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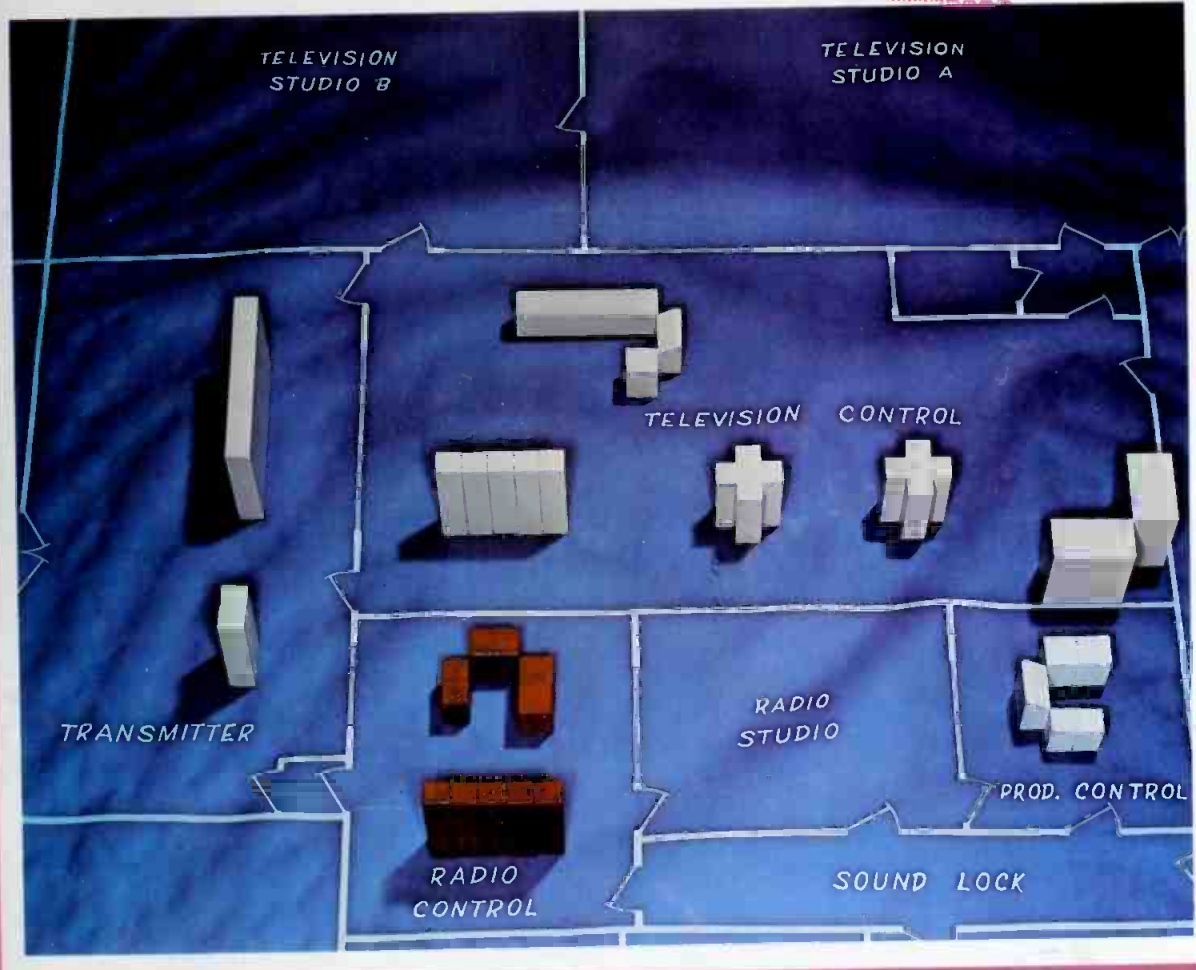
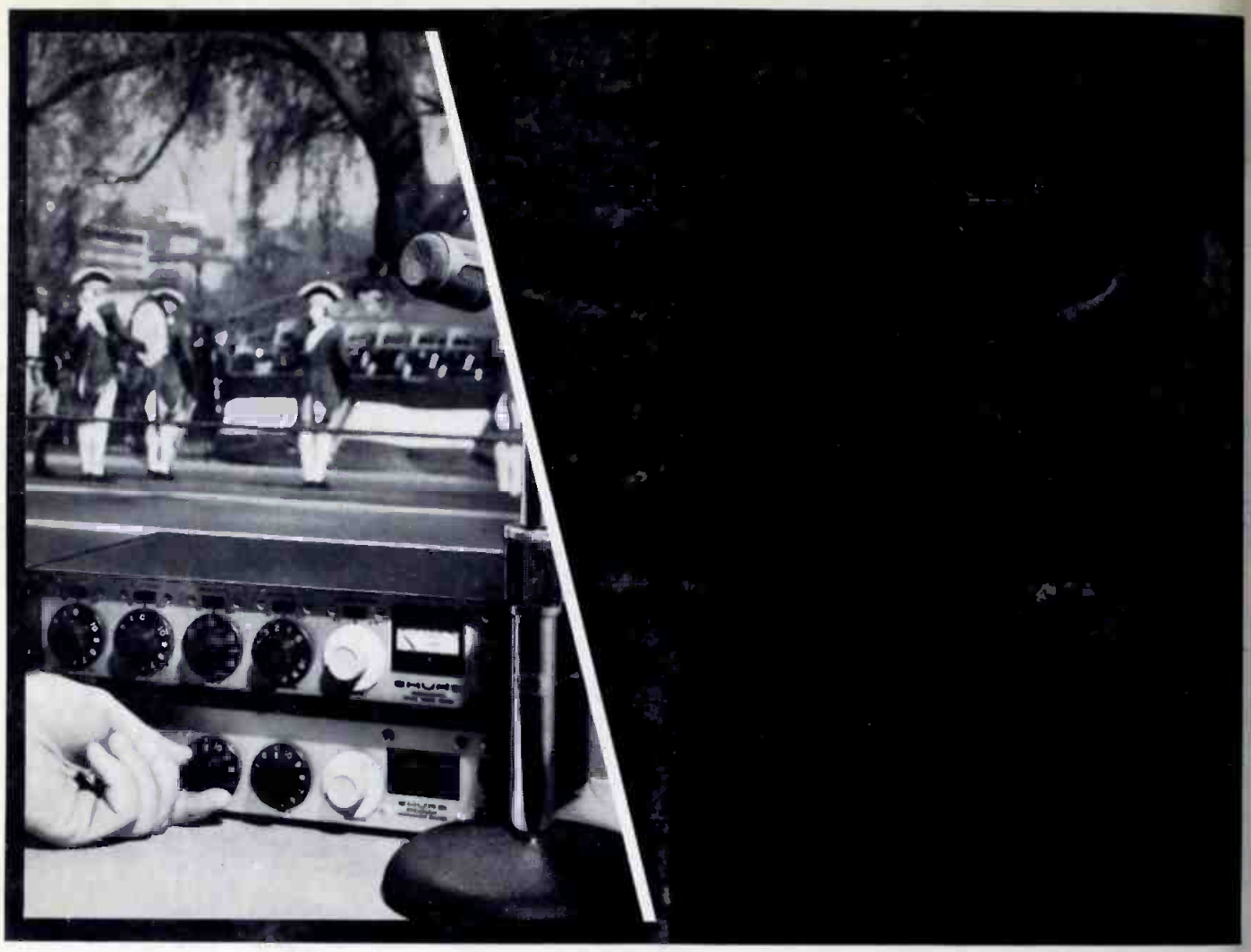
BROADCAST ENGINEERING

the technical journal of the broadcast-communications industry



1972 reference issue

Buyer's guide section
Professional organizations section



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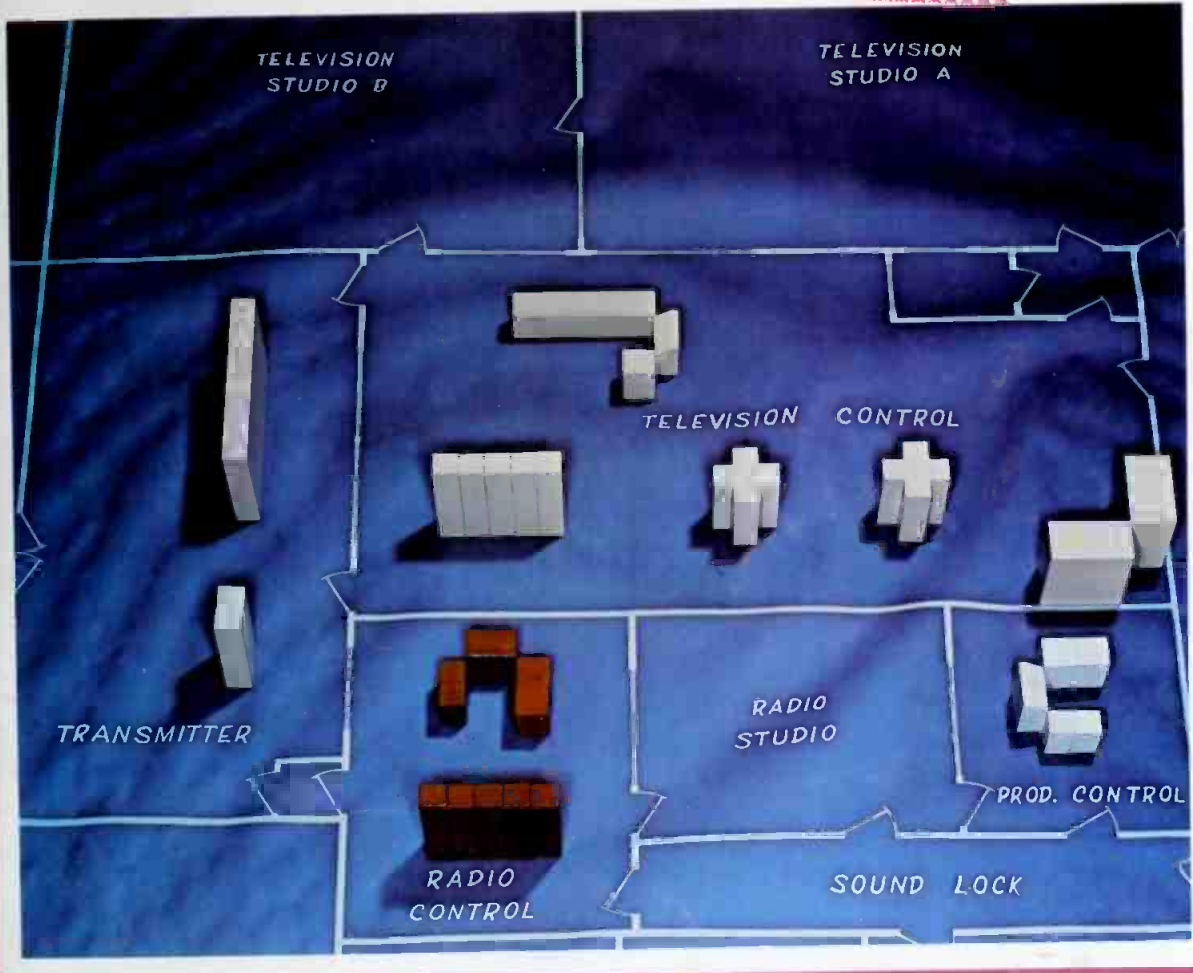
the technical journal of the broadcast-communications industry



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Buyer's guide section
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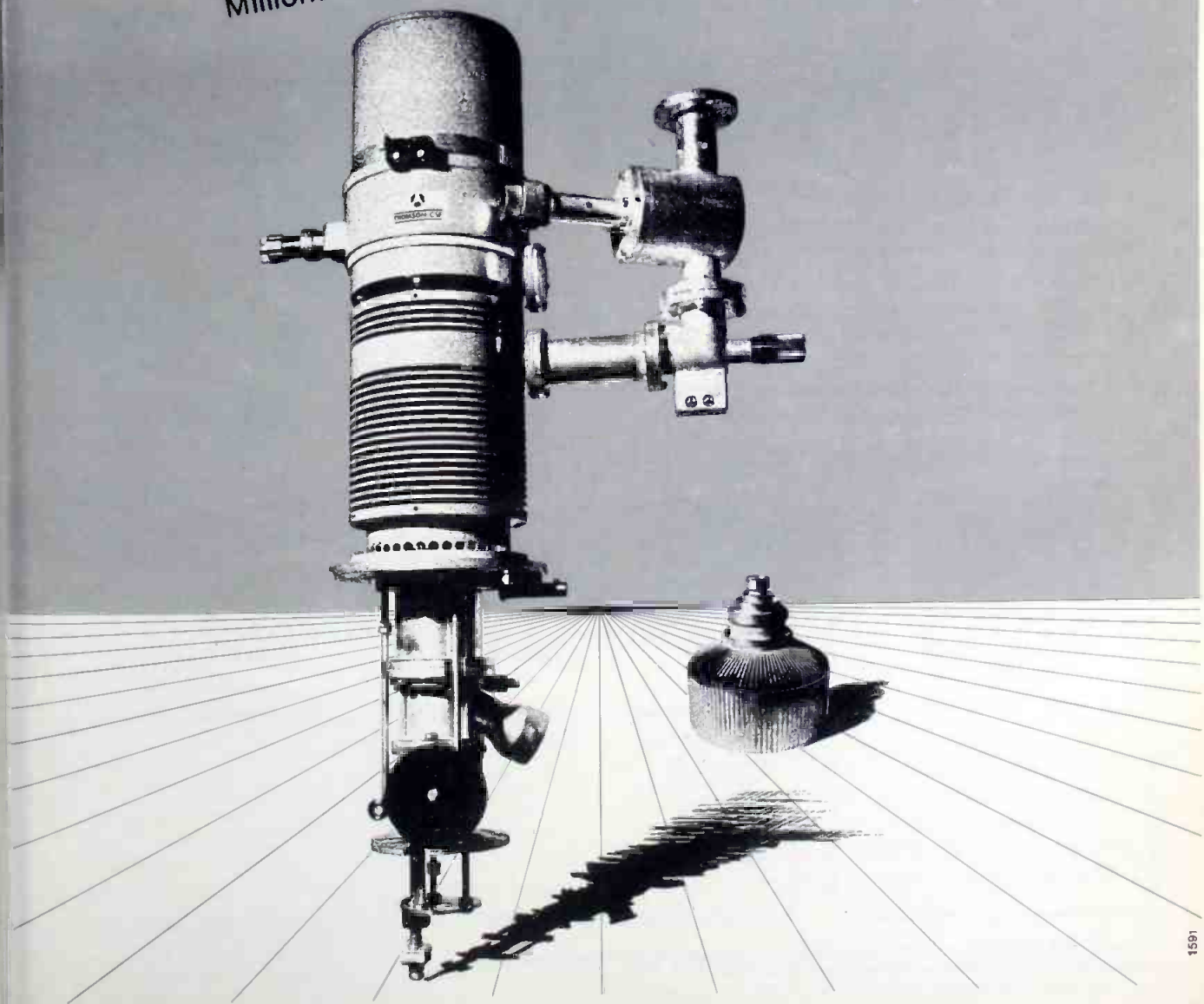

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September, 1972 • Volume 14, No. 9

BROADCAST engineering®

The technical journal of the broadcast-communications industry

in this issue...

ABOUT THE COVER

This month's cover depicts the theme of the Buyer's Guide. The extensive revisions and enlargement of the Guide will make it a real asset for your station files. Cover by Webb Streit.

DEPARTMENTS

BROADCAST ENGINEERING is published monthly by Intertec Publishing Corp., 1014 Wyandotte Street, Kansas City, Missouri 64105. Telephone: 913 888-4664.

BROADCAST ENGINEERING is mailed free to qualified persons engaged in commercial and educational radio and television broadcasting. Non-qualified subscriptions in the U.S. are $6.00 one year, $10.00 two years, $13.00 three years. Outside the USA add $1.00 per year to cover postage. Single copy rate 75 cents. Back issue rate $1.00. Adjustments necessitated by subscription termination at single copy rate.

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DIRECT CURRENT FROM D. C.

September, 1972

by Howard T. Head

Environmental Approval To Be Required for Future Tower Construction

The Commission has proposed new rules intended to implement the National Environmental Policy Act of 1969. Under the new rules, all applications filed with the Commission involving the construction, abandonment, or razing of a structure would require a showing by the applicant as to local measures taken to determine environmental effects.

Reports submitted by the applicants would be reviewed by the Commission. In such a review, the Commission might require the submission of additional information or to consider alternative approaches. In any event, action on applications would be deferred until questions on environmental impact have been satisfactorily resolved.

Cable Standards Committees Proliferate

The Electronics Industries Association (EIA) has formed a Cable TV Standards Committee. The new committee is a joint undertaking of EIA's Broadband Communications Section and the Consumer Electronics Group (television receivers). The mission of the committee is a study of the feasibility of standards for interaction between viewing devices and cable delivery systems.

The EIA committee is the latest addition to a growing list of industry, government, and professional study groups. Committees to study the problem of cable technical standards are now in operation at different levels (the FCC/Industry Cable TV Advisory Committee, The IEEE Coordinating Committee on Cable Communications Systems (CCCCS), as well as committees organized by NCTA, JTAC, and others.

Pilot Sub-carrier Rules Proposed During Monophonic Transmissions

The Commission has proposed to incorporate into Part 73 of its rules specific requirements prohibiting the transmission of the stereo pilot sub-carrier at 19 kHz during periods of monophonic transmission. The new rules would continue to incorporate an existing "rule-of-thumb" which provides an exception during periods no longer than five minutes in duration (see 12/69 D.C.). In proposing the new rules, the Commission stated the transmission of the sub-carrier other than for actual stereo transmission is contrary to the intent of the Commission rules, serves no purpose, and can be misleading to listeners.

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(Continued from page 4)

The Commission also has ruled against the transmission of discrete four-channel quadraphonic transmission without specific Commission authority in individual cases. The Commission emphasizes, however, that the ruling does not apply to "pseudo four-channel systems," which are not true quadraphonic systems but simply rely on manipulation of two-channel material to achieve simulated four-channel effects.

Deletion of Television Channels 70-83 Proposed for Receivers

The EIA has proposed that the Commission amend its all-channel receiver rules so as to restrict the requirement for all-channel reception capability to the band of Channels 2-69, inclusive. EIA urges that UHF tuner design will be simplified if the tuners are required to function only from Channels 14-69 rather than Channels 14-83.

The Commission has assigned the frequency spectrum formerly occupied by television Channels 70-83 to the land mobile radio services. However, approximately 1000 UHF translators continue to operate in this band, and under present plans will not be displaced until such a move is dictated by interference with the new land mobile stations.

EIA has proposed that these translators be moved to frequencies below Channel 70, a nice trick if they can figure out how to do it without disrupting established TV broadcast allocations.

Short Circuits

A Midwest daytime-only station on a Canadian clear channel has been fined for operating prior to sunrise without specific authorization...The Commission has assigned the bands 72-73 MHz and 75.4-76 MHz, adjacent to television Channels 4 and 5, respectively, for low-power classroom operation for training hard-of-hearing persons...Western Union has filed applications for three domestic satellites...The Commission is readying a proposal which would include master antenna television systems within the Commission's CATV jurisdiction if those systems import or origniate programs...The 21st Annual IEEE Broadcast Symposium will be held at the Washington Hotel, Washington, D.C., September 21 and 22.

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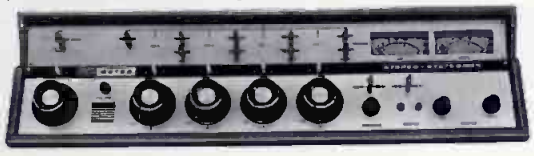

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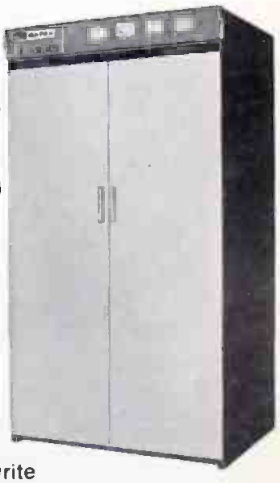

BC-10H, 10,000 watt AM transmitter. Solid state. Only 5 tubes. Lowest tube cost. Power amplifier efficiency approaching 90%. Dependable ceramic type 3CX2500F3 triodes employed in modulator and PA stages.

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LETTERS TO THE EDITOR

If You Don't Know, Ask

Dear Editor:

It is with great pleasure that I read **Broadcast Engineering**, and I look forward to comments on the articles and on engineering.

I have been very interested in articles in the past few months dealing with the title "Broadcast Engineer".

I am a staff announcer with a First Class License, and have been with this station for over two years. During my first year I worked with our engineer and learned many things. He left, and I was asked to keep the equipment up, do some maintenance, etc. And I was given the number of an engineer to call for help on the more serious problems.

Although I have been working under this arrangement for a year, I have learned a lot, but it is still difficult for me to take the reins. In the first few months of my new responsibility, the title of Chief Engineer was too fancy for me. I really did not know enough to warrant it.

I have been called a "90 day wonder", and I agree, I was. I still don't know it all, but I have some advice for those who may be in the same situation. . .or who may not have anyone to call for those serious technical problems.

The number one thing on the list is to be observant and ask questions. Don't be afraid to ask; what may seem basic to someone else could be a breakthrough for you.

Visit other stations. Find out what equipment they use. They may even have some of the same problems you are experiencing. Meet with other engineers. I haven't found one yet who won't give you some pointers.

Join a chapter of a broadcast engineering technical society, if there's one near you. Read your equipment manuals, magazines serving the industry, and read any other articles dealing with the industry. Try your local library. They have good material. It may be old, but it may be just what you need to get results.

Sometimes when I have fixed what may be a minor thing to some people, it's an accomplishment to me. I used to stare at the transmitters and wonder what they are all about. Now I am able to understand what makes them function.

With a daytime AM and an 18 hour FM plus a 6 to 12 midnight airshift, engineering can be tough. . .but rewarding.

Yes, I agree, a chief engineer ould be someone who is compe- nt in his field, but I do think there room for us "learners". Remem- r - when the ship sails smoothly, u're just another member of the ew. But when the sea gets rough, other, Your It!

I give my thanks to those chief gineers who have helped me.

Bill Kloop
WIXK AM/FM
New Richmond, Wis.

litor's Note: It takes courage to so honest about your profes- on. And in the small market sta- ons it is not unusual to find air tal- nt with a First. Trouble is, in too any cases - and this is not limited small market stations - there are cketed but nonprofessional gineer-operators. These stations ly on contract engineers every me something breaks down.

The feeling in many engineering uarters is that quality sound is on roller coaster: it hits its peak after Proof and it goes steadily down ill until a major breakdown occurs r the next Proof is pulled.

Certainly, it is important for wners to hire both engineering nd air talent. But the combination f talents is rare and the budget ay be tight. This is why we have many consultants and contract gineers today.

But it has become apparent to e that some states are closing the oor on people who offer their tal- nts under these titles. This maga- ine has expected the state and na- onal professional associations to peak out on the general question f titles and licensing. Little has een forthcoming, but we keep ooking for it.

We will continue to seek timely tters to the editor, but we suggest ou send a carbon to the FCC and ne to your association. If you are ot currently a member of a profes- ional association, we suggest you ead through those covered in this sue. Also, you may find it easier o affect changes in your local or tate area by voicing your opinions ithin your state association. And hen in your meetings you get round to it, why not discuss how

(Continued on page 10)

and where we get our engineering talent today. Among the types and titles of engineers today, what kinds of educational experiences are usually tied to what kinds of titles?

The Editor

Stations Seek Equipment Protection

The following letter is one more important chapter in the continuing effort to protect your facility and equipment from burglars and vandals. The more **BE** asks for comments, the more we find that this kind of letter does not represent an isolated example.

In the owners words, here's the problem that hit KOLA and the way he hopes to keep it from happening again.

I read your article about Radio Station KSST, in Sulphur Springs, Texas. The same thing happened to our station January 5, 1970, 11:05 PM. We were on the air at the time when our transmitter was stolen.

The transmitter is remote controlled and when they cut the wires to the remote control it took us off the air. So when we couldn't calibrate, we put the blame on the telephone company. When the telephone company checked the line (approximately a half hour later) they found it open at the transmitter.

It takes a half hour to get to the transmitter site, so that gave the thieves an hour to cut the wires and haul out what they could. They broke into the transmitter building first, and took what wasn't tied down (spare tubes, parts, etc. . .). Then they killed the power and started cutting wires. I had the transmitter completely retubed just one month before the burglary.

They had CB two way radios; two guys were at the studio watching to see when someone would leave to go up to the transmitter. Another four guys were on the hill lugging things out. I met them on the road coming down from the transmitter, but I never suspected anything. The traffic looked heavier than usual coming down from the transmitter for so late at nite, so I got the license plate number of the second car.

When I first entered the transmitter building, I thought that I was having a bad dream. I couldn't believe my eyes, the racks were empty and all spare parts were gone. Somehow I managed to call the California Highway Patrol, but it was out of their jurisdiction and the sheriff didn't know the way to the transmitter site. Finally after two hours wait, the sheriff arrived at the transmitter site. I was one number off the license plate, so they couldn't check it out.

I was up for three days (without sleep) working around the clock trying to get back on the air. I got spare parts for the transmitter from

r stations, but I needed a crys- I had two spare ones, but they been stolen, too. I called every on West of the Mississippi on frequency 99.9 for one, but it useless; no one had a spare tal. Even RCA didn't have one ock. Finally, I had one ground lly that took twelve hours after ding how urgently needed it . We borrowed an exciter from ST in Los Angeles, the IPA ion from KDUO in San Ber- lino, and KGIL in the valley nteered to run the commercial ouncements we missed, but t were local, and wouldn't help dvertisers.

nree AM, three days later we back on the air. We were mono, we were on the air. I then took long needed sleep. I slept fif- hours and was awakened by a ne call stating that the equip- t had been returned.

he thieves were six teenagers, from prominent local families. y got off scot free because they e all under age.

now with all the equipment ng in the middle of the floor of front office (badly scratched dented), the job started all over n; putting the equipment back e transmitter and returning the owed equipment.

little over a week later the job complete. Then to top things the FCC made a surprise ection the next day.

asked the sheriff why the boys ted the equipment. He said they had plans of building a powered CB transmitter.

The transmitter now has an m which will ring a bell in the dio when the door of the build- is opened. This is connected ough the remote control on a re position on the metering cir- t.

I feel stealing broadcast equip- nt should be a more serious of- se. I took quite a loss and the 's got off free. My loss should e been justified somehow, but law protects minors.

Frederick R. Cote
KOLA Stereo
Riverside, Calif.

NAB Committee Will Hold Six Conferences

License challenges and renewals, counteradvertising and other prime issues like consumerism and political broadcasting will be discussed along with the nuts and bolts problems of day-to-day station operations during six 1972 Fall Conferences sponsored by the National Association of Broadcasters.

A key member of the Senate or House of Representatives will be invited to address the luncheon in each Conference city.

Tentative plans announced by the NAB Study Committee call for separate Early Bird Radio and Television sessions followed by a joint meeting of all delegates during the morning hours at each of the one-day conferences. The joint Radio-TV afternoon session will feature a quiz on difficult practical matters facing station management and a rap session moderated by NAB President Vincent T. Wasilewski. Tentatively scheduled to follow is a question-and-answer session with a member of the Federal Communications Commission.

A separate Radio Management Development Seminar, sponsored by NAB's Small Market Radio Committee, will be held the afternoon before in each of the six Conference cities.

The series opens in Denver, Colo., on Tuesday, Oct. 30, moves to Las Vegas, Nev., on Thursday, Nov. 2, then switches to Boston, Mass., on Thursday, Nov. 9. The final three Conferences will be held in San Antonio, Tex., Tuesday, Nov. 14, in St. Louis, Mo., on Thursday, Nov. 16, and in Atlanta, Ga., on Tuesday, Nov. 21.

The agenda for the Early Bird Radio Session includes a discussion of radio regulation and other matters of major interest. Cable television is among subjects to be taken up at the concurrent Early Bird Television Session. Both begin at 8:00 a.m. local time.

The Joint Meeting will open at 9:30 a.m. with a twin-purpose discussion on broadcast legislation and broadcast regulation. It will include such issues as license renewal, license challenges, consumer legislation, counter-advertising, political broadcasting, etc.

The morning program will also include a discussion by a sports personality of this important element of radio and television programming. A large market and small market broadcaster also will participate, outlining practices in sports programming at their stations.

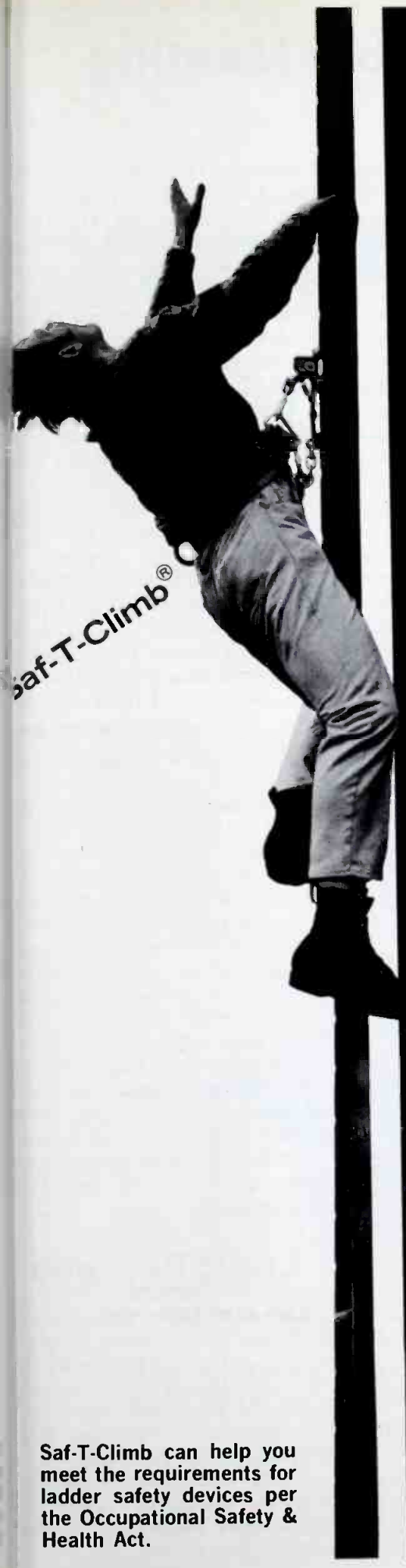
The afternoon session will begin with broadcast operations quiz. After the questions have been asked and each participant has filled in his response, the correct answers will then be discussed by a staff or Board member. The open rap session will follow. FCC Commissioners are being asked to attend one of the six conferences for remarks and a question-answer period.

Sherril Taylor of CBS Radio, Chairman of the study committee, said: "Attendance at last year's conferences increased about 16 percent over the previous year. We believe this was due to the quality and variety of the program presented. This year we are aiming at another increase. We believe this will be the most informative single day a broadcaster can spend away from his station."

Each of the conferences will be preceded by a reception the evening before.

Registration for the Radio Management Seminar preceding each conference is being limited to 45 participants. The $25 registration fee includes course material and a text book.

The purpose of the seminars is to provide radio managers the opportunity to learn more about the basics of management development and to assist each participant in the task of analyzing, developing, and refining his personal working philosophy of management.



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SMPTE Ready For October Meeting

SMPTE Conference Vice-President Harry Teitelbaum, Hollywood Film Co., and SMPTE Editorial Vice-President Richard E. Putman, General Electric Co., have jointly announced the names of committeemen who will put together the program and handle all the details of the upcoming SMPTE Technical Conference in Los Angeles.

The Conference is set for the Century Plaza Hotel, Oct. 22-27, 1972.

The appointment of Dr. Frank P. Brackett, Jr., Association of Motion Picture and Television Producers (AMPTP), as Program Chairman had been announced earlier. Working with Brackett will be Ralph Westfall, Eastman Kodak Co., as Associate Program Chairman, and Frank P. Clark, AMPTP, as Chairman of the two-day (Thursday-Friday) Symposium on Communications Satellites and CATV.

Newly appointed topic chairmen, who bring together the papers for the technical sessions, are Winton Hoch, for Motion-Picture Studio Practices, Lighting, Exposure, etc.; Petro Vlahos, AMPTP, for Sound Recording and Reproduction; Julian D. Hopkinson, Agfa-Gevaert, Inc., for Photosensitive Materials for Motion-Picture and TV Practice; Fred J. Scobey, DeLuxe General, Inc, for Laboratory Practice; Paul H. Preo, Eastman Kodak Co., for Theater Presentation Practices; John H. Donlon, Technicolor, for Small-Format Films; and Melvin G. Sawelson, Consolidated Film Industries, for Television Systems and Editing.

The names of the Arrangements Chairman Tony Bruno, Eastman Kodak Co., and the Exhibit Chairman Warren Strang, Holleywood Film Co., had been previously announced. Working under Bruno as Assistant Arrangements Chairmen are Don Henderson, Eastman Kodak Co., and Fred Detmers Technicolor.

Ed Burns, Eastman Kodak Co., is handling Hotel and Motel Arrangements; Dick Sullivan, Eastman Kodak Co., the Hotel Reservations; C. Carroll Adams III, the Public Address and Recording and Phil Singer, Agfa Gevaert, the Opening Films.

Jack Hall, Producers Service Co., is in charge of the Get-Together Luncheon; Don Kloepfel DeLuxe General Inc., heads up the Projection Committee, and Mrs. Anthony Bruno and Mrs.

(Continued on page 16)

Mountain Prime Time Set

In amendments to Section 73.658(k), "Prime Time Access Rule", the FCC has redesignated the "prime time" hours in the Mountain zone as 6 to 10 p.m. local time instead of 7 to 11 p.m. (Docket 19475).

The new rule becomes effective October 1, 1972.

On October 6, 1971, the Commission granted the nine stations involved (three each in Denver, Phoenix and Salt Lake City) an option to redesignate 6-10 p.m. as prime time. None of the Salt Lake City stations changed their prime time hours resulting in frequent requests for waivers of the rule, "uncertainty, confusion, and some disruption," the Commission said. It stated that as long as one of the Salt Lake City stations remains on a 7-11 p.m. schedule, there will continue to be problems in the operation of the rule.

Most of the waiver requests from the Salt Lake City stations involved material preempting NBC's **Tonight** show, and overruns of prime time network programs which occur outside of prime time in the Eastern and Central zones but fall within it in the Mountain zone for stations observing 7-11 p.m. as prime time. The 6-10 p.m. prime time would permit mountain time stations to carry this material outside of prime time without the need to request waiver of the rules.

The Commission said that the majority of the parties directly involved supported the change to 6-10 p.m., with only the Salt Lake City and Denver CBS affiliates opposing the change and urging that the "option" be retained. Stating that the option arrangement wouldn't work any better in the future than it has in the past, the Commission said that 6-10 p.m. will minimize the problems since it represents a better approximation of what really are prime hours in the Mountain zone and responds more closely to prime-time scheduling practices.

Logic Reprints

BROADCAST ENGINEERING now has a limited supply of reprints on the four-part series Digital Logic Basics written by E.S. Busby, Jr. The series started in the September 1971 issue and ended with the January 1972 issue.

If you would like to receive a copy free of charge, write to: The Editor, 1014 Wyandotte St., Kansas City, Mo. 64104.

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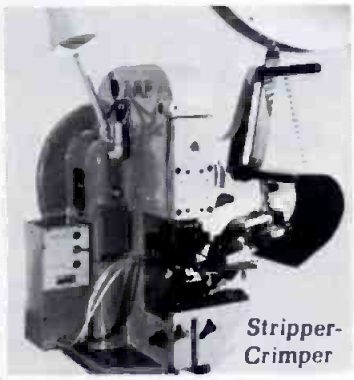
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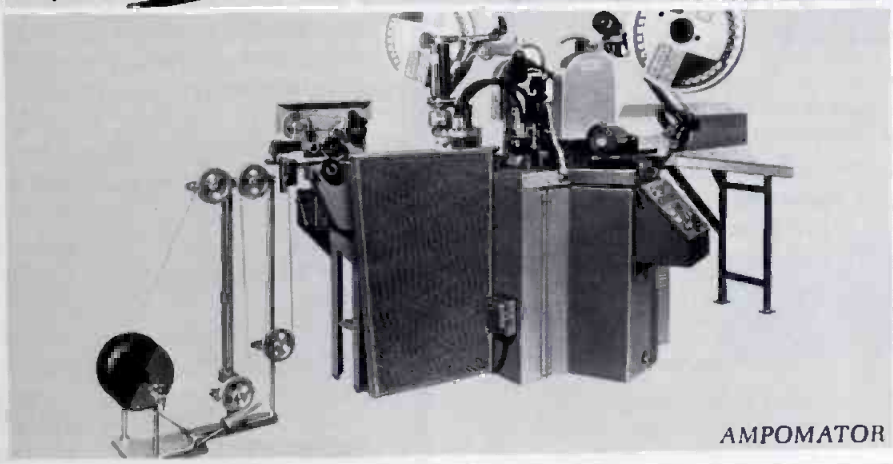
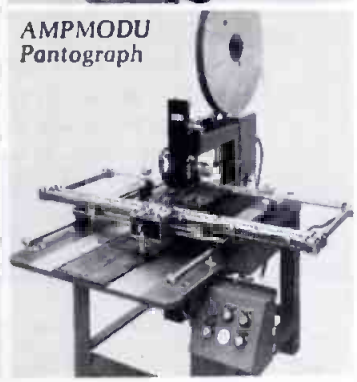

AMPOMATOR


AMPMODU Pantograph

AMP at the FIAREX (Convention)

The machines shown here are on demonstration at Booth No. 95 during the FIAREX. Our experts will be glad to give you any information about all the other AMP products and applications.

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Kenneth Mason are co-chairmen of the Ladies Committee.

Harry Lehman is Publicity Chairman; Carleton Wright, Agfa Gevaert, and Ken Erhardt, NBC, are handling the hospitality and foreign delegations; and Whiting, Jr., 3M Co., and Marvin Jacobs, are in charge of membership. Transportation is being taken care of by Scott Robertson, Eastman Kodak Co.; and Mardi Rustam, American Film Industries, will be the Auditor, assisted by Russell F. Dubes.

The Conference will feature five days of technical sessions, plus a 92-booth equipment exhibit. For information on the Program, the equipment exhibit, registration and hotel reservations, write to SMPTE Conference, 9 E. 41st St., New York, N.Y. 10017.

Predictions For the '70's

A wide-ranging look at curren trends and future prospects for th economic growth of the U.S Electrical / Electronics industrie and the potential impact thi growth might have on the overa U.S. economy is documented in report now available from th IEEE. An ad hoc committee of to industrialists who completed thi comprehensive report detaile their principal findings for th 1970's.

In summarizing its deliberation the Committee arrived at the fo lowing views for the decade of th 1970s—

1. The demand for engineers wi be increasing at a rate of about percent per year, a slower pac than in past years.

2. Supply and demand of electri cal engineers will be reasonably i balance, perhaps with some short ages.

3. Government spending in th domestic areas will not offset de creases that have occurred or ar expected in military and space pro grams until late in the decade, i then.

4. The electrical/electronics in dustry will show a 7.5 to 8.0 per cent average annual growth, wit some areas showing growth sub stantially above this amount.

5. There is a need to reduce th number of individual sources o data on manpower and characteris tics of the industry, and to establis a more comprehensive and reliabl data base to serve a multiplicity o users.

6. There is a need for aggressiv governmental action to reduc trade barriers so that competitio can be as open and fair as possible.

7. There is an enormous deman for capital that can best be met by stable economy and incentives t investment.

8. To maintain our technica leadership, more support for re search and development, probably in the form of tax incentives, i needed. A level of R & D expendi tures in relation to GNP, at leas comparable to that of the mid 1960s, would be more appropriate.

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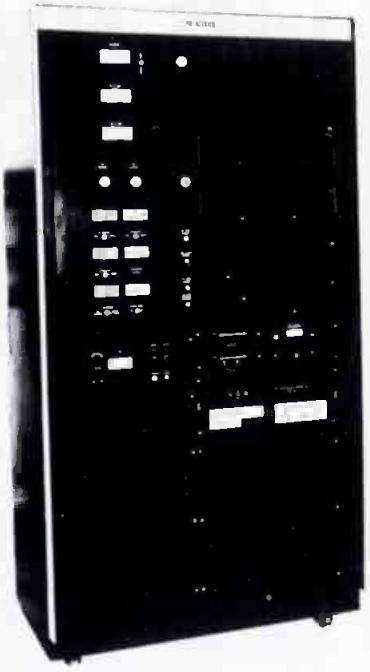

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7.5 KW - 10 KW - 20 KW - 40 KW

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Commission Explains "Lowest Unit Charge"

Community Broadcasting Company, licensee of KRSN, Los Alamos, N. Mex., has been informed by William B. Ray, Chief of the Complaints and Compliance Division of the Broadcast Bureau, that the "lowest unit charge" provision of Section 315(b) of the Communications Act does not apply to the rates charged for political candidates where an advertiser is not charged for any of his announcements.

The text of the letter to KRSN follows:

This is in reply to your letter of June 13, 1972. You ask whether, if you give free announcements to certain students and other individuals to advertise, you are "committing [yourself] . . . to a zero rate for political candidates." You state that the reason why you give free announcements is that "they need just a little help."

It does not appear that the "lowest unit charge" provision of Section 315(b) of the Communications Act of 1934, as amended, is applicable to situations where an advertiser is not charged an amount for any of his announcements. This of course does not apply to situations where commercial advertisers receive free "bonus" spots based upon the number or type of announcements they have purchased.

Weekly Equipment Lists

A new service, listing certified and type accepted equipment on a weekly basis has been initiated by the Technical Division of the Office of Chief Engineer. The listings will be distributed by the Public Information Officer.

Certification and type acceptance are two of the equipment approval procedures used by the Commission. Certification means that the manufacturer or user has filed with the Commission a report of measurements to show that the equipment in question complies with the technical specifications in the Commission's rules.

Type acceptance for equipment is granted after a review of representations and measurement data submitted to the Commission by the applicant shows that the equipment is capable of complying with the applicable rules.

Reader Service Card

In This Issue

Is Good For

One Year

Satellite Conference Set For November

The second International Conference on Digital Satellite Communications will be held at the UNESCO Building in Paris, France, November 28-30. The meet will be sponsored by the International Telecommunications Satellite Consortium (INTELSAT).

About 400 people attended the first Conference held three years ago in London. In light of the increasingly rapid expansion of satellite technology, the second conference will be of even greater importance.

The conference will provide a forum for the exchange of information on at least the following topics: overall systems description; modulation systems; coding and error control; synchronization; transmission and channel effects; interference; base-band equipment; speech interpolation; demand assignment; signalling; operations; and economics.

For further information, contact: W.L. Pritchard, COMSAT Laboratories, Box 115, Clarksburg, Maryland 20734.

Politics For Politicians

The FCC has told Joseph A. Califano, Jr., General Counsel of the Democratic National Committee, that there is no basis for his request for the disqualification of Chairman Dean Burch from the political broadcast phase of an inquiry into the Fairness Doctrine (Docket 19260).

The Commission made the ruling in a 5-0 vote in which Chairman Burch did not participate.

Califano had contended that Burch's service as Chairman of the Republican National Committee from 1964 to 1965 would make it difficult for him to act objectively on a Democratic National Committee fairness inquiry request that the FCC provide an automatic right to respond to broadcast appearances by the President. The Republican National Committee opposed the proposal of the Democratic National Committee.

In a separate statement, Chairman Burch said that he had found no basis for disqualifying himself, but had submitted Califano's request to the full Commission for its consideration.

The Commission noted that Califano did not suggest that the Chairman had shown personal bias or prejudice toward any party participating in the proceeding or had taken any other action that could adversely affect the confidence of the public in the integrity of the government. The entire basis of Califano's request for disqualification was the political party position held by the Chairman before his appointment to the FCC.

"We see nothing in any of the authorities relied upon by you or in any relevant decision of the courts of which we are aware which would indicate that past political activity of a Commissioner is disqualifying in proceedings in which his and other political parties may be participants", the Commission told Califano.

Audio monitoring and monitoring distribution

By Pat Finnegan*

All broadcast stations require audio monitoring to hear the on air product, and for auditioning and maintenance purposes. A good, reliable monitor system is similar to good test equipment when it can reproduce accurate results. While there are many reasons for audio distribution within a station, this article will concern itself only with audio monitoring and distribution of monitor signals.

Classes of Monitoring

Monitoring can be divided into four general classes: control room, house, special and maintenance.

Control room monitoring includes the studios directly associated with the control room and its console. This monitoring is for the direct benefit of those involved in the production of the air product.

House monitoring is generally from the off air signal and distribution throughout the station at comfortable listening levels. The signal will be provided at many locations for all to hear and use according to their needs.

Special monitoring would include specific areas or circuits to be monitored, such as a network line or remote line, or perhaps the signal from a sister station.

Maintenance monitoring would encompass all the special techniques and check points used throughout the system.

System Ingredients

Regardless of the size and complexity of the monitor system or systems in use, there are some basic ingredients common to all of them.

In all cases except headphone monitoring, there will be a monitor amplifier. The power output of this amplifier will be dictated by the amount of audio to be distributed and at what levels. The control console monitor is usually a part of the console itself and its power output prescribed by the console manufacturer. This amplifier is basically designed to supply three or four speakers only in the control room and the studios associated with that console.

House monitor systems often make use of high power amplifiers and in some cases, there may be more than one amplifier. Amplifiers for special purpose monitoring, on the other hand, may be a low power unit to supply a single, small speaker.

Speakers will be needed and at many locations. The power handling ability of individual speakers will depend upon how much signal level will be needed at a given location. Many inexpensive speakers and cabinets are available and these have reasonable quality. Yet, there may be some locations, such as a client auditioning room, where a high quality speaker is desired.

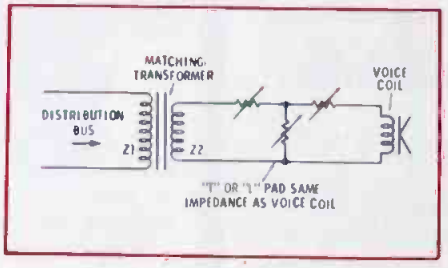

Fig. 1 The T or L speaker pad should be wired between the matching transformer and the voice coil so as not to disturb the bus. The pad impedance should be the same as the voice coil impedance.

Control of signal level at each speaker is most desirable. These controls can either be an operational control mounted on the front of the speaker cabinet or a set up control mounted out of sight at the rear of the speaker. Such controls permit the individual level to be adjusted at a speaker location without affecting the remainder of the system. In a house monitoring system once the main amplifier level controls have been set, there should be little reason for readjustment.

The monitor in the control room will be used to monitor many things, so its level controls will be adjusted quite regularly. Even so, the speakers associated with the console should have individual controls at the speaker so they can be adjusted for studio listening levels. A comfortable level in the studio may be entirely too low for control room use. Speaker controls of both the "L" and "T" pad varieties are commercially available. The pad selected should match the speaker impedance and should be wired between the matching transformer and the voice coil.

Impedance matching throughout the system is important. The system must be matched, because a matched system will give an efficient transfer of power and will maintain the correct frequency response. This match must be across the entire speaker system. The amplifier output transformer will ordinarily provide a number of impedance taps. A simple system using one speaker would match or connect the speaker voice coil impedance to that impedance tap on the output transformer. As the system becomes more complex, the impedances become very important.

Aside from the fact speaker systems operate with high currents and transformers, they are the amplifier load and can be computed by using Ohm's law. Thus, in a one speaker system using an 8 Ohm voice coil connected to the 8 Ohm tap of the amplifier, the system is matched and an efficient transfer of power will take place.

If a second 8 Ohm speaker is connected in parallel with the first speaker, the combined load impedance is now 4 Ohms and a mis-

*BE Maintenance Editor

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match has occurred. Adding two more 8 Ohm speakers in parallel with the original two, the load impedance on the amplifier is now 2 Ohms instead of 8 Ohms. The power transfer is now very inefficient.

Correction of the mismatch can be by either of two methods. First, move the connection or the output transformer to the 2 Ohm tap (if such is available) or add a matching transformer at each speaker.

The packaged systems often supplied with the console will include matching transformers in each speaker. The monitor output impedance of the console may be listed at 16 Ohms. This is generally set up for four speakers. You might conclude from these specifications that the tap on the monitor output transformer is set for 16 Ohms; instead, it is set for 4 Ohms. This anticipates that the amplifier will "see" four 16 Ohm speakers in parallel or 4 Ohms. Since most speaker voice coil impedances are 6 to 8 Ohms, it would require a matching transformer to translate the 6 or 8 Ohm to the 16 Ohm impedance.

Amplifiers designed for use in broadcast stations usually have a large number of impedance taps available, while those designed for Public Address work often have fewer taps. Small amounts of mismatch will not be noticeable as the amplifiers usually have enough reserve gain to make up for the loss caused by mismatch. Only when the system becomes more complex and there is little attention to matching will the problems become serious. If the mismatch is very far off, the amplifier output tubes may be seriously overloaded, resulting in distortion, short tube life or short transistor life. At this point it might be well to say that tubes are more tolerant of an overload and still come back for more. Transistors are not so tolerant and will probably fail.

The distribution system is a very important ingredient in a complex speaker system. Any low impedance, power circuit will carry high current. This can easily be computed by Ohm's law. Thus, the resistance of the connecting wire rises in importance with the length of the wire. Power will be lost in long runs of high resistance wire.

As a matter of practice, when a very low impedance is to be used on a long wire run, the wire should be fairly heavy so as to reduce wire losses from the high current. An alternative method would be to use a higher impedance run and a matching transformer at the speaker. The higher impedance will produce a lower current circuit and the transformer will restore the circuit at the speaker. One can go as high as 600 Ohms if a transformer is available to match 600 Ohms to the voice coil. Go to higher impedances than 600 Ohms and other problems will arise, with frequency response due to capacity of the wire shunted across the signal.

The 70.7 Volt System

The constant voltage system used in Public Address systems

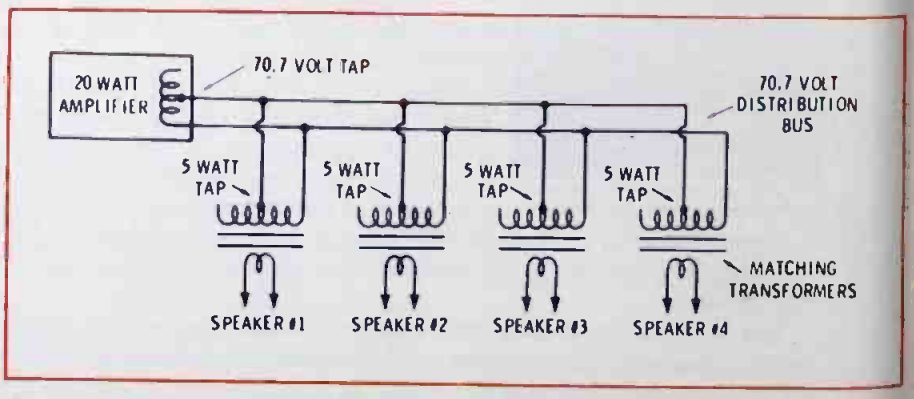


Fig. 2 Components of the 70.7 volt constant voltage bus. The power taps on each transformer are set for the power required at each speaker. The total of all the taps along the bus should equal the power rating of the amplifier.

be used in a house monitoring tem. In recent years, the 25 lt system has also come into u:. Transformers in the constant tage system are marked in pow- taps rather than impedance taps. ch markings allow the system designer a simpler method and re- ce computation to a minimum.

The amplifier output transformer marked in either 70.7 Volt or 25 lt tap. The system is based on a nstant voltage bus at the maxi- m output of the amplifier into a perly matched load. While most plifiers are not operated at their aximum output power, some ge systems may do so. General- it is better to have some reserve the amplifier rather than operate at its maximum rating. In the nstant voltage system, the total eaker power load must be made ual to the maximum rated power tput of the amplifier—even lough the amplifier may not oper- at its maximum power.

Speaker Selection

Installation or design of a speak- distribution system is a simple tter, if you select components ecifically marked for one of the nstant voltage systems. Each eaker transformer will have its imary taps marked in power, ile the secondary will have taps match various speaker imped- ces.

In the system installation, simply nnect the primary taps to the ed bus at the power level selected r that speaker. The only require- ent is that the sum of all the speaker power taps must equal the amplifier maximum rated power output.

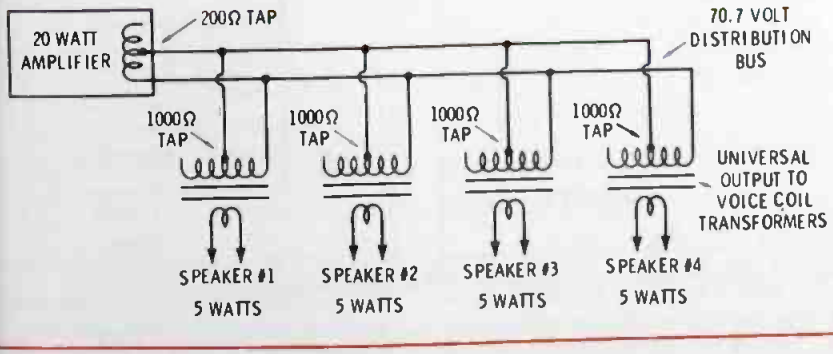
For example, a 50 Watt rated amplifier and 10 speakers will be used in a system and each speaker will receive equal power. 50 Watts divided by 10 speakers will be 5 Watts to each speaker. The tap on each transformer will be set to the 5 Watt position. Unequal distribution of power can just as easily be made, just so long as the total power taps equal the maximum rated output of the amplifier. There is no need to worry about the actual power rating of the speaker transformer since there will be no tap higher than what it can actually handle.

You can still use a constant voltage system even though components are not on hand or readily available that are marked for the system. A little more computation is required, some good quality universal output to voice coil transformers of adequate power rating, and an amplifier with a suitable impedance tap. These are the same basic components that go into the constant voltage system with the difference of markings.

A Constant Voltage System With Unmarked Components

Here is how to design a constant voltage system with "unmarked" components. The 70.7 Volt system will be used.

The first thing is the amplifier and its output transformer and as-



g. 3 A constant voltage distribution bus using unmarked components. The output npedance tap on the amp is found by computation. The primary impedance tap of ach matching transformer also by computation. Otherwise, this system is identical to nat shown in figure 2.

suming the amplifier has no tap marked 70.7 or 25 Volt system. Compute the impedance tap required on the output transformer by the use of ordinary power formulas. $Z = E^2/P$. P is the amplifier maximum output power rating, E is the bus voltage, Z will be the impedance tap on the output transformer. For example, a 50 Watt amplifier and a 70.7 Volt line. $Z = 70.7 \times 70.7 / 50 = 5{,}000$ (approx)/50 = 100 Ohms. Find a tap as near to 100 Ohms as possible.

You should note that since the design is for a constant voltage bus, the impedance will change directly with the amplifier power rating. In our previous example, if there is no 100 Ohm tap available, you can try for a 25 Volt system. The impedance for the 25 Volt system would be: $Z = 25 \times 25 / 50 = 625/50 = 12.5$ Ohms. The amplifier would most likely have a tap very close to this, so a 25 Volt system could be used.

As was stated earlier, the impedance tap will vary with the amplifier output rating. To demonstrate this, assume a 25 Watt amplifier: $Z = 5000/25 = 200$ Ohms for a 70.7 Volt system, and $Z = 625/25 = 25$ Ohms for the 25 Volt system. It is obvious that there is no "standard" impedance for a constant voltage bus. A statement could be made that any amplifier of a given maximum power output rating will have one impedance value for 70.7 Volt system, and one impedance value for a 25 Volt system.

In normal use, the voltage on the bus will certainly not be constant and may not be anywhere near the 70.7 Volt figure. The constant voltage figure is a maximum design figure, just as the amplifier maximum power output is a design figure. For example, a 100 Watt amplifier is supplying a 70.7 Volt bus. The output impedance tap will be 5 Ohms.

In operation, the amplifier gain controls may be set so that the amplifier is actually supplying only 50 Watts to the bus and load. By use of power formulas: $E = \sqrt{PZ} = \sqrt{50 \times 50} = 50$ Volts. Thus, although the design is for a 70.7 Volt system, the bus voltage is actually only 50 Volts. In the computations 5,000 is used. This figure is easier to remember and work problems than 4998.49, which is the true square value of 70.7. The error is small enough to cause no problems in the system. The 25 Volt figure squares out evenly to 625.

Going back to our original system design, we now know that our 50 Watt amplifier needs a 100 Ohm output tap to supply a 70.7 Volt bus. Assume the amplifier does have such an impedence tap, we can now design the speaker system. Also, assume that no constant voltage transformers are available.

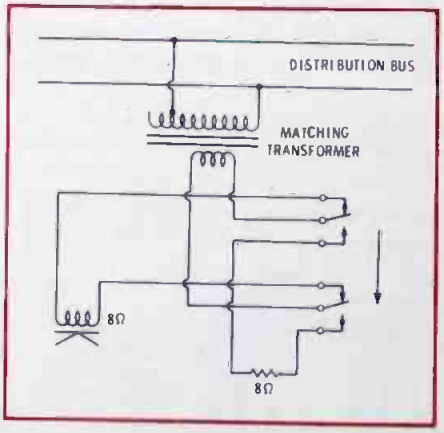


Fig. 4 A simple switch at a speaker location. The switch should be placed between the matching transformer and the voice coil. The switch substitutes a resistor equal in value to the voice coil impedance to keep a constant load on the amplifier.

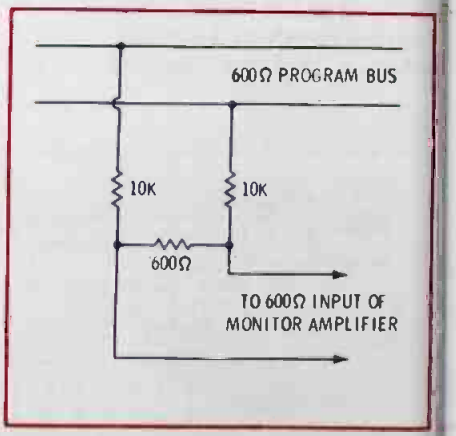


Fig. 5 A simple bridging connection to a program bus with fixed resistors. The low impedance input of the monitor amplifier will have no effect upon the bus. The values shown will drop the program level of the monitor about 20 dB.

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without ordering some, while there are a number of good quality universal output transformers available on the shelf.

Here again, we can use ordinary power formulas to arrive at the correct primary impedance taps on each transformer. We will use the same power formula as just used to find the output impedance of the amplifier transformer, except this time, the power figure in the formula will be the power desired in that speaker.

The impedance factor of the formula will be the primary tap of the transformer, while the voltage will be the bus voltage. Thus: $Z = E^2/P$ or $P = E^2/Z$. Our system has a 50 Watt amplifier and there will be 8 speakers and there will be unequal power distribution. There will be (2) 10 Watt, (1) 7.5 Watt, (1) 2.5 Watt, (4) 5 Watt speaker locations. The total of this wattage distribution equals 50 Watts, the amplifier maximum rating.

Using the formula, the primary impedance tap for the 10 Watt speaker will be: $Z = E^2/P = 5000/10 = 500$ Ohms. The 7.5 Watt speaker will be: $5000/7.5 = 640$ Ohms, etc. Of course, if a 25 Volt system was to be used, the 25 Volt figure would be used instead of 70.7 Volts.

Maintenance

Control room system: Speakers fed from the console monitor amplifier usually number only 3 or 4. These are located in the control room and studios. It is necessary that the studio speaker be muted when a microphone is opened in the studio, otherwise, there will be positive feedback. Relays normally do this muting and are located inside the console. When these speakers are muted by the relay, the relay disconnects the speaker and substitutes a resistance in its place so that the load on the amplifier will remain constant. If this were not done, the level of the unmuted speakers would increase. Should it be necessary to replace one of these resistors for some reason, the replacement resistor should have a value equal to the speaker load impedance. This value would be the input value of the matching transformer, and not the voice coil impedance. Thus, if the input impedance of the transformer is 16 Ohms, the resistor should be 16 Ohms. Also, it should have a power rating equal to the speaker power rating.

Switch Mute: Sometimes it may be desirable to shut a speaker off completely in a studio. There may be times when someone is rehearsing and the air program would be a distraction. Many of the "T" and "L" pads for speaker use will not completely shut the speaker off. A simple switch arrangement can be built at the speaker location which will completely mute the speaker. The switch should substitute a resistor of the proper value and power rating in place of the speaker.

Jacks: If the individual studio speakers do not have a cutout switch in the studio, the speaker input leads should be routed through a jack field. Should the mute relay become defective for any reason during a program, a patch cord plugged into the jack will open the speaker. A plug with a terminating resistor could be used also to plug into the jack and terminate the amplifier, so the amplifier load would remain constant.

Muting relays: These will give problems when the contacts become dirty. The sound in the speaker can become intermittent or distorted. Contacts should be cleaned with a small relay burnishing tool if the monitor amplifier can be turned off. If the amplifier cannot be turned off, a piece of paper run between the contacts will often do the job. It is especially important with transistors in the output stages that the output does not become shorted. This can blow the transistors.

Other systems: There may be situations where a separate monitor is

(Continued on page 88)

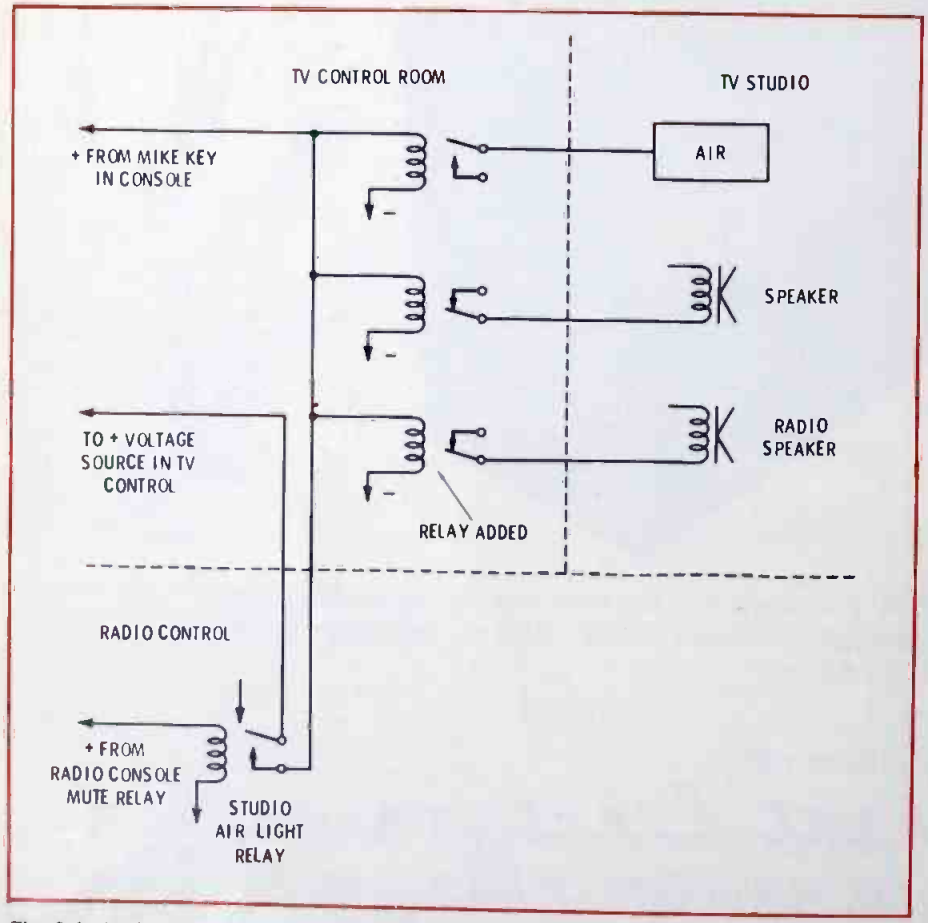
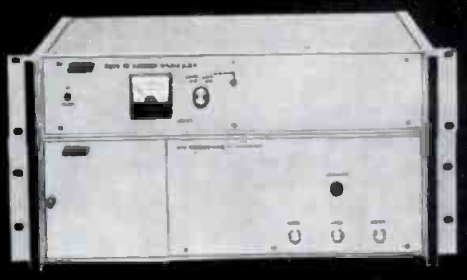


Fig. 6 A single studio in use for two different services can be muted from either Control Room by the addition of a single relay. Turning on a mike key in either console will operate all the necessary relays.

Tracor's Revolutionary Free-The-People Box.



Unattended, it keeps your station within .05Hz day in, day out.

Frees engineers from slavery. Eliminates co-channel or skip interference. Provides larger audience with better reception. Gives your advertising manager more ammunition. Major network affiliated stations are now using Tracor's revolutionary 6500 Visual Carrier Generator System. Join the FCC approved movement now.

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Address _____

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TRACOR Tracor Inc., Industrial Instruments, 6500 Tracor Lane, Austin, Texas 78721

Circle number 24 on Reader Reply Card

Olympic contests taking place at thirty-three different venues. Most of the locations are within the Oberwiesenfeld complex on the outskirts of Munich. However, most of the aquatic events will take place near Augsburg and Kiel. Relay links ranging up to six-hundred miles will be required to bring those images to the television center.

All of the television pictures from the various venues coming through individual mobile vans or fixed studio installations, will be relayed by microwave units to receivers on the lower deck of the Munich Television Tower (Fernsehturm). This almost 900 foot tower located near the television switching center within the Olympic site, will act as the major relay point for incoming and outgoing signals. The upper deck of the tower adjacent to the television transmitting antenna, will provide a superb platform for a few TV cameras that can scan the whole area from a unique angle.

Signals arriving at the tower will be sent by cable to the DOZ master control room and distributed to individual control rooms set up specifically for various participating networks. At this point images and sound meeting selected national interests are combined and processed for distribution to the appropriate recipients. Processed picture and sound is routed via cable back to the tower and then by microwave to a variety of distribution points.

Television Firsts At The Summer Olympics

XI Olympiad Berlin 1936
First use of television
First mobile TV unit
First monochrome receivers

XVII Olympiad Rome 1960
First multiple site coverage
First video tape recording
First network transmission
First monochrome standards conversion
First video tape editing

XVIII Olympiad Tokyo 1964
First color coverage
First satellite transmission
First monochrome slow and stop motion
First separate luminance color camera
First color video tape recording
First electronic VTR editing
First helical recording (monochrome)

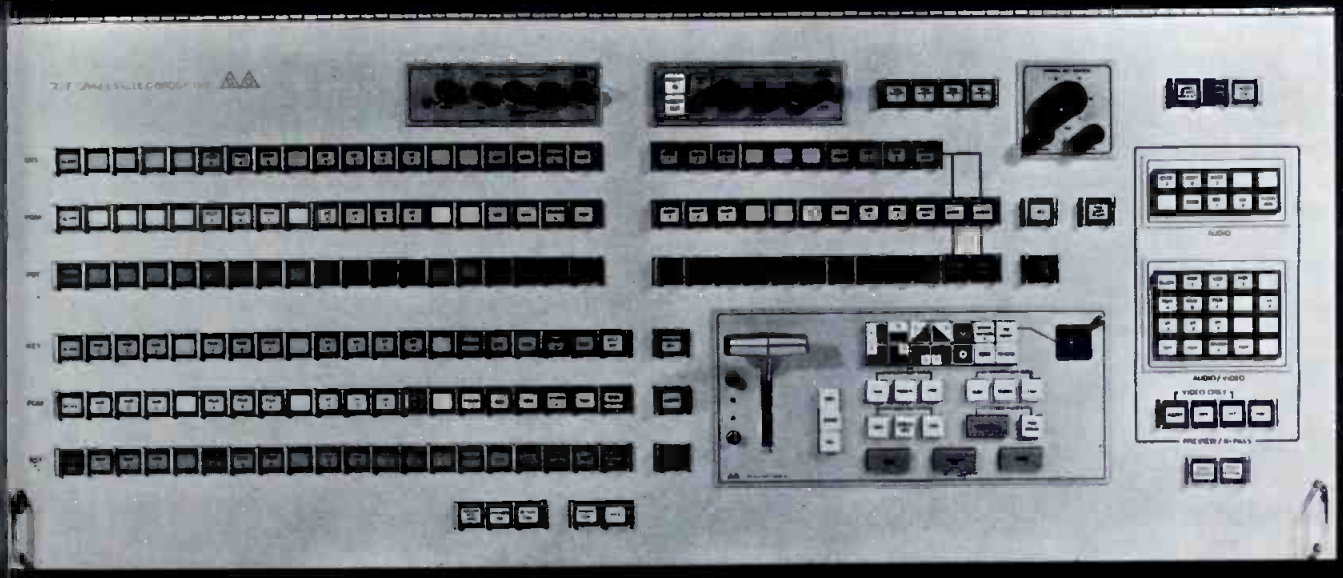
XVIV Olympiad Mexico City 1968
First portable color cameras
First portable quad VTR's
First disc slow/stop instant replay
First 3 continent satellite hook-up
First electronic color standards conversion

XX Olympiad Munich 1972
First all color coverage
First 5 continent satellite hook-up
First automated VTR editing
First computerized electronic scoreboard
First optical color standards conversion

1972 MUNICH OLYMPICS LAYOUT

MODEL 1400-24 SWITCHING SYSTEM

THE INDUSTRYS' MOST VERSATILE EQUIPMENT FOR MCR AND AUTOMATION APPLICATIONS



FEATURES

VIDEO ● 20 Inputs, including black and color background ● 11 Wipe patterns, including "special" pattern ● Output buses: PGM, PST, KEY, and PVW* ● Operational modes: PGM and PGM w/INSERT ● Transition modes: Take, Dissolve, Fade, and Wipe ● Pattern positioner ● Manual and programmed dissolves, fades, and wipes ● Automatic black burst system ● Automatic non-sync inhibit ● Automatic sync add for non-composite inputs ● Processing amplifier (optional) ● Color insert generator (optional) ● Chroma Key (optional) ● AUDIO ● 29 Inputs (19 follow, 10 non-follow) ● Output buses: PGM, PST, MIX, and PVW* ● Operational modes: Direct (PGM) and MIX bus "over" or "under" PGM ● Transition modes: Take, Dissolve, and Fade ● Choice of manual or follow modes for PGM and PST buses ● Remote control audio line amplifiers ● Audio cartridge tape start relays (optional) ● AUTOMATION ● Complete interface provided ● No down-time for automation installation ● SPECIAL FEATURE* ● Audio and video PVW bus can be used as on-air bus (bypass mode), thus freeing balance of switcher for production use

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Circle Number 26 on Reader Reply Card

Operator Rules Change Update

A. D. Ring & Associates, a consulting firm located in Washington, D. C., has put together some reference material we think will be especially important to management and engineering.

Last month we went into a review of the new operator rules and included several charts that should help each station understand how the rules will affect them. In this issue we want to expand that coverage of the rules to include a chart that can be used as a reference guide for the new and old FCC rules regarding operator requirements.

We also are emphasizing management here, because it is the responsibility of the station licensee to insure that each operator is fully instructed in the performance of all the required adjustments as well as in other required duties (such as reading meters and making log entires).

This responsiblity includes making certain that printed step-by-step instructions for those adjustments the lesser grade operator is permitted to make, and a tabulation or chart of upper and lower limits required to be observed and logged, shall be posted at the operating position.

The emmissions of the station shall be terminated immediately when the transmitting system is observed operating beyond the posted parameters, or in any manner inconsistent with the rules of the station authorization and these adjustments are not effective in correcting the improper condition when a First Class Operator is not on duty.

At all FM broadcast stations, a complete inspection of the transmitting system and required monitoring equipment in use shall be made by an operator holding a First Class license at least once each day, five days a week, with a [illegible] interval of not less than 12 hou[illegible] between successive inspections.

This inspection shall includ[illegible] such tests, adjustments, and r[illegible] pairs as may be necessary to insu[illegible] operation in conformance with th[illegible] provisions of the current statio[illegible] authorization.

In all cases, it pays for the own[illegible] and/or manager to know the Part [illegible] Rules. The FCC does expect yo[illegible] to know. If there are other types [illegible] reference material that would b[illegible] helpful, drop the editor a line an[illegible] we will do our best to include it in [illegible] later issue.

Rule Changes Chart And Forms—See Pages 34, 46

We've got Los Angeles SURROUNDED

Five Major Stereo Stations Have Switched to Jampro FM Antennas For Increased Clarity and Coverage:

KKDJ-FM
Pacific & Southern Brdcstg.
ERP 8,300 Watts
ANTENNA: JAMPRO
2 Bay PENETRATOR
VSWR: 1.05 to 1
HEIGHT: 2790 Ft. AAT
TOWER: Mt. Wilson

KPSA-FM
PSA Airlines
ERP 34,000 Watts
ANTENNA: JAMPRO
8 Bay PENETRATOR
VSWR: 1.06 to 1
HEIGHT: 2783 Ft. AAT
TOWER: Mt. Wilson

KOST-FM
Mc Lendon Brdcstg. Co.
ERP 12,500 Watts
ANTENNA: JAMPRO
3 Bay PENETRATOR
VSWR: 1.04 to 1
HEIGHT: 3100 Ft. AAT
TOWER: Mt. Wilson

KJOI
Able Communications
ERP 75,000 Watts
ANTENNA: JAMPRO
4 Bay PENETRATOR
VSWR: 1.07 to 1
HEIGHT: 1180 F. AAT
TOWER: Beverly Hills

KXTZ-FM
Bonneville Brdcstg.
ERP 105,000 Watts
ANTENNA: JAMPRO
6 Bay PENETRATOR
VSWR: 1.07 to 1
HEIGHT: 2890 Ft. AAT
TOWER: Mt. Wilson

The Jampro PENETRATOR FM Antenna

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Let us surround your market too!

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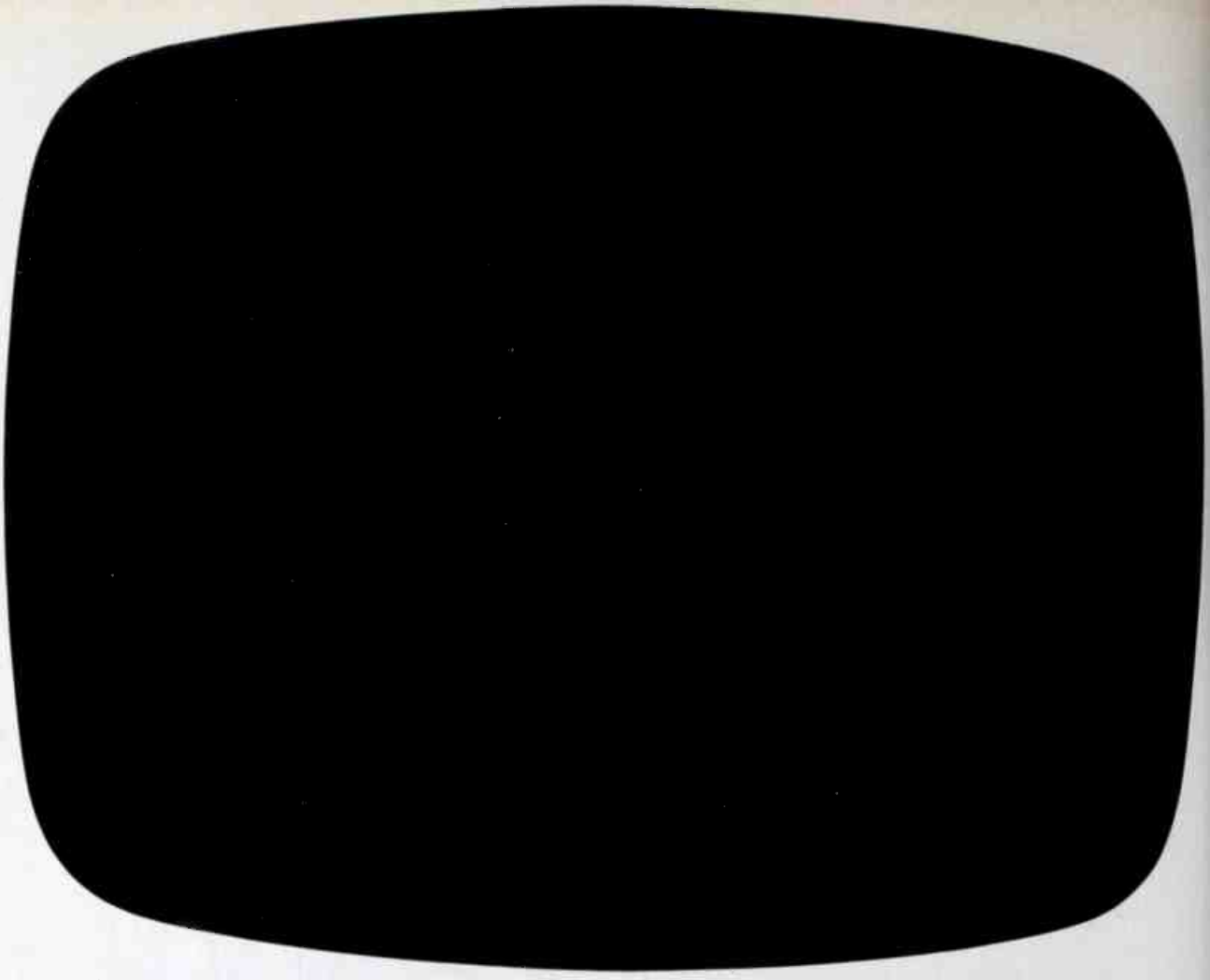
REFERENCE GUIDE FOR FCC RULES REGARDING OPERATOR REQUIREMENTS

	STANDARD BROADCAST (AM)					FM BROADCAST			EDUCATIONAL FM				
	NON-DIRECTIONAL ANTENNA		DIRECTIONAL ANTENNA			POWER LEVEL			POWER LEVEL				
	10 kW or Less	More Than 10 kW	Normal	Critical	Remote Control	25 kW or Less	More Than 25 kW	Remote Control	10 Watts or Less	1 kW or Less	25 kW or Less	More Than 25 kW	Remote Control
I. New requirement for all stations	73.93(g)	73.93(g)	73.93(g)	73.93(g)	73.93(g)	73.265(f)	73.265(f)	73.265(f)	73.565(f)	73.565(f)	73.565(f)	73.565(f)	73.565(f)
II. Options of operator requirements													
A All first-class radiotelephone operators.	73.93(a)(b)	73.93(a)(b)	73.93(a)(b)	73.93(a)(b)	73.93(a)(b)	73.265(a)(c)	73.265(a)(c)	73.265(a)(c)	73.565(a)(b)	73.565(a)(b)	73.565(a)(b)	73.565(a)(b)	73.565(a)(b)
B At least one first-class radiotelephone operator staff or contract, duty operator lesser class.	73.93(c)	—	—	—	73.93(c)	73.265(c)	—	73.265(c)	73.565(b)(3) SECOND PHONE OR TELEGRAPH	73.565(b)(2) SECOND PHONE	73.565(b)(1)	—	73.565(b)
C At least one staff first-class radiotelephone operator, duty operator lesser class.	—	73.93(d)	73.93(d)	—	73.93(d)	—	73.265(d)	73.265(d)	—	—	—	73.565(d)	73.565(d)
III. Functions that must be performed by a first-class operator													
A All meter readings, adjustments, log entries, equipment failure recognitions (required monitors) and calibrations not permitted of third-class operators.	73.93(b)	73.93(b)	73.93(b)	73.93(b)	73.93(b)	73.265(b)	73.265(b)	73.265(b)	73.565(b)(3) SECOND PHONE OR TELEGRAPH	73.565(b)(2) SECOND PHONE	73.565(b)(1)	73.565(b)(1)	73.565(b)
B All verifications of system performance required by the rules and not specifically delegated--audio proof-field strength measurements, etc.	73.93(b)	73.93(b)	73.93(b)	73.93(b)	73.93(b)	73.265(b)	73.265(b)	73.265(b)	73.565(b)(3) SECOND PHONE OR TELEGRAPH	73.565(b)(2) SECOND PHONE	73.565(b)(1)	73.565(b)(1)	73.565(b)
C Five-day per week equipment and maintenance inspection.	73.93(j)	73.93(j)	73.93(j)	73.93(j)	73.93(j)	73.265(h)	73.265(h)	73.265(h)	73.565(h)	73.565(h)	73.565(h)	73.565(h)	73.565(h)
D For DA stations, read and log antenna system parameters daily within first two hours of use of each pattern.	—	—	73.93(e)	—	73.93(e) 73.67(a)(b)	—	—	—	—	—	—	—	—
E Review of all operating logs kept by lesser grade of operator.	—	73.93(h)(4)	73.93(h)(4)	—	73.93(h)(4)	—	73.265(d)(3)	73.265(d)(3)	—	—	—	73.565(d)(3)	73.565(d)(3)
IV. Functions that may be performed by lesser classes of operators													
A All switching functions: on/off; pattern or power change.	73.93(f)(1)(4)	73.93(f)(1)(4)	73.93(f)(1)(4)(5)	—	73.93(f)	73.265(e)(1)	73.265(e)(1)	73.265(e)(1)	73.565(e)(1)	73.565(e)(1)	73.565(e)(1)	73.565(e)(1)	73.565(e)
B Adjustment functions: power to compensate for line voltage changes; modulation level.	73.93(f)(2)(3)	73.93(f)(2)(3)	73.93(f)(2)(3)	—	73.93(f)	73.265(e)(2)(3)	73.265(e)(2)(3)	73.265(e)(2)(3)	73.565(e)(2)(3)	73.565(e)(2)(3)	73.565(e)(2)(3)	73.565(e)(2)(3)	73.565(e)
C Read and log: switching functions III-A above; carrier outages requiring manual restoration; plate voltage, plate current, antenna or common point current indication; frequency.	73.93(f) 73.113	73.93(f) 73.113	73.93(f) 73.113	—	73.93(f) 73.113	73.265(e) 73.283	73.265(e) 73.283	73.265(e) 73.283	73.565(e) 73.583	73.565(e) 73.583	73.565(e) 73.583	73.565(e) 73.583	73.565(e) 73.583
D Read and log sample loop currents and phases.	—	—	73.93(f) 73.113	—	73.93(f) 73.113	—	—	—	—	—	—	—	—
V. Management requirements for stations using reduced classes of operators													
A If contract first-class operators are employed, file contracts.	73.93(c)	—	—	—	73.93(c)	73.265(c)	—	73.265(c)	73.565(c)	73.565(c)	73.565(c)	—	73.565(c)
B If DA or high power, assign chief operator and file contracts; cover if ill or on vacation.	—	73.93(d)	73.93(d)	—	73.93(d)	—	73.265(d)	73.265(d)	—	—	—	73.565(d)	73.565(d)
C Give chief operator authority and facilities to supervise station technical operation.	—	73.93(h)(2)	73.93(h)(2)	—	73.93(h)(2)	—	73.265(d)	73.265(d)	—	—	—	73.565(d)(3)	73.565(d)(3)
D Post written instructions for duty operators.	73.93(g)	73.93(g)	73.93(g)	73.93(g)	73.93(g)	73.265(g)	73.265(g)	73.265(g)	73.565(g)	73.565(g)	73.565(g)	73.565(g)	73.565(g)
E Measure field strength at monitoring points at least once each 30 days	—	—	73.93(e)(5)	SEE LICENSE	73.93(e)(5)	—	—	—	—	—	—	—	—
F Make partial proof of performance each year.	—	—	73.93(e)(5)	—	73.68(b) 73.93(e)(5)	—	—	—	—	—	—	—	—



This is a picture of your picture.

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Choosing professional audio controls involves complex compromises between noise, life, accuracy, and price. No one design can achieve all the alternatives. To satisfy all requirements, a full range of attenuator models is required, and that's what Waters offers: a complete line of attenuators, all of which feature MystR® —a proprietary conductive plastic resistance element.

MystR's glass-hard, smooth wiping surface achieves noise levels below 20μV (at least 100db down) over a trouble-free life of at least ten million operations.

Zero to 90db of truly "stepless" attenuation is achieved with Waters' computer-controlled curve-shaping technique which actually tailors the attenuator resistance element assuring superior tracking accuracy.

If you'd like to call our hand, send for Waters' Audio Attenuator brochure which describes their complete line of linear and rotary attenuators and pan pots. Use the coupon provided, or better yet, phone 617-358-2777 for immediate service.

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Network Election Coverage

By Robert Burns

The major change in election coverage in 1972 is utilization of the newly developed television-compatible character generator by ABC and CBS. The unit provides a real time capability with a signal format that is ready for broadcast without the use of a camera to convert artwork or titles into video signals. Early character generators could convert computer-generated, dot matrix characters, into video signals. But, there was some problem with the standard dot pattern when it appeared on the home screen. It lacked clarity and flexibility as to the style of type and character size available.

With the development of the CBS Laboratories stroke matrix concept, a display that looks like a graphic display was evolved. This produces electronic characters that are both flexible and legible. The character generator can be interfaced with a computer and provides an instantaneous "on the air" reporting system.

The Vidifont system eliminates the need for graphic arts and "flapboard" systems that do not have the flexibility and immediacy required for news reporting.

Old Method

Incoming votes on N.E.S. (National Election Service) lines (they were five minute updates) were printed out on teletype machines and physically carried across the studio to a "Solari" board operator who operated thumb switches to physically set up the boards. The director then had a cameraman show the board and the director would then cue the camera for "on the air". This meant a delay of almost two minutes for up-dating vote totals.

The titles (lower third) were prepared by the art department and 35mm slides were made. They were then loaded into a carousel projector. The director would call for graphics for a particular title. If graphics called for slide No. 152, for example, a camera would be focused on slide No. 152 on the screen. The director would then cue control to switch to the slide.

New Method

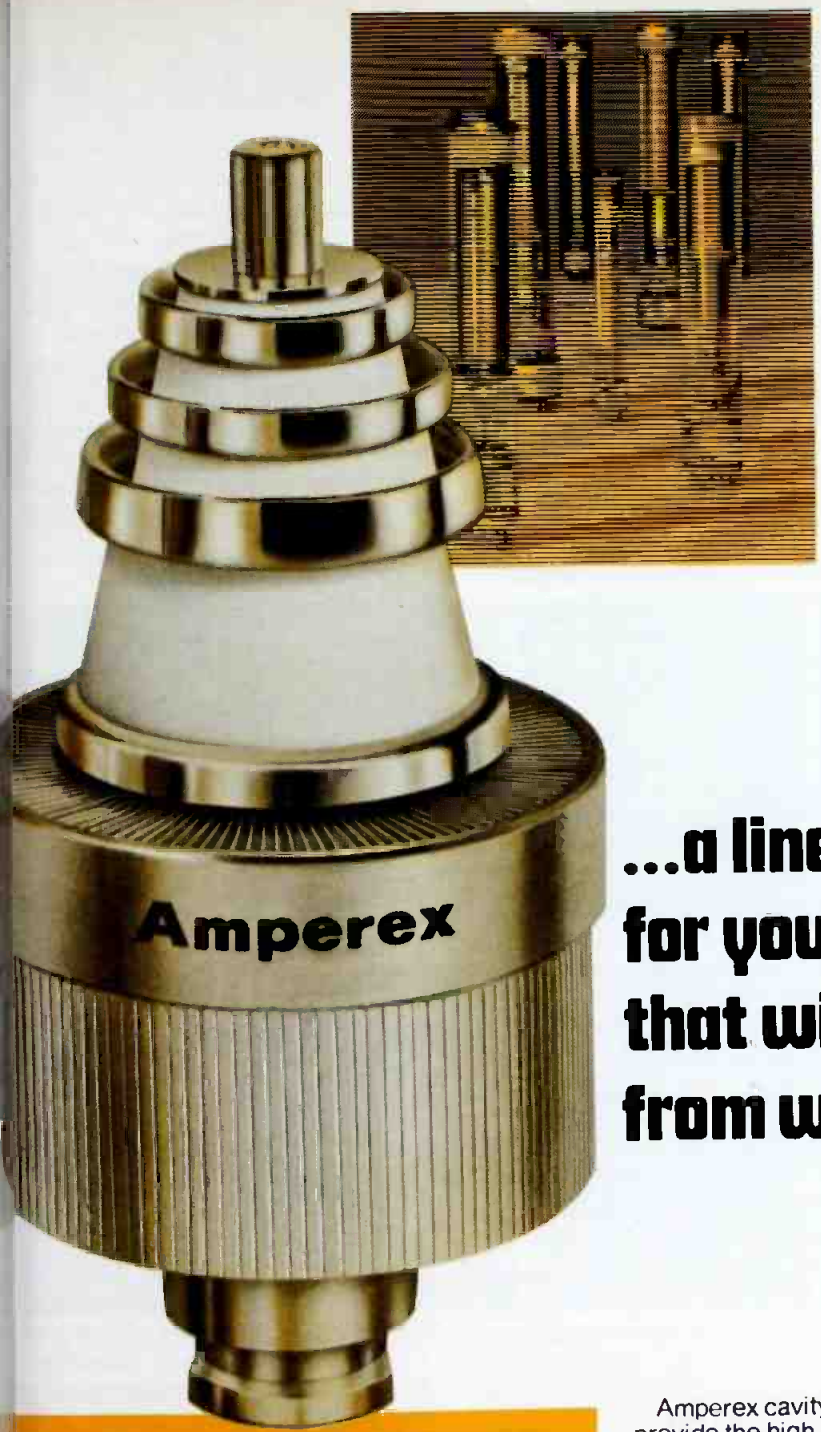
To update the returns as soon as possible directly on screen with 51 presidential and 52 senator/gubernatorial races in 1972 there is a requirement for 103 separate formats or "boards". At ABC these boards can be called up by any of the 16 terminals on demand. The terminals are:

10 Anchor support position (2 each)
2 Central control room
2 Computer Central
2 Spare units

The time required for any or all terminals to ask for and receive information is less than one second.

This is accomplished by the following: 8 teletype lines from N.E.S. are fed to the mini-computer which has been programmed for each of the 103 board formats. These contain the percent of precincts reporting, the state name and the candidates names. The computer will enter the raw vote total and the percent of the vote calculated up to the instant. The control room terminals, which are located next to the director, control the display that goes on the air. These signals appear at the switcher as video signals, ready for broadcast without the use of any cameras. These signals can be matted, supered, and distributed as any other standard video signal.

The titles (lower third) are also programmed and placed in storage in the computer so that a "hands off" operation is maintained. The director needs only to call up the "board" and the title by having the terminal operator type the required board code and title code and the



From Amperex... who gave you the Plumbicon TV camera tube that revolutionized color broadcasting all over the world...*

...a line of power tubes for your new transmitters that will free you at last from worry over reliability.

WHEN USED WITH AMPEREX MATED CAVITIES		
TUBE TYPE	CHANNEL 2–6 SYNC LOAD POWER (KW)	CHANNEL 7–13 SYNC LOAD POWER (KW)
8814	1.5	1.5
8812	6.25	8.75
8813	12.5	17.5
8915	17.5	25.0

Amperex cavity-matched and mated VHF-TV power tetrodes, provide the high reliability that is an absolute necessity for television broadcast stations. Available in sync-level power ratings from 1.5 to 25 KW and for operation in channels 2 through 13, these air-cooled tubes are designed and rated specifically for television broadcast service.

They feature "K" grid material for long and stable life; mesh filaments and grids for high power gain, efficiency and mechanical strength and rugged coaxial metal-ceramic construction that lends itself readily to cavity operation.

Optimally matched cavities for each type are available for both low- and high-band service and for both video and sound transmission.

Amperex precision design and manufacture of the tube and matching cavity is your best assurance of reliable, trouble-free performance. When you think of TV broadcast equipment ... think of it from the Plumbicon tubes in your cameras through the power tubes in your transmitter.

For additional information on the complete line of Amperex cavity-matched VHF-TV power tetrodes, write: Amperex Electronic Corporation, Product Manager, Power Tubes, Hicksville, New York 11802.

*gistered trademark of N.V. Philips of Holland.

Circle Number 33 on Reader Reply Card

Amperex®

TOMORROW'S THINKING IN TODAY'S PRODUCTS

A NORTH AMERICAN PHILIPS COMPANY

(Continued from page 38)

complete display will appear all ready for broadcast.

The anchorman has two video monitors at his desk but no computer control terminals. The director can call up any one of the 103 board to check for any major change in votes. He then cues the anchorman about the change and the director cues the control room terminal operator and the particular board is called up. The character generator displays the board and sends the signal to the switcher ready for broadcast.

The predictions desk is used for the specialized group who are completely familiar with selected precincts in each area that are used to forecast the vote. Each person has a monitor that is connected to a computer in New Jersey that has been pre-programmed for specific precincts or states.

In the computer control center, there are two teletype machines and two control terminals. The NES lines come into the center to a patch panel and are connected to the mini-computers and the teletype machines. The programmer is stationed in this area and is responsible for the complete operation. If any of the remote positions fail he can take over and operate the system from the computer center. He will be responsible for any troubles that involve the computer terminals. He will also enter predicted winners as they are given to him via the teletype machine to the computer so that they will appear, as called up, on the boards that are in storage in the mini-computer.

The CBS Vidifont System

The need for real-time visual titles for special events, news, weather and sports has been a problem for broadcasters for a long time. When the dot-matrix display produced by computer terminals was introduced, it provided a step in the right direction. This display lacks the flexibility and clarity desired for normal home viewing.

CBS Laboratories studied the problems and evolved the stroke matrix system of visual display. This creates graphic arts style characters. It eliminates the need for preparing slides and expensive artwork that cannot be changed without time and money being expended. For independent stations that have local origination news and special programs the need for an extensive art department is eliminated. It also frees a camera for other uses since the Vidifont produces video signals that are sent directly to the video switching equipment.

The Vidifont X system now in production is a second generation unit that uses plug-in modules to give an almost unlimited number of languages and type fonts. The basic system can also provide word-by-word color, automatic centering, vertical roll, horizontal crawl and selective flashing of any particular words or portions of the display. The unit can be used in a very simple configuration or can have several peripheral devices such as a mini-computer that has a storage unit capable of pre-programming as many lines as might be required for any program or series of programs.

The final design of the type fonts had to be analyzed and the final evaluation was made directly from a viewing screen. Certain trade-offs had to be made in the type fonts in order to prevent degradation that would be unacceptable to the viewer. Since one of the undesirable effects of poor linearity or focus is a build-up of light along the scanning lines, the weight of the horizontal strokes had to be de-emphasized. A system of corner dots at all of the inside corners is used to minimize the effects of halation and flux. These dots absorb the excess light which tends to build up at the letter stroke intersections.

The upper and lower case letters are 28 TV scan lines high and the smaller, upper case only, letters are 18 lines height. The proportional characters and spacing make it easier for the viewer to distinguish between characters.

Although many of the candidates' faces will be the same as in 1968, the "type" faces on television screens will be new.

...ow showing...the New Reliables

monochrome
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video signals.
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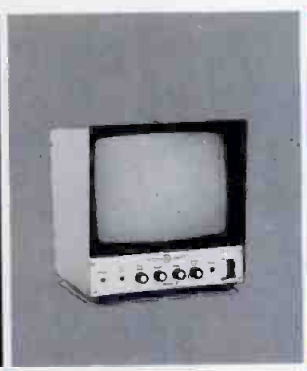
with Setchell
JNIT-IZED®
ircuit modules.

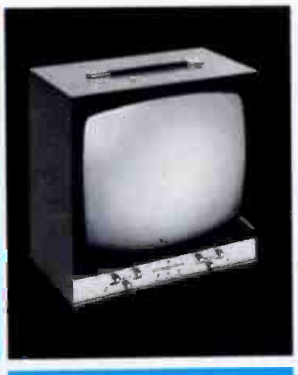
New 10" monochrome video monitors offer horizontal resolution of 640 lines or better plus 100% solid-state circuitry for long-life reliability. Unit is available in rackmount or in attractive metal cabinet. A 12" model is also available.

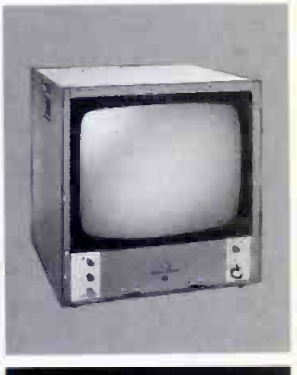
In addition to 640-line resolution, the 16" monochrome monitors have all major operating controls located on the front panel for ease of operation. Front-panel screwdriver adjustments for vertical linearity, vertical height, and focus provide protection against accidental misadjustment.

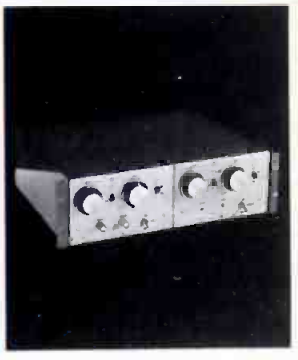
Nineteen inch monochrome video monitors offer traditional Setchell Carlson quality, including exclusive UNIT-IZED® plug-in circuit modules for easy maintenance. Horizontal resolution is 640 lines or better. Available in rackmount or attractive cabinet models.

Professional quality 19" color video monitors offer broadcast quality at a modest price. Horizontal resolution is 300 lines (color) and all set-up controls are located behind a hinged front panel to prevent accidental misadjustment. Also available in 25" model.









monochrome
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Monitor has a
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Regulated circuitry in the 25" color monitor provides extremely stable operation and prevents raster size or brightness deviations due to line voltage fluctuations. Horizontal resolution is 300 lines (color). Set-up and operating controls are front-mounted for ease of operation.

"Educator" Monitor/Receiver, 23" monochrome model, is designed specifically for educational and training applications. Controls are front-located. Tamper-proof control compartment door with lock is optional. Horizontal resolution is 600 lines or better with video signal input. Also available in 25" color model.

The Color "Educator" is a 25" model offering big-screen, sparkling color — 300-line (color) resolution — plus big-room audio. Designed specifically for educational and training applications, the "Educator" series Monitor/Receivers offer the utmost in reliability, flexibility, and ease of operation.

Setchell Carlson's solid-state UHF/VHF television receiver and RF demodulator provides a high-quality composite video signal and separate audio signal, assuring excellent monochrome and color picture quality. It is ideal for video recording and as a signal source for video monitors.

The quality and reliability of Setchell Carlson products is legendary. SC Electronics pioneered the concept of modular circuit construction. Every Setchell Carlson product features this concept in our UNIT-IZED® plug-in circuit modules, assuring operating dependability and maximum ease of maintenance. One hundred percent solid-state circuitry means maximum stability, long-life, low power drain, and a minimum of heat. Every feature in a Setchell Carlson product is meticulously designed to give you outstanding performance at a modest cost.

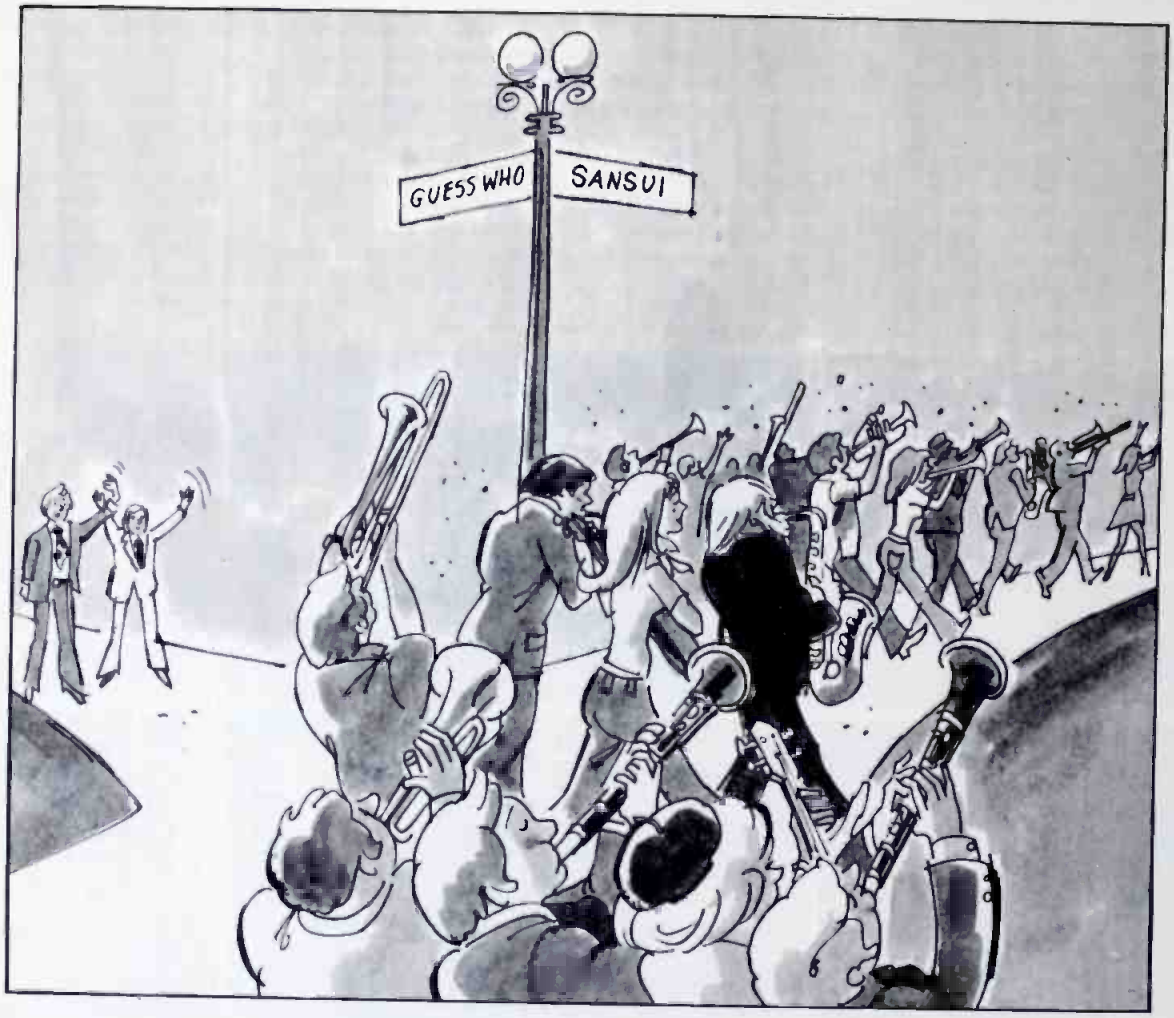
For many years, people involved in many different facets of broadcasting, closed circuit television, medical training, industrial TV applications, custom remote installations, and in the field of education have been able to depend on Setchell Carlson quality and reliability. It has become a tradition. We know that whatever your application, you will find a product to fit your need in the Setchell Carlson line.

Let your SC Electronics dealer give you a showing of . . . The new Reliables. Or, write to us for more information. Remember SETCHELL CARLSON, where quality is a tradition.

Circle Number 36 on Reader Reply Card

SC ELECTRONICS, INC.
A SUBSIDIARY OF AUDIOTRONICS CORPORATION
530 5th AVE. N.W. ST. PAUL, MINNESOTA 55112

look who's going



You may have heard it already—or you may not have—but more and more recording artists, more and more recording labels, and more and more engineers and producers are using Sansui's QS four-channel technique to encode their records in the four-channel mode. The list, growing from week to week, is quite impressive. But more important than the list itself is the fact that all these independent artists and companies have conducted extensive testing and actual use procedures before they made up their minds. What speaks for Sansui's QS System is not the pressure of a major software company nor exaggerated statements and promises; it's simply the performance.

Whether it is such an outstanding artist as Carole King or Joan Baez; or perhaps eminent musicians and producers like Enoch Light or Dick Schory add to the list such a beloved figure as B. B. King—they all are going Sansui's QS way because they think it is the best way. Some of these artists have actually produced with other matrix four-channel encoding methods, but have found that the most satisfactory results, in terms of the freedom of the producer and the artistic results, are in the one and only balanced and symmetrical system—that is, Sansui's QS method.

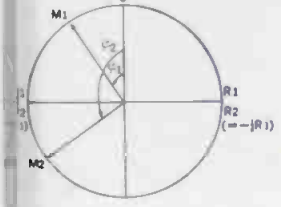
...e QS way—and why

...(Report on the Sansui QS Coding System)

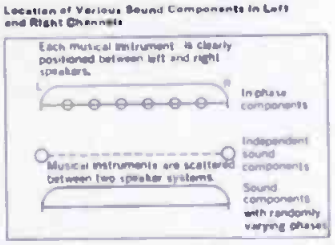
...here are now almost three hundred — yes, three ...undred — Sansui-type matrixed four-channel rec...rd albums available all over the world, most of ...em encoded with Sansui QS encoders. In this ...ountry alone, almost 30 albums are already on the ...arket. And we hate to hold anything back from you, ...ut there are a number of artists who will, in the very ...ear future, be on the market with their QS four-...hannel recordings. Also, major labels.

...While we do not know the particular reasons each ...f these artists and producers selected Sansui's QS ...ystem, we know that it could be any or all of those ...numerated here. These are the qualifications that ...nake Sansui's QS matrix system uniquely efficient ...nd effective and musically satisfying. In fact, we ...believe Sansui's QS System is the only matrix sys...em that can claim that it has no known major draw...acks, that are not subject to refinement. These are ...he features of Sansui's QS system:

...TOTAL, ACCURATE SOUND-SOURCE LOCALIZA...TION in every direction and at any point *inside* the ...ound field. No dropouts, cancellations or irritating ...shifts in position. The "overhead" effect, with a performer in the dead center, is readily achieved. This means there are no problems about having to place performers in some positions and avoiding other areas. It means that the total acoustic perspective is the same as that for discrete tape.



...TOTAL COMPATIBILITY. Sansui's QS Coding Sys...em is compatible with two-channel stereo play...back of encoded recordings. With four-channel ...playback (ambience synthesis) of conventional two-...channel recordings. With other matrix decoders. ...With all existing home hardware and with all existing professional equipment. With present broadcast standards and equipment.



There are many important implications in this comprehensive situation. For example, when QS-encoded material is played back in conventional two-channel stereo, it produces an entirely correct stereo perspective. The rear-channel information serves to produce a broadened and enhanced stereo perspective instead of jamming rear-channel information unnaturally into the wrong places to confuse directionality and obscure the stereo effect.

We believe that it is in the interest of the entire industry that the very best system be selected, regardless of politics, regardless of cross-currents and undercurrents, regardless of alliances and pride or even some dent in someone's reputation.

We have no other ax to grind than to play the fiddle that will make the best music for the industry. If you care to know more about Sansui's QS System, please contact our New York office for a demonstration and materials. It may interest you that the RIAJ (Record Industry Association of Japan) has adopted the Sansui system under the name of Regular Matrix to be the standard for recordings in Japan. An application for acceptance of our standards is now with the Recording Industry Association of America.

It's no wonder, then, that everybody who is anybody in the four-channel medium is going the QS way. Why not join the trend? The QS encoder is very simple to adjust, easy to use and reliable. Try it. Check out our claims with your own material, in your own way. Learn for yourself what the present members of the Sansui QS bandwagon have already discovered.

Labels Using Sansui QS Encoding
A&M • Audio Treasury/ABC • Black Jazz • Command • Impulse • Ode • Ovation • Project 3

Artists Encoded with Sansui QS
The Awakening • Count Basie • Doug Carn • Ray Charles Singers • Alice Coltrane • Henry Franklin • Free Design • Urbie Green
John Lee Hooker • Sammy Kaye • B. B. King • Carole King • Bonnie Koloc • Enoch Light • Tony Mottola • Doc Severinsen • Beverly Sills

QS REGULAR MATRIX

Sansui

For full details, contact your nearest Sansui office now.

SANSUI ELECTRONICS CORP.

Sansui Electronics Corp.	New York	32-17, 61st Street, Woodside, N.Y. 11377. Tel.: (212) 721-4408. Cable: SANSUILEC NEW YORK. Telex: 422633 SEC UI.
	Los Angeles	333 West Alondra Blvd. Gardena, Calif. 90247. Tel.: (213) 532-7670.
Sansui Electric Co., Ltd.	Tokyo	14-1, 2-chome, Izumi Suginami-ku, Tokyo 168, Japan. Tel.: (03) 323-1111. Cable: SANSUIELEC. Telex: 232-2076.
Sansui Audio Europe S.A.	Belgium	Diacem Building Vestingstraat 53-55. 2000 Antwerp. Tel.: 315663-5. Cable: SANSUIEURO ANTWERP. Telex: ANTWERP 33538.
	Garmany, W.	6 Frankfurt am Main, Reuterweg 93. Tel.: 33538.
Vernitron Ltd.	U.K.	Thornhill Southampton S09 5QF. Southampton 44811. Cable: VERNITRON SOTON. Telex: 47138.

FCC Offices

There are any number of times when you may need to call the Engineer-in-Charge in your district. For your records, here is the current list of names, addresses and telephone numbers.

The Washington office of the FCC is: 1919 M Street N.W., Washington, D.C. 20554. Their information number is 632-0002.

DISTRICT OFFICES
Field Engineering Bureau

District No. 1
Gerard Sarno, Engineer-in-Charge, Customhouse, Boston, Mass. (02109). Phone: 233-6608.

District No. 2
Henry Paulisen, Engineer-in-Charge, Federal Bldg., New York City, (10014). Phone: 620-5745.

District No. 3
Vernon P. Wilson, Engineer-in-Charge, U.S. Customhouse, Philadelphia, Pa. (19106). Phone 597-4410.

District No. 4
Benjamin Berkowitz, Engineer-in-Charge, 819 Federal Bldg Baltimore, Md. (21201). Phone 962-2727.

(Continued on page 4

Revised Section 73.93(g) of the Commission's rules now *requires* that a notice similar to the following be posted at the operating position of *all* radio stations whenever a lesser grade operator is on duty:

Duty operators holding second-class licenses or third-class permits endorsed for broadcast operation are permitted to make **only** the following adjustments:

1. Turn the transmitter on and off
2. Compensate for voltage fluctuations in the primary power supply (to maintain station power within the licensed value)
3. Maintain modulation levels within prescribed limits
4. Change power as required by the license
5. Change from directional to non-directional operation and vice versa, or change from one directional pattern to another. (You are not permitted to tune the transmitter final amplifier or to make any adjustment to the antenna phasor.)

The transmitter must be turned off immediately whenever the limits listed below are exceeded, if a first-class radiotelephone operator is not present:

Non-Directional Operation (AM):

Antenna Base Current*

Night			Day		
Lower Limit	Licensed Value	Upper Limit	Lower Limit	Licensed Value	Upper Limit
___ A	___ A	___ A	___ A	___ A	___ A

Directional Operation (AM):

Common Point Current*

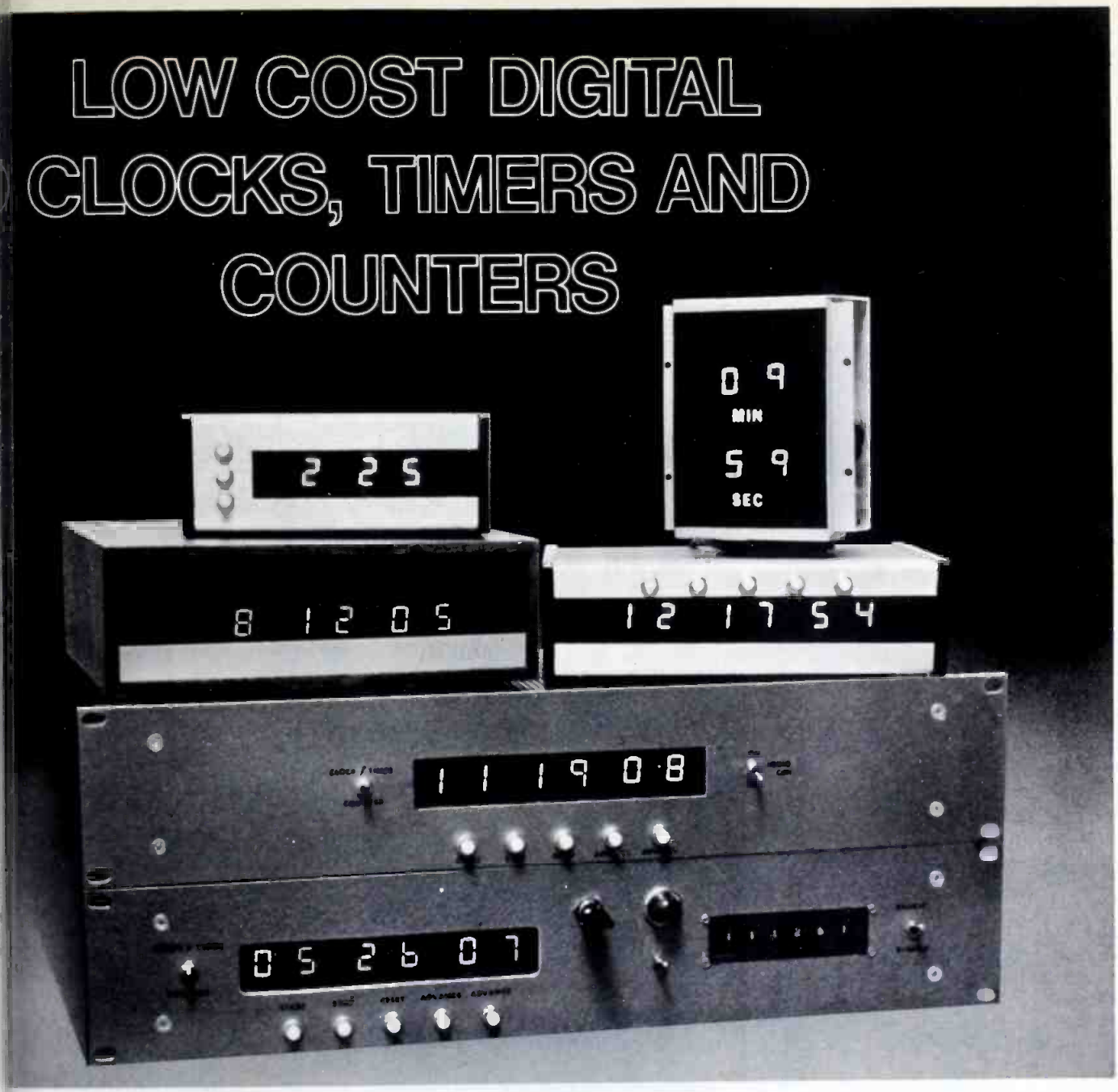
Night			Day		
Lower Limit	Licensed Value	Upper Limit	Lower Limit	Licensed Value	Upper Limit
___ A	___ A	___ A	___ A	___ A	___ A

Antenna or Remote Antenna Current*

	Night			Day		
Tower No.	Lower Limit	Licensed Value	Upper Limit	Lower Limit	Licensed Value	Upper Limit
1	___ A	___ A	___ A	___ A	___ A	___ A
2						
3						
4						
etc.						

*The antenna base current for non-directional operation and the common point current must be no more than 5% below nor more than 2.5% above the license values. Individual antenna currents for directional operation must be no more than 5% either above or below the license values.

LOW COST DIGITAL CLOCKS, TIMERS AND COUNTERS



ESE digitals are designed and constructed using the latest solid state ectronic components and circuitry. This equipment is perhaps the most nomical line of digital clocks, timers and counters available. Circuit effi- ency and lasting quality are designed into every ESE digital product. Con- ucted with the built-in ruggedness necessary for studio use. No moving parts.

cial custom items, like the video tape/counter editor, a monitoring system h unique display configuration, 12 and 24 hour clocks or timers, 10 minute ers, 3 digit, 4 digit, 6 digit, record seconds in tenths, hundredths or usandths... Even a station ID reminder, all available from ESE. Options lude: Thumbwheel switch programming, BCD outputs, relay closure outputs, l solid state buffered outputs. Many products available in kit form.

THESE STANDARD ESE PRODUCTS ARE AVAILABLE FOR IMMEDIATE SHIPMENT:

ES-112/124, 12 hour or 24 hour clock: 6 digit — Records hours, minutes, seconds $100.00

ES-300, 100 minute up/down counter: Displays up to 99:59 — Easy pushbutton: Reset — Count up — Count down — Advance seconds — Advance minutes — Stop .. 125.00

ES-400, 10 minute timer: Displays up to 9:59 — Push-button: Start — Stop — Reset 68.50

ES-500, 12 hour clock/timer: 6 digit — Records hours, minutes, seconds. Start — Stop — Reset — Slow and Fast Advance buttons. Displays up to 12:59:59 ..... 110.00

ES-510, 60 minute timer: Displays up to 59:59 — Push-button: Start — Stop — Reset, Only 3¾" deep for flush mounting into walls or std. alum. case 95.00

WRITE, WIRE OR CALL TODAY FOR DETAILS:

ESE ENTERPRISES DEPT. 872

506 MAIN ST. · EL SEGUNDO, CA. 90245 / (213) 772-6176

Circle Number 39 on Reader Reply Card

FCC Offices

(Continued from page 44)

District No. 5

J. J. Freeman, Engineer-in-Charge, Military Circle, 870 N. Military Hwy., Norfolk, Va. (23502). Phone: 420-5100.

District No. 6

Arthur T. Cline, Jr., Engineer-in-Charge, 1602 Gas Light Tower, 235 Peachtree St., Atlanta, Ga. (30303). Phone: 526-6381.

District No. 7

Arthur G. Gilbert, Engineer-in-Charge, 51 S.W. First Ave., Miami, Fla. (33130). Phone: 350-5541.

District No. 8

William J. Simpson, Engineer-in-Charge, Federal Office Bldg., New Orleans, La. (70130). Phone: 527-2094.

District No. 9

(Vacancy), Engineer-in-Charge, New Federal Office Bldg., Houston, Tex. (77002). Phone: 226-4306.

District No. 10

Gerald M. Howard, Engineer-in-Charge, New Federal Courthouse & Office Bldg., Dallas, Tex. (75202). Phone: 749-3244.

District No. 11

J. Lee Smith, Engineer-in-Charge, Room 1758, U.S. Courthouse, 312 N. Spring St., Los Angeles, Calif. (90012). Phone: 688-3276.

District No. 12

Ney R. Landry, Engineer-in-Charge, Customhouse, San Francisco, Calif., (94111). Phone: 556-7700.

District No. 13

Francis H. McCann, Engineer-in-Charge, 314 Multnomah Bldg., 319 S.W. Pine St., Portland, Ore. (97204) Phone: 221-3097.

District No. 14

Robert C. Dietsch, Engineer-in-Charge, 8012 Federal Office Bldg., First Ave. & Marion, Seattle, Wash. (98104). Phone: 442-7653.

District No. 15

Warren D. George, Engineer-in-Charge, New Customhouse Denver, Colo. (80202). Phone 837-4053.

District No. 16

Harold E. Allen, Engineer-in-Charge, 691 Federal Bldg. & U.S. Courthouse, 4th & Robert Sts St. Paul, Minn. (55101). Phone 725-7819.

District No. 17

Paul F. Hampton, Engineer-in-Charge, Federal Bldg., Kansas City, Mo. (64106). Phone: 374-5526.

District No. 18

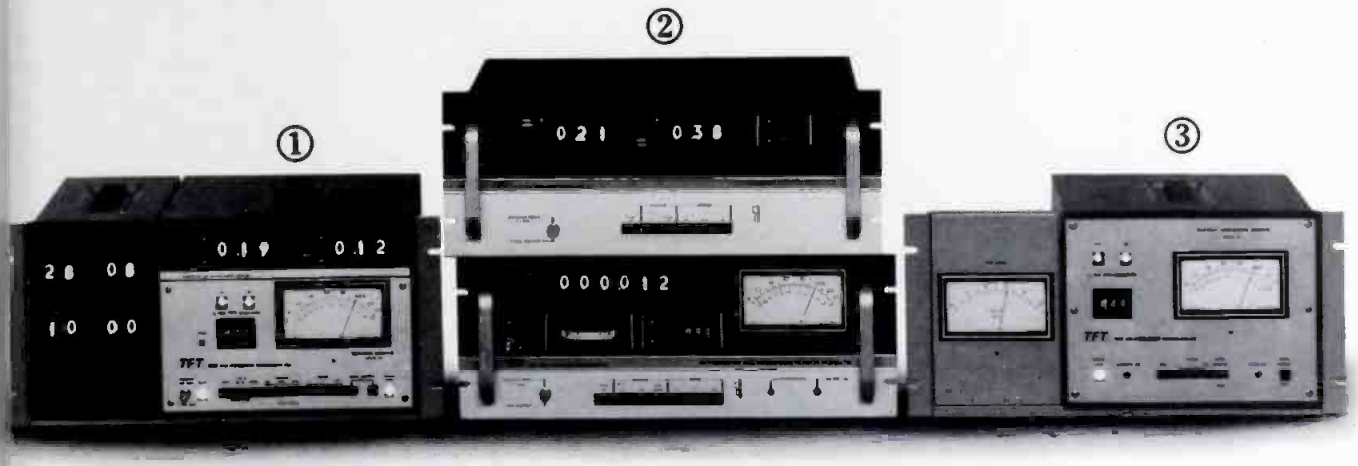
Ernest J. Galins, Engineer-in-Charge, 1872 Everett McKinley Dirksen Bldg., 219 S. Dearborn St., Chicago, Ill. (60604). Phone 353-5388.

District No. 19

Edward Atems, Engineer-in-Charge, Federal Bldg., Detroit Mich. (48226). Phone: 226-6077.

(Continued on page 8

UHF-VHF TV and AM monitors optimized for remote operations



TFT's 3rd generation monitors give you off-the-air monitoring without an RF amplifier. Result? A significant reduction in the interference problems caused by the intermodulation products of undesirable signals. And that's only part of the story. TFT instruments are now accepted as the standard of the broadcast industry for convenience, reliability and accuracy.

① Model 701 TV Frequency and Modulation Monitor

Monitors visual and aural frequency and percent aural modulation off-the-air: 250 μv sensitivity. Digital readout of frequency errors with 1 Hz resolution. Internal time base stability is 1 PPM/year. Useable as 6-digit precision frequency counter to 10 MHz input. FCC Type Approval 3-187.

② Model 709 TV Frequency Only

A state-of-the-art instrument for non-remote monitoring of aural, visual and inter-carrier frequency: 500 mv sensitivity. Has all the performance and convenience features of the Model 701 frequency capability. An economical way to upgrade operations at stations with existing aural modulation monitoring capability.

③ Model 702 TV Aural Modulation Only

Monitors percent aural modulation: 250 μv sensitivity. Ideal for stations which need to add remote aural monitoring capability to existing frequency monitoring equipment. FCC Type Approval 3-189.

Other 701 and 702 Features

- Demodulation of aural modulation from inter-carrier.
- Exclusive "aural carrier only" switch for detecting inter-carrier noise.
- Digitally-settable flashers display plus and minus peaks simultaneously.
- Built-in aural modulation calibrator.
- Provision for SCA output.

④ Model 713 AM Broadcast Monitor

Monitors carrier frequency and percent aural modulation off-the-air: 2.5 mv sensitivity. And digital display of frequency error. Frequency accuracy is ± 2 Hz per year. Instrument also has digitally-settable peak flashers to 129% positive peak, and a 100% negative peak modulation indicator.

Like the Models 701 and 709, the 713 can be used as a precision 6-digit frequency counter to 10 MHz. Other features include built-in modulation calibrator; remote meter and peak flasher outputs; and provision for automatic logging, BCD or analog outputs. Options include off-frequency alarm and +5% and −10% carrier level and carrier off alarm. FCC Type Approval 3-195.

ACCESSORIES

⑤ AGC Meter

Indicates relative input level. Meter is driven by AGC circuits of the Model 701 or Model 702.

⑥ Model 725 Automatic Logging Adapter and Digital Clock

Converts visual carrier and inter-carrier measurements to analog signals. Also has digital clock showing day, hours, minutes, and seconds. Clock has BCD outputs to drive parallel clocks or a character generator for displaying information on TV monitor screens. Model 725 clock holds a stability of ±10 seconds per year. Version also available (Model 725A) with super stable time base (frequency stability of 1×10^{-9} per day).

⑦ Model 704 and 704A Remote Panels (not shown)

Duplicates Modulation Meter and Peak Modulation lamps of monitor. FCC Type Approved.

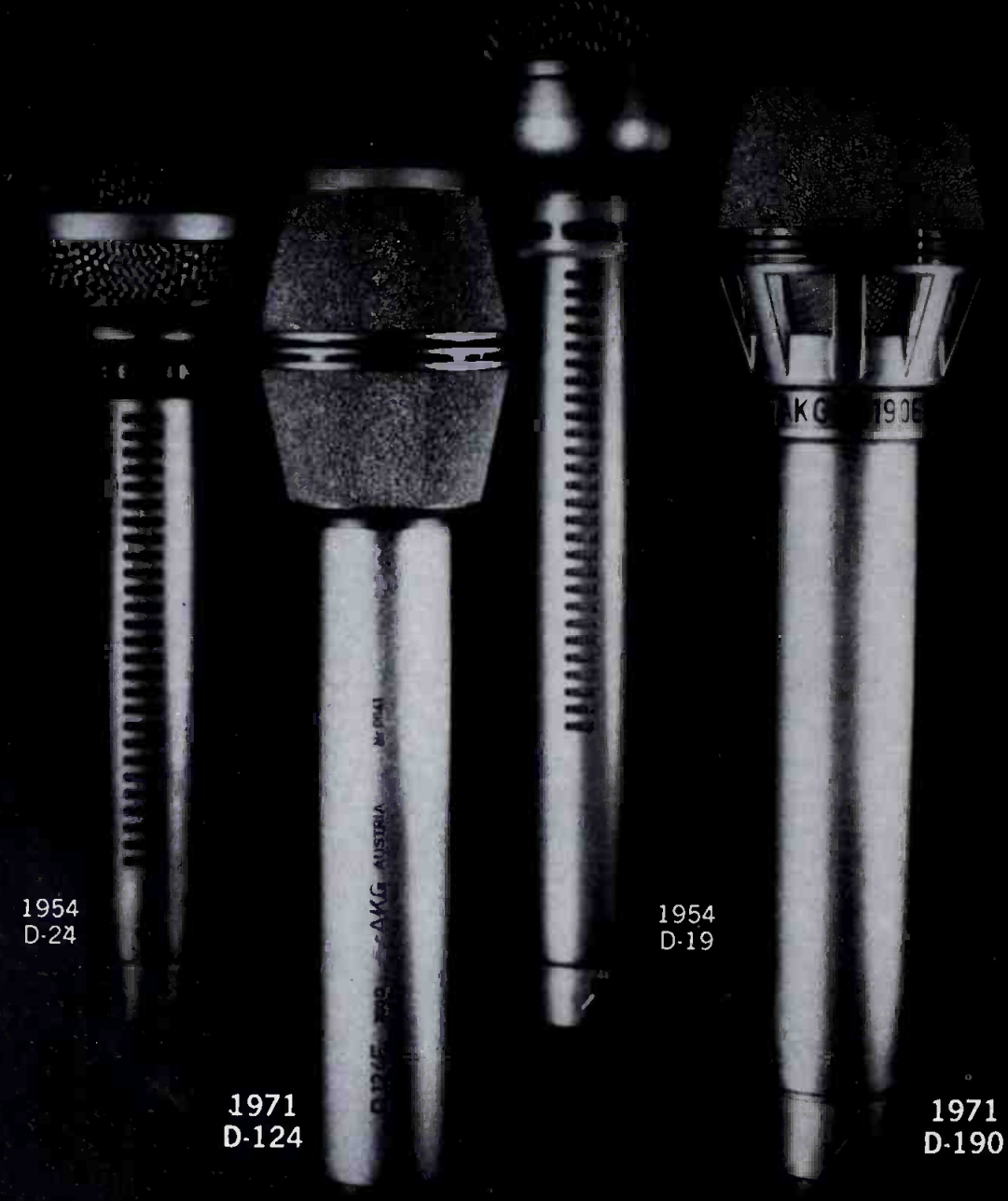
NOTE: **TFT Monitors comply with all relevant FCC requirements for local and remote monitoring.**

For complete specifications on TFT's optimized remote monitors, and/or a demonstration on your frequency, call or write:

TFT ***TIME AND FREQUENCY TECHNOLOGY, INC.***
2950 SCOTT BLVD., SANTA CLARA, CA 95050 (408) 246-6365

Circle Number 41 on Reader Reply Card

We admit... we have created a generation gap!



When it comes to cardioid dynamic microphone developments **AKG** is purposely creating a generation gap.

We have to, because we insist on staying far ahead.

Imitation is the sincerest form of flattery and while others attempted to equal the acoustical properties and duplicate the design appearance of the D-19 and D-24, **AKG** continued in setting the pace by developing a new family of transducers with superior performance characteristics.

The D-19 and D-24 are the finest microphones in their class, as thousands of owners will attest. However, new techniques and materials made fundamental design changes possible. Gone is the complicated "plumbing" within the microphone requiring slots or holes along the microphone body, and these essentials are improved: smoothness of response, uniformity of directional characteristics, front-to-back ratio at all frequencies and ruggedness.

The **AKG** D-124 and D-190 are the newest generation of cardioid dynamic microphones, designed for today's requirements.

For detailed information, see your authorized local **AKG** dealer or write to us.

MICROPHONES · HEADPHONES

DISTRIBUTED BY
NORTH AMERICAN PHILIPS CORPORATION
100 EAST 42nd STREET, NEW YORK, NEW YORK 10017

AKG-17

Circle Number 42 on Reader Reply Card

1972 Broadcast Buyer's Guide

Broadcast Engineering's Reference Issue joins the mputer Age!

This 1972 annual issue, of Broadcast Industry Buy- s Guide and the Manufacturer's Address sections ve been prepared for you by computer. We have en this step so that we may continue to provide you h the most complete and latest information on prod- s and services. Now that we can add and delete list- s by computer we will be able to keep pace with the nges taking place in the industry. Not only will you ve a better directory with this issue, you will con- ue to see improvements in the years to come.

Our only limitation is that we send questionnaires to active manufacturers in the field. Some either fail to eive their listing notice or forget to send it in. The result is almost 600 manufacturers in nearly 500 categories.

For CATV categories not listed in this section, see the CATV Buyer's Guide. It includes products especially designed for CATV use.

Red Listings

For the second time we are including red listings. A red listing under a category signifies that the manufacturer has an ad in this issue describing that product or service. In this way you will be able to immediately refer to specs and descriptions in categories of interest to you. Addresses of all manufacturers in this portion of the Guide are listed in the Manufacturers Address section.

Reader Service Card In This Issue Good For One Year

Alarm, Fault

See Adv. Page

Trepac Corp. America 11

Altken Comm. Inc.
Atlantic Research Corp. Teleproducts Div.
Badger Meter, Inc. Electronics Div.
Bird Electronic Corp.
Concept 70, A Div. of Dyma Engineering, Inc.
D-CO-Inc.
Dorado Systems
Gates Division of Harris-Intertype
Gotham Audio Corp.
Moseley Assoc. Inc.
National Electrolab Assoc. Ltd.
Rust Corp.
Singer Products Co., Inc.
Telectro Systems Corp.
TRACOR, Inc. Instruments Group
Trepac Corp. America

Alarm, Signal

See Adv. Page

B & I Electronics, Inc......117
Coastcom Division 94
Trepac Corp. America 11

Atlantic Research Corp. Teleproducts Div.
ATLAS Sound
Belcom Electronics Mfg. Co.
B & I Electronics, Inc.
Coastcom Division Scott-Buttner Corp.
Concept 70, A Div. of Dyma Engineering, Inc.
Cramer Division Conrac Corp.
D-CO-Inc.
Delta Electronics Inc. (N.C.)
Dorado Systems
Electronic Designers Inc.
Engineering Associates
Fisher Berkeley Corp.
Moseley Assoc. Inc.
National Electrolab Assoc. Ltd.
Rust Corp.
Telectro Systems Corp.
Trepac Corp. America

Alarm, Teletype Receiver

See Adv. Page

B & I Electronics, Inc......117

Atlantic Research Corp. Teleproducts Div.
B & I Electronics, Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Trepac Corp. America

Alignment Projectors, TV

Tele Measurements Inc.

Amplifier, AF-AGC

See Adv. Page

Gates 88
Roh Corporation 12
Wilkinson Electronics, Inc. 17

ALTEC
Arbor Systems Inc.
Belar Electronics Lab., Inc.
Burwen Laboratories
CBS Labs
CCA Electronics
C Cor Electronics
Collins Radio Company Broadcasting Marketing.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gates Division of Harris-Intertype
Marti Electronics
McCurdy Radio Ind. Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Roh Corporation
Rupert Neve Incorporated
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Tele Measurements Inc.
Television Equipment Associates
Total Technology
Visual Communication Products Oper. General Electric Co.
Wilkinson Electronics, Inc.

Amplifier, AF Compressing

See Adv. Page

Gates 88
Marti Electronics 35

ALTEC
Belar Electronics Lab., Inc.
Bogen Division Lear Siegler Inc.
Burwen Laboratories
CBS Labs
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Langevin An MCA Technology Company
LPB Inc.
Magnatech Co.
Marti Electronics
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Precision Elect. Inc.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Roh Corporation
Rupert Neve Incorporated
Singer Products Co., Inc.
Spectra Sonics
Spotmaster Broadcast Electronics
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Television Equipment Associates
Total Technology
Ultra Audio Products
United Recording Electronics Industries
Wilkinson Electronics, Inc.

Amplifier, AF General Purpose

See Adv. Page

Audio Distributor Inc. 116
Crown International..... 40
Gates 88
Ramko Research 108
Roh Corporation 12

ALTEC
American Geloso Electronics
Amperex Corp.
Arbor Systems Inc.
Atlantic Research Corp. Teleproducts Div.
Audio Designs & Mfg.
Audio Distributor Inc.
Belar Electronics Lab., Inc.
Bell P/A Prod. Corp.
B & K Instruments Inc.
Bogen Division Lear Siegler Inc.
Bradford Information Systems
Broadcast Electronics
Burwen Laboratories
C Cor Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.
Crown International
Custom Craft Designs
Danscoll Ltd.
Datatek Corp.
Denrad Mfg. Co. Inc.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Electrodyne Div. of MCA Technology, Inc.
Electronic Designers Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Fisher Berkeley Corp.
Gately Electronics
Gates Division of Harris-Intertype
GE Electronic Components Sales Dept.
Grass Valley Group, Inc.
Hewlett Packard Co.
Interntl. Nuclear Corp.
Langevin An MCA Technology Company
Marconi Electronics Inc.
Marti Electronics
MCA Technology, Inc.
McMartin Industries Inc.
Melcor Electronics Corp.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
Neve Inc., Rupert
Permadynne Electronics Corp.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Precision Elect. Inc.
Precision Laboratories Precision Cine Equipment Corp.
Pulse Dynamics Mfg. Corp.
Quad-Eight Electronics
Radio Mfg. Co.
Ramko Research
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Roh Corporation
Round Hill Assoc.
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Sansui Electronics Corp.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Shintron Co. Inc.
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Systems Marketing Corp. And Sono-Mag Corp.
TelComp Division Television and Computer Corp.
Telex Communications Division
Tri-Tronics
Ultra Audio Products
United Recording Electronics Industries
Visual Communication Products Oper. General Electric Co.
Wilkinson Electronics, Inc.

Amplifier, AF Peak Limiting AM

See Adv. Page

Gates 7, 88

ALTEC
Belar Electronics Lab., Inc.
Burwen Laboratories
CBS Labs
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Electrodyne Div. of MCA Technology, Inc.
Electronic System Eng.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gates Division of Harris-Intertype
Langevin An MCA Technology Company
LPB Inc.
Magnatech Co.
Mastertone Co.
Melcor Electronics Corp.
Neve Inc., Rupert
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Singer Products Co., Inc.
Spectra Sonics
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tele Measurements Inc.
United Recording Electronics Industries
Wilkinson Electronics, Inc.

Amplifier, AF Peak Limiting FI

See Adv. P

Gates 7,
Wilkinson Electronics, Inc. .....

Belar Electronics Lab., Inc.
Burwen Laboratories
CBS Labs
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Electrodyne Div. of MCA Technolog Inc.
Electronic System Eng.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Langevin An MCA Technology Company
LPB Inc.
Magnatech Co.
Mastertone Co.
Neve Inc., Rupert
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rupert Neve Incorporated
Singer Products Co., Inc.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tele Measurements Inc.
United Recording Electronics Industries
Wilkinson Electronics, Inc.

Amplifier, AF Remote

See Adv. P

Gates .....

ALTEC
Arbor Systems Inc.
Broadcast Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
LPB Inc.
Moseley Assoc. Inc.
Neve Inc., Rupert
QRK Electronic Prod.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Roh Corporation
Round Hill Assoc.
Rupert Neve Incorporated
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
TelComp Division Television and Computer Corp.
Tele Measurements Inc.
Tri-Tronics

Audio Products
nson Electronics, Inc.

lifier, AF Reverberation

UC
ept 70, A Div. of Dyma
gineering, Inc.
Engineering, Inc.
onic Designers Inc.
hild Sound Equipment Corp. A
bins Industries Corp.
y Electronics
am Audio Corp.
ertone Co.
or Electronics Corp.
Inc., Rupert
Radio and Video
os Broadcast Equipment Corp.
bs. North American Philips Corp.
l-Eight Electronics
Mfg. Co.
rt Neve Incorporated
tra Sonics
Measurements Inc.
vision Equipment Associates
Technology
Electronic Sales Co.
Audio Products
nternational

plifier, AF Stereo

EC
ns Radio Company Broadcasting
arketing,
cept 70, A Div. of Dyma
gineering, Inc.
vn International
l Elect. Inst. Co., Inc.
tronic Designers Inc.
tro-Voice Inc. Div. of Gulton
dustries, Inc.
thild Sound Equipment Corp. A
obins Industries Corp.
ly Electronics
es Division of Harris-Intertype
ith Co.
s Corp
o-Trak Corporation (Formerly:
ray Research & Dev.)
cision Elect. Inc.
Corporation RCA Broadcast
quip. Communications Systems
iv.
ox Corporation
ultz Inc., Albert
er Products Co., Inc.
y/Superscope
Measurements Inc.
ex Communications Division
Tronics
inson Electronics, Inc.

plifier, Bridging

See Adv. Page

tes 88

eco Inc.
erican Data Corp.
conda Electronics
or Systems Inc.
antic Research Corp. Teleproducts
Div.
dio Designs & Mfg.
nder-Tongue Labs.
wen Laboratories
TV Equipment Co.
or Electronics
lins Radio Company Broadcasting
Marketing,
mputer Image Corp.
ta Electronics Inc. (N.C.)
ta Electronics Inc. (Va.)
rad Mfg. Co. Inc.
NAIR Electronics, Inc.
ron, Inc.
tes Division of Harris-Intertype
ss Valley Group, Inc.
erntl. Nuclear Corp.
gevin An MCA Technology
Company
gnavox Company CATV Division
stertone Co.
ve Inc., Rupert
se Dynamics Mfg. Corp.
Quad-Eight Electronics
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Riker Communications Inc.
Roh Corporation
Rupert Neve Incorporated
Rust Corp.
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Spectra Sonics
Spencer-Kennedy Labs., Inc.
Systems Marketing Corp. And Sono-Mag Corp.
TelComp Division Television and Computer Corp.
Ultra Audio Products
Vikoa Inc.
Wilkinson Electronics, Inc.

Amplifier, Clamping

See Adv. Page

Beston Electronics Inc. 5

Alma Engineering Inc.
American Data Corp.
Ball Bros. Research Corp. Miratel Division
Bell & Howell Consumer Products Group
Beston Electronics Inc.
Computer Image Corp.
DYNAIR Electronics, Inc.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Marconi Electronics Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Telemet Co.
Vital Industries

Amplifier, Compressing

See Adv. Page

Audio Distributor Inc. 116
Gates 88

Audio Distributor Inc.
Burwen Laboratories
Gates Division of Harris-Intertype
Melcor Electronics Corp.
Orbit Radio and Video
RHG Elect Labs, Inc.

Amplifier, DC

American Data Corp.
Burwen Laboratories
Crown International
GE Electronic Components Sales Dept.
Hewlett Packard Co.
Honeywell Inc. Test Instruments Div.
Langevin An MCA Technology Company
Lectronic Res. Labs. Inc.
Melcor Electronics Corp.
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rust Corp.
Tele Measurements Inc.

Amplifier, Distribution

See Adv. Page

Beston Electronics Inc. 5
Danscoll Ltd. 85
Gates 88
Ramko Research 108
Roh Corporation 12
TelComp Division 103
Telemet Co. ..... IBC
Wilkinson Electronics, Inc. 17

Alcor Inc.
Alma Engineering Inc.
Ameco Inc.
American Data Corp.
Ampro Corp.
Anaconda Electronics
Anixter-Pruzan CATV Division
Applied Elect. Mechanics
Atlantic Research Corp. Teleproducts Div.
Audio Designs & Mfg.
Ball Bros. Research Corp. Miratel Division
Bell P/A Prod. Corp.
Beston Electronics Inc.
Blonder-Tongue Labs.
Bradford Information Systems
Broadcast Electronics
Broadcast Prod. Co. Inc. Bcst. Division
CATV Equipment Co.
CBS Labs
C Cor Electronics
Central Dynamics Corp.
Cleveland Electronics, Inc.
Cohu, Inc. Electronics Division
Collins Radio Company Broadcasting Marketing,
Computer Image Corp.
Danscoll Ltd.
Datatek Corp.
Delta Electronics Inc. (N.C.)
Delta Electronics Inc. (Va.)
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Electrodyne Div. of MCA Technology, Inc.
Entron, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
GBC Closed Circuit TV Corp.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Kaiser CATV Division Kaiser Aerospace & Electronics Corp.
Langevin An MCA Technology Company
LPB Inc.
Magnavox Company CATV Division
Marconi Electronics Inc.
McCurdy Radio Ind. Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp.
Radio Mfg. Co.
Ramko Research
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Roh Corporation
Rohde & Schwarz Sales
Rupert Neve Incorporated
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Shintron Co. Inc.
Singer Products Co., Inc.
Spectra Sonics
Spencer-Kennedy Labs., Inc.
Spotmaster Broadcast Electronics
Tasker Industries Systems Division
TelComp Division Television and Computer Corp.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Teleng Inc.
TV Cable Supply Co.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.
Vital Industries
Wilkinson Electronics, Inc.

Amplifier, Keying

See Adv. Page

American Data Corp.
Ball Bros. Research Corp. Miratel Division
Central Dynamics Corp.
Computer Image Corp.
Grass Valley Group, Inc.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc.
Video Devices Co.
Video Engineering Co. Inc.

Amplifier, Line

See Adv. Page

American Data Corp. 87
Danscoll Ltd. 85
Gates 88
Marti Electronics 35
Ramko Research 108
Roh Corporation 12
Wilkinson Electronics, Inc. 17

American Data Corp.
Ampro Corp.
Audio Designs & Mfg.
Blonder-Tongue Labs.
Burwen Laboratories
C Cor Electronics
Central Dynamics Corp.
Danscoll Ltd.
Entron, Inc.
Gately Electronics
Gates Division of Harris-Intertype
Magnavox Company CATV Division
Marti Electronics
Neve Inc., Rupert
Pulse Dynamics Mfg. Corp.
Quad-Eight Electronics
Radio Mfg. Co.
Ramko Research
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Roh Corporation
Rupert Neve Incorporated
Sparta Electronic Corp.
Spectra Sonics
Systems Marketing Corp. And Sono-Mag Corp.
United Recording Electronics Industries
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Amplifier, Masking

Burwen Laboratories
CBS Labs
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Tele Measurements Inc.

Amplifier, Monitor

See Adv. Page

Crown International 40
Gates 88
Marti Electronics 35
Roh Corporation 12
Russco Electronics Mfg. Inc. 105
Wilkinson Electronics, Inc. 17

Ampro Corp.

CCA Electronics
Central Dynamics Corp.
Crown International
Gates Division of Harris-Intertype
Magnatech Co.
Marti Electronics
Mastertone Co.
Melcor Electronics Corp.
National Electrolab Assoc. Ltd.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Roh Corporation
Russco Electronics Mfg. Inc.
Sparta Electronic Corp.
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Amplifier, Operational

See Adv. Page

TelComp Division.....103

Audio Designs & Mfg.
Burwen Laboratories
Computer Image Corp.
Gately Electronics
Melcor Electronics Corp.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Tektronix Inc.
TelComp Division Television and Computer Corp.

Amplifier, Power

Acrodyne Industries
Ampro Corp.
Audio Designs & Mfg.
Bogen Division Lear Siegler Inc.
California Instruments Co.
C Cor Electronics
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Crown International
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gates Division of Harris-Intertype
MCA Technology, Inc.
Melcor Electronics Corp.
Precision Elect. Inc.
Radio Mfg. Co.
RCA Corporation RCA Service Company Div.
RHA Audio Communications Corp.
RHG Elect Labs, Inc.
Roh Corporation
Spectra Sonics
Terminal Hudson Corp. Terminal Hudson Electronics

Amplifier, Processing Video

See Adv. Page

American Data Corp. 87
Robert Bosch Corp..... 29

Acrodyne Industries
American Data Corp.
Ball Bros. Research Corp. Miratel Division
Central Dynamics Corp.
Computer Image Corp.
Danscoll Ltd.
Dyma Engineering, Inc.
Dynasciences Corp. Video Products Div.
Entron, Inc.
Marconi Electronics Inc.
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Shintron Co. Inc.
Video Engineering Co. Inc.

Amplifier, Pulse

See Adv. Page

American Data Corp. 87
Beston Electronics Inc. 5

Acrodyne Industries
Alma Engineering Inc.
American Data Corp.
Applied Elect. Mechanics
Applied Video Electronics, Inc.
Ball Bros. Research Corp. Miratel Division
Beston Electronics Inc.
C Cor Electronics
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Computer Image Corp.
Danscoll Ltd.
Datatek Corp.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
GE Electronic Components Sales Dept.
Grass Valley Group, Inc.
Hewlett Packard Co.
Interntl. Nuclear Corp.
Kapco Enterprises
Kay Elemetrics Corp.
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Video Engineering Co. Inc.
Viscount Video Systems Ltd.

Amplifier, Pulse Delay

See Adv. Page

American Data Corp. 87
Beston Electronics Inc. 5

American Data Corp.
Beston Electronics Inc.

Amplifier, Remote

See Adv. Page

Audio Engineering Co. 110
Wilkinson Electronics, Inc. 17

Audio Engineering Co.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Moseley Assoc. Inc.
Orbit Radio and Video
Pulse Dynamics Mfg. Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Wilkinson Electronics, Inc.

Amplifier, RF General Purpose

See Adv. Page

National Electrolab Assoc. Ltd. 101

Acrodyne Industries
AEL Communications Corp., Subs. American Electronics Labs., Inc.
Ameco Inc.
American Electronics Lab., Inc.
Anixter-Pruzan CATV Division
Belar Electronics Lab., Inc.
Blonder-Tongue Labs.
CCA Electronics
C Cor Electronics
Collins Radio Company Broadcasting Marketing,
Entron, Inc.
Gates Division of Harris-Intertype
GE Electronic Components Sales Dept.
General Radio Co.
Hewlett Packard Co.
Integral Data Devices Inc.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Magnatech Co.
Microwave Assoc. Inc.
National Electrolab Assoc. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Robert Bosch Corp. Fernseh Div.
Rodelco
Singer Co., The Palo Alto Operation
Singer Products Co., Inc.
Sparta Electronic Corp.
Television Technology Corp.
TV Cable Supply Co.
Video Engineering Co. Inc.
Vikoa Inc.

Amplifier, RF Linear

Acrodyne Industries
CCA Electronics
C Cor Electronics
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
LPB Inc.
National Electrolab Assoc. Ltd.
RHG Elect Labs, Inc.
Robert Bosch Corp. Fernseh Div.
Television Technology Corp.
Wilkinson Electronics, Inc.

Amplifier, RF Peak Limiting

Belar Electronics Lab., Inc.
Magnatech Co.
Microwave Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Amplifier, RF Power

See Adv. Page

National Electrolab Assoc. Ltd. 101
Wilkinson Electronics, Inc. 17

Acrodyne Industries
Ailtech (Formerly: Microdot)
American Electronics Lab., Inc.
Amperex Electronic Corp. Power Tubes
Belar Electronics Lab., Inc.
Blonder-Tongue Labs.
CCA Electronics
C Cor Electronics
Collins Radio Company Broadcasting Marketing,
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Eimac Div. Varian Associates
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
Gates Division of Harris-Intertype
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
McMartin Industries Inc.
Microwave Assoc. Inc.
National Electrolab Assoc. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Television Technology Corp.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.
Wilkinson Electronics, Inc.

Amplifier, Sensing

Applied Elect. Mechanics
Broadcast Prod. Co. Inc. Bcst. Division
CYBRIX CORPORATION
Mastertone Co.
Riker Communications Inc.
Tele Measurements Inc.

Amplifier, Stabilizing

American Data Corp.
Ball Bros. Research Corp. Miratel Division
Central Dynamics Corp.
Dynasciences Corp. Video Products Div.
General Radio Co.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Marconi Electronics Inc.
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Telemet Co.
Vital Industries

Amplifier, Stereo Limiter

See Adv. P

Gates .....
Wilkinson Electronics, Inc. .....

Burwen Laboratories
CBS Labs
Gates Division of Harris-Intertype
MCA Technology, Inc.
Neve Inc., Rupert
Rupert Neve Incorporated
Spectra Sonics
Wilkinson Electronics, Inc.

Amplifier, TV Video

See Adv. Pa

American Data Corp. .....

Acrodyne Industries
Alcor Inc.
Alma Engineering Inc.
American Data Corp.
American Pamcor
Amperex Electronic Corp. Power Tubes
Andersen Labs Inc.
Applied Elect. Mechanics
Applied Video Electronics, Inc.
AVA Elect. & Machine Corp.
Ball Bros. Research Corp. Miratel Division
Blonder-Tongue Labs.
Cascade Electronics
Catel, a Div. of United Scientific Cor
C Cor Electronics
Central Dynamics Corp.
Cohu, Inc. Electronics Division
Computer Image Corp.
Danscoll Ltd.
Delta Electronics Inc. (N.C.)
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Entron, Inc.
Fung Engineering Co.
Gates Division of Harris-Intertype
GBC Closed Circuit TV Corp.
Grass Valley Group, Inc.
Ikegami Tsushinki Co., Ltd. Export Department
Integral Data Devices Inc.
Interntl. Nuclear Corp.
Kay Elemetrics Corp.
K'SON Corporation
Lenco Inc. Electronics Division
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Cor
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc.

er Products Co., Inc.
ncer-Kennedy Labs., Inc.
-Cine Inc.
dyne Brown Engineering Co.
cience & Engrg. Div.
sMation, Inc.
o Engineering Co. Inc.
Mount Video Systems Ltd.
ial Communication Products Oper.
eneral Electric Co.
al Educom Inc.
Industries

plifier, Video Sweep

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Elemetrics Corp.
der Instruments Corp.
ronic Res. Labs. Inc.
Corporation RCA Broadcast
quip. Communications Systems
iv.

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ker & Willlamson, Inc.
B K Dynascan Corp.
lins Radio Company Broadcasting
Marketing,
na Engineering, Inc.
PA Marketing Industries, Inc.
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ath Co.
wlett Packard Co.
tronic Res. Labs. Inc.
rconi Instruments
A Corporation RCA Broadcast
Equip. Communications Systems
Div.
hde & Schwarz Sales
ktronix Inc.

nalyzers, Harmonic

PA Marketing Industries, Inc.
neral Radio Co.
wlett Packard Co.
ctronic Res. Labs. Inc.
rconi Instruments
com Inc.
A Corporation RCA Broadcast
Equip. Communications Systems
Div.
hde & Schwarz Sales
ktronix Inc.

nalyzers, Intermodulation

own International
lison Electronics, Div. of
McGraw-Edison Co., Daven &
Measurements
ath Co.
hde & Schwarz Sales
ktronix Inc.

nalyzers, Sideband

& K Instruments Inc.
YNAIR Electronics, Inc.
ntron, Inc.
arconi Instruments
CA Corporation RCA Broadcast
Equip. Communications Systems
Div.
iker Communications Inc.
ohde & Schwarz Sales
inger Co., The Palo Alto Operation

nalyzers, Spectrum

LTEC
naconda Electronics
& K Dynascan Corp.
& K Instruments Inc.
ntron, Inc.
eneral Radio Co.
eath Co.
ewlett Packard Co.
errold Electronics Corp. CATV
Systems Div.
Kay Elemetrics Corp.
Marconi Instruments
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Rohde & Schwarz Sales
Singer Co., The Palo Alto Operation
Spencer-Kennedy Labs., Inc.
Tektronix Inc.
Texscan Corp.

Analyzers, Video

B & K Dynascan Corp.
Colorado Video Inc.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Rohde & Schwarz Sales
Spencer-Kennedy Labs., Inc.
Tektronix Inc.
Video Engineering Co. Inc.

Antenna Systems

See Adv. Page

Bogner Broadcast Equipment Corp. 109
Gates 88

Admiral Corporation
Ameco Inc.
Andrew Corp.
Andrews Tower Inc.
AVA Elect. & Machine Corp.
Bogner Broadcast Equipment Corp.
Collins Radio Company Broadcasting
Marketing,
Continental Electronics Mfg. Co. Subs.
of Resalab, Inc.
Delta Electronics Inc. (Va.)
Electromagnetic Specialties
Entron, Inc.
Gates Division of Harris-Intertype
Gulf Telephone & Electronics
Hy-Power Electronics Co.
Jampro Antenna Co.
Mastertone Co.
Micro Communications, Inc.
Microwave Assoc. Inc.
Multronics, Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
RF Systems, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Sitco Antenna Co.
Soll, Inc., Joseph M.
TACO Technical Appliance Corp. A
General Instrument Co.
Tri-Ex Tower Corp.
TV Cable Supply Co.
Video Engineering Co. Inc.
Visual Communication Products Oper.
General Electric Co.

Antenna Tuning Units

See Adv. Page

Wilkinson Electronics, Inc. 17

Wilkinson Electronics, Inc.

Antennas, Directional System

See Adv. Page

Gates 88

Continental Electronics Mfg. Co. Subs.
of Resalab, Inc.
Electromagnetic Specialties
Gates Division of Harris-Intertype
Jampro Antenna Co.
Micro Communications, Inc.
TACO Technical Appliance Corp. A
General Instrument Co.

Antennas, Dummy Load

See Adv. Page

Bird Electronic Corp. 117
Gates 88
Shively Laboratories, Inc. 38
Wilkinson Electronics, Inc. 17

Bird Electronic Corp.
Continental Electronics Mfg. Co. Subs.
of Resalab, Inc.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Marconi Electronics Inc.
Micro Communications, Inc.
Ohmite Mfg. Co.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Rex Rheostat & Co., Inc.
Rohde & Schwarz Sales
Shively Laboratories, Inc.
Wilkinson Electronics, Inc.

Antennas, Ice Warning System

See Adv. Page

Gates 88

Cook Electric Co.
CYBRIX CORPORATION
Gates Division of Harris-Intertype
Mastertone Co.
Micro-Trak Corporation (Formerly:
Gray Research & Dev.)

Antennas, Monitor

National Electrolab Assoc. Ltd.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Video Engineering Co. Inc.

Antennas, Receiving FM

Anixter-Pruzan CATV Division
G.C. Electronics
McMartin Industries Inc.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
RCA Corporation RCA Missile &
Surface Radar Div.
RCA Corporation RCA Service
Company Div.
RF Systems, Inc.
Saxton Prod. Inc.
Scala Radio Corp.
TACO Technical Appliance Corp. A
General Instrument Co.

Antennas, Receiving LF

Andrews Tower Inc.
Delta Electronics Inc. (Va.)
Honeywell Inc. Test Instruments Div.
Singer Co., The Palo Alto Operation

Antennas, Receiving MF

Delta Electronics Inc. (Va.)
Gulf Telephone & Electronics
Singer Co., The Palo Alto Operation
Singer Products Co., Inc.

Antennas, Receiving UHF

Ameco Inc.
American Electronics Lab., Inc.
American Pamcor
Andrew Corp.
Anixter-Pruzan CATV Division
Blonder-Tongue Labs.
EMCEE Broadcast Products Div. of
Electronics, Missiles &
Communications, Inc.
G.C. Electronics
Honeywell Inc. Test Instruments Div.
Jerrold Electronics Corp. CATV
Systems Div.
Lectronic Res. Labs. Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RF Systems, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Rohde & Schwarz Sales
Saxton Prod. Inc.
Scala Radio Corp.
Singer Co., The Palo Alto Operation
Sitco Antenna Co.
TACO Technical Appliance Corp. A
General Instrument Co.
TV Cable Supply Co.
Video Engineering Co. Inc.

Antennas, Receiving VHF

Ameco Inc.
American Electronics Lab., Inc.
American Pamcor
Andrew Corp.
Anixter-Pruzan CATV Division
Blonder-Tongue Labs.
CATV Equipment Co.
EMCEE Broadcast Products Div. of
Electronics, Missiles &
Communications, Inc.
G.C. Electronics
Honeywell Inc. Test Instruments Div.
Jerrold Electronics Corp. CATV
Systems Div.
Lectronic Res. Labs. Inc.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RF Systems, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Rohde & Schwarz Sales
Saxton Prod. Inc.
Scala Radio Corp.
Singer Co., The Palo Alto Operation
Singer Products Co., Inc.
Sitco Antenna Co.
TACO Technical Appliance Corp. A
General Instrument Co.
TV Cable Supply Co.
Video Engineering Co. Inc.

Antennas, Receiving Microwave

Andrew Corp.
Anixter-Pruzan CATV Division
Lectronic Res. Labs. Inc.
Mastertone Co.
Narda Microwave Corp., The
Prodelin Inc.
RF Systems, Inc.
Singer Co., The Palo Alto Operation
TACO Technical Appliance Corp. A
General Instrument Co.

Antennas, Remote Indicator

Gates Division of Harris-Intertype
Potomac Instruments, Inc.

Antennas, Remote Pickup

Andrew Corp.
Andrews Tower Inc.
Gates Division of Harris-Intertype
Magnatech Co.
Mastertone Co.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
RF Systems, Inc.
Scala Radio Corp.
TACO Technical Appliance Corp. A
General Instrument Co.

Antennas, STL

Andrew Corp.
Magnatech Co.
Mastertone Co.
Phelps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
Scala Radio Corp.

Antennas, Transmitting FM

See Adv. Page

Gates 7, 88
Jampro Antenna Co. 33

Sparta Electronic Corp. 74

CCA Electronics
Electromagnetic Specialties
Gates Division of Harris-Intertype
Jampro Antenna Co.
Magnatech Co.
Mastertone Co.
Micro Communications, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Scala Radio Corp.
Shively Laboratories, Inc.
Sparta Electronic Corp.
TACO Technical Appliance Corp. A General Instrument Co.

Antennas, Transmitting LF

Andrews Tower Inc.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Delta Electronics Inc. (Va.)
Gates Division of Harris-Intertype
Jampro Antenna Co.

Antennas, Transmitting MF

See Adv. Page

Gates 88

Andrews Tower Inc.
Collins Radio Company Broadcasting Marketing,
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Delta Electronics Inc. (Va.)
Gates Division of Harris-Intertype
Gulf Telephone & Electronics
Jampro Antenna Co.
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Shively Laboratories, Inc.
Singer Products Co., Inc.

Antennas, Transmitting UHF

See Adv. Page

Bogner Broadcast Equipment Corp. 109
Shively Laboratories, Inc. 38

Alford Mfg. Co.
Andrew Corp.
Bogner Broadcast Equipment Corp.
CCA Electronics
CCA RF Industries, Inc.
Collins Radio Company Broadcasting Marketing,
Jampro Antenna Co.
Lectronic Res. Labs. Inc.
Marconi Electronics Inc.
Micro Communications, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RF Systems, Inc.
Rohde & Schwarz Sales
Scala Radio Corp.
Shively Laboratories, Inc.
Sitco Antenna Co.
TACO Technical Appliance Corp. A General Instrument Co.
Visual Communication Products Oper. General Electric Co.

Antennas, Transmitting VHF

See Adv. Page

Bogner Broadcast Equipment Corp. 109
Gates 88

Alford Mfg. Co.
Andrew Corp.
Bogner Broadcast Equipment Corp.
CCA Electronics
CCA RF Industries, Inc.
Collins Radio Company Broadcasting Marketing,
Dyma Engineering, Inc.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Lectronic Res. Labs. Inc.
Marconi Electronics Inc.
Micro Communications, Inc.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RF Systems, Inc.
Rohde & Schwarz Sales
Scala Radio Corp.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Sitco Antenna Co.
TACO Technical Appliance Corp. A General Instrument Co.
Visual Communication Products Oper. General Electric Co.

Antennas, Transmitting Microwave

Andrew Corp.
Bogner Broadcast Equipment Corp.
Collins Radio Company Broadcasting Marketing,
Lectronic Res. Labs. Inc.
Microwave Assoc. Inc.
Prodelin Inc.
RF Systems, Inc.
TACO Technical Appliance Corp. A General Instrument Co.

Antennas, VSWR Indicator

See Adv. Page

Gates 88

Bird Electronic Corp.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Delta Electronics Inc. (Va.)
Gates Division of Harris-Intertype
General Radio Co.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Narda Microwave Corp., The
Shively Laboratories, Inc.

Arms, Tone

See Adv. Page

Broadcast Electronics 111
Gates 88
Micro-Trak Corporation 86
Russco Electronics Mfg. Inc. 105

Anixter-Pruzan CATV Division
Broadcast Electronics
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
LPB Inc.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Russco Electronics Mfg. Inc.
Shure Brothers Inc.
Singer Products Co., Inc.
Spotmaster Broadcast Electronics
Video Engineering Co. Inc.

Attenuators, Audio

See Adv. Page

Audio Distributor Inc. 116
Roh Corporation 12
Waters Mfg. Inc. 37

Allen Avionics Inc.
ALTEC
Arbor Systems Inc.
Atlantic Research Corp. Teleproducts Div.
Audio Designs & Mfg.
Audio Distributor Inc.
Burwen Laboratories
Collins Radio Company Broadcasting Marketing,
Duncan Electronics, Inc.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Fairchild Sound Equipment Corp. A Robins Industries Corp.
General Radio Co.
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
Kay Elemetrics Corp.
Langevin An MCA Technology Company
Leader Instruments Corp.
Marconi Instruments
MCA Technology, Inc.
Neve Inc., Rupert
Ohmite Mfg. Co.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Rohde & Schwarz Sales
Rupert Neve Incorporated
Sennheiser Electronics Corp.
Shallco, Incorporated
Tech Laboratories Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Texscan Corp.
TRW Electronic Supply Co. Div. of TRW
Video Engineering Co. Inc.
Waters Mfg. Inc.
Weinschel Engineering Co.

Attenuators, Fixed

See Adv. Page

Roh Corporation 12
Waters Mfg. Inc. 37

Allen Avionics Inc.
Audio Distributor Inc.
Bird Electronic Corp.
Collins Radio Company Broadcasting Marketing,
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Gates Division of Harris-Intertype
General Microwave Corp.
General Radio Co.
Jerrold Electronics Corp. CATV Systems Div.
Kay Elemetrics Corp.
Langevin An MCA Technology Company
Lectronic Res. Labs. Inc.
MCA Technology, Inc.
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Roh Corporation
Rohde & Schwarz Sales
Shallco, Incorporated
Singer Co., The Palo Alto Operation
Tech Laboratories Inc.
Texscan Corp.
Trompeter Electronics
TV Cable Supply Co.
Video Engineering Co. Inc.
Waters Mfg. Inc.
Weinschel Engineering Co.

Attenuators, Impedance Matching

See Adv. Page

Roh Corporation 12
Waters Mfg. Inc. 37

Allen Avionics Inc.
Barker & Williamson, Inc.
Bell P/A Prod. Corp.
Collins Radio Company Broadcasting Marketing,
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
General Radio Co.
Kay Elemetrics Corp.
MCA Technology, Inc.
Ohmite Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Rohde & Schwarz Sales
Shallco, Incorporated
Tech Laboratories Inc.
Texscan Corp.
Video Engineering Co. Inc.
Waters Mfg. Inc.
Weinschel Engineering Co.

Attenuators, Microwave

American Electronics Lab., Inc.
Bell P/A Prod. Corp.
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Marconi Instruments
Narda Microwave Corp., The
Rohde & Schwarz Sales
Singer Co., The Palo Alto Operation
Tech Laboratories Inc.
Texscan Corp.
Video Engineering Co. Inc.
Weinschel Engineering Co.

Attenuators, RF

AEL Communications Corp., Subs. American Electronics Labs., Inc.
Allen Avionics Inc.
Ameco Inc.
American Electronics Lab., Inc.
Anaconda Electronics
Anixter-Pruzan CATV Division
AVA Elect. & Machine Corp.
Bird Electronic Corp.
CATV Equipment Co.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Entron, Inc.
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Integral Data Devices Inc.
Jerrold Electronics Corp. CATV Systems Div.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Marconi Instruments
Matrix Systems Corp.
Narda Microwave Corp., The
OAK Industries Inc. CATV Division
Riker Communications Inc.
Rohde & Schwarz Sales
Shallco, Incorporated
Singer Co., The Palo Alto Operation
Tech Laboratories Inc.
Texscan Corp.
TV Cable Supply Co.
Video Engineering Co. Inc.
Weinschel Engineering Co.

Automation, Camera Control

Ameco Inc.
Bristol Div. of Acco
Cunningham Corp. Subs. of Gleason Works
Power-Optics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Trepac Corp. America
Video Engineering Co. Inc.

Automation, Color Corrector

RCA Corporation RCA Broadcast Equip. Communications Systems Div.

t Bosch Corp. Fernseh Div.

mation, Data Processing

cast Products Inc.
al Dynamics Corp.
X CORPORATION
s Tarzian Inc. Broadcast
uipment Div.
ems Marketing Corp. And
no-Mag Corp.

mation, Equipment Control

See Adv. Page

ogram Corporation 112
afer Electronics 101

rro Corp.
tic Research Corp. Teleproducts
.
gram Corporation
Meter Company Subs. Babcock
Wilcox Co.
cast Products Inc.
Electronics
al Dynamics Corp.
Systems
ept 70, A Div. of Dyma
gineering, Inc.
XIX CORPORATION
ay Systems Corp.
do Systems
s Division of Harris-Intertype
s Valley Group, Inc.

a-Tech Electronic Co., Inc.
ertone Co.
orex Corp.
ley Assoc. Inc.
r-Optics Inc.
l-Eight Electronics
Mfg. Co.
Corporation RCA Broadcast
quip. Communications Systems
v.
Corp.
fer Electronics
ta Electronic Corp.
P Corporation
ems Marketing Corp. And
no-Mag Corp.
-Athon Corp.
ac Corp. America
l Communication Products Oper.
eneral Electric Co.

omation, Film Chain

eral Dynamics Corp.
C Corporation RCA Broadcast
quip. Communications Systems
v.
ert Bosch Corp. Fernseh Div.

omation, Lighting Control

lectronic Components Sales Dept.
eral Radio Co.
o Engineering Co. Inc.

omation, Program Control

See Adv. Page

ogram Corporation 112
es 88
afer Electronics 101
rta Electronic Corp. 74

en Comm. Inc.
Communications Inc. Broadcast
larketing Div.
co Inc.
erican Data Corp.
ro Corp.
or Systems Inc.
gram Corporation
dcast Products Inc.
Electronics
ral Dynamics Corp.
ns Radio Company Broadcasting
larketing.
cept 70, A Div. of Dyma
gineering, Inc.
ner Division Conrac Corp.

CYBRIX CORPORATION
Dataron Inc.
Display Systems Corp.
Gates Division of Harris-Intertype
Grass Valley Group, Inc.
IGM
Jerrold Electronics Corp. CATV Systems Div.
Orbit Radio and Video
Quad-Eight Electronics
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Schafer Electronics
Schafer International
Sparta Electronic Corp.
STEP Corporation
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Trepac Corp. America
Visual Communication Products Oper. General Electric Co.

Automation, Program Logging

See Adv. Page

Autogram Corporation 112
Gates 88
Schafer Electronics 101
Tape-Athon Corp. 96
Time & Frequency Tech., Inc. 47

Aitken Comm. Inc.
Alto Communications Inc. Broadcast Marketing Div.
American Data Corp.
Ampex Corp.
Ampro Corp.
Atlantic Research Corp. Teleproducts Div.
Autogram Corporation
Broadcast Products Inc.
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
CYBRIX CORPORATION
Dataron Inc.
Gates Division of Harris-Intertype
Grass Valley Group, Inc.
IGM
Mastertone Co.
Radio Mfg. Co.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Schafer Electronics
Schafer International
Sparta Electronic Corp.
STEP Corporation
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Time & Frequency Tech., Inc.
Visual Communication Products Oper. General Electric Co.

Automation, Projector

Central Dynamics Corp.
Grass Valley Group, Inc.
Hokushin Elect. Co.
Magna-Tech Electronic Co., Inc.
Marconi Electronics Inc.
Spindler & Sauppe, Inc.

Automation, Switching

See Adv. Page

Grass Valley Group, Inc. 31
Sparta Electronic Corp. 74

American Data Corp.
Ampro Corp.
Atlantic Research Corp. Teleproducts Div.
Broadcast Products Inc.
Central Dynamics Corp.
Chrono-Log Corp.
CMX Systems
Cohu, Inc. Electronics Division
Concept 70, A Div. of Dyma Engineering, Inc.
Cunningham Corp. Subs. of Gleason Works
CYBRIX CORPORATION
Grass Valley Group, Inc.
IGM
Jerrold Electronics Corp. CATV Systems Div.
Marconi Electronics Inc.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Schafer Electronics
Sparta Electronic Corp.
STEP Corporation
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
Tech Laboratories Inc.
Trepac Corp. America
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Automation, Tape Control Cart

See Adv. Page

Aitken Comm. Inc. 118
Autogram Corporation 112
Gates 88
Schafer Electronics 101
Sparta Electronic Corp. 74

Aitken Comm. Inc.
Alto Communications Inc. Broadcast Marketing Div.
Ampex Corp.
Ampro Corp.
Autogram Corporation
Broadcast Products Inc.
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
CYBRIX CORPORATION
Delta Electronics Inc. (N.C.)
Gates Division of Harris-Intertype
Grass Valley Group, Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
VIF International

Automation, Tape Control Reel

See Adv. Page

Autogram Corporation 112
Gates 88
Schafer Electronics 101
Sparta Electronic Corp. 74

Aitken Comm. Inc.
Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Autogram Corporation
Broadcast Products Inc.
CCA Electronics
Central Dynamics Corp.
CMX Systems
Collins Radio Company Broadcasting Marketing.
CYBRIX CORPORATION
Gates Division of Harris-Intertype
Grass Valley Group, Inc.
Magnatech Co.
Mastertone Co.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Scully Recording Instruments Co.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
VIF International
Wide Response

Automation, Transmitter Logging

See Adv. Page

Gates 88
Moseley Assoc. Inc. 92
Schafer Electronics 101

Atlantic Research Corp. Teleproducts Div.
Central Dynamics Corp.
Dorado Systems
Gates Division of Harris-Intertype
Mastertone Co.
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rust Corp.
Schafer Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Time & Frequency Tech., Inc.

Automation, Video Tape Machine

Ampex Corp.
Central Dynamics Corp.
CYBRIX CORPORATION
Display Systems Corp.
Orbit Radio and Video
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
TeleMation, Inc.

Blowers and Fans

AMCO Engineering Co.
American-Standard Industrial Products Div.
Collins Radio Company Broadcasting Marketing.
Dynacool Mfg. Co., Inc.
Mole Richardson Co.
Terminal Hudson Corp. Terminal Hudson Electronics

Bridge, Common Point

Collins Radio Company Broadcasting Marketing.
Delta Electronics Inc. (Va.)
Gates Division of Harris-Intertype

Cabinets, Consoles and Racks

See Adv. Page

AMCO Engineering Co. 8
Gates 88

AMCO Engineering Co.
American Geloso Electronics
Borg-Warner Corp. Ingersoll Prods. Div.
CCA Electronics
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Duotone Co. Inc.
Enclosure Corp.
Equipto
Gates Division of Harris-Intertype
Grinnan Fixture Co.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Sparta Electronic Corp.
TeleMation, Inc.
Video Engineering Co. Inc.
Waber Electronics Inc. Div. SGL Industries, Inc.
Wilson Corp., H.

Cable, Camera

Anixter-Pruzan CATV Division

Belden Corp. Electronic Division
Boston Insulated Wire & Cable Co.
Brand-Rex Company
Robert Bosch Corp. Fernseh Div.
Rome Cable Div. Cyprus Mines Co.
Terminal Hudson Corp. Terminal Hudson Electronics
Transco Products International
Video Engineering Co. Inc.

Cable, Coaxial Flexible

See Adv. Page

Pace Wire & Cable Corp. 93
Shively Laboratories, Inc. 38

Anaconda Electronics
Andrew Corp.
Anixter-Pruzan CATV Division
A-Tel-A-Matic
Belden Corp. Electronic Division
Blonder-Tongue Labs.
Brand-Rex Company
CATV Equipment Co.
Cohu, Inc. Electronics Division
Collins Radio Company Broadcasting Marketing.
Columbia Electronic Cbl.
Comm-Scope Corp.
Dyma Engineering, Inc.
Essex International Inc. Communication & CATV Div.
G.C. Electronics
General Cable Corp.
Gulf Telephone & Electronics
Jampro Antenna Co.
Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Lectronic Res. Labs. Inc.
Mastertone Co.
Pace Wire & Cable Corp.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Plastoid Corporation
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rome Cable Div. Cyprus Mines Co.
Saxton Prod. Inc.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Soll, Inc., Joseph M.
Sparta Electronic Corp.
Spencer-Kennedy Labs., Inc.
Times Wire and Cable Sub. of Insilco Corp.
Transco Products International
Trompeter Electronics
TV Cable Supply Co.
Video Engineering Co. Inc.
Vikoa Inc.

Cable, Coaxial Rigid

See Adv. Page

Pace Wire & Cable Corp. 93
Shively Laboratories, Inc. 38

Andrew Corp.
Anixter-Pruzan CATV Division
A-Tel-A-Matic
CATV Equipment Co.
Cohu, Inc. Electronics Division
Collins Radio Company Broadcasting Marketing.
Comm-Scope Corp.
Dyma Engineering, Inc.
Essex International Inc. Communication & CATV Div.
General Cable Corp.
Gulf Telephone & Electronics
Jampro Antenna Co.
Jerrold Electronics Corp. CATV Systems Div.
Micro Communications, Inc.
Pace Wire & Cable Corp.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Plastoid Corporation
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rome Cable Div. Cyprus Mines Co.
Shively Laboratories, Inc.
Soll, Inc., Joseph M.
Sparta Electronic Corp.
Times Wire and Cable Sub. of Insilco Corp.
Transco Products International
TV Cable Supply Co.
Video Engineering Co. Inc.

Cable, Direct Burial

Anixter-Pruzan CATV Division
A-Tel-A-Matic
Brand-Rex Company
CATV Equipment Co.
Collins Radio Company Broadcasting Marketing.
Columbia Electronic Cbl.
Comm-Scope Corp.
Essex International Inc. Communication & CATV Div.
General Cable Corp.
Gulf Telephone & Electronics
Jerrold Electronics Corp. CATV Systems Div.
Pace Wire & Cable Corp.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Plastoid Corporation
Rome Cable Div. Cyprus Mines Co.
Singer Products Co., Inc.
Spencer-Kennedy Labs., Inc.
Times Wire and Cable Sub. of Insilco Corp.
Transco Products International
TV Cable Supply Co.
Video Engineering Co. Inc.
Vikoa Inc.

Cable, Shielded Audio

See Adv. Page

Pace Wire & Cable Corp. 93

Alpha Wire
Amphenol Corp.
A-Tel-A-Matic
Belden Corp. Electronic Division
Birnbach Co. Inc.
Boston Insulated Wire & Cable Co.
Brand-Rex Company
Collins Radio Company Broadcasting Marketing.
Columbia Electronic Cbl.
Comm-Scope Corp.
Electrodyne Div. of MCA Technology, Inc.
Essex International Inc. Communication & CATV Div.
Franz Vertriebs-gesellschaft m.b.H.
G.C. Electronics
General Cable Corp.
Gotham Audio Corp.
Gulf Telephone & Electronics
Nortronics Co., Inc.
Pace Wire & Cable Corp.
Prestolite Company
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rome Cable Div. Cyprus Mines Co.
Saxton Prod. Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Terminal Hudson Corp. Terminal Hudson Electronics
Times Wire and Cable Sub. of Insilco Corp.
Transco Products International
Video Engineering Co. Inc.
Vikoa Inc.

Cable Laying Equipment

Anixter-Pruzan CATV Division
Ditch Witch Div. of Charles Machine Works, Inc.
Roll-A-Reel
F. B. Ryan Mfg. Co. Inc.
Terminal Hudson Corp. Terminal Hudson Electronics

Calibration Service, Instrument

American Electronics Lab., Inc.
Bird Electronic Corp.
B & K Dynascan Corp.
Comm. Radio Monitoring
Eidson Electronic Co.
Honeywell Inc. Test Instruments Div.
Instrument Laboratories
National Electrolab Assoc. Ltd.
Potomac Instruments, Inc.
Simpson Electric Co.

Camera Dollies, Stands and Tripods

Ameco Inc.
Behrends, Inc.
Comquip, Inc.
Cosmicar Optical Co., Ltd.
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
F&B/Ceco Industries, Inc.
GBC Closed Circuit TV Corp.
General Microwave Corp.
Innovative Television Equipment, Inc.
Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Listec TV Equip. Corp.
O'Connor Eng. Labs. Inc. Photographic Division
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Precision Laboratories Precision Cine Equipment Corp.
Quick-Set Inc.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Shibaden Corp. of America
Sylvania Comm. Electronic
Technology Incorporated HF Photo Systems Div.
Tele-Cine Inc.
Teledyne Camera Systems
TeleMation, Inc.
Television Equipment Associates
Television Products Co. Inc.
Video Engineering Co. Inc.
Vikoa Inc.
Waber Electronics Inc. Div. SGL Industries, Inc.

Camera Heads

See Adv. Page

Technology Incorporated 90

Technology Incorporated HF Photo Systems Div.

Camera Remote Control Equipment

Bristol Div. of Acco
Comquip, Inc.
Cunningham Corp. Subs. of Gleason Works
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
F&B/Ceco industries, Inc.
GBC Closed Circuit TV Corp.
Ikegami Tsushinki Co., Ltd. Export Department
Innovative Television Equipment, Inc.
Jerrold 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 RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Shibaden Corp. of America
Sylvania Comm. Electronic
Tele-Cine Inc.
TeleMation, Inc.
Tele Measurements Inc.
TRACOR, Inc. Instruments Group
Trepac Corp. America
Video Engineering Co. Inc.

Cameras, Closed Circuit B&W

Admiral Corporation
Ameco Inc.
Anixter-Pruzan CATV Division
A-Tel-A-Matic
ATV Research
Audiotronics Corp.
CATV Equipment Co.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Commercial Elect.
Computer Image Corp.
Comquip, Inc.
Concord Elect. Corp.
Denson Electronic Corp.
Diamond Power Specialty Corp. Sub Babcock & Wilcox Co.
GBC Closed Circuit TV Corp.
Gen. Electrodynamics
GPL Div. Singer Gen.
Gulf Telephone & Electronics
International Video
Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
K'SON Corporation
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Philips Co
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electromagne & Aviation Systems Div.
R. H. Tyler Co. Div. of Weather Scan Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Singer Co. Simulation Products Div.
Sony Corp. of America
Teledyne Brown Engineering Co. Science & Engrg. Div.
TeleMation, Inc.
Tele Measurements Inc.
Telesync Corp.
Teltron, Inc.
Video Engineering Co. Inc.
Visual Communication Products Ope General Electric Co.
Visual Educom Inc.
Westinghouse Electric Corp. Electric Tube Div.

Cameras, Closed Circuit Color

Ameco Inc.
Ampex Corp.
A-Tel-A-Matic
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Cohu, Inc. Electronics Division
Commercial Elect.
Denson Electronic Corp.
GBC Closed Circuit TV Corp.
GPL Div. Singer Gen.
International Video
K'SON Corporation
Mincom Div. 3M Co.
Norelco, Philips Broadcast Equipmer Corp.
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Philips Cor
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electromagne & Aviation Systems Div.
R. H. Tyler Co. Div. of Weather Scan Inc.
Robert Bosch Corp. Fernseh Div.

s Tarzian Inc. Broadcast
ulpment Div.
nden Corp. of America
r Co. Simulation Products Div.
Corp. of America
yne Camera Systems
ation, Inc.
Measurements Inc.
ync Corp.
l Engineering Co. Inc.
l Communication Products Oper.
neral Electric Co.
l Electronics Corp.
nghouse Electric Corp. Electric
be Div.

eras, Film Chain

STER ELECTRONIC LABS., INC.
E Information Systems Inc.
mercial Elect.
N Corporation
Video Systems, Inc.
Tyler Co. Div. of Weather Scan,

rt Bosch Corp. Fernseh Div.
es Tarzian Inc. Broadcast
uipment Div.
Measurements Inc.
Engineering Co. Inc.

eras, Film Cine

See Adv. Page

nquip, Inc. 112
ert Bosch Corp. 29

O, Inc.
lex Company of America
ends, Inc.
era Mart Inc.
n USA, Inc. Optics Division
, Inc. Electronics Division
quip, Inc.
man Kodak Co.
/Ceco Industries, Inc.
Corp.
ard Incorporated
ision Laboratories Precision Cine
uipment Corp.
Corporation RCA Broadcast
uip. Communications Systems
v.
Tyler Co. Div. of Weather Scan,
c.
ert Bosch Corp. Fernseh Div.
dyne Camera Systems
Measurements Inc.
or Duncan, Inc.

eras, Film Still

D, Inc.
e & James
quip, Inc.
man Kodak Co.
Corp.
ard Incorporated
ips Broadcast Equipment Corp.
ubs. North American Philips Corp.
Corporation RCA Broadcast
quip. Communications Systems
v.
Tyler Co. Div. of Weather Scan,
c.

eras, Image Motion ompensation

asciences Corp. Video Products
iv.
Closed Circuit TV Corp.
Div. Singer Gen.

eras, Surveillance

el-A-Matic
Research
liotronics Corp.
nquip, Inc.
Closed Circuit TV Corp.
Electrodynamics
lin Division Apollo Lasers, Inc.
co Enterprises
e Dynamics Mfg. Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Singer Co. Simulation Products Div.
Teledyne Brown Engineering Co. Science & Engrg. Div.
Teledyne Camera Systems
TeleMation, Inc.
Telesync Corp.
Teltron, Inc.
Video Engineering Co. Inc.

Cameras, TV B&W Portable Broadcast

Audiotronics Corp.
CATV Equipment Co.
Cohu, Inc. Electronics Division
Denson Electronic Corp.
International Video
K'SON Corporation
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Shibaden Corp. of America
Sony Corp. of America
Teledyne Camera Systems
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Cameras, TV B&W Studio Broadcast

Ameco Inc.
Ampex Corp.
Cohu, Inc. Electronics Division
Denson Electronic Corp.
GBC Closed Circuit TV Corp.
GPL Div. Singer Gen.
International Video
K'SON Corporation
Marconi Electronics Inc.
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Sony Corp. of America
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.
Visual Educom Inc.

Cameras, TV Color Portable Broadcast

See Adv. Page
Robert Bosch Corp. 29

Ampex Corp.
Commercial Elect.
Editel Productions
GBC Closed Circuit TV Corp.
GPL Div. Singer Gen.
International Video
Mincom Div. 3M Co.
Norelco, Philips Broadcast Equipment Corp.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
TeleMation, Inc.
Tele Measurements Inc.
Visual Communication Products Oper. General Electric Co.

Cameras, TV Color Studio Broadcast

See Adv. Page
Robert Bosch Corp. 29

Ameco Inc.
Ampex Corp.
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Commercial Elect.
International Video
K'SON Corporation
Marconi Electronics Inc.
Mincom Div. 3M Co.
Norelco, Philips Broadcast Equipment Corp.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Soll, Inc., Joseph M.
TeleMation, Inc.
Tele Measurements Inc.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Cameras, TV Remote Control Broadcast

Commercial Elect.
International Video
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Robert Bosch Corp. Fernseh Div.
Shibaden Corp. of America
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Cartridge Machine, Dual Deck

See Adv. Page
RAPID-Q 119
Sparta Electronic Corp. 74

Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
International Tapetronics Corp.
Joa Cartridge Service
MacKenzie Laboratories, Inc.
Mastertone Co.
McCurdy Radio Ind. Inc.
Peripheral Data Machines, Inc. (PER DATA)
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Visual Electronics Corp.

Cartridge Machine, Multiple Deck

See Adv. Page
Broadcast Electronics 100
RAPID-Q 119

Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Blanchard Electronics
Broadcast Electronics
Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gotham Audio Corp.
IGM
International Tapetronics Corp.
Joa Cartridge Service
MacKenzie Laboratories, Inc.
Radio Mfg. Co.
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Telex Communications Division
VIF International
Visual Electronics Corp.

Cartridge Machine, Random Access

See Adv. Page
Gates 88
IGM 44
Sparta Electronic Corp. 74

Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Cramer Division Conrac Corp.
CYBRIX CORPORATION
Gates Division of Harris-Intertype
IGM
MacKenzie Laboratories, Inc.
Mastertone Co.
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Television Equipment Associates
VIF International

Cartridge Machine, Single Deck

See Adv. Page
Broadcast Electronics 100
Gates 7, 88
RAPID-Q 119
Sparta Electronic Corp. 74
Tapecaster TCM, Inc. 112

Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Broadcast Electronics

Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing.
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
IGM
International Tapetronics Corp.
Joa Cartridge Service
LPB Inc.
MacKenzie Laboratories, Inc.
McCurdy Radio Ind. Inc.
Peripheral Data Machines, Inc. (PER DATA)
Radio Mfg. Co.
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Schultz Inc., Albert
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
Telex Communications Division
Tri-Tronics
Visual Electronics Corp.

Cartridge Reconditioning Services

See Adv. Page
Joa Cartridge Service 91

Birmingham Tape Cartridge Co.
Joa Cartridge Service

Cartridge Recording Services

IGM
Radio Mfg. Co.
Schultz Inc., Albert
Stanton Magnetics Inc.

Cartridge Splice Finder

Marathon Broadcast Equip.
Tapecaster TCM, Inc.

Cartridges, Magnetic Tape

See Adv. Page
Contel Mfg. 80D
Gates 88

Afga-Gevaert Inc.
Audio Devices, Inc.
Audio Magnetics Corp.
Broadcast Electronics
Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing.
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Cramer Division Conrac Corp.
Duotone Co. Inc.
Fidelipac Div. of TelePro Industries, Inc.
Gates Division of Harris-Intertype
IGM
International Tapetronics Corp.
Joa Cartridge Service
MaCarta
Magnatech Co.
Magnetic Prod. Div. 3M Company
Marathon Broadcast Equip.
Mastertone Co.
Memorex Corp.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Schultz Inc., Albert
Singer Products Co., Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
TelePro Industries, Inc.
Telex Communications Division
Wilkinson Electronics, Inc.

Cartridges, Phono

See Adv. Page
Gates 88
Stanton Magnetics Inc. 21

AKG Division North Amer. Philips Corp.
Bell Sound Studios A & B Duplicators Div.
Bourns Inc.
Broadcast Electronics
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Duotone Co. Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Gates Division of Harris-Intertype
LPB Inc.
QRK Electronic Prod.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rek-O-Kut Inc.
Schultz Inc., Albert
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Stanton Magnetics Inc.
Terminal Hudson Corp. Terminal Hudson Electronics

Cartridges, Stereo

See Adv. Page
Gates 88

Fidelipac Div. of TelePro Industries, Inc.
Gates Division of Harris-Intertype
International Tapetronics Corp.
Marathon Broadcast Equip.
Mastertone Co.
QRK Electronic Prod.
Rek-O-Kut Inc.
Systems Marketing Corp. And Sono-Mag Corp.
TelePro Industries, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics

Cartridges, Videotape

Audio Magnetics Corp.
Magnetic Prod. Div. 3M Company
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schultz Inc., Albert
Tele Measurements Inc.

Character Generators

See Adv. Page
American Data Corp. 87
Cooke Engineering Co. 118
Datavision, Inc. 116

Ameco Inc.
American Data Corp.
Atlantic Research Corp. Teleproducts Div.
Broadcast Electronics
CBS Labs
Chiron Telesystems Systems Resources Corp.
Chrono-Log Corp.
Cooke Engineering Co.
Datavision, Inc.
Dyma Engineering, Inc.
Electronic Engineering Co. of California
Kapco Enterprises
Marconi Electronics Inc.
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
SPI-ITT Instruments Metrix Division
Spotmaster Broadcast Electronics
Sterling Television Presentations Inc. Sterling Communications Co.
TeleMation, Inc.
TELESTRATOR Industries
Television Equipment Associates
Video Devices Co.
Video Engineering Co. Inc.
VIF International
Visual Electronics Corp.

Chroma Keyers

See Adv. Page
Telemet Co. ..... IBC

Telemet Co.

Cleaner, Magnetic Tape Head

See Adv. Page
Miller Stephenson Chemical Co. 94

Audio Magnetics Corp.
Duotone Co. Inc.
Javelin Division Apollo Lasers, Inc.
Joa Cartridge Service
Miller Stephenson Chemical Co.
Nortronics Co., Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Television Equipment Associates
Texwipe Co.

Clocks and Chronographs

See Adv. Page
American Data Corp. 87

American Data Corp.
Bradford Information Systems
Broadcast Products Inc.
Bulova American Time Products
Chrono-Log Corp.
Cooke Engineering Co.
CYBRIX CORPORATION
Dataron Inc.
Electrodyne Div. of MCA Technology, Inc.
ES Enterprises
Gates Division of Harris-Intertype
General Time Service A Talley Industries Co.
IGM
Langevin An MCA Technology Company
Logiconcepts, Inc.
MCA Technology, Inc.
Racine & Co., Inc., Jules
Radio Mfg. Co.
Riker Communications Inc.
Standard Electric Time Div. of Johnson Service Co.
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
TelComp Division Television and Computer Corp.
Television Equipment Associates
Time & Frequency Tech., Inc.
Video Devices Co.
Video Engineering Co. Inc.
Visual Electronics Corp.

Clocks, Digital and Digital Driver

See Adv. Page
American Data Corp. 87
Cooke Engineering Co. 111
ES Enterprises 45

American Data Corp.
Cooke Engineering Co.
ES Enterprises
United Systems Corp. Subs. of Monsanto Co.

Clocks, Station Master Contro

See Adv. Pa
ES Enterprises .....

American Data Corp.
Broadcast Products Inc.
Bulova American Time Products
Dyma Engineering, Inc.
ES Enterprises
Gates Division of Harris-Intertype
Radio Mfg. Co.
Standard Electric Time Div. of John Service Co.
Systems Marketing Corp. And Sono-Mag Corp.

Color Correction Equipment

CBS Labs
Datatek Corp.
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Co
Rank Cintel Rank Precision Ind. Ltd Broadcast Div.
Rank Precision Ind. Broadcast Div.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.

Common Point Bridge --See Bridge, Common Point

Communication Systems, Land Mobile

See Adv. P
Moseley Assoc. Inc. .....

Alpha Electronic Services Inc.
American Geloso Electronics
Andrew Corp.
Andrews Tower Inc.
Atlantic Research Corp. Teleproduc Div.
Belcom Electronics Mfg. Co.
CCA Electronics
Comquip, Inc.
Dyma Engineering, Inc.
General Electric Co. Mobile Radio Dept.
Miles Reproducer Co.
Moseley Assoc. Inc.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Scintrex Inc. Communications Div.
Singer Products Co., Inc.

Communication Systems, Microwave

See Adv. P
Moseley Assoc. Inc. .....

Acrodyne Industries
Alcor Inc.
Andrew Corp.
Andrews Tower Inc.
Atlantic Research Corp. Teleproduc Div.
Coastcom Division Scott-Buttner Co
Dyma Engineering, Inc.
GTE Lenkurt Incorporated
Moseley Assoc. Inc.
Phelps Dodge Communications Co.
Raytheon Company Raytheon Data Systems Co.
RHG Elect Labs, Inc.
Soladyne International
Tele Measurements Inc.
Varian Solid State Div. Micro-Link Products
Visual Electronics Corp.

Communication Systems, Multiplex

Catel, a Div. of United Scientific Co

tcom Division Scott-Buttner Corp.
ido Systems
Lenkurt Incorporated
eley Assoc. Inc.
heon Company Raytheon Data
ystems Co.
er Products Co., Inc.
ac Corp. America

mmunication Systems, STL

See Adv. Page

seley Assoc. Inc. 92

Communications Inc. Broadcast
Marketing Div.
drews Tower Inc.
A Electronics
mm-Scope Corp.
Did Clark Co., Inc.
na Engineering, Inc.
E Lenkurt Incorporated
stertone Co.
rowave Assoc. Inc.
seley Assoc. Inc.
Phips Dodge Communications Co.
Phips Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
S Elect Labs, Inc.
ger Products Co., Inc.
dyne International
Te Measurements Inc.
pac Corp. America
lian Solid State Div. Micro-Link
Products
ual Electronics Corp.

mmunication Systems, Teleprinter

antic Research Corp. Teleproducts
Div.
adcast Products Inc.
BRIX CORPORATION
E Lenkurt Incorporated
morex Corp.
ger Products Co., Inc.
epac Corp. America

mputer Equipment

ntral Dynamics Corp.
mpu/Net, Inc.
BRIX CORPORATION
ta Disc Inc.
tavision, Inc.
ass Valley Group, Inc.
lwlett Packard Co.
stertone Co.
morex Corp.
ytheon Company Raytheon Data
Systems Co.
A Corporation RCA Missile &
Surface Radar Div.
hafer Electronics
EP Corporation
stems Marketing Corp. And
Sono-Mag Corp.
ual Communication Products Oper.
General Electric Co.

nnectors, Cable

ixter-Pruzan CATV Division
/A Elect. & Machine Corp.
onder-Tongue Labs.
tron, Inc.
neral Radio Co.
bert Engineering Co.
elps Dodge Communications Co.
Div. Phelps Dodge Industries Inc.
vitchcraft Inc.
stems Marketing Corp. And
Sono-Mag Corp.
deo Engineering Co. Inc.

nsole, Audio AM

See Adv. Page

anchard Electronics 102
oadcast Electronics 16
irchild Sound Equipment Corp. 89
ates 7, 88
McMartin Industries Inc. 105
Sparta Electronic Corp. 74

Accurate Sound Corp.
Alto Communications Inc. Broadcast Marketing Div.
AMCO Engineering Co.
Ampro Corp.
Arbor Systems Inc.
Audio Designs & Mfg.
Audio Distributor Inc.
Blanchard Electronics
Broadcast Electronics
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Concept 70, A Div. of Dyma Engineering, Inc.
Delta Electronics Inc. (Va.)
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Gotham Audio Corp.
Granger Assoc.
IGM
Ikegami Tsushinki Co., Ltd. Export Department
Langevin An MCA Technology Company
LPB Inc.
Mastertone Co.
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
McMartin Industries Inc.
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Spotmaster Broadcast Electronics
TelComp Division Television and Computer Corp.
Telectro Systems Corp.
Tele Measurements Inc.
Tri-Tronics
Ultra Audio Products
United Radio Supply Inc.
Visual Communication Products Oper. General Electric Co.
Visual Electronics Corp.
Wilkinson Electronics, Inc.

Console, Audio FM

See Adv. Page

Broadcast Electronics 16
Fairchild Sound Equipment Corp. 89
Gates 7, 88
Maze Corporation 98
McMartin Industries Inc. 105
Sparta Electronic Corp. 74

Accurate Sound Corp.
Alto Communications Inc. Broadcast Marketing Div.
AMCO Engineering Co.
Ampro Corp.
Arbor Systems Inc.
Audio Designs & Mfg.
Audio Distributor Inc.
Blanchard Electronics
Broadcast Electronics
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Concept 70, A Div. of Dyma Engineering, Inc.
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Gotham Audio Corp.
Ikegami Tsushinki Co., Ltd. Export Department
Langevin An MCA Technology Company
LPB Inc.
Mastertone Co.
Maze Corporation
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
McMartin Industries Inc.
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Spotmaster Broadcast Electronics
TelComp Division Television and Computer Corp.
Tele Measurements Inc.
Tri-Tronics
Ultra Audio Products
United Radio Supply Inc.
Visual Communication Products Oper. General Electric Co.
Visual Electronics Corp.
Wilkinson Electronics, Inc.

Console, Audio Portable

See Adv. Page

American Electronics, Inc. 117
Fairchild Sound Equipment Corp. 89
Gates 88
Sparta Electronic Corp. 74

Alcor Inc.
AMCO Engineering Co.
American Electronics, Inc.
Ampro Corp.
Audio Designs & Mfg.
Behrends, Inc.
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Gotham Audio Corp.
Langevin An MCA Technology Company
LPB Inc.
Magnatech Co.
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
Moseley Assoc. Inc.
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
QRK Electronic Prod.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Sennheiser Electronics Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
TelComp Division Television and Computer Corp.
Visual Communication Products Oper. General Electric Co.

Console, Audio Recording

See Adv. Page

Blanchard Electronics 102
Fairchild Sound Equipment Corp. 89
Gates 7, 88
Neve Inc., Rupert 46
Rupert Neve Incorporated 46
Sparta Electronic Corp. 74

Accurate Sound Corp.
Alcor Inc.
ALTEC
AMCO Engineering Co.
Ampro Corp.
Arbor Systems Inc.
Audio Designs & Mfg.
Audio Distributor Inc.
Behrends, Inc.
Blanchard Electronics
Broadcast Prod. Co. Inc. Bcst. Division
CCA Electronics
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Elecktromesstechnik E M T Wilhelm Franz G M B H
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
IGM
Lang Electronics Inc.
Langevin An MCA Technology Company
LPB Inc.
Magnatech Co.
Magna-Tech Electronic Co., Inc.
Mastertone Co.
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
Nemo Recording Labs
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Quad-Eight Electronics
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Tascam Corporation
TelComp Division Television and Computer Corp.
Telectro Systems Corp.
Television Equipment Associates
Total Technology
Ultra Audio Products
United Radio Supply Inc.
Visual Communication Products Oper. General Electric Co.

Console, Audio TV

See Adv. Page

Fairchild Sound Equipment Corp. 89
Gates 88
Vital Industries ..... BC

Alcor Inc.

AMCO Engineering Co.
Ampro Corp.
Audio Designs & Mfg.
Bradford Information Systems
Central Dynamics Corp.
Collins Radio Company Broadcasting Marketing.
Concept 70, A Div. of Dyma Engineering, Inc.
Delta Electronics Inc. (Va.)
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
GBC Closed Circuit TV Corp.
Gotham Audio Corp.
GPL Div. Singer Gen.
IGM
Ikegami Tsushinki Co., Ltd. Export Department
Interntl. Nuclear Corp.
Lang Electronics Inc.
Langevin An MCA Technology Company
LPB Inc.
Marconi Electronics Inc.
Mastertone Co.
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
Neve Inc., Rupert
Orbit Radio and Video
Phillips Broadcast Equipment Corp. Subs. North American Phillips Corp.
QRK Electronic Prod.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rupert Neve Incorporated
Sarkes Tarzian Inc. Broadcast Equipment Div.
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Spotmaster Broadcast Electronics
TelComp Division Television and Computer Corp.
Tele Measurements Inc.
Ultra Audio Products
Viscount Video Systems Ltd.
Visual Communication Products Oper. General Electric Co.
Visual Electronics Corp.
Vital Industries

Console, Stereo

See Adv. Page

Blanchard Electronics 102
Broadcast Electronics 16
Fairchild Sound Equipment Corp. 89
Gates 7, 88
McMartin Industries Inc. 105
Wilkinson Electronics, Inc. 17

AMCO Engineering Co.
Ampro Corp.
Audio Designs & Mfg.
Blanchard Electronics
Broadcast Electronics
CCA Electronics
Central Dynamics Corp.
Concept 70, A Div. of Dyma Engineering, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gates Division of Harris-Intertype
LPB Inc.
Magnatech Co.
Mastertone Co.
MCA Technology, Inc.
McMartin Industries Inc.
Neve Inc., Rupert
QRK Electronic Prod.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rupert Neve Incorporated
Sparta Electronic Corp.
Visual Electronics Corp.
Wilkinson Electronics, Inc.

Console, Video Portable

See Adv. Page

American Data Corp. 87
Grass Valley Group, Inc. 31
Vital Industries ..... BC

Alcor Inc.
AMCO Engineering Co.
American Data Corp.
Ampex Corp.
Central Dynamics Corp.
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Gately Electronics
GBC Closed Circuit TV Corp.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Jerrold Electronics Corp. CATV Systems Div.
Kapco Enterprises
K'SON Corporation
Nasco Television Systems
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Shintron Co. Inc.
Singer Co. Simulation Products Div.
TeleMation, Inc.
Video Engineering Co. Inc.
Viscount Video Systems Ltd.
Vital Industries

Console, Video Studio

See Adv. Page

American Data Corp. 87
Danscoll Ltd. 85
Grass Valley Group, Inc. 31
Richmond Hill Laboratories Inc. 100
Telemet Co. ..... IBC
Vital Industries ..... BC

Alcor Inc.
AMCO Engineering Co.
Ameco Inc.
American Data Corp.
Applied Video Electronics, Inc.
Central Dynamics Corp.
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Concord Elect. Corp.
Danscoll Ltd.
Gately Electronics
GBC Closed Circuit TV Corp.
GPL Div. Singer Gen.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Jerrold Electronics Corp. CATV Systems Div.
Kapco Enterprises
K'SON Corporation
Marconi Electronics Inc.
Mobile Color, Inc.
Nasco Television Systems
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Singer Products Co., Inc.
Sylvania Comm. Electronic
TeleMation, Inc.
Telemet Co.
Video Engineering Co. Inc.
Viscount Video Systems Ltd.
Visual Communication Products Oper. General Electric Co.
Vital Industries

Converters

AEL Communications Corp., Subs. American Electronics Labs., Inc.
Andersen Labs Inc.
Berkey-Colortran Inc.
Bristol Div. of Acco
Catel, a Div. of United Scientific Corp.
CATV Equipment Co.
C Cor Electronics
Fung Engineering Co.
GE Electronic Components Sales Dept.
General Microwave Corp.
Honeywell Inc. Test Instruments Div.
Jerrold Electronics Corp. CATV Systems Div.
K'SON Corporation
Lectronic Res. Labs. Inc.
Magnavox Company CATV Division
OAK Industries Inc. CATV Division
Riker Communications Inc.
Tasker Industries Systems Division
Topaz Electronics
TV Cable Supply Co.
Video Engineering Co. Inc.

Counter-Timers

See Adv. Page

Cooke Engineering Co. 117
ES Enterprises 45
Tapecaster TCM, Inc. 82

Cooke Engineering Co.
ES Enterprises
Tapecaster TCM, Inc.
United Systems Corp. Subs. of Monsanto Co.

Decoder, Four Channel Stereo

Electro-Voice Inc. Div. of Gulton Industries, Inc.
Heath Co.
Sansui Electronics Corp.

Data Transmitters

See Adv. Page

Trepac Corp. America 102

Trepac Corp. America

Delay Lines

See Adv. Page

Andersen Labs Inc. 80C
Television Equipment Associates 104

Allen Avionics Inc.
Andersen Labs Inc.
Cook Electric Co.
Dynasciences Corp. Video Products Div.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Franz Vertriebs-gesellschaft m.b.H.
General Microwave Corp.
Gotham Audio Corp.
Kappa Networks
Lectronic Res. Labs. Inc.
Phelps Dodge Communications Co.
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Television Equipment Associates
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Times Wire and Cable Sub. of Insilco Corp.

Demagnetizers, Bulk Tape

See Adv. P.

Taber Mfg. & Engr. Co. 1

Behrends, Inc.
G.C. Electronics
Harvey Radio Pro A/V Div.
Joa Cartridge Service
Lafayette Radio Electronics
Marathon Broadcast Equip.
Minnesota Mining & Mfg. Co.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Scully Recording Instruments Co.
Shallco, Incorporated
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Taber Mfg. & Engr. Co.
TelePro Industries, Inc.

Demodulators

See Adv. P

DYNAIR Electronics, Inc. .....
Gates .....
Telemet Co. .....

Ameco Inc.
Anixter-Pruzan CATV Division
Audiotronics Corp.
Belar Electronics Lab., Inc.
Coastcom Division Scott-Buttner Co
Collins Radio Company Broadcasting Marketing.
DYNAIR Electronics, Inc.
Fung Engineering Co.
Gates Division of Harris-Intertype
Jerrold Electronics Corp. CATV Systems Div.
Kahn Research Lab. Inc.
National Electrolab Assoc. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Riker Communications Inc.
Rohde & Schwarz Sales
SC Electronics, Inc. Subs. of Audiotronics Corp.
Telemet Co.
Video Engineering Co. Inc.

Detectors, Microwave

American Electronics Lab., Inc.
GE Electronic Components Sales De
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Microwave Assoc. Inc.
Mosler Electronic Systems Div.
Narda Microwave Corp., The
RCA Corporation RCA Electromagne & Aviation Systems Div.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Texscan Corp.
Thomson-CSF Electron Tubes

Detectors, RF

Alford Mfg. Co.
Anixter-Pruzan CATV Division
Bird Electronic Corp.
Blonder-Tongue Labs.
General Microwave Corp.
General Radio Co.
Jerrold Electronics Corp. CATV Systems Div.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Microwave Assoc. Inc.
Narda Microwave Corp., The
National Electrolab Assoc. Ltd.
Solitron Devices Inc. Semiconductor Div.
Television Technology Corp.
Telonic Industries Inc.
Texscan Corp.

...son-CSF Electron Tubes
...ble Supply Co.

...ctors, Standing Wave

...lectronic Corp.
...s Radio Company Broadcasting ...rketing,
...ral Microwave Corp.
...ral Radio Co.
...onic Res. Labs. Inc.
...n Communications, Inc.
...er Electronic Systems Div.
...a Microwave Corp., The
...e & Schwarz Sales
...can Corp.

...ctors, Video Presence

See Adv. Page

...scoll Ltd. 85

...coll Ltd.

...iexers

...d Mfg. Co.
...s Radio Company Broadcasting ...rketing,
...inental Electronics Mfg. Co. Subs. ... Resalab, Inc.
...romagnetic Specialties
...kami Tsushinki Co., Ltd. Export ...epartment
...tral Data Devices Inc.
...pro Antenna Co.
...o Communications, Inc.
...owave Assoc. Inc.
...ronics, Inc.
...da Microwave Corp., The
...ps Dodge Communications Co.
...ps Dodge Communications Co.
...v. Phelps Dodge Industries Inc.
...Corporation RCA Broadcast ...quip. Communications Systems ...iv.
...ely Laboratories, Inc.

...play Equipment, Titling

...iotronics Corp.
...h Bros. Research Corp. Miratel ...ivision
... Labs
...tral Dynamics Corp.
...orado Video Inc.
...a Disc Inc.
...Division, Inc.
...play Systems Corp.
...eral Television Ntwk.
... Div. Singer Gen.
...kami Tsushinki Co., Ltd. Export ...epartment
...rconi Electronics Inc.
...to Research Div. of Kollmorgen ...Corp.
...rnolds/Leteron Co.
...bert Bosch Corp. Fernseh Div.
...ntron Co. Inc.
...rling Television Presentations Inc.
...sterling Communications Co.
...vania Comm. Electronic
...tronix Inc.
...edyne Brown Engineering Co.
...science & Engrg. Div.
...eMation, Inc.
...ESTRATOR Industries
...esync Corp.
...evision Equipment Associates
...ra Audio Products
...eo Devices Co.
...eo Engineering Co. Inc.
...stinghouse Electric Corp. Electric ...Tube Div.
...son Corp., H.

...play Units, Time-Temperature-ID

See Adv. Page

...erican Data Corp. 87

...erican Data Corp.

Dividers, Frequency

Bulova American Time Products
Collins Radio Company Broadcasting Marketing,
GE Electronic Components Sales Dept.
Hartley Prod. Corp.
Total Technology

Dividers, Power

Alford Mfg. Co.
Bird Electronic Corp.
Collins Radio Company Broadcasting Marketing,
Entron, Inc.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Multronics, Inc.
Narda Microwave Corp., The
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Shively Laboratories, Inc.
Trompeter Electronics
Weinschel Engineering Co.

Dividers, Voltage

Burwen Laboratories
Collins Radio Company Broadcasting Marketing,
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Entron, Inc.
GE Electronic Components Sales Dept.
General Radio Co.
Hickok Elect. Instrument
ITT Jennings
Lectronic Res. Labs. Inc.
Shallco, Incorporated
Tech Laboratories Inc.

Dust Control Unit, Video

Envirco
Liberty Industries
Television Equipment Associates

Edit Code Generator

Central Dynamics Corp.
Electronic Engineering Co. of California
Recortec Inc.

Edit Code Receiver

Central Dynamics Corp.
Electronic Engineering Co. of California

Editors, Audio Tape

Behrends, Inc.
Central Dynamics Corp.
Comquip, Inc.
ELPA Marketing Industries, Inc.
Nemo Recording Labs
Nortronics Co., Inc.

Editors, Film

Comquip 112

Behrends, Inc.
CMX Systems
Comquip, Inc.
F&B/Ceco Industries, Inc.
Harwald Company
Kalart Victor Corp.
Lipsner Smith Corp.
Neumade Prod. Corp.
Precision Laboratories Precision Cine Equipment Corp.
Victor Duncan, Inc.

Editors, Video Tape

See Adv. Page

Electronic Engineering Co. of California 19

Ampex Corp.
Central Dynamics Corp.
CMX Systems
Dataron Inc.
Dynasciences Corp. Video Products Div.
Electronic Engineering Co. of California
ES Enterprises
Franz Vertriebs-gesellschaft m.b.H.
GBC Closed Circuit TV Corp.
Gotham Audio Corp.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Tele-Cine Inc.
Video Engineering Co. Inc.

Enclosures, Module Card Tray

See Adv. Page

Roh Corporation 12

Roh Corporation

Encoding Systems, Quad

See Adv. Page

Sansui Electronics Corp. 43

Sansui Electronics Corp.

Encoder, Color Video

See Adv. Page

American Data Corp. 87

American Data Corp.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Computer Image Corp.
Marconi Electronics Inc.
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
TeleMation, Inc.
Tele Measurements Inc.
Video Engineering Co. Inc.

Encoder, Four Channel Stereo

Audio Designs & Mfg.
CBS Labs
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Gately Electronics
Sansui Electronics Corp.

Enhancers, TV Image

CBS Labs
Cohu, Inc. Electronics Division
Colorado Video Inc.
Dynasciences Corp. Video Products Div.
Grass Valley Group, Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Shintron Co. Inc.
Tele Measurements Inc.
Video Engineering Co. Inc.

Equalizers, Audio Emphasis

See Adv. Page

Audio Distributor Inc. 116
Spectrum Instruments, Inc. 118

ALTEC
Audio Designs & Mfg.
Audio Distributor Inc.
B & K Dynascan Corp.
Burwen Laboratories
CBS Labs
Collins Radio Company Broadcasting Marketing,
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gotham Audio Corp.
Lang Electronics Inc.
Langevin An MCA Technology Company
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
Melcor Electronics Corp.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
Neve Inc., Rupert
Pulse Techniques Inc.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Rupert Neve Incorporated
Shallco, Incorporated
Spectra Sonics
Spectrum Instruments, Inc.
TT Electronics, Inc.
Ultra Audio Products
United Recording Electronics Industries

Equalizers, Vertical Aperature

CBS Labs
Dynasciences Corp. Video Products Div.
Grass Valley Group, Inc.
Orbit Radio and Video
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Video Engineering Co. Inc.

Erasers, Magnetic --See also Heads; Demagnetizers

See Adv. Page

Taber Mfg. & Engr. Co. 108

Broadcast Electronics
Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Duotone Co. Inc.
Gould Inc. Instrument Systems Div.
International Tapetronics Corp.
Joa Cartridge Service
MINNEAPOLIS MAGNETICS, INC.
Nortronics Co., Inc.
Precision Laboratories Precision Cine Equipment Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recortec Inc.
Schultz Inc., Albert
Shallco, Incorporated
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Taber Mfg. & Engr. Co.
TelePro Industries, Inc.

Exciters, AM

CCA Electronics
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Wilkinson Electronics, Inc.

Exciters, FM

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
Belar Electronics Lab., Inc.

CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Fung Engineering Co.
Gates Division of Harris-Intertype
Granger Assoc.
Magnatech Co.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Rohde & Schwarz Sales
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Exciters, SCA

See Adv. Page

Moseley Assoc. Inc. 92

CCA Electronics
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Mastertone Co.
McMartin Industries Inc.
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Exciters, Stereo

See Adv. Page

Moseley Assoc. Inc. 92

CCA Electronics
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Mastertone Co.
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Film, Photographic

ABTO, Inc.
Afga-Gevaert Inc.
Comquip, Inc.
Eastman Kodak Co.
F&B/Ceco Industries, Inc.
GAF Corp.

Film Chain Light Level Control

See Adv. Page

Beston Electronics Inc. 5

Beston Electronics Inc.

Film Chain System

Ameco Inc.
Ampex Corp.
Blonder-Tongue Labs.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Cohu, Inc. Electronics Division
Comquip, Inc.
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
Kalart Victor Corp.
K'SON Corporation
L-W Photo, Inc.
Marco Video Systems, Inc.
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Rank Cintel Rank Precision Ind. Ltd., Broadcast Div.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Singer Co. Simulation Products Div.
Soll, Inc., Joseph M.
Tele-Cine Inc.
TeleMation, Inc.
Tele Measurements Inc.
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Film Processing Services

Eastman Kodak Co.
Jamieson Film Co.
Lipsner Smith Corp.
Photo Lab Inc.
Treise Engineering

Filters, Antenna

See Adv. Page

Gates 88

Ameco Inc.
Anixter-Pruzan CATV Division
Barker & Williamson, Inc.
Bird Electronic Corp.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
G.C. Electronics
Jampro Antenna Co.
Micro Communications, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RF Systems, Inc.
Telonic Industries Inc.
TT Electronics, Inc.
Video Engineering Co. Inc.

Filters, Audio

See Adv. Page

Spectrum Instruments, Inc. 118

Spectrum Instruments, Inc.

Filters, Noise

See Adv. Page

TT Electronics, Inc. 84

Burwen Laboratories
TT Electronics, Inc.

Filters, Video

See Adv. Page

Coastcom Division 94

Coastcom Division Scott-Buttner Corp.

Generators, Audio Sweep

See Adv. Page

Phase Corporation 113

Phase Corporation

Generators, Background Color

See Adv. Page

Danscoll Ltd. 85

Danscoll Ltd.

Generators, Burst

See Adv. Page

American Data Corp. 87

American Data Corp.
Dranetz Engineering Labs., Inc.
Dynasciences Corp. Video Products Div.
Phase Corporation
Rohde & Schwarz Sales
Shintron Co. Inc.
Tektronix Inc.
Video Engineering Co. Inc.

Generators, Color Bar

See Adv. Page

American Data Corp. 87

American Data Corp.
Applied Elect. Mechanics
B & K Dynascan Corp.
Cohu, Inc. Electronics Division
Dyma Engineering, Inc.
Eico Elect. Inst. Co., Inc.
Engineering Associates
Heath Co.
Hickok Elect. Instrument
Interntl. Nuclear Corp.
Leader Instruments Corp.
Lectrotech Inc.
Marconi Electronics Inc.
Marconi Instruments
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Shintron Co. Inc.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Terminal Hudson Corp. Terminal Hudson Electronics
Troy Electronic Sales Co.
Video Engineering Co. Inc.

Generators, Color Sync

See Adv. Page

American Data Corp. 87
Beston Electronics Inc. 5
Danscoll Ltd. 85

American Data Corp.
Beston Electronics Inc.
Danscoll Ltd.
Dyma Engineering, Inc.
Dynasciences Corp. Video Products Div.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Riker Communications Inc.
Rohde & Schwarz Sales
Tektronix Inc.
TeleMation, Inc.
Video Engineering Co. Inc.

Generators, Convergence

Dynasciences Corp. Video Products Div.

Generators, Digital Sync

See Adv. Page

American Data Corp. 87

American Data Corp.

Generators, FM Subcarrier

See Adv. Page

Gates 88
Moseley Assoc. Inc. 92

American Electronics Lab., Inc.
Catel, a Div. of United Scientific Corp.
CCA Electronics
Coastcom Division Scott-Buttner Corp.
Collins Radio Company Broadcasting Marketing.
Data Pulse Div. of Systron-Donner
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Gates Division of Harris-Intertype
Leader Instruments Corp.
Magnatech Co.
Marti Electronics
Mastertone Co.
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Singer Products Co., Inc.
Sparta Electronic Corp.
Tektronix Inc.
Wilkinson Electronics, Inc.

Generators, NTSC Signal Test

American Data Corp.
Dyma Engineering, Inc.
Dynasciences Corp. Video Products Div.
Rohde & Schwarz Sales
Shintron Co. Inc.
Tektronix Inc.
TeleMation, Inc.
Video Engineering Co. Inc.

Generators, Powered (Electric Motor)

GE Electronic Components Sales De
Kato Engineering Co.
Singer Products Co., Inc.

Generators, Powered (Gasoline Engine)

See Adv. Pa

Onan .....

F&B/Ceco Industries, Inc.
Kato Engineering Co.
Mole Richardson Co.
Onan
Singer Products Co., Inc.
TV Cable Supply Co.

Generators, SCA

See Adv. Pa

Coastcom Division .....
Gates .....
Moseley Assoc. Inc. .....

Coastcom Division Scott-Buttner Cor
Gates Division of Harris-Intertype
Mastertone Co.
McMartin Industries Inc.
Moseley Assoc. Inc.
Sparta Electronic Corp.
Tektronix Inc.
Wilkinson Electronics, Inc.

Generators, Signal AF

Ailtech (Formerly: Microdot)
Barker & Williamson, Inc.
B & K Dynascan Corp.
Bulova American Time Products
CYBRIX CORPORATION
Data Pulse Div. of Systron-Donner
Delta Electronics Inc. (N.C.)
Dranetz Engineering Labs., Inc.
Dyma Engineering, Inc.
Eico Elect. Inst. Co., Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gates Division of Harris-Intertype
General Radio Co.
Gibbs Mfg. & Research Co.
Heath Co.
Hewlett Packard Co.
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Marconi Instruments
Phase Corporation
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Roh Corporation
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division

nal Hudson Corp. Terminal
dson Electronics
an Corp.
Technology
d Recording Electronics
ustries

erators, Signal Dot Bar

See Adv. Page

rican Data Corp. 87

rican Data Corp.
dado Video Inc.
Engineering, Inc.
lect. Inst. Co., Inc.
Co.
k Elect. Instrument
er Instruments Corp.
otech Inc.
oni Electronics Inc.
oni Instruments
s Broadcