the cylindrical vs. hyperbolic controversy, is the erase head stack used on the old Magnecord PT-6. This machine has an erase head stack approximately 3/4" wide and the tape travels over the entire cylindrical face of this stack. In 17 years, I have never seen **one** that was worn out! We have relapped a tremendous number of these heads and are still waiting to see the first useless one show up! This is truly remarkable when you also consider that in spite of the manufacturer's instructions to the contrary, the design of the PT-6 was such that most operators constantly ran tape over the erase head in the fast forward and rewind modes! It was more convenient to do this when using the machine.

Figure G shows a completely finished 2-track stereo head, ready for testing and installation in a recorder. Because of the highly polished and reflective surfaces, it is almost impossible to photograph these heads without distortion and "hot spots". None of these photographs have been retouched.

So now we have this finished component available to us for installation. A lot of work has gone into it, because the quality of signal you send out is utterly dependent on it. **If you don't get it here, you don't get it.**

The head face is particularly vulnerable to scratches, nicks or gouges which will really foul up performance. We suggest that before installing **any** tape head, you cover the entire head face with a strip of heavy, adhesive-backed plastic tape to protect it during installation handling. With this single exception, a tape head is a fairly husky device. Once the head is installed, the tape should be removed and the head face cleaned prior to making any adjustments.

Installation

Installation of new heads on

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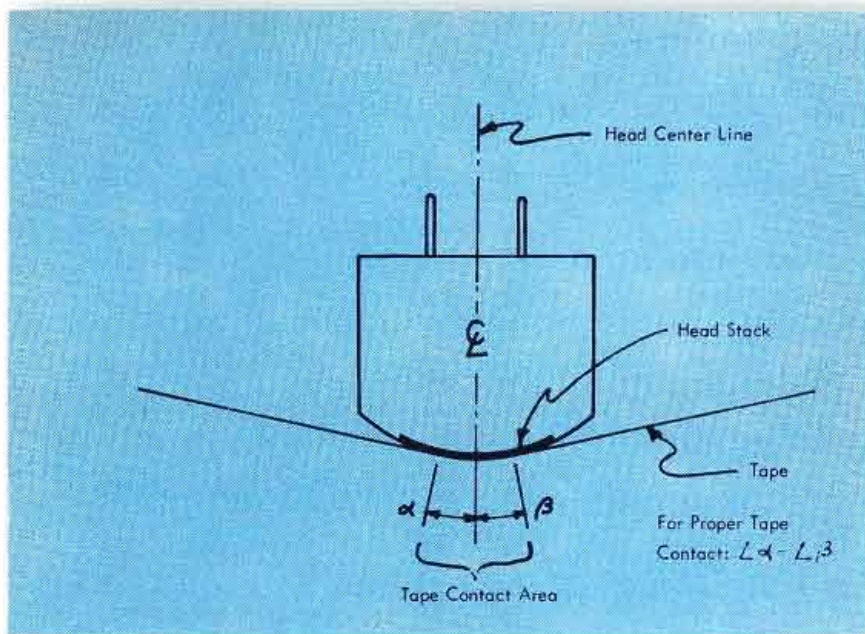


Figure 4. Proper Tape Contact Adjustment (Top View)

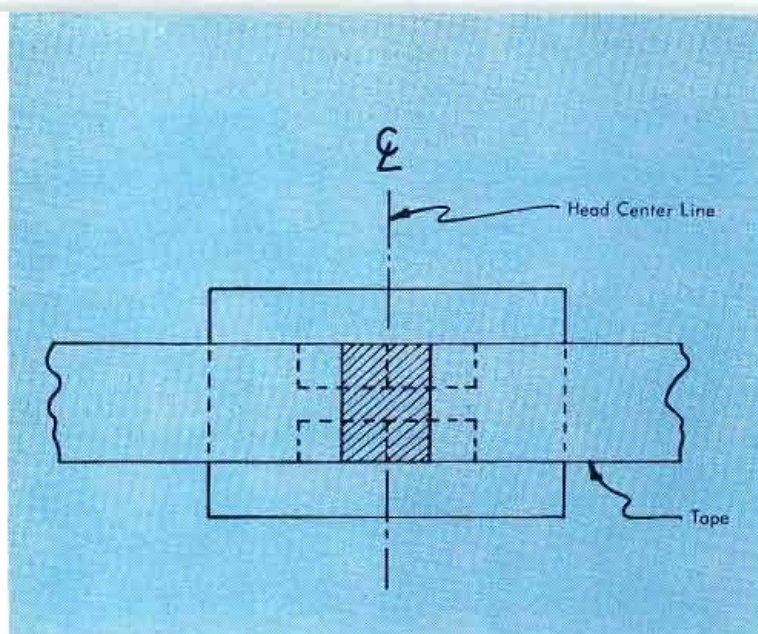


Figure 5. Proper Tape Contact Area (Front View)

nearly all professional tape equipment involves four mechanical adjustments which must be made correctly to assure optimum performance and long service. **This is the primary maintenance consideration.** After these adjustments are made, the electronics are checked out and aligned in accordance with the instructions in the owner's manual. Nearly all these manuals are quite explicit about electronic alignment and the information

given should be followed without deviation if you expect the recorder to meet its specifications. Keep in mind that there is no so-called "standard" for electronic alignment of a tape recorder. . . not even between two different models from the same manufacturer, so the golden rule here is: **check the manual!** And that means the manual for the **specific model involved!**

Before any final adjustments are

made on a new head, it should be visually squared up in its mounting after installation to minimize the degree of adjustment required.

The four mechanical adjustments required by new heads are: Height, Zenith, Contact and Azimuth. Since tape travel from the supply to takeup reels is controlled to close tolerances, it is obvious that these four adjustments are made to align the tape head to the tape. **The guides and other tape path controls**

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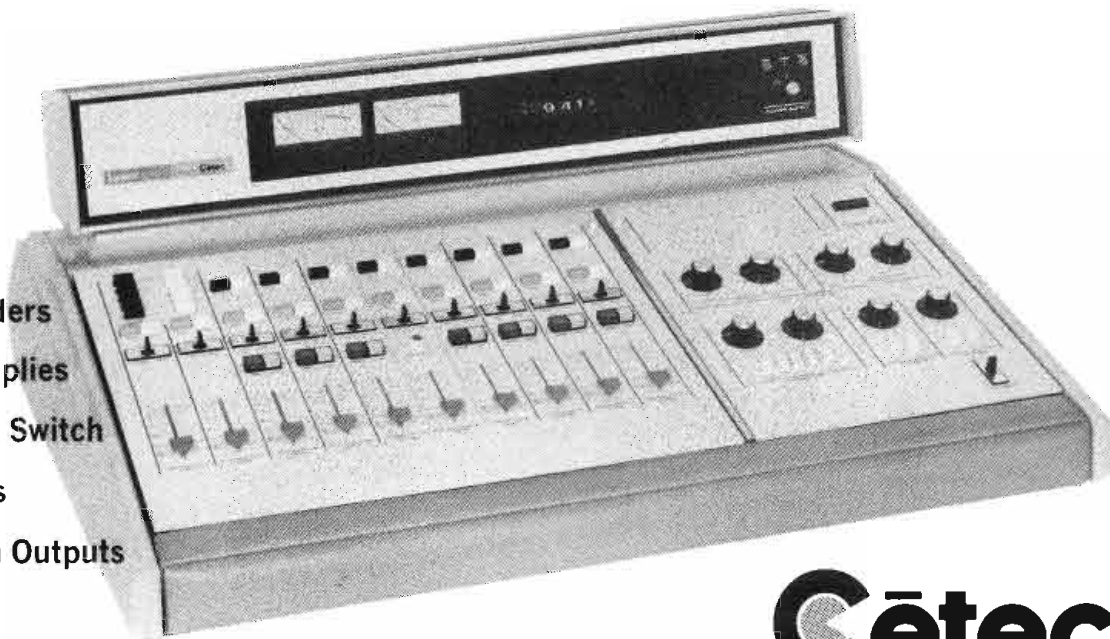
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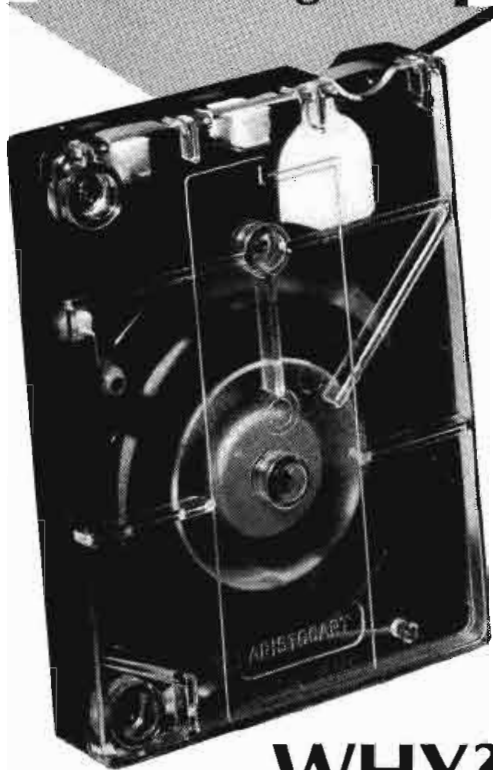
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should never be adjusted so they conform to the head position. The tape path represents the standard. If you alter it in any way, you no longer have a valid reference.

All the line drawings which follow utilize a 2-track stereo head for illustration. Figure 1 shows the correct Height adjustment for a head of this type. The head should be adjusted so the top edge of the stack in Channel 1 and the bottom edge of the stack in Channel 2 are even with the edges of the tape. This is usually accomplished by two small Allen head set screws which are located at the center line of the head mounting plate but are sometimes placed to one side of this plate. If these screws are on one side, the opposite side has wells containing two compression springs to supply the pivot action necessary to azimuth the head gap. Regardless of where these two set screws are located, they serve a dual function. Not only do they adjust the head for Height, but they also serve to adjust it for Zenith or tilt.

Head Alignment

Figure 2 is an exaggerated view of a head incorrectly aligned for Zenith. The head face should be at a 90° angle to the transport base plate. Any appreciable deviation from this angle will result in marginal tape contact which won't be so noticeable when the head is new but will show up markedly as wear progresses.

Figure 3 shows the result of incorrect Zenith alignment. In this case, the head was tilted downward toward the transport base plate at the time it was installed. The keystone wear pattern indicates excessive tape contact at the top of the head and insufficient contact at the bottom. Had this head been tilted away from the base plate, the keystone effect would be reversed.

Keep in mind that any adjustment you make to the head Height is likely to also alter the Zenith and vice-versa. These two adjustments are directly inter-related and must be cross-checked against each other until both are correct.

Figure 4 is a top view of the adjustment for Contact. As indicated, using the center line of the head as a reference, the formula for

correct Contact is: Angle Alpha = Angle Beta. To say it another way, the tape should contact the head face an equal amount on either side of the gap. Figure 5 is a front view of this same adjustment. Contact alignment is accomplished by rotating the head cup or assembly mounting block until the head face is positioned properly.

Thus far we have covered three of the four essential mechanical adjustments which must be made to any new heads installed in most professional tape equipment. At our plant in Minneapolis, we do a lot of head assembly refurbishing and head installation for our customers, so we have the precision gauges, jigs and fixtures to simplify the work. This is a small consolation to anyone who must or prefers to install their own heads. How can you tell when these adjustments are correctly made (within reason) with nothing more to go on than your eyeballs? Here is one technique that works very well:

Use a black marking pen with a soft felt tip to coat the head face from top to bottom and about 1/4" on either side of the gap. Run some tape through the machine in the Play mode. Five or six feet should be enough. Stop the machine and check the head. The tape will have removed the ink from the head face and this clear area can be used to check for Height, Zenith or Contact. The ink can be removed with a cotton tipped applicator and most head cleaners will dissolve it. If yours won't, lighter fluid will.

Be sure to clean the head between each adjustment check and don't coat the face too heavily with the ink. The tape you use to wear off the ink shouldn't be a prized master, but it mustn't be worn out or distorted either. The marking pen should be new and the felt tip not contaminated with foreign particles which could scratch the head face.

Azimuth Adjustment

Figure 6 shows the final mechanical adjustment required by a new head. . . Azimuth. The Reproduce head gap must be perpendicular to the tape so that all tape equipment conforms to a standard setting, thereby permitting

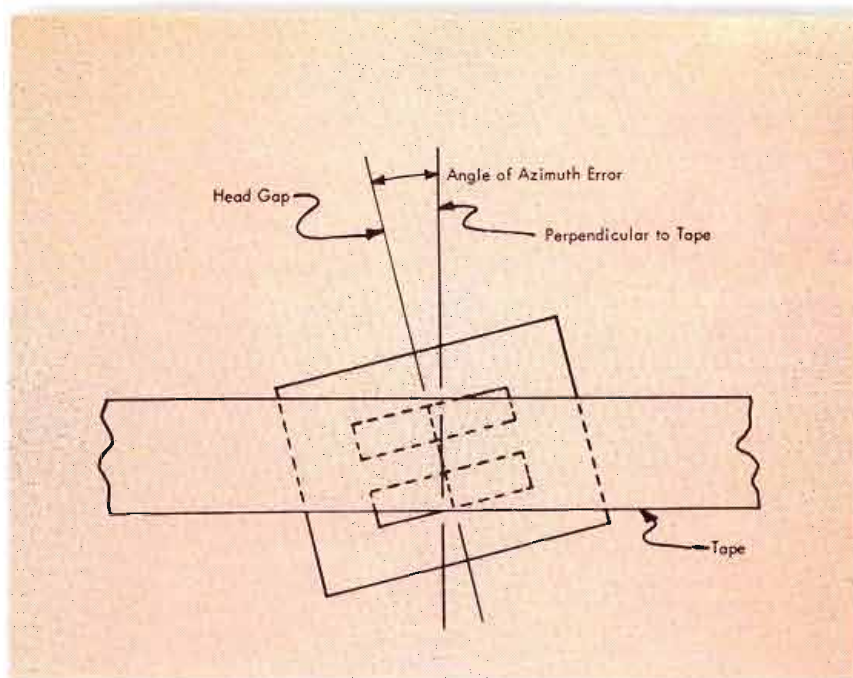


Figure 6. Improper Azimuth Adjustment (Front View)

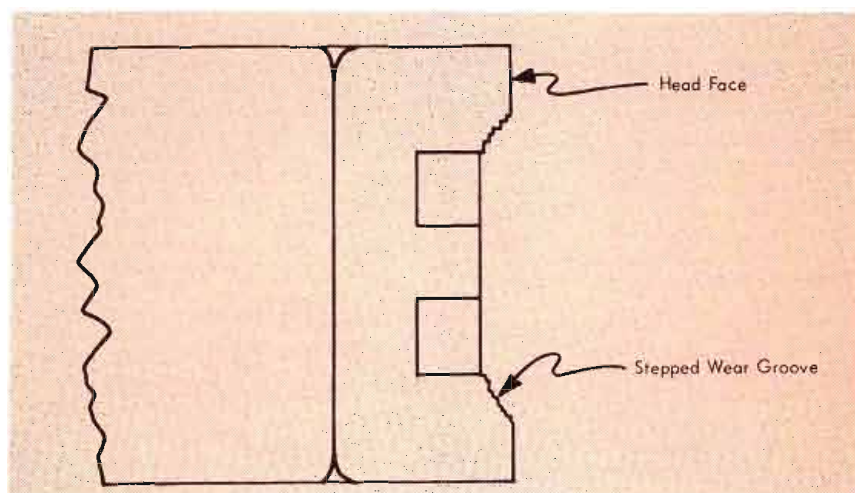


Figure 7. Wear Groove (Side View)

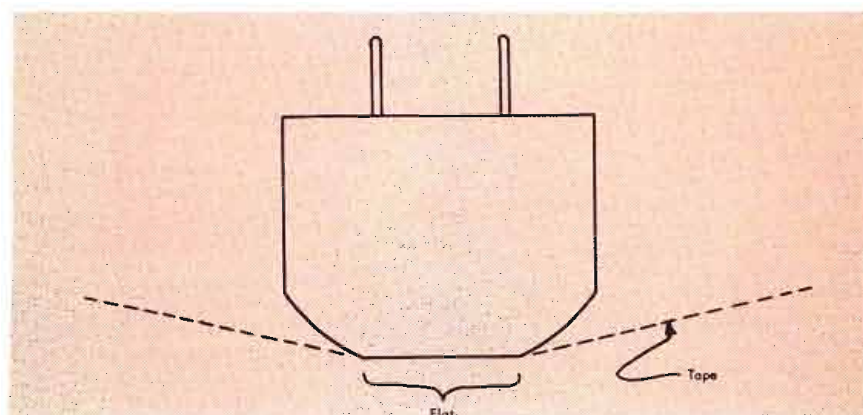


Figure 8. Wear Flat (Top View)

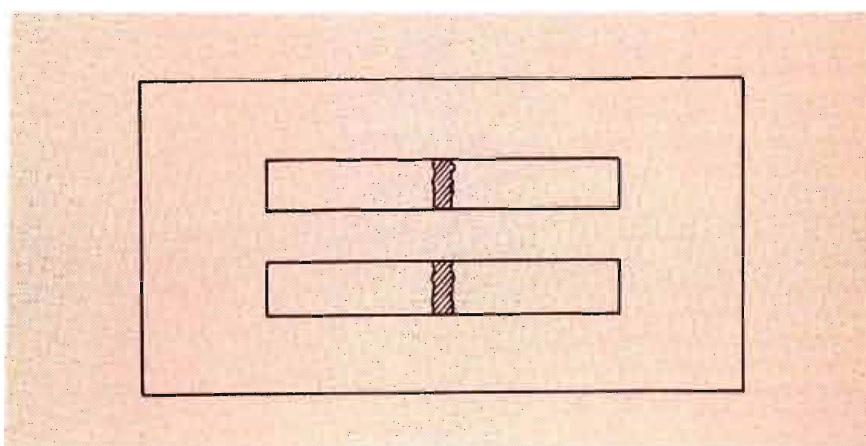


Figure 9. Open Head Gap (Front View)

(Continued on page 145)

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Proof of performance survey results

by Dennis Ciapura

The readers who have responded to our Proof Change Survey are enthusiastic about the prospect of clarifying the Proof of Performance rules and many have submitted letters outlining their ideas in great detail.

Before we review the results of the survey, we would like to take a minute to thank all of those who did send in the survey and especially those who took the time to sit down and write a letter expressing their own thoughts on the subject. While the task of evolving our industry in a positive direction is the responsibility of all of us, it is through the energy of the **active** people that the future standards

will be forged.

In the following review of the survey results, we will refer only the percentage of positive responses to each proposal on the survey. The balance of the responses to each question were a combination of negative and "no opinion" responses or in some cases no response at all. We feel that any change would have to be supported by definite "yes" opinions, so let's see which of the proposed changes found the most support.

Only 6.3 percent of those who responded were in favor of eliminating the Proof as outlined in survey question number 1. Obviously, the engineering people in our

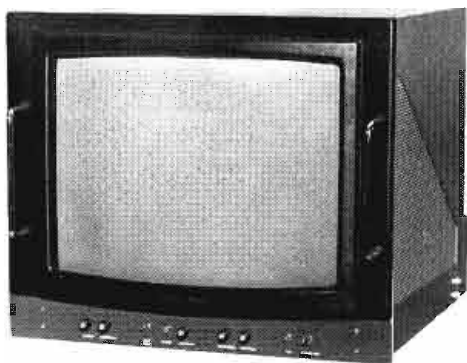
business who comprise the majority of the responding readers, feel that there is a very definite need for a Proof! It is interesting to note that the engineers could have very easily voted for less pressure and work load but felt that the Proof was necessary and did not hesitate to support retaining the Proof. Some of the engineers who favored dropping the Proof requirement said that they would still do a Proof on their own, but felt that the measurements should be the station's responsibility and not an FCC requirement.

That Questionable Microphone Input

The second survey question pro-

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posed applying the input signal for the Proof measurements to the system input used for the majority of the station's programming rather than requiring that the tests be made through the microphone input as is now the case. Some 65.7 percent were in favor of this change, indicating that most engineers don't feel that the mic input method is truly relevant to the station's "air sound" unless, of course, the majority of the stations programming was broadcast over the mic.

Since the mic input usually has more gain and represents the longest audio path through the console, some readers felt that the mic input test was valid because the preamp noise, etc., would be included in the results. Most readers favored testing the route that the listeners hear the most.

The third, fourth and fifth questions dealt with the very controversial matter of what to do with

the AGC equipment. Should the AGC be defeated by patching around the limiters, etc.? If left in the circuit should the gain control be switched off for all of the tests or maybe left on for the distortion and/or noise tests?

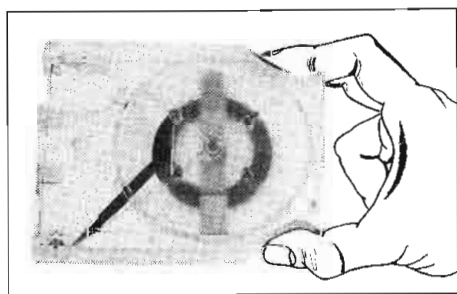
An almost unanimous 94.4 percent voted for one of the three methods of testing with the AGC units in the circuit (23.1 percent favored leaving the AGC active during all of the tests except the response runs; 23.1 percent favored leaving the AGC active during the distortion tests only; and 48.2 percent thought that the AGC should be defeated for all the tests). In all cases, the AGC and limiter units would remain in the audio chain and any AGC defeating would be done by switching off the control voltage.

Test Signals

Question number six proposed that the test signals be applied via a standard test record or tape rather than from a signal generator. This was another very controversial area and the response to this proposal was almost an even split with 42.6 percent in favor of the test tape/record method, and 50.3 percent opposed.

There are two distinct schools of thought in this area. One group feels that the transducer portion of the system should be the exclusive creative domain of the broadcaster and should not be regulated. The other group sees the broadcaster as having a responsibility to the listener to provide an air sound that is as good a replica of the original program material as possible and sees the Proof record and tape method

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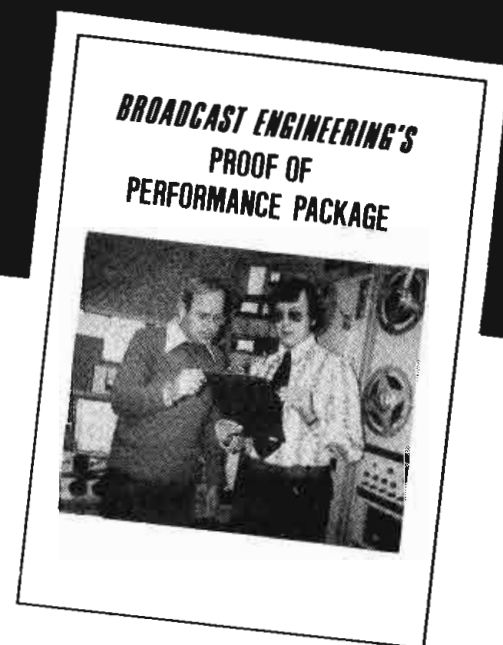
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as a positive step in that direction.

Many readers had questions about which tapes and records might actually be used and some questioned the feasibility of obtaining signal sources that would provide a clean enough input. We promised that if there was enough interest in this method of testing that we would investigate the possibility of actually developing some of the signal sources. With nearly half of the engineers responding in favor

of this method and many more interested, we felt that such an investigation was warranted and are currently reviewing some of the existing test records and tapes and generating some of our own as well. The results of this project will be released in a special article within the next 60 days. We can tell you that preliminary findings indicate that signal sources with less than 1 percent distortion are easily obtained.

Frequency Response

The seventh proposal was that the frequency response runs be made only at full modulation instead of at several levels as they now are. There were 62.9 percent in favor of this proposal, agreeing that the present system wastes time and provides redundant information. The eighth question suggested that the harmonic distortion tests might also be made at full modulation only with modulating frequencies of 50, 100, 400, 1000, 5000 and 7500 Hz—60.8 percent favored this proposal.

I.M. Distortion

The ninth proposal was for the addition of an I.M. distortion test, and 55.2 percent were in favor of the extra test. Some readers suggested other test frequencies (our survey suggested 60 and 10,000 Hz) and we would agree that the more standard 60 and 7000 Hz combo would be more appropriate.

There was less positive interest in this question than we expected, and while some readers were worried about the extra test equipment that would be required, others responded with a question mark or said that they were undecided about the proposal. It appears that I.M. testing is not yet a very common practice at broadcast stations and perhaps many engineers don't have any practical experience in this area to base a decision on.

The tenth question proposed the use of Dolby 'B' with a 25 usec. preemphasis curve for those stations that wished to do so. Also, 57.3 percent of the engineers were in favor of this proposal, but after the survey was written the FCC took action on Dolby and stated in a bulletin that any FM station wishing to use the Dolby, whose internal response effectively modifies the preemphasis to 25 usec. may do so. A later bulletin which further clarifies this decision is reprinted here for the benefit of those who haven't seen it yet.

As you can see, it is no longer necessary to seek a rule change in this area as the Commission has deemed it unnecessary. You will note that this is one piece of equipment that the FCC has clearly stated to remove from the audio chain during Proof measurements.

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Stations considering Dolby now have only to decide for themselves whether the overall sound of Dolby/25 usec. material on non-Dolby receivers is acceptably close to the original tonal balance.

The survey was intended to apply to the FM Proof only, but the engineers have asked that the same or similar changes be proposed for the AM Proof as well. We have decided, therefore, to use the results of the survey as the basis for a more refined final version which will include AM changes as well. This version of the survey will be a special direct mail, postage paid large scale sampling of the industry. If you are one of the recipients of this survey questionnaire, please realize that you have received an extremely important piece of mail as not everybody will receive the questionnaire.

The new questionnaire will embody many of the suggestions that responding engineers said that they would like to see before the results are sent to the Commission. The forms will go out to randomly selected engineers and all geographic areas and types of stations will be represented equally. Consulting engineers will also be polled. Persons receiving the questionnaire may base their replies on the combined opinion of all of the engineers on their station staff if, for instance, only one out of three engineers at that particular station receive the form. In other words, the guy who gets the survey is sort of a delegate to our Proof change survey.

We must rely on everyone to respond so that the results that we forward to the Commission will represent the most comprehensive technical opinion poll that the broadcast industry has ever seen.

FCC Authorizes Use Of Dolby Encoder

"Under date of May 31, 1974, the Commission sent the following letter to Dolby Laboratories, Inc.

'We have reviewed the question of the employment of the Dolby 324 B-Type Broadcast Encoder by FM broadcast stations licensed by the Commission, and will not object to its use.

'It is our understanding that, in the

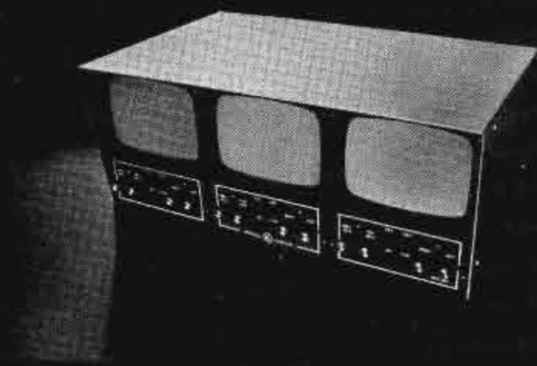
current model of the 324 encoder circuits designed to reduce the effective degree of preemphasis to 25 microseconds, and those producing Type B encoding operate simultaneously at all times—that it is impossible, without internal changes, to utilize this apparatus in an operating mode where only the preemphasis adjusting circuits are effective. Our concurrence in the use of this encoder is given on the express condition that all units furnished to and installed in FM

broadcast stations are arranged to function in this manner.

'When FM broadcast stations conduct transmitter performance measurements pursuant to Section 73.254 of our rules the Dolby 324 B-Type Broadcast Encoder should be removed from the circuit, or effectively by-passed.'

"Some recent publicity concerning this action appears to reflect a misunderstanding of its nature and

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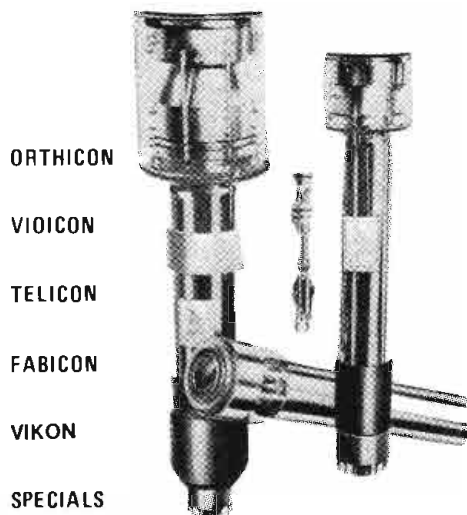
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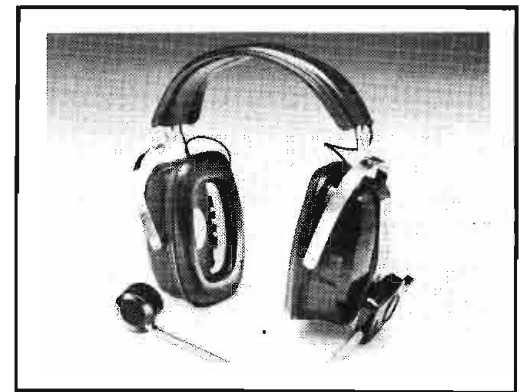
effect. Accordingly, we believe a clarification may be helpful.

"First, it should be emphasized that we have not amended §73.317-(a)(2) of our rules, which requires the audio response of an FM broadcast transmitter be shaped in accordance with a 75 microsecond preemphasis curve. We have no present intention of doing so. Existing receivers incorporate complementary 75 microsecond deemphasis circuits. Any substantial reduction in the amount of transmitter preemphasis, alone, would result in a more or less serious "roll off" in the response of these receivers at higher audio frequencies.

"Second, we are permitting, not requiring the use of the Dolby encoder. In this respect our policy is the same as that which has applied heretofore with respect to the use of other kinds of active audio processing equipment, such as the several types of limiters commonly employed by FM stations.

"The Dolby unit which we have indicated as acceptable for use by FM broadcast stations incorporates

circuitry which, in effect, cancels a portion of the transmitter pre-emphasis. However, the unit is so constructed that this circuitry is effective only when Type B encoding is employed. The encoding process raises the level of the higher audio frequencies relative to lower frequencies by an amount which



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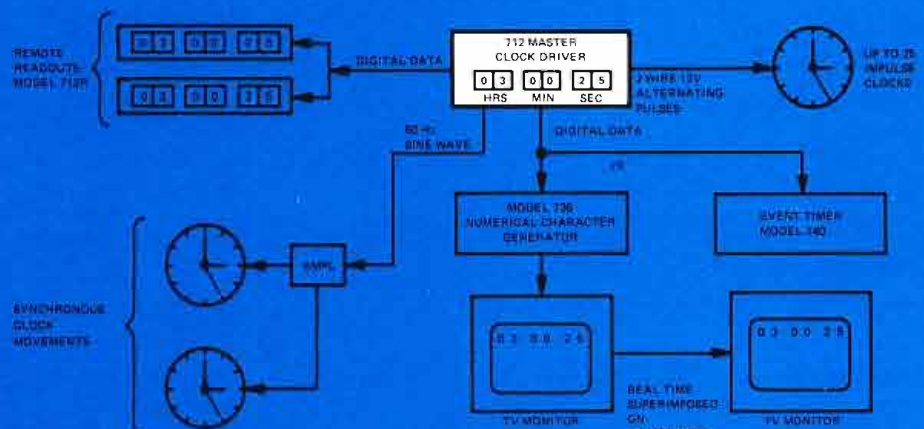
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varies inversely with the average level of the audio signal, the maximum "boost" occurring at low modulation levels, with virtually none at high levels of modulation. While this process, therefore, does not fully compensate for the lower effective degree of fixed preemphasis employed, we have satisfied ourselves that this combination of techniques results in a transmitted signal which will be reproduced by a conventional receiver with no apparent loss in high frequency response.

"We have not determined, nor do we believe, that a listener to a Dolby equipped FM station would enjoy fully compatible reception if he were to modify his FM receiver solely by changing the amount of deemphasis from 75 to 25 microseconds.

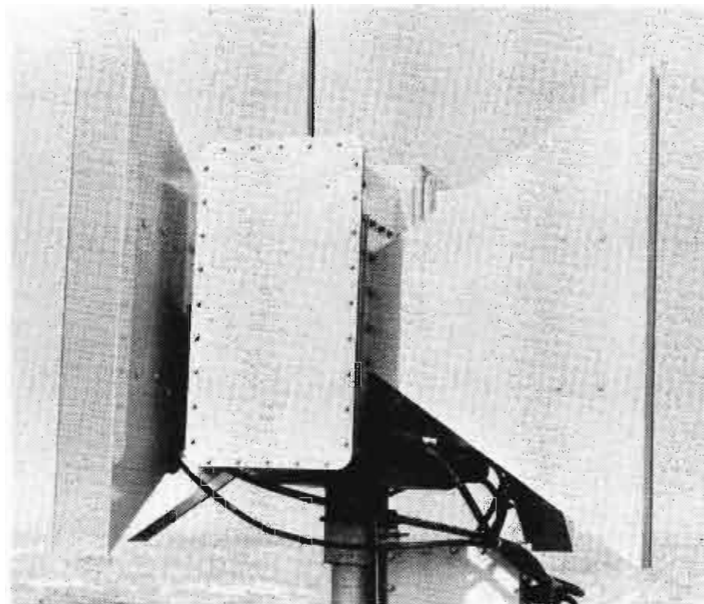
"Improvements in signal-to-noise ratio attained through the use of Dolby equipment should be apparent to listeners in areas where the received signal is comparatively weak. Such areas are generally quite distant from the station being received. The maximum improvement in signal-to-noise ratio can be achieved only when the receiver is equipped with complementary Dolby circuitry. However, the carrier of an FM station with the Type 324 encoder, with the lower effective degree of preemphasis which its use entails, may be modulated at a higher average level than would otherwise be the case. When this is done, the noise performance of conventional receivers tuned to the station will improve.

"Dolby techniques operate only to reduce the effect of inherent noise developed within the FM receiver. In distant areas where such a reduction might otherwise be useful, the limitation on the ability to receive a particular FM station satisfactorily may be imposed not by receiver noise, but by interference from other co-channel or adjacent channel FM stations."

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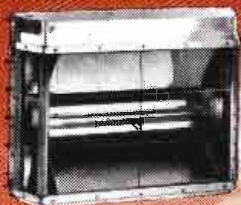
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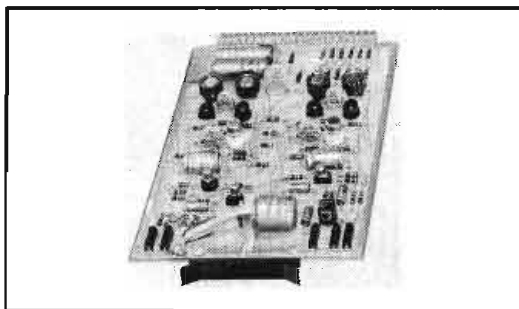
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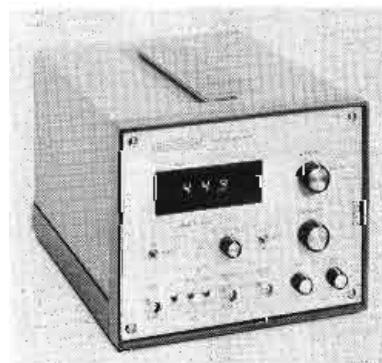
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INSTALL YOURSELF. Buy MMI heads with complete written and pictorial instructions.



For More Details Circle (119) on Reply Card

Cohu TV Van On National Tour

SAN DIEGO, CALIF.—R. J. Schlicht, Vice President of Marketing for Cohu, Inc., Electronics Division, announced that the San Diego based television camera systems and equipment manufacturer has introduced a new 28-foot custom display van, called "TV Display Unit No. 3," which is now ready to commence nation-wide tours demonstrating Cohu's broad array of television equipment for Broadcast, ETV, ITV, CATV, and CCTV users.

Operating displays in the van feature the company's Model 1500 broadcast color film camera, the telecine that has received wide acclaim coast to coast; a Model 1230 viewfinder single tube studio color camera; a single tube color television camera for film/slide use, uniplexed with a slide projector; Cohu's newest high resolution television cameras; and for the first time in a mobile demonstration by any television manufacturer, a low light level booth demonstrating the sensitivity of various image tubes.

RELIABILITY FLEXIBILITY PERFORMANCE... ECONOMY TOO!



RELIABILITY - advanced state-of-the-art technology, I.C. op-amp circuitry and high quality components throughout.

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... readily available in 5 or 8 channel models, mono or stereo ... all sensibly priced.

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For More Details Circle (235) on Reply Card

Frequency Scaler

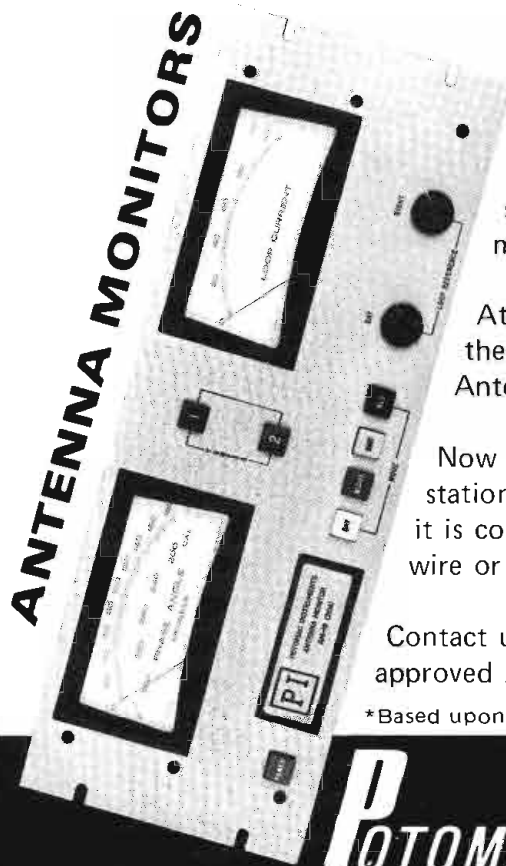
Since the Heath IB-101 Digital Counter has become so common a citizen at broadcast station maintenance shops, many broadcasters may be interested to know that a 175 MHz frequency scaler is available in kit form as the Heath IB-102. As a matter of fact, the scaler can be used to expand the range of any counter that has a Hi Z (1 megohm) input.

We assembled the kit in about eight hours, following the manual to the letter without any shortcuts. Like its sister unit the '101', most of the IB-102 circuitry is on a single p.c. board which greatly speeds assembly.

The Heath counter cabinets have to be seen and felt to be appreciated: the completed unit does not look at all like an under \$100 instrument. The mechanical components are very well made with all chassis and cabinet parts fitting together the way they are supposed to.

Adjustment after assembly is minimal and no standard frequency source is required as the accuracy of the scaler is keyed to the accuracy of the time base generator in the counter it is used with and the gate time (see specs.). The scaler has one switch position that connects the input straight through to the counter's

FCC Rule 73.69 + \$1660 = AM-19(204)



The FCC now says that you must have an approved Antenna Monitor. Since this is an added expense, consider carefully what is required of the monitor versus what it will cost.

At \$1660*, the Model AM-19 (204) is the lowest priced, FCC type approved Antenna Monitor available.

Now after several years of use at many stations, it has proven its reliability. And, it is compatible with virtually every type of wire or wireless remote control system.

Contact us now on this and other FCC type approved Antenna Monitors.

*Based upon 2 tower, DA-2.

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For More Details Circle (131) on Reply Card

Why let oxide dust destroy your tape head?

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Gone are the days of the cotton swab and bottle of cleaner. MS-200 with its "Cobra" brush sprays away your tape head troubles quickly and safely.

Recommended by leading tape recorder manufacturers.

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"Two-Product Trial Unit" includes:

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☐ Enclosed is \$5.00, please send my "Two-Product Trial Unit" (MS-200 & MS-226)

☐ Please send FREE literature and prices.

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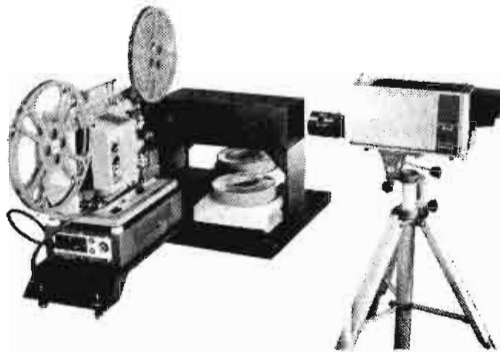
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 Use standard TV zoom lens
 Switch color camera from film chain to studio use in seconds
 Input: Two 35mm slide projectors in dissolve mode plus 16mm or Super-8
 Mobile Multiplexer saves studio space

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BUHL

For More Details Circle (133) on Reply Card

input, which is a very handy feature since it allows making measurements that are within the range of the counter and below the range of the scaler without disconnecting any cable. The scaler can be left permanently connected to its companion counter if desired. We found the unit's sensitivity great enough to permit picking up a sample from a 10 Watt exciter output tube via a two turn pick-up loop placed on the tube's glass envelope. The unit has a 50 Ohm input impedance in the divide by 10 and 100 positions which facilitates connection to the more conventional sample sources, but care should be taken to avoid exceeding the 3 Volt input spec. We recommend using a 50 Ohm 20 dB. pad when there is any doubt about the magnitude of the voltage at the sample point where the frequency measurement is to be made.

In summary, we found the Heath scaler to be easy to assemble and use and like the Heath counters, an amazing kit value.

For More Details Circle (32) on Reply Card

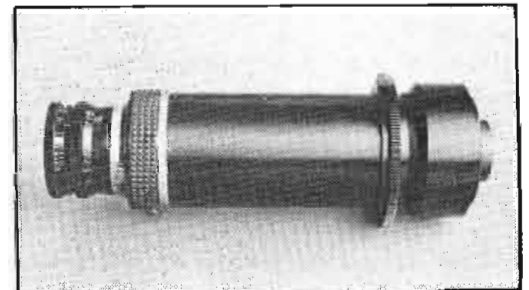
Intermodulation Analyzer Kit

It's possible that new FCC Proof requirements will call for I.M. distortion measurements. Even if they don't, I.M. tests can tell you a lot about your audio quality.

We built the **Heath IM-48** intermodulation distortion meter, a unit that sells for under \$100. It's three instruments in one: AC VTVM, watt-meter, and I.M. analyzer. High and low signal sources are built in for I.M. tests.

Non-inductive load impedance of 4, 8, 16, and 600 Ohms are switch-selected. Several of these units already are being used in broadcast stations.

For More Details Circle (214) on Reply Card



NEW PRODUCT

FIXED LENS RELAY SYSTEM. Adapts 35mm motion picture and S-L-R lenses to Plumbicon TV cameras. Permits wider angle, macro and special effects shots not possible with zoom lenses. Provides direct relationship to 35mm cinematography in lens angles and shooting techniques. No light loss or vignetting. Mounts supplied for Editel, Fernseh, Phillips, RCA and other cameras. For information call or write: **COM-QUIP, INC.**, 366 So. Maple Ave., Glen Rock, N.J. 07452. (201) 444-3800.

For More Details Circle (134) on Reply Card



Series 70 Recorder/Reproducers When you've got more talent than money

TASCAM Series 70 recorder/reproducers were designed for people who've outgrown high-end consumer audio products but can't afford full professional studio gear.

Whether you need single, two or four channels, you define the Series 70... it doesn't define you. Your choices are expanded, not restricted, without paying a performance penalty.

The versatile Series 70 electronics come in two versions, one for direct recording and one for use with a mixing console like our Model 10. Whichever you need you'll get uncommon quality and reliability. But this time you can afford it.

Series 70 recorder/reproducers. When you've got more talent than money.



5440 McConnell Avenue
 Los Angeles, Calif. 90066

For More Details Circle (135) on Reply Card

Television Lighting Kits

A new series of unusually compact and easily portable location lighting kits has been developed and is now being marketed by Strand Century, Inc.

There are five basic packages offered for television, motion pictures and photography in this new Strand Century Porta-Kit series. Engineered for optimum performance even under extreme conditions, Porta-Kit is designed to meet every location lighting need.

For the first time in any portable set-up, Porta-Kit includes lanebeam open-face units by Ianiro, the Italian-made lights that are world-famous for extraordinary technical and optical excellence. Among them is the new 650-watt lanebeam spotlight with a fiberglass housing that offers important advantages.

The rapid cooling properties of fiberglass permit instant dismantling, packing and storing after use. It is exceptionally light in weight and yet is practically indestructible, standing up to and functioning with

the most rugged handling. This new 650-watt lanebeam, like all Ianiro lighting equipment, is available in the United States and Central and South America only from Strand Century.

Serviceability and dependability of Porta-Kits are further assured by their specially fitted and constructed lightweight compartmented cases, designed to withstand rough abuse in transit.

In addition, to Porta-Kits, Strand Century markets a complete line of lighting equipment and controls for television, motion picture, theatre, photography and architectural applications.

Specifications and other information on the new Porta-Kit are available from Strand Century Inc., 20 Bushes Lane, Elmwood Park, N.J. 07407.

For More Details Circle (230) on Reply Card

Magnetic Card Memory System

The Video Data Model MC104 Magnetic Card Reader Character Generator system is designed to operate on CATV and closed circuit systems as a fully automated program

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Advantage ONE—NO MINIMUM

Cartridge Reconditioning

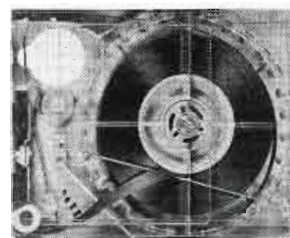
Advantage TWO—NO EXTRA
CHARGE for

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- (e) 72 hour processing
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New Cartridges

Advantage THREE

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Advantage FOUR—24 or more shipped prepaid.

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for NORTRONIC HEADS.

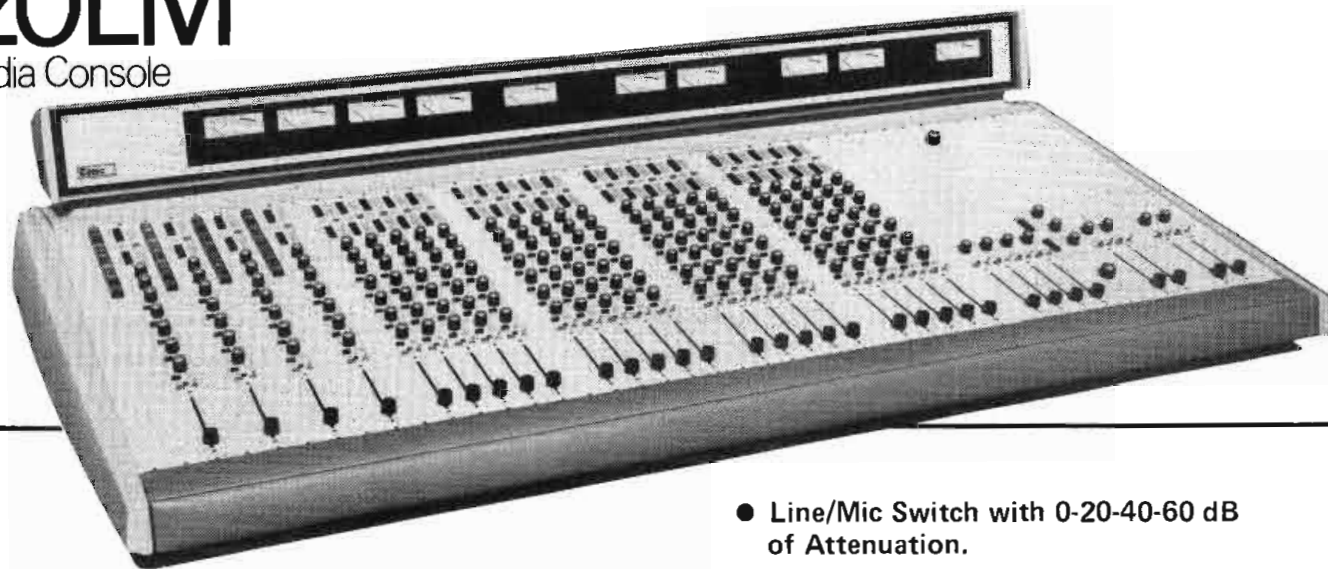
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JOA Cartridge Service

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Area Code 215, 886 7993

For More Details Circle (136) on Reply Card

series 20LM Live Media Console



- Available with up to 32 Inputs and 10 Outputs.
- Programmable Mute allowing up to four different "scenes" to be setup simultaneously on the console.
- Total Modular construction.
- Four Group Submasters.
- Three Knob Equalizer per input channel.
- 4 Mic or Line Remotes per Input module.
- Two Foldback/Cue Buses with Pre/Post Fader Selector.
- Stereo Pan Pot with IN/OUT Key per Input Channel.

- Line/Mic Switch with 0-20-40-60 dB of Attenuation.
- Echo Send and Receive controls.
- Phase Switch on each Input.

Plus many other features usually found only at much higher prices. Combine these with the traditional Cetec quality and service, and you have the Series 20 LM, Live Media Console.

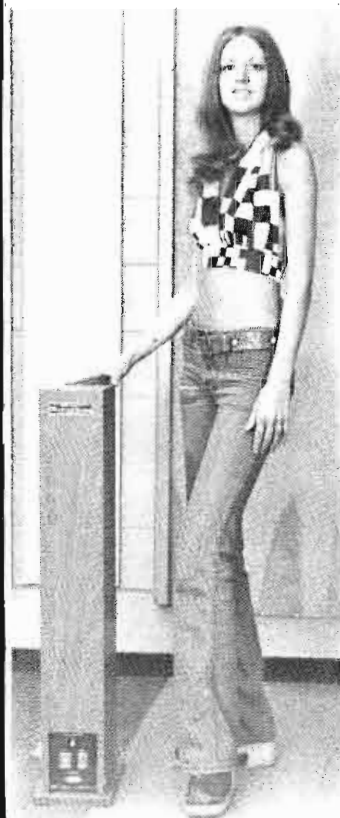
Cetec
CORPORATION

AUDIO SYSTEMS DIVISION: 13035 Satcoy St., N. Hollywood, Calif. 91605
Phone: (213) 875-1900 TWX: 9104992669
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For More Details Circle (137) on Reply Card



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For More Details Circle (117) on Reply Card

For Tape Heads Head for TABER

At Taber you get precision work, quality results and low price . . . unmatched by any other audio head manufacturer.

We will install three new heads in your full track Ampex assembly for only \$112.00 . . . Scully at \$222.00. Or, wear permitting, an Ampex or Scully three head reconditioned assembly for only \$45.00.

VTR audio is priced at only \$350.00 for four new heads installed, or \$100.00 for four reconditioned heads. (Add \$35.00 if monitor post needs lapping.)

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For heads, head for Taber . . . the best source available.

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For More Details Circle (139) on Reply Card

guide or information presentation channel.

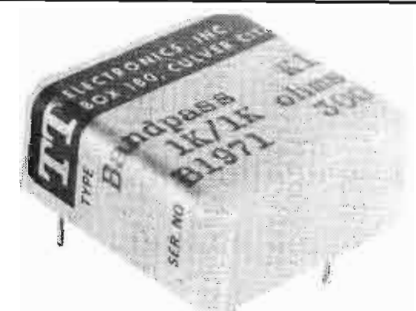
The system consists of two basic parts, the magnetic card reader and the character generator. The character generator portion of the system displays alphanumeric information against color backgrounds on the display TV screen. The display consists of a fixed 32 character title line at the top of the screen, either 8 or 16 lines of 32 characters per line in the center of the screen and a fixed line containing the time of day at the bottom of the screen. The title line and time line are presented against one color, the balance of the screen against the second color. The magnetic card memory portion of the system consists of a transport which operates and controls a magnetic card, similar to an IBM data card, on which all of the alphanumeric information is stored. The magnetic card has the capability of storing 32-8 line pages of information or 16-16 line pages of information.

The information to be stored on the page is prepared by means of the character generator and then written on to the card. Cards can be removed from the system by the operator at any time and stored for future use. In this way, a library of cards can be prepared which contain information for many basic programming functions.

For More Details Circle (215) on Reply Card

Audio-Video Distribution Switchers

TeleMation has a new switcher series, the TVS-1000/TAS-1000. Their 8-3/4" chassis provide for space-saving system configuration. Single-wire "party-line" control for large audio-



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 25Hz Cue Tone Notch, 50Hz Highpass, 15.75KHz CATV Bandpass, 300Hz Telephone Simulation Lowpass, 21Hz Bandpass, 18KHz Lowpass, 1KHz Notch, 4MHz Lowpass, 7.6KHz Lowpass, ETC.

**TTElectronics, Inc. 2214 Barry Ave.
 Los Angeles, 90064, (213)478-8224**

For More Details Circle (140) on Reply Card

follow-video systems. Multiple control options include desk-calculator-size control unit for as many as 100-in by 100-out switcher.

Crosspoint design allows for over 100 crosspoints per single circuit card with crosstalk specs less than 60dB (any crosspoint to any crosspoint-worse case). Switchers also feature selectable control of audio only/video only/audio-follow-video switching; dual video outputs; expandability without obsolescence; internal bussing—no inter-chassis or inter-rack cabling required.

For More Details Circle (216) on Reply Card

Production Switcher

The **Central Dynamics VS-10** is an 8 input, 3 bus, compact-self contained vertical interval solid state switcher with true broadcast quality.

This low cost color switcher belies its capability and applications include CATV, CCTV, Mobile, Educational and Broadcast operations. Dissolves, wipes, keys, matte keys and chroma keying are standard as are: a cut bus and a preview output of the effects bus.

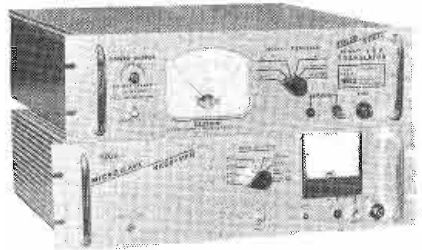
Other features include: illuminated momentary action crosspoint push-buttons, true On-Air tally system and inputs can be composite/non-composite signals.

For More Details Circle (217) on Reply Card

FREE CATALOG
HARD-TO-FIND PRECISION TOOLS
 Lists more than 2000 items—pliers, tweezers, wire strippers, vacuum systems, relay tools, optical equipment, tool kits and cases. Also includes ten pages of useful "Tool Tips" to aid in tool selection.

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for fast, accurate camera alignment and consistently true color reproduction!

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In the interest of maintaining accuracy over long periods of time, all DSC test slides are distributed on a lease basis and are replaced at regular intervals. This method of distribution eliminates the use of obsolete test objects and every engineer knows that he is using only current test materials produced to the very latest standards. Leasing is more efficient and economical, too. Any broken or damaged slides are replaced at no cost to the user.

DSC test materials are widely used throughout Canada, the U.S.A. and in Asia and Europe. To join the Broadcasters, CATV systems, Universities and Manufacturers who are saving time and money aligning their equipment with precision-made DSC video test slides, write or telephone...



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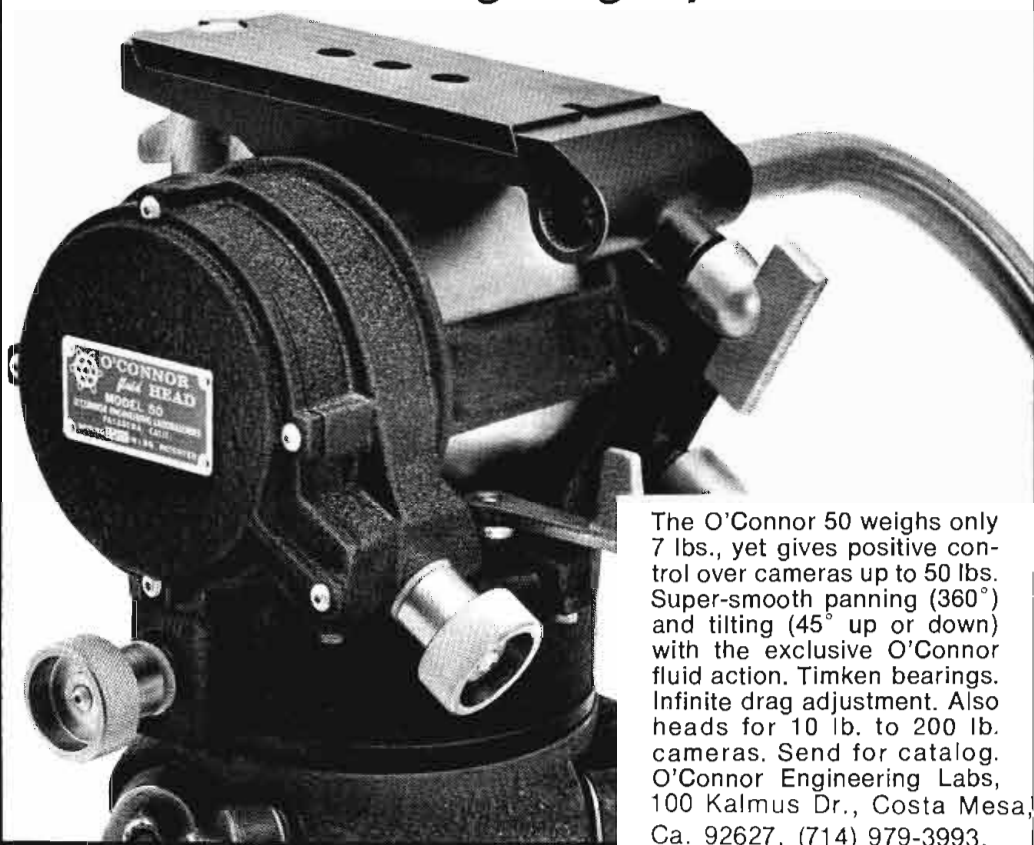
Canon
 BROADCAST OPTICS

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The O'Connor 50 weighs only 7 lbs., yet gives positive control over cameras up to 50 lbs. Super-smooth panning (360°) and tilting (45° up or down) with the exclusive O'Connor fluid action. Timken bearings. Infinite drag adjustment. Also heads for 10 lb. to 200 lb. cameras. Send for catalog. O'Connor Engineering Labs, 100 Kalmus Dr., Costa Mesa, Ca. 92627, (714) 979-3993.

O'CONNOR FLUID CAMERA HEADS

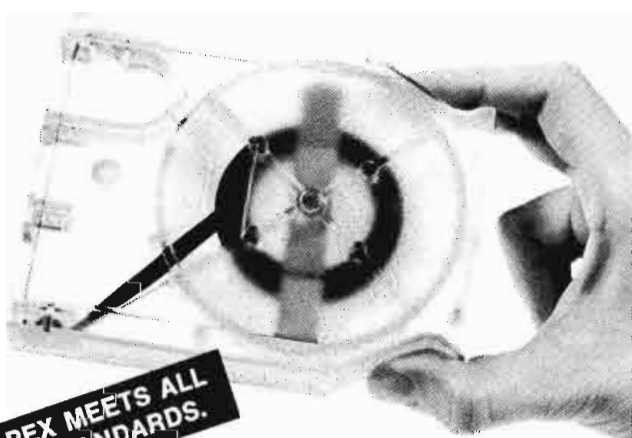
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STEREO + MONO = TAPEX CARTRIDGES

We threw out pressure pads for starters. Big deal? You bet it is. Because pads cause unnecessary wear on the tape and heads. With Tapex, you get longer life on both.

So now you ask, "how do you keep the tape on the head?" Easy. Tension is set on each Tapex Cartridge at the factory. And a unique stereo phase stabilizer keeps the tension just right during use.

This is just one way we've made Tapex a little better. Find out the rest. Write for details today.



Tapex Corporation/P.O. Box 246/West Des Moines, Ia. 50265

YES! Please send me a detailed Tapex Cartridge flyer and price list.

Name _____

Address _____

City _____ State _____ Zip _____



B.E.9

For More Details Circle (147) on Reply Card

Digital Automatic Program Controller

Dynasciences Video Products, a subsidiary of Whittaker Corporation, has added the DAC-100 Digital Automatic Program Controller to their video product line.

The Dynasciences DAC-100 provides an economical means for remotely controlling as much as 8 hours programming for as many as 6 Video Tape sources. It is currently being used for CATV program origination, educational television, hotel and hospital movie systems and for many other types of closed circuit television installations. The DAC-100 can also program between different types of courses, i.e., VTR, off-air, weather-scan.

The user can set up a 10 step sequence consisting of tapes, live video, network feeds and commercials for an entire day's programming, including 'start' and 'stop' times. After the sequence is set up, the DAC-100 takes over and plays the whole schedule just as its been

Sphere
ELECTRONICS

THE CONSOLE COMPANY

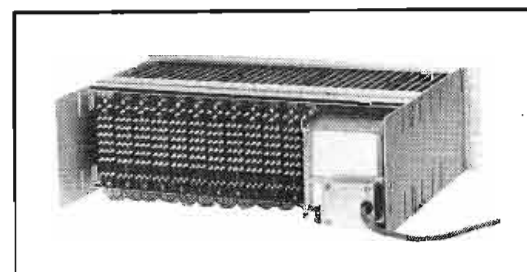
Los Angeles (213) 349-4747

(213) 845-9661

Nashville (615) 794-0155

Audio Control Consoles

For More Details Circle (144) on Reply Card



AUDIO DISTRIBUTION AMPLIFIER PACKAGE

The SA-200 DA, is available in two basic packages. Shown is the wiring side of the 12 card frame which contains a Dual Regulated Power Supply and rear mounted Terminal Boards for ease of installation. Provides 12 Inputs and 72 Outputs at a cost of \$2,495.00. Other products include: Custom Audio Consoles, Studio Intercom Systems, Studio Monitor Systems, Video and Pulse Distribution Amplifiers Systems. **SCIENTIFIC SYSTEMS, INC.**, 48 Windjammer Court, Toms River, New Jersey 08753, 201-255-2230.

For More Details Circle (145) on Reply Card

programmed—automatically.

A unique feature of the DAC-100 is the inaudible 'start' and 'stop' tones which are recorded on either of the audio tracks between each segment. This allows the dual audio channels of a 3/4" video cassette to be used for program content. A digital clock allows the user to set the time desired to 'start' and 'stop' operation.

For More Details Circle (218) on Reply Card

TV Amplifier

Acrodyne Industries, Inc., Montgomeryville, Pennsylvania has announced the introduction of its A-140U 1 kW single-tube amplifier. The unit is intended for TV transmitter and translator applications and exceeds FCC requirements. Out of band spurious specifications are inherently satisfied by using a new RCA tube and cavity design without need of an output filter.

An important standard feature, unique to the industry, made part of the A-140U is a "Fault Detection Center." This feature assists the operator to immediately localize and rectify any substandard operation condition which might occur. The Acrodyne exclusive "Fault Detection

Center" is a logic circuit which in case of an overload condition as an example, recycles the amplifier 5 times in an effort to keep the unit on the air. When such recycles occur, the location of the fault is permanently displayed on the "Fault Detection Center" until the condition is rectified and the memory erased.

For More Details Circle (219) on Reply Card

Color Film Camera

TeleMation is now offering the TCF-3000, a color film camera for high performance broadcast operation. Features prism optics; multiple light entry positions for ease in positioning within an existing film island allowing for optimum use of available floor space and convenience of operation; fast attack ND light control; image enhancement; auto black/auto white; color correction.

For More Details Circle (220) on Reply Card

Variable Speed Oscillator

Ampex Corporation has placed on the market the VS-10 variable speed

oscillator for professional audio recording applications.

Available with a four-digit electronic display for exact speed accuracy, the VS-10 is specifically designed for use with the Ampex MM-1100 and AG-440 Series of capstan servoed professional audio recorder/reproducers.

Charles A. Steinberg, vice president—general manager of the Ampex audio-video systems division, said the VS-10 variable speed oscillator features a range of ± 1 full tone in quarter-tone steps and a coarse/fine variable speed adjustment.

"The VS-10 weighs only 2.5 pounds and will drive up to three recorders with unmatched accuracy and resetability," Steinberg said. "It is the most compact, reliable and economical system of speed variation available to users of the Ampex AG-440 and MM-1100 Series recorders.

"The Ampex VS-10 offers the user additional variations in broadcast running time, phasing and delay effects, off-speed compensation, controlled double tracking and special effects capabilities—all at an economical price," Steinberg said.

For More Details Circle (221) on Reply Card

SOLID STATE INDUSTRIAL RECTIFIER TUBE REPLACEMENTS



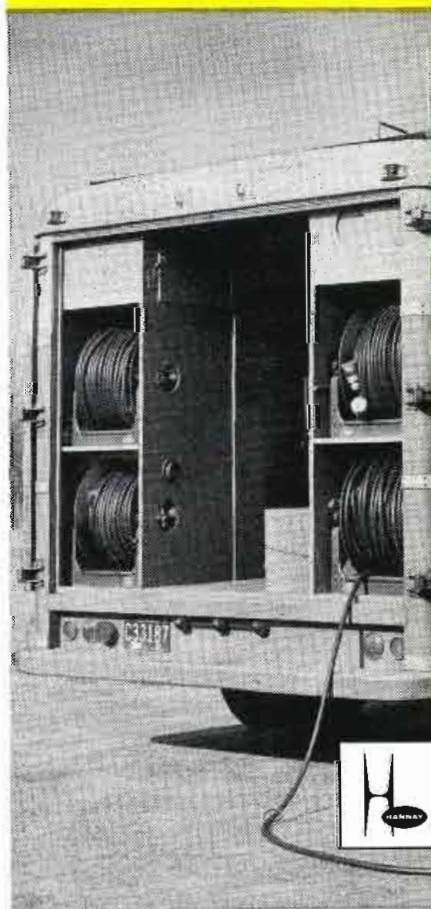
These SOLID-TUBE® silicon rectifiers are direct replacements for over 210 vacuum and gaseous rectifier tube types. The tubes feature many advantages: Elimination of filament transformer and filament power. Constant output. Long life. Solid-State Reliability. No warm up. Modernization of equipment. Catalog ratings up to 60,000 PRV and 1.75 Amperes are standard with higher ratings available as specials. Rugged construction.

SEND FOR COMPLETE INFORMATION
Catalog sheets, prices, and tube substitution chart

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(914) 965-4400

For More Details Circle (138) on Reply Card

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HANNAY REELS

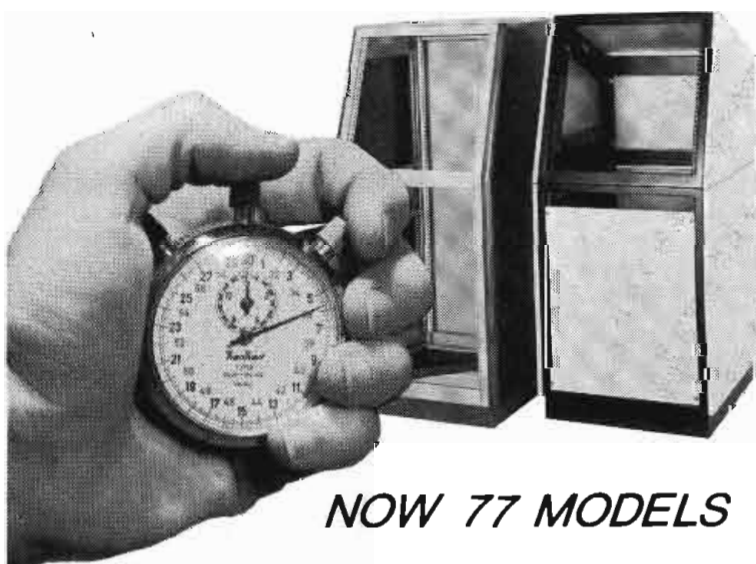
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PEOPLE IN THE NEWS

Rodger W. Cappello has been appointed Vice-President Sales for Plastic Products by TelePro Industries Incorporated....TeleMation announced the appointment of **Donald E. Lefebvre** as Distributor/Dealer Sales Manager for the eastern United States....Conrac Corporation's newly created post in its Corporate Communications section: Financial Community Liaison, will be headed by **Egon W. Loffel**....Conrac Corporation also appointed **William G. Glass** as operations manager of their Conrac Division.

Don Mereen has been appointed to director of new products and market development, a new position at Telex Communications, Inc.....**Leo Darrigo** has joined Dynair Electronics, Inc. as Eastern Regional Manager....American Data announced the promotion of **Dewey Radden** to the position of Production Manager....**William R. Riester** has been named Vice President, Finance, for Commercial Electronic Incorporated.

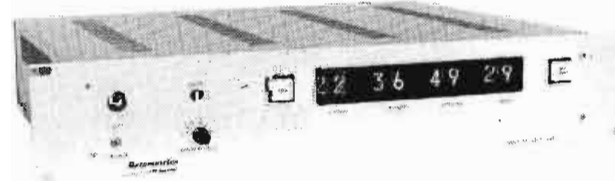
Jules Kadish elected to vice president of Scientific-Atlanta, Inc. His headquarters will be in London, England, and he will be responsible for the management of all Scientific-Atlanta marketing and industrial activity in Europe, Africa and the Middle East....North American Philips Corporation (NYSE), announced that **Kenneth V. Spitzer** has been named president of Philips Broadcast Equipment Corp., a wholly-owned subsidiary.

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Attenuator

A new high-quality, shielded attenuator designed for use in both low-level signal calibration of test equipment and MATV/CATV installation and service applications was announced at the 1974 NEW/COM Show by **RCA Electronic Components**.

"The RCA WM-542A 75-Ohm Attenuator is a valuable aid in MATV/CATV television installation and service when it is desirable to equalize signal levels at various outputs," according to Robert Lord, Manager, Market Planning—Special Products for the RCA Entertainment Tube Division. "In addition, this attenuator permits accurate adjustment of signal output levels as low as 1 microvolt from suitable signal generating equipment."

This five-step attenuator has step switches arranged in a convenient 3-6-10-20-20 dB sequence, providing a selection of the most-used attenuator values from 3 dB to 59 dB. It can be used to reduce the signal level as required by switching in the proper attenuator value and then substituting a single fixed attenuator pad of the same value.

Attenuation of RF signals with a one dB accuracy up to 250 MHz is provided and unit is usable for signals up to 900 MHz. While the device is designed for signals up through the IF and VHF television spectrum, it can be used to attenuate UHF signals with only a small accuracy loss and increase in VSWR.

An attenuator such as the RCA WM-542A is required in several test equipment applications when it is necessary to have calibrated low-level signals. Such applications include applying low-level RF signals for alignment purposes and providing signals at precise levels for calibration purposes. It is a good supplemental attenuator for existing AF, IF, VF and RF signal and sweep generating test equipment.

For More Details Circle (222) on Reply Card

Chroma Insert Keyer

The new Model 7010 NTSC Chroma Insert Keyer for existing color television broadcasting installations has been announced by the Professional Products Department of **CBS Laboratories**, a Division of Columbia Broadcasting System, Inc.

The Model 7010 inserts the keyed signal into any composite NTSC background signal. The need for an external keyer is eliminated, and no system re-timing is necessary since

through delay is less than 15 nanoseconds. To minimize annoying crawls from the key signal, a unique comb filter is used to separate luminance and chrominance spectrums. Since bandwidth of the Model 7010 key signal is the bandwidth of the color difference signals, the key is quieter than a full bandwidth key typical of RGB keyers.

The CBS Chroma Insert Keyer permits a broad range of applications. It allows a broadcaster to send a signal over a network with a "blue flat" background, and a local scene can be

inserted in each city that receives the network signal.

A program can be recorded on video tape, and played back for post-production editing and chroma keying. A single-cable color TV camera can be used to send a composite NTSC signal, with chroma keying done external to the camera control unit.

Portable minicameras can be used to generate a composite NTSC signal, with keying done on a received signal.

For More Details Circle (223) on Reply Card



FULL FEATURE 4-CHANNEL CONSOLE

The only full feature 4-channel console on the market. It has 8 inputs selectable (at installation) for high or low levels. Also features long life sealed mixer pots; internal cue, phone and monitor amps; plug-in muting relay. A rack mounting version is available.



100 SERIES STEREO CONSOLES

All inputs are switchable for mono or stereo sources and high or low level. Features modular plug-in electronics; muting on any channel and quiet FET audio switching. Can be used in remote control applications. Optional matrix available for separate composite mono from stereo output.





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For More Details Circle (152) on Reply Card

Video Processing Amplifier

A video processing amplifier is available from **TeleMation**. Ideal for professional broadcast use. Handles color and monochrome signals; operates with either quad or helical scan VTR's.

Features include programmable, digital sync generator with genlock, differential amplifier input for over 60 dB common mode hum rejection;

separate sync, luminance, chrominance and burst phasing; full 360° sub-carrier phasing; full remote control; and mechanical bypass.

For More Details Circle (224) on Reply Card

Audio Console

GRANDSON, Model 110, is a new expandable, completely modular professional recording/remixing/on-air audio control console from **Audi-technics, Inc.** Designed to accommodate up to 16 track recording and on-air

applications, the free standing unit is expandable to 18 mixing positions-36 inputs—in only 36" width. It offers complete metering, two echo send/receive channels, talkback communications, separate control room and studio monitoring, test oscillator, and a full line of matching accessories including a plug-in patch bay.

A unique second generation, full capacity system at a moderate price, GRANDSON, fills the gap between conventional broadcast consoles and sophisticated recording consoles. The most recent integrated circuit designs as proven in the widely accepted Model 501, SON OF 36 GRAND, are utilized.

For More Details Circle (225) on Reply Card

Velocity Error Corrector

The **MICROTIME 700 Series VEL-COR** velocity error correctors are standalone products that work with both quad and direct record helical VTR's. The 700 Series, formerly the Delta 7, has achieved acceptance through performance, adaptability and cost. Two models are offered: one for quad and segmented helical VTRs, the other for one head per field helical VTRs and VDRs. They eliminate color disturbances (hue shifts) in the visible picture which are caused by oscillations of the rotating video head around its specified velocity, and dynamic changes in tape length or tape path.

For More Details Circle (226) on Reply Card

Audio Sentry

Belar Electronics Laboratory has announced the availability of its "Audio Sentry." Intended to be used with station's AM, FM, SCA, or TV Modulation Monitor, the Audio Sentry will, within a preset interval from 3 to 90 seconds, visually and aurally alert station personnel of the loss of aural transmission.

The operator has three alternate methods of installation. First, the alarms may be held in a muted mode until the transmitter is ready. An external contact closure activated by the transmitter plate on control circuit, will set the alarms.

Second, the audio sentry's alarms may be activated immediately upon application of primary power by installing a jumper between the unit's remote terminals.

Lastly, if neither of the two installation methods are chosen then the unit will automatically be armed upon

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the application of audio, and any loss of audio that exceeds the preset drop-out time will initiate the alarm functions.

For More Details Circle (227) on Reply Card

Digital Remote Control

McBee Laboratories introduced a digital remote control. It's a simple, stable transmitter control system incorporating state-of-the-art C-MOS circuitry.

Called the D-144, this system is designed for immunity to interference, noise, and transients. Its power supply is capable of minimizing power line variations. But what is truly interesting is that the required calibration can be accomplished by one man at the transmitter location.

The D-144 uses an autoranging digital voltmeter that the company says is accurate to within .001 percent. LED character displays are used to provide wide angle visibility and long distance viewing.

The transmitter is protected by a fail-safe system that complements the system surveillance approach. What's more, a special TV time protection delay system is available.

For More Details Circle (228) on Reply Card

1,000 Watt Linear TV Amplifier

Acrodyne Industries, Inc. has announced the introduction of its A-140U 1 kW single-tube amplifier. The unit is intended for TV transmitter and translator applications and exceeds FCC requirements. Out of band spurious specifications are inherently satisfied by using a new RCA tube and cavity design without need of an output filter.

An important standard feature, unique to the industry, made part of the A-140U is a "Fault Detection Center." This feature assists the operator to immediately localize and rectify any substandard operation condition which might occur. The Acrodyne exclusive "Fault Detection Center" is a logic circuit which in case of an overload condition as an example, recycles the amplifier 5 times in an effort to keep the unit on the air.

When such recycles occur, the location of the fault is permanently displayed on the "Fault Detection Center" until the condition is rectified and the memory erased.

For More Details Circle (229) on Reply Card

Portable Color TV Camera

Fernseh Group of Robert Bosch

Corporation has introduced a new battery-operated color television camera, that adds a new flexibility to the Fernseh family of professional camera systems.

The KCN camera system is designed for television interviews, and up-to-the minute spot coverage for breaking news stories.

Fully synchronized NTSC output video signals can be used directly on air, directly tape recorded or both via a portable microwave data link.

Its compact design and light weight

results in point for point comparison to film cameras in similar applications, while allowing full broadcast quality reproduction at much lower light levels.

The camera head, weighing approx. 15 pounds, can be separated from its back pack up to 50 feet. The total portable system weighs under 39 pounds and can cover a one hour program before recharging is necessary.

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Reel-to-reel... for real



Exciting things are happening in the reel-to-reel market. And it's all caused by a new machine called the ITC 850 Series. Here is the result of a long series of consultations with broadcasters to determine what they most desired in a reel-to-reel machine. Then we added a few innovations of our own. Truly, the 850 Series is equipment designed specifically with the professional broadcaster in mind. Some 850 features: motion sensing, multi-function edit mode, super quiet operation, automatic tape lifters, TTL logic circuitry, capability of handling dissimilar size reels... and more too numerous to mention here. If you're in the market for something new and vastly improved in reel-to-reel, a **collect** call to us will reveal an interesting story that you may have been waiting to hear. Make the real move to reel-to-reel... ITC. Collect number 309-828-1381.



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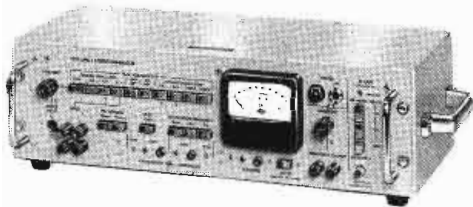
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221D

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Long Range Funding For CPB

Clay T. Whitehead, Director of the Office of Telecommunications Policy, has sent to Congress legislation that would, for the first time, provide long-range funding for the Corporation for Public Broadcasting.

He stated that the proposed legislation recognizes the progress and potential of public broadcasting. In letters to the President of the Senate and the Speaker of the House, Whitehead said that many of the concerns expressed in Congress and the Administration for not including a long-range financing plan in the Public Broadcasting Act of 1967 have now been substantially resolved. As examples, Whitehead cited growing diversity and excellence in programming and the assurance that the local radio and television stations will have a significant role along with the CPB in the programming and operational decisions of the public broadcasting system.

Whitehead noted that the President had long considered the availability of substantial Federal subsidies for the production and distribution of television and radio programming as posing the threat of Federal control of program content.

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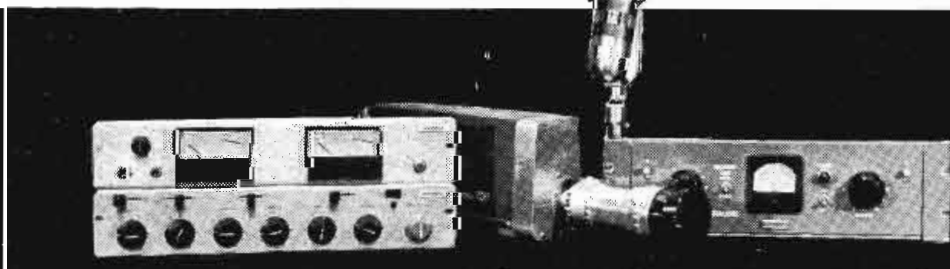
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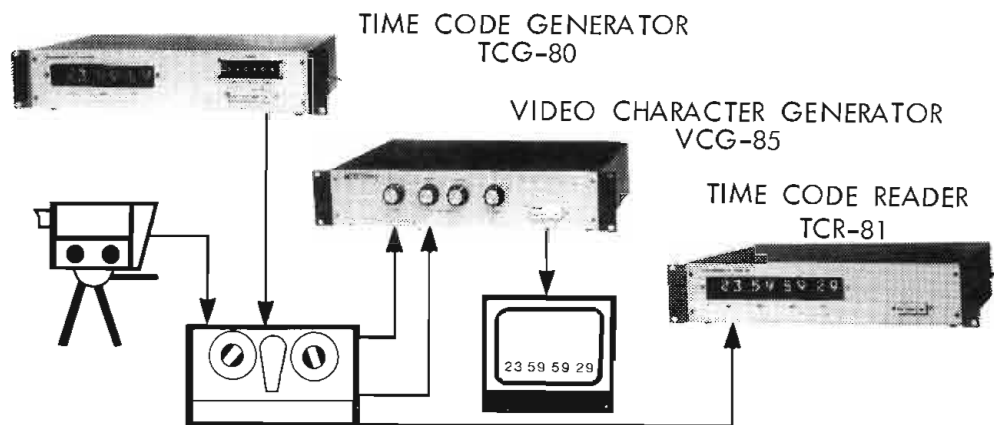
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and the possibility of public broadcasting becoming a propaganda vehicle.

The extremely sensitive relationship between Government and a Federally funded mass communications medium calls for some means of insulating that medium from the possible pressures that might result from the annual appropriations and budgeting processes of the Congress and the Executive Branch. The Director of OTP stressed that the needed insulation must be achieved through long-term appropriations and through substantial involvement of local educational stations in the decision-making of the public broadcast system.

Solving The Dilemma

As to long-term appropriations, Whitehead stated that solving the dilemma presented by large-scale Federal financing of a medium of communication called for a departure from the usual funding mechanisms employed by the Federal Government. Rather than



SMPTE EDIT CODE EQUIPMENT APPLICATION

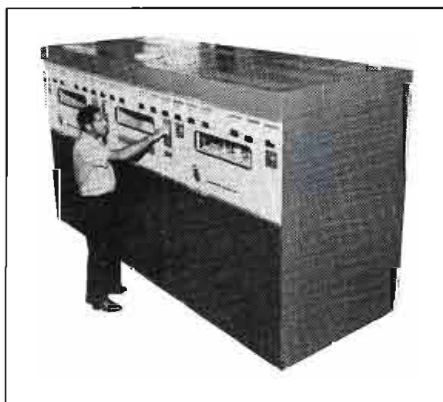
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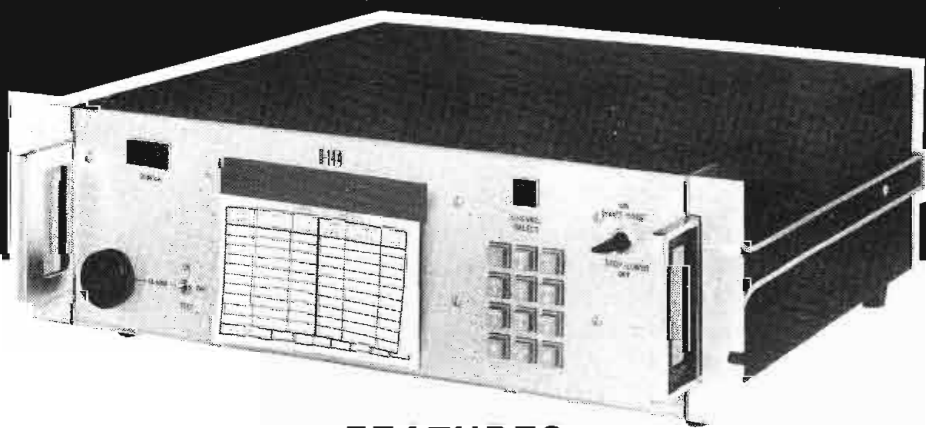
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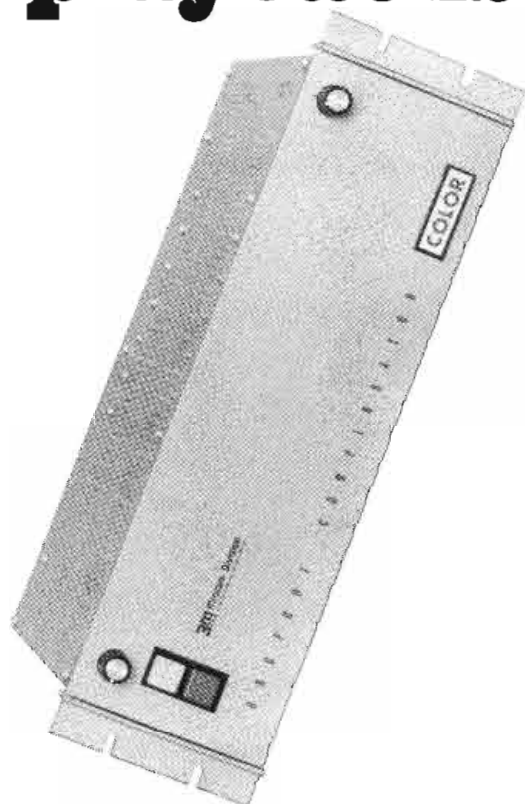
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138

Long Range Funding

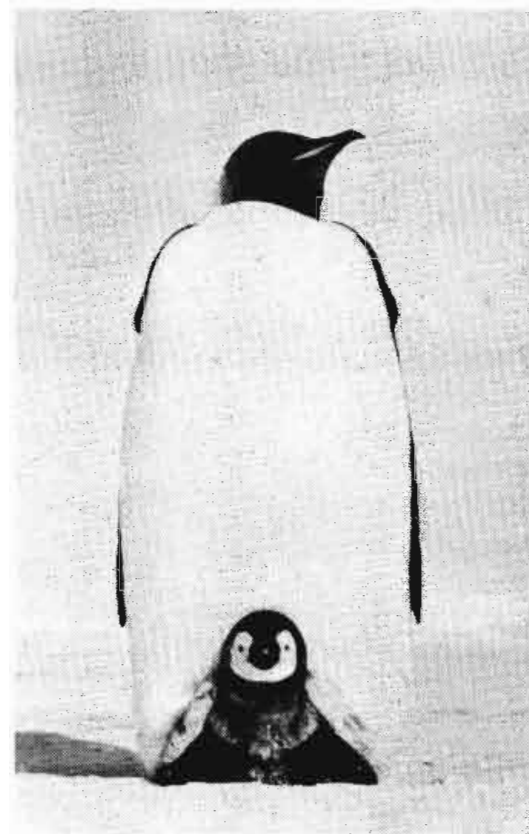
(Continued from page 137)

annual appropriations, the legislation would provide for a full five-year appropriation. Public broadcasting would be one of the few activities funded by the Federal Government that would not be subject to the annual review of the congressional appropriations committees. Whitehead stated that the Congress should be willing to loosen control of its pursestrings, as the White House has done in proposing this legislation, in order to insulate programming decisions from governmental intrusion.

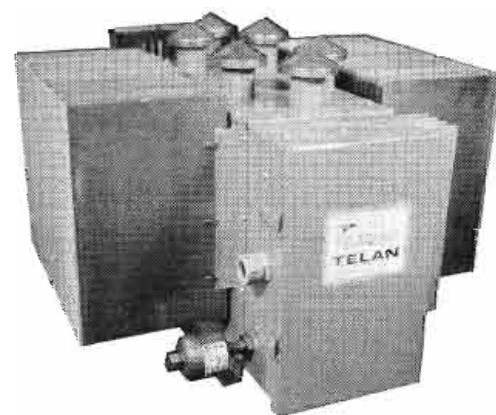
Local Role Important

Whitehead also stated that innovative financing mechanisms are not alone sufficient to assure a free and independent public broadcasting system. To achieve this goal, the local educational stations must have a voice and role in the decisions regarding public broadcasting programs and operations. The legislation would accomplish this by requiring that a substantial portion of the Federal appropriation be dis-

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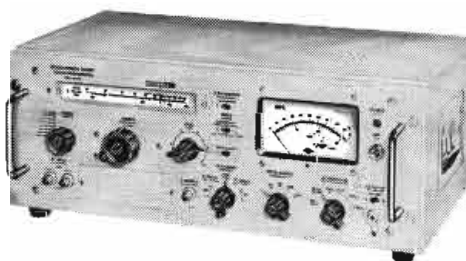
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tributed directly to the local stations for use at their discretion. In this way, Whitehead stated, the principle of local station autonomy in public broadcasting system will be fostered.

Finally, Whitehead noted that proposed legislation would up-date the 1967 Public Broadcasting Act by making Federal funding available for the development and use of non-broadcast communications technologies for dissemination of educational radio and television programming.

In submitting the legislation, Whitehead pointed out that key Congressional leaders had expressed their interest to move forward with the bill as soon as the Administration submitted it. Given these assurances and the general support the bill has among public broadcasters, the CPB and PBS leadership, Whitehead said that he expects the bill to pass and be signed by the President before the end of this congressional session.

6400 6401



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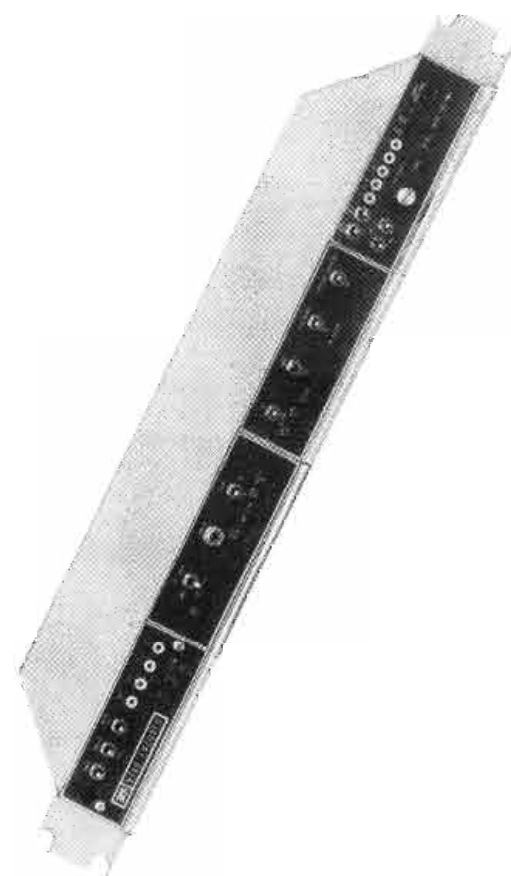
Model 6400-Monaural Gain: 44 dB at 1000 Hz. Adjustable (5 mv. input provides 0 dBm output) Frequency Response: Three selectable curves. RIAA/NAB, +5 dB at 15K Hz. For brilliance. -5 dB at 15K Hz. For scratch filtering. (See curves on previous page) Total Harmonic Distortion: Less than 0.5% at 0 dBm output. Signal to Noise Ratio: Better than 60 dB (equivalent to -104 dBm input noise) Input Impedance: 47,000 OHMS unbalanced Output Impedance: 600 OHM balanced or unbalanced. (As supplied) 150 OHMS balanced or unbalanced internally selectable. Output Level: 0 dBm adjustable + 15 dBm maximum Power Requirements: 115 VAC 50/60 Hz. 2 watts Dimensions: 4 3/4" depth x 2 1/2" width x 6" high Terminations: Input — RCA style phono jacks Output — barrier type screw terminal strip Mounting: May be face mounted on turntable, panel or cabinet. May be bracket mounted to side wall or floor of cabinet. Brackets provided. Weight: 3 lbs.	Model 6401-Stereo Gain: 44 dB at 1000 Hz. Adjustable (5 mv. input provides 0 dBm output) Frequency Response: Three selectable curves. RIAA/NAB, +5 dB at 15K Hz. For brilliance. -5 dB at 15K Hz. For scratch filtering. (See curves on previous page) Total Harmonic Distortion: Less than 0.5% at 0 dBm output. Signal to Noise Ratio: Better than 60 dB (equivalent to -104 dBm input noise) Input Impedance: 47,000 OHMS unbalanced Output Impedance: 600 OHM balanced or unbalanced. (As supplied) 150 OHMS balanced or unbalanced internally selectable. Output Level: 0 dBm adjustable + 15 dBm maximum Power Requirements: 115 VAC 50/60 Hz. 2 watts Dimensions: 4 3/4" depth x 2 1/2" width x 6" high Terminations: Input — RCA style phono jacks Output — barrier type screw terminal strip Mounting: May be face mounted on turntable, panel or cabinet. May be bracket mounted to side wall or floor of cabinet. Brackets provided. Weight: 3 lbs.
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Long Range Funding

(Continued from page 139)

Highlights

The bill has three principal purposes relating to the Corporation for Public Broadcasting and the system of non-commercial educational radio and television stations.

1. The bill would provide long-term Federal financing for the CPB by means of a 5-year **authorization and appropriations**.

According to CPB figures published in the Long-Range Financing Task Force Report, the entire public broadcasting system's non-Federal, non-duplicated income for FY 1974 was estimated at \$200 million. Hence, for the first year under the bill, FY 1976, the CPB would be entitled to the maximum \$70 million from the Fund (the Federal match is based on the system's non-Federal income for the **second preceding** fiscal year).

2. A second major purpose of the bill is to assure that a reasonable portion of Federal funds is distributed directly to local non-commercial educational broadcast stations.

(Continued on page 146)



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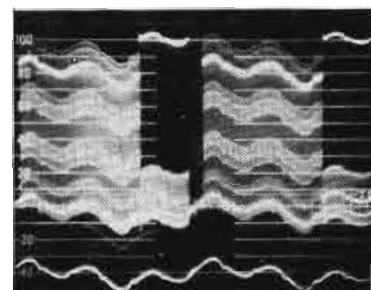
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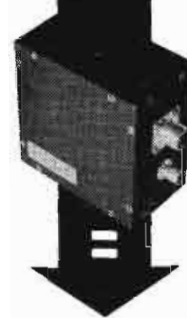
P.O. Box 10, Washington, Iowa 52353

For More Details Circle (169) on Reply Card

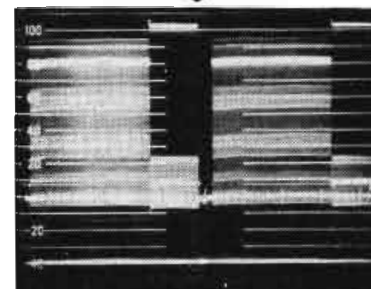
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For More Details Circle (170) on Reply Card

Broadcast Tetrode

A new high quality tetrode featuring improved cathode structure is available for broadcast use from the **EIMAC Division of Varian**. The tube is a premium quality direct replacement for the 4CX250B.

The 4CX250BC/8957 is capable of high emission over an extended period of time, greatly reducing frequency of tube replacement. A modified screen grid structure virtually eliminates the possibility of negative screen current occurring during certain types of operation.

The new tube may be used as a direct replacement for the 4CS250B or may be an ideal selection for new equipment design; in both cases the user will experience reduced transmitter downtime.

The 4CX250BC/8957 is a ceramic/metal, forced-air cooled, external-anode radial beam tetrode. Maximum plate dissipation rating is 250 watts and a maximum input power rating of 500 watts. Delivery from stock.

For More Details Circle (200) on Reply Card

All-Band TV Pattern Generator

A new monochrome TV pattern generator, which can be electronically tuned to almost all TV channels anywhere in the world, has been introduced by **Philips, Eindhoven**.

Designated the PM 5504, it provides five carefully selected test patterns and a sound output for fast, accurate alignment of any B/W TV set or video recorder, in workshops and in the home.

A unique facility for video modulation also enables the PM 5504 to be used for checking and monitoring monochrome TV cameras. This feature further extends the range of applications to the servicing of closed

circuit TV set-ups and small monochrome TV studios.

The PM 5504 covers TV bands I, III, IV and V plus IF (38-85 MHz, 170-250 MHz and 470-790 MHz). To save servicing time, five most commonly used channels can be electronically preadjusted and push-button selected afterwards whenever required. TV band and channel frequency are indicated by two separate meters.

Five most recommended test patterns are conveniently selected by push-buttons and modulated onto the selected carrier frequency. They allow fast and accurate alignment and checking of all TV demodulation and video circuits.

For More Details Circle (201) on Reply card

Computer Controlled VTR Editing System

The PEC-102's **Central Dynamics** digital computer is teamed with the interactive CRT Command/Display Console and a CDL video/audio production switcher to allow the director-operator artistic freedom with all checks, calculations and editing operations performed automatically and rapidly.

Any combination of up to 8 Quad and Helical video tape machines or multi-track audio machines can be remotely located and assigned to the PEC-102 for off-line or on-line editing, and compiling.

Color phase detection and correction is automatic. A random access magnetic mass storage disc is integral to the PEC-102 and is used to manipulate and compile all edit decisions.

The VSP-1246 video/audio switcher performs all effects and is equipped with a remote control panel.

For More Details Circle (202) on Reply Card

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Tele-alert Teletype Alarm
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(automatic parameter corrector and transmitter switch-over system)

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Program Timers
Remote Control Systems
Tone Encoders
Telephone Tone Receivers
Telephone Tone Transmitters

The reason is simple. No two units of any one type have ever been alike enough to provide one set of common specifications. Each of these items is tailored to meet the specific needs of the station for which it is designed. So you don't pay for features you don't need. Nor do you have to "make do" with equipment that isn't really designed to perform the tasks you set out for it. Best of all, ASI quality built custom equipment is priced within your budget. So instead of us sending you information, we'd like you to send us some information. Just write or phone us your specifications for any equipment you may have in mind. In return you'll get an equipment design proposal and price quote at no obligation. We're sure both will pleasantly surprise you.



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Write us for more information. **MASTERTONE COMPANY**, 1105 Maple, West Des Moines, Iowa 50265 AC 515 225-6122.

For More Details Circle (174) on Reply Card

Multi-Function Counter

A new low cost OEM multi-function counter, Model 2319FE, with remote control as standard, is available from **Modular Devices, Inc.** All functions are remotely or locally controlled by non-critical TTL/DTL signals. Parallel and serial data output is standard. Serial data format is either low or high order bit first, field

selectable.

The new unit, designed to mount in a standard 19" rack, provides time interval measurements of pulse width, period, B-A (to 100 nano-second resolution), frequency (0.1, 1.0, 10.0 seconds time base), events period B, events B-A, and frequency ratio E/B. Measurements averaging of ten consecutive readings increases time resolution to 10 nanoseconds.

The counter, which includes an internal 5VDC power supply, is

equipped with an eight digit LED decimal display with floating decimal point, providing readout for time or frequency measurement in micro-seconds or cycles respectively.

For More Details Circle (203) on Reply Card

Disk Storage

System Industries is offering 30-day delivery on its low-cost disk system, the Series 3500, which comes ready-to-use with most minicomputers. The field-proven Series 3500 is complete with disk drive, controller and appropriate minicomputer interface circuitry.

Providing a storage capacity of 2.5 million 16-bit words with a single drive, the Series 3500 can store vital station parameters (e.g., time spot availabilities, accounting records, traffic monitoring, etc.) for instantaneous access and processing by minicomputer. Equipped with a removable disk cartridge as well as fixed disk, the Series 3500 allows automated stations to develop a disk cartridge library as storage requirements grow.

Maintenance, when required, is made easy through an extensive diagnostic software package and modular construction.

For More Details Circle (204) on Reply Card

SPORTS Commentator Headset

Dynamic Boom Microphone; 400 OHMS, frequency range 50-15,000 Hz, sensitivity 2mV (loaded) for close speech.

Double Headphones; independently wired, 200 OHMS each, frequency range 50-15,000 Hz.

Ventilated Foam Cushions eliminate perspiration and let you hear ambient sound (optional ear enveloping cushions).

Weight 6½ oz. Practically unbreakable components. Optional cough switch.



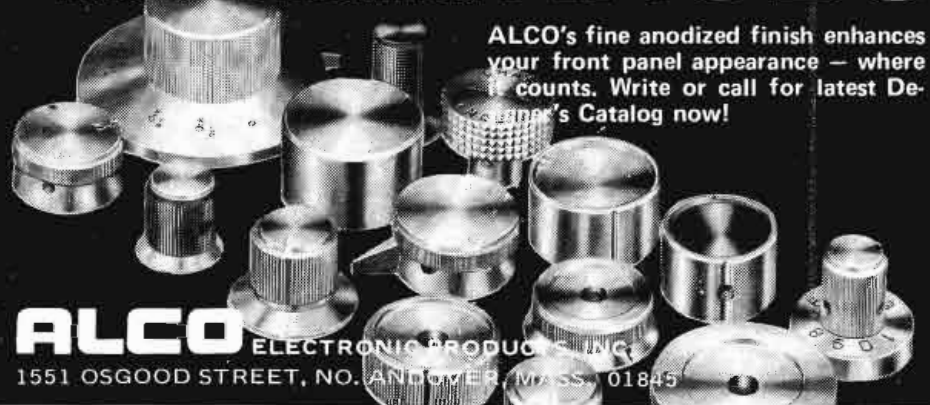
Television Equipment Associates, Inc.

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Price: \$75.00
Delivery from stock

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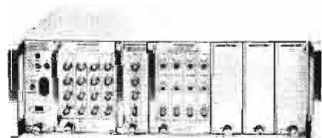


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For More Details Circle (198) on Reply Card

Edit Code Reader

Datametrics, Incorporated announces the availability of the Model SP-425-SMPTE TV edit code reader.

Designed specifically for decoding SMPTE edit time code from video tape, the Model SMPTE features wide band amplitude and frequency response, a digital code demodulator and read error by-pass for reliable operation. It automatically reads and decodes time code data over a range of 1/5 real time to 40 times real time, in both forward and reverse directions and provides front panel display of time code. It operates with both black and white or color (drop frame) formats.

Standard options include parallel outputs, generator mode of operation and combined reader/generator units.

For More Details Circle (205) on Reply Card

Solid State Logic Probe

A hand held DTL, TTL Logic Probe has been introduced by **Tektronix, Inc.**, of Beaverton, Oregon. The P6401 identifies logic states with red and green indicator lamps in the probe tip.

It detects steady high state, steady low state, intermediate logic levels, excessive positive or negative voltages, pulse trains, open circuits or a

single logic pulse.

When coincidence of logic levels at two points is to be detected, simple connections are made with strobe leads furnished with the probe. In addition to identifying steady or switching logic states, a store mode will indicate that a pulse has or has not occurred. Furthermore, the strobe and store modes can be used simultaneously indicating coincidence or noncoincidence of two pulses.

Designed for fast, accurate circuit testing, the P6401 is well suited for applications in computer mainframes, video games, cash registers, industrial controls, data processing terminals and telephone switching systems.

For More Details Circle (206) on Reply Card

Solid State Replacement For Vacuum Rectifiers

Electronic Devices, Inc. of Yonkers, N.Y. has announced a new line of plug-in, solid state tubes that are exact replacements for industrial rectifier tubes.

These new silicon EDI solid-tubes will replace most regular gaseous and vacuum rectifier tubes with ratings up to 1750 ma. and 60 KV. Higher voltages and currents are available as

specials. The new tubes are developed from EDI's TV and communication Solid-Tube rectifier line that has shown these proven advantages: No need for filament transformers, (these tubes are ideal replacements in equipment where the filament transformer is faulty), solid state reliability, constant output, long life, no heat generation, compact rugged construction, and fast warm up.

For More Details Circle (207) on Reply Card

Wide Field Zoom For 1-Inch Camera

The new Canon Model PV 10X15 B2, wide-field 10X one-inch Plumbicon color camera zoom is now available for all color TV cameras.

This lens has a zoom range of 15mm to 150mm, f2 and an efficiency of over 80%. It is the smallest, closest focusing f2 zoom presently available for the one-inch market. Special features include: adjusting back focus, "instant change" bayonette mount, "instant change" range extenders, close focusing operation to 3½ feet, and an unconditional one-year warranty.

For More Details Circle (208) on Reply Card

Video Over Telephone

A complete video communications system capable of transmitting and receiving still television images over dial-up telephone lines or other voice grade circuits has been announced by **Colorado Video Incorporated**. The system includes a high quality closed circuit TV camera, camera stand, 12" monitor, and the CVI models 260 Video Compressor and 261 Video Expander for full two-way operation.

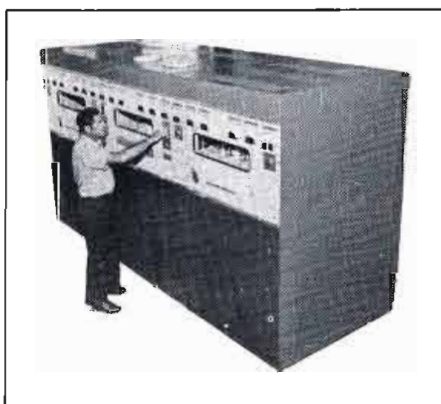
60 seconds are required to transmit a single medium resolution image, while a magnetic disc is used in the receiver memory to allow indefinite image storage time with good grey scale.

Price of the complete basic system is \$9000 with a delivery schedule of 120 days. Components of the system may be purchased separately and options include multiple image storage and frame freezing before transmission.

For More Details Circle (209) on Reply Card

QUALITY TALKS FOR WCFL

Chicago, Illinois



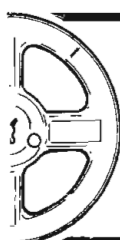
Continental's 317C is the best measure for any 50 kW AM transmitter purchase. Performance, 125% positive modulation and reserve power capabilities are unbeatable. Today's best sound in 50 kW AM is Continental.

Continental Electronics

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For More Details Circle (178) on Reply Card

September, 1974



Plastic Reels FOR MAG TAPE

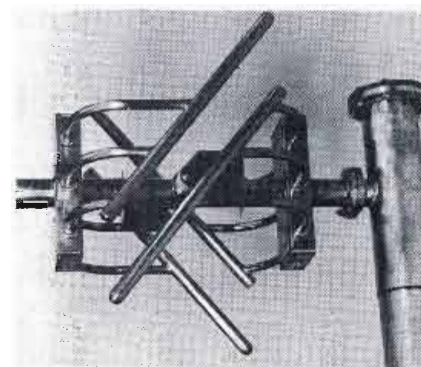
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Mfrs. of Amerline reels

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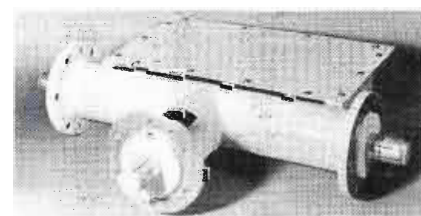
Type 2430 Diplexer for
Two 20kw stations



Type 3330-20 Air Cooled Load
20 kw rating



Type 2030-25C Filter-Coupler
25 kw rating



Type 8130 SPDT Switch

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SHIVELY LABORATORIES, INC.

Route 302 Raymond, Maine
Phone: 207-655-3841

For More Details Circle (109) on Reply Card

143

Pollution Abatement

Wendell Lewis, VP/General Manager of **Technology Incorporated**, has introduced a new Houston Fearless[®] unit described as a complete pollution control center for black and white processors.

According to Lewis, the silver pollution control System-100, as it is called, not only recovers valuable silver destined to otherwise go down the drain with used processing chemicals, it also prepares the remaining waste for safe discharge into municipal sewage systems.

Existing municipal codes regarding the condition of wastes permitted to enter sewage systems were consulted on a nationwide scale prior to the development of the unit. In addition, EPA and DOD effluent specifications have been met.

The waste, after treatment, is claimed to be non-toxic and biodegradable.

The compact SPC-100, measuring 31 x 36 x 20-inches, features automatic start-up and operation.

For More Details Circle (210) on Reply Card

Remote Control Systems

Rust Corporation of Everett, Massachusetts announces a new series of "Silent Service" remote control systems for all types of broadcast stations. The series consists of two versions, a low cost, analog metering version, the RC-2600EA, priced at \$1990, and the Digital Readout metering version, the RC-2600ED. Both systems provide fifty-two (52) control actions and twenty-four (24) positions of metering.

The "Silent Service" series is designed to operate in a live studio under microphone "ON" conditions without any audible sound heard by the listener. This is the result of the all new Rust solid state position selection system which utilizes the newest proven electronics to achieve "pushbutton" position selection with digital readout of position location.

For More Details Circle (211) on Reply Card

Custom Consoles

Dyma Engineering, manufacturer of custom console and studio systems, announces a new feature available in all of its consoles and also available

for individual purchase.

This is a program limiter, available on a variety of PC board sizes, and suitable for individual channel limiting. It features a totally new, unique "ducking" feature, whereby an external voltage applied during announce microphone closure permits "ducking" of the channel level by a preset amount.

The unit also features adjustable "knee" on limiting curve; 20:1 limiting ratio, 40 dB limiting dynamic range, and 10 dB nonlimiting gain.

For More Details Circle (212) on Reply Card

True Dual Beam Portable Scope

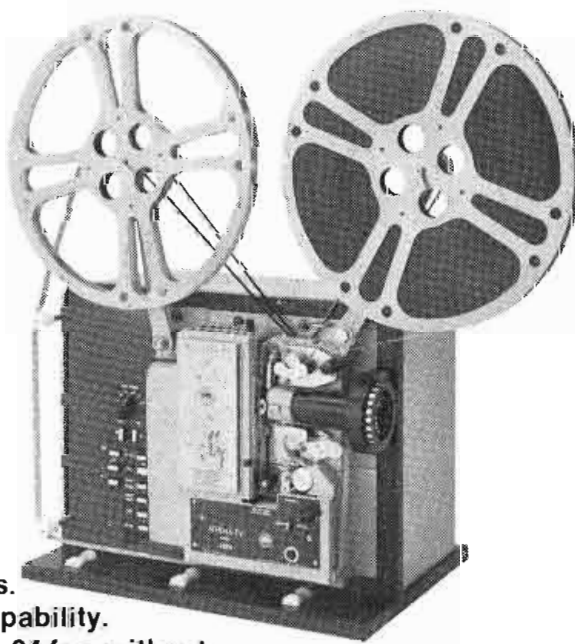
True, dual-beam operation and 'half-tone' storage, including variable persistence, are the major features of the new compact, portable storage oscilloscope announced by **Philips Test & Measuring Instruments, Inc.**, a subsidiary of North American Philips Corporation. Designated the PM3234, the oscilloscope was developed by N. V. Philips. The technique of true dual-beam operation was first introduced in the generic instrument types PM3232 and PM3233.

True dual-beam operation employs one gun in which two beams are generated; the CRT employs common X-plates, but entirely independent Y-plates. The display of both channels is therefore continuous and uninterrupted, unlike the chop or alternate displays of so-called dual-trace instruments. This technique, combined with the storage facilities, ensures true displays and recordings, including single shot phenomena.

For More Details Circle (213) on Reply Card

4000-TSM FILM CHAIN PROJECTOR

The TV film chain projector that has found wide use as an animation printer, creating special effects with 16mm film through a film chain onto tape.



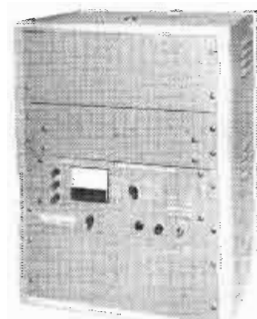
- Meets all broadcast standards.
- Frame-by-frame animation capability.
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For More Details Circle (41) on Reply Card



UHF TELEVISION TRANSLATOR

Rodelco's Model TU-10, 10 Watt, Fully Solid State, UHF Television Translator incorporates the latest in solid state techniques to insure dependability and minimum down time. Color and monochrome retransmission is effected without deterioration in picture quality. Rodelco's full line of VHF and UHF Translators are available from **ROLAND SALES CORPORATION**, 1044 Northern Blvd., Roslyn, N.Y. 11576 TEL (516) 484-4922.

For More Details Circle (46) on Reply Card

Tape Heads

(Continued from page 115)

interchangeability of tapes between one recorder and another. Although Azimuth is adjusted mechanically, it must be done while playing a standard alignment tape. At a speed of 7.5 ips, a frequency of at least 12 kHz should be used, with 15 kHz preferred.

As the head is slowly rocked from side to side, the output of the head will increase and will reach its maximum level when the head gap is directly lined up with the recorded high frequency on the alignment tape. This establishes the Reproduce head as a standard for setting Azimuth on a Record head . . . which is done by removing the alignment tape, threading a blank tape on the machine and recording a 15 kHz tone while monitoring it with the Reproduce head. The Record head is slowly rocked from side to side while recording this tone until maximum output is obtained from the Reproduce head monitoring the recording.

At this point, the gaps of both Record and Reproduce heads are

properly Azimuthed. The slight time lag caused by the distance between these heads should be taken into account when Azimuthing a Record head.

So now we know something about how a head is made and how it should be adjusted when new heads are installed. What are the symptoms or signs of a head nearing the end of its useful life? What are the major things to look for?

Electrically, as wear progresses on a Reproduce head, the inductance of the head drops and the high end begins to fall off. As you begin to peak up the high end response with the equalization adjust, you will note that beyond a certain point, boosting the high end causes a hump in the response further down the line until you get **such** a hump (usually in the 4 to 6 kHz region) the head must be replaced in order to get smooth response throughout the audio spectrum as specified by the recorder manufacturer.

In the case of a Record head, as

**This Little Beauty
Fills Your Needs
for a really low-cost
waveform monitor
and a
pulse-cross monitor**



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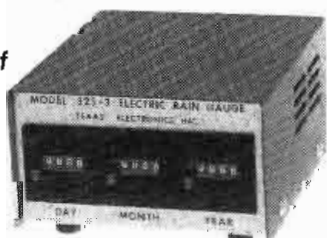
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Electric Rain Gauge

Now you can report minute-by-minute rainfall amounts and not get wet! This new, low cost, remote-reading gauge shows announcer rainfall accumulations in 1/100 inch increments. Transmitter can be located several hundred feet away and is completely automatic—needs no service or attention. Ask for Spec. Sheet, Model 525. Free.

Also, a complete line of
Texas Weather Instruments

**Texas
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For More Details Circle (172) on Reply Card

great performers



RUSSCO's compact 5 channel monaural Audio Mixer is truly a Bargain! Packed with Quality features like 4 channels with built-in preamps, Channel 5 has 5 hi-level balanced inputs! The 505 includes a monitor amp, cue speaker and head set amplifier, FET monitor muting, Push-button switching, long-life "Mod Pots" and More!



All Solid State, the New MONITOR/MASTER 260 Audio Amplifier produces 60 Watts RMS through each of its Dual Channels. Low distortion and high damping provide you with clean sound at full output. Balanced or unbalanced bridging inputs without transformers are featured, along with overload protection. The 260 is RUSSCO-Rugged and Economically priced!



RUSSCO STUDIO-PRO and CUE MASTER turntables offer the ultimate in rugged long-wear dependability and ease of operation . . . only 3 moving parts! No-slip starting and reliable Bodine synchronous motor.



The perfect tone arm for the finest turntable! The RUSSCO TA-12 all metal anti-skating tone arm



You get the most "headroom" for the money (+18 DBM) with RUSSCO's New "FIDELITY-PRO" and "FIDELITY-MASTER" phono preamps. 8 models stereo or mono to fit your needs, self-powered and featuring a unique "easy-service" case. Years ahead in engineering with economical prices starting at \$92.00

RUSSCO

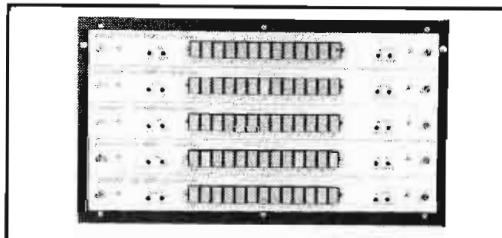
ELECTRONICS INCORPORATED
1070 BROOKHAVEN, CLOVIS, CALIF.
PHONE (209) 299-2167

For More Details Circle (184) on Reply Card

wear progresses the inductance also drops and the head requires less and less bias current to peak bias the head. This in turn affects the audio current required and also requires readjustment of the recording equalization. If the heads are not replaced at this point, the process outlined just repeats itself with greater frequency until finally the gap abruptly opens and satisfactory performance is impossible.

Head life

In addition to this, there are performance difficulties encountered which are not electrical in nature but show up as electrical malfunctions in the form of drop-outs, erratic output (starting first at the high end and working down the audio range as the condition



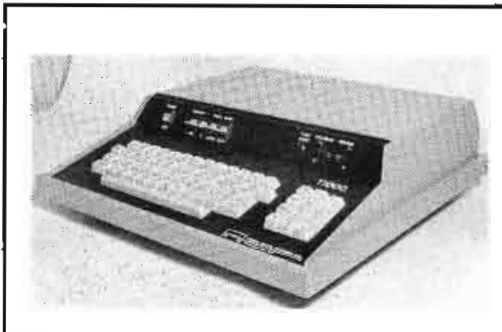
VIDEO/AUDIO ROUTING SWITCHER

The Model 1035 Routing switcher features Solid State Video switching, Solid State Video/Audio input and output circuitry, and full field expansion of inputs and outputs by addition of 12X1 individual plug in Cards. Available in Video, and Audio follow Video configurations. Prices are as follows: (Factory assembled)

INPUT		OUTPUT	VIDEO	AUDIO VIDEO
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12	X	10	4910	5110
12	X	15	6560	7530
12	X	20	8890	10,220

DELIVERY: 6 Weeks. VISCONT INDUSTRIES LTD., 105 East 69th Ave., Vancouver 15, B.C. CANADA

For More Details Circle (185) on Reply Card



TITLING UNIT

Basic T-1000-\$2,495.00, includes 2 character sizes, titles keyed into composite video signal, separate program/preview outputs, 2 page memory, character blink, title window, plug in expansion capability.

Expansion modules include—up to 16 pages of memory, horizontal crawl, vertical roll, black border-line, high resolution 10x14 font, stand by power, audio tape storage, magnetic card storage, RS170 sync gen.

VIDEO DATA SYSTEMS, INC. 657 Old Willets Path, Hauppauge, N.Y. 11787 (516) 234-1010.

For More Details Circle (186) on Reply Card

worsens), warbling, and a wide assortment of weird sounds caused by variations in tape contact, and wandering of tape due to wear grooves.

Figure 7 shows an exaggerated view of the step effect in a deep wear groove. Originally, the groove was fairly straight as it wore into the head face, but as wear progressed, the edges of the tape (which are not as rigid as the center portion), tend to cup and become rippled. The point at which the edge curls (and firm contact begins) starts another groove. Tape of varying widths can also cause this condition.

Figure 8 shows the flat that is developed in a head face as wear progresses. This flat exists regardless of whether a wear groove is present or not. Some head manufacturers have tried to overcome the wear groove problem by undercutting the head face at the top and bottom edges of the stacks to eliminate the possibility of a wear groove. This technique does indeed eliminate the groove but not the

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flat. It has the added requirement of making the Height adjustment extremely critical. So critical in fact, that an error of only .005" will create a condition where a wear groove will exist in one lamination of the entire head stack and develop into a nice tape slicer as time goes on.

This flat on the head face spreads the tape contact area over a wider and wider space, tending to create

poor contact at the gap where everything takes place. The further this flat extends on the head face, the more difficult it will be to ensure good contact with the head gap.

Figure 3 shows the keystone wear pattern caused by improper Zenith adjustment. Once this pattern appears, the head should never be re-adjusted, as erratic contact and output will result. In most cases where professional heads are involved, a head can be relapped and polished. It should then be re-installed and the Zenith error corrected.

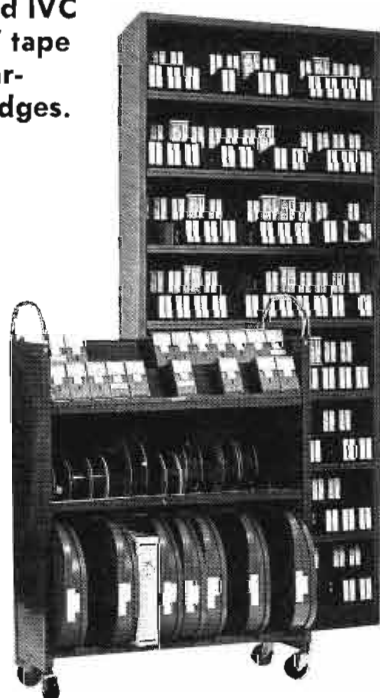
Figure 9 is an illustration of a head with a completely open gap. Such a head is fit only for the trash can. While it might be difficult to believe that anyone could use a head until such a condition occurs, we see them frequently.

In summary, the tape head is where the quality of your air signal begins. It would be difficult to over-emphasize the importance of correct installation as primary maintenance to keep it in good operating condition at all times. Routine maintenance is not difficult. About all a tape head really requires is regular cleaning, periodic de-magnetization and taking precautions to see it is not subjected to abuse by being hit in the face, scratched with sharp objects or otherwise mis-handled.

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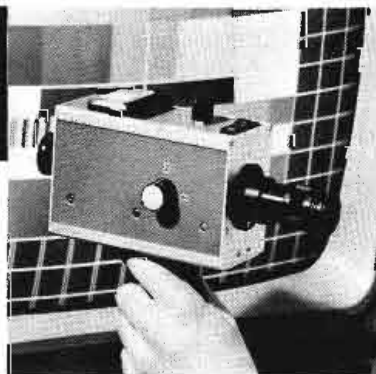
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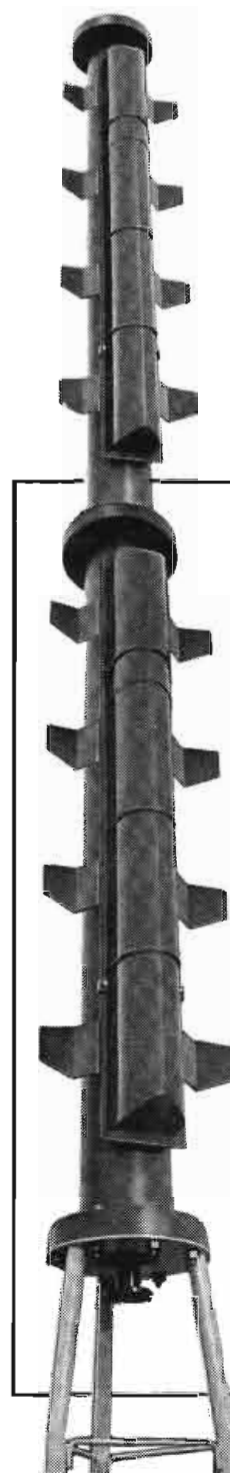
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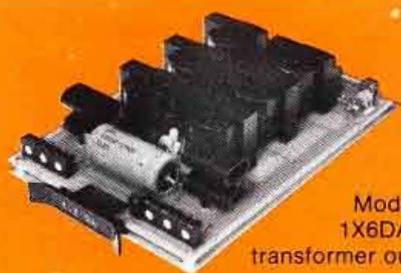
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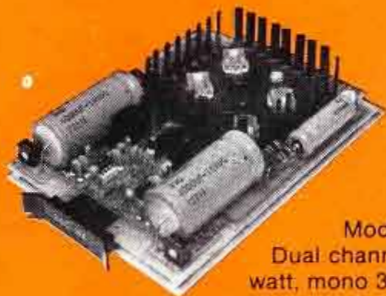
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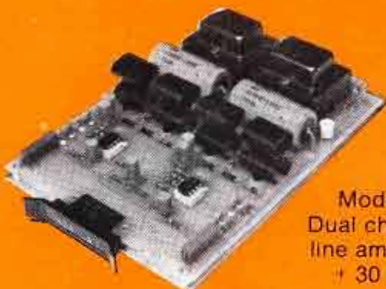
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(Continued from page 140)

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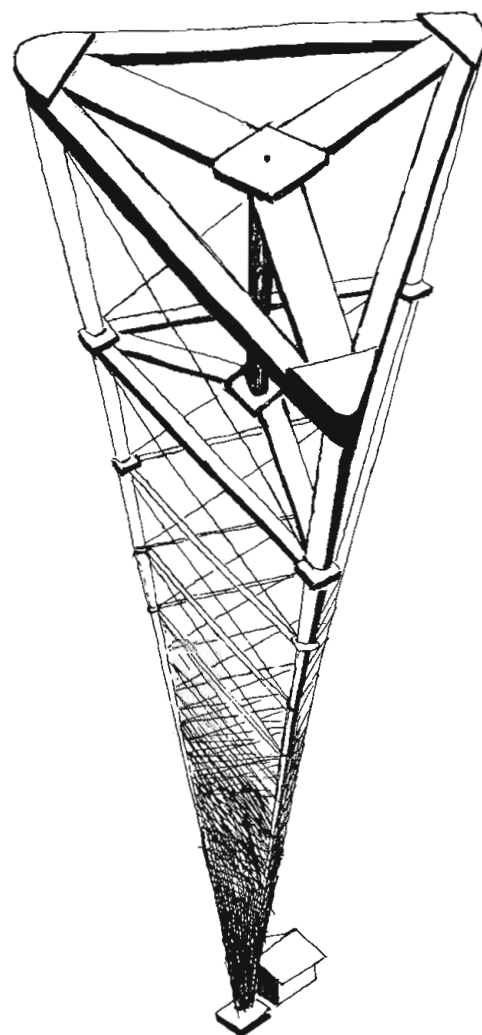
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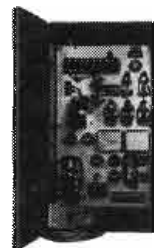
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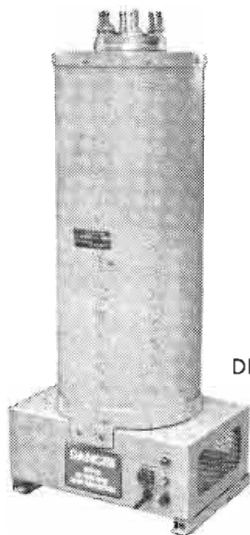
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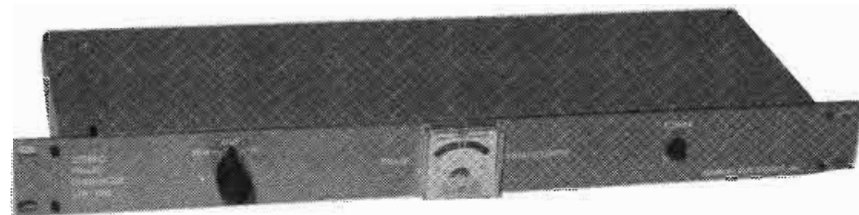
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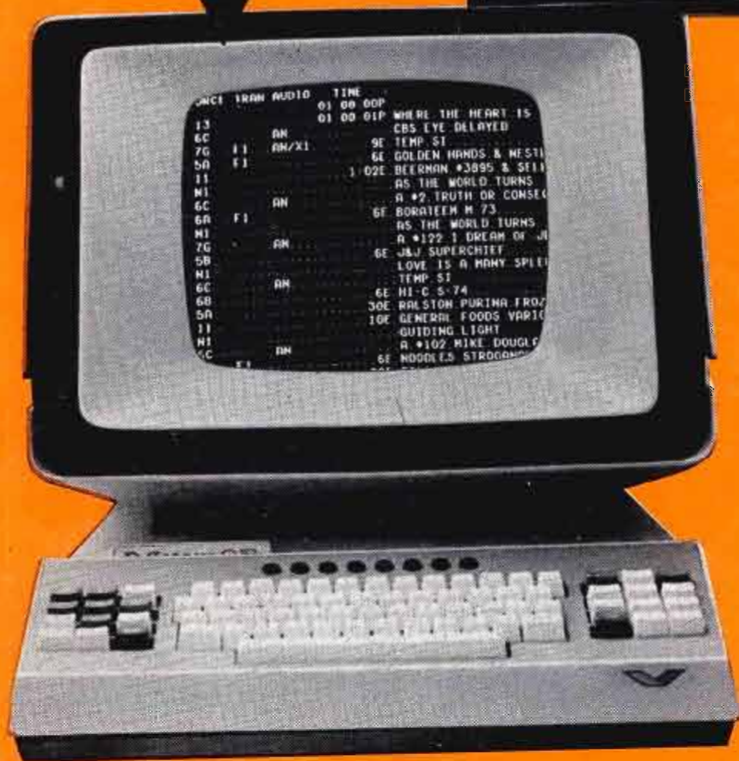
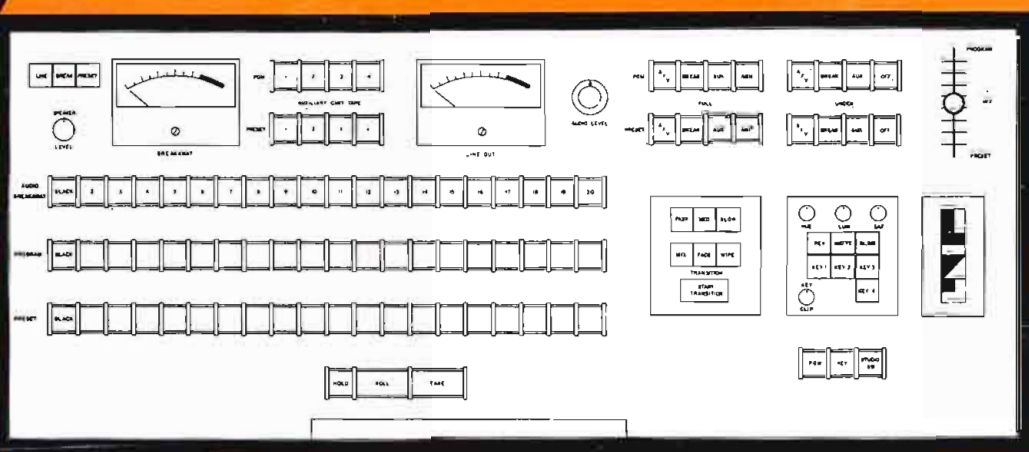
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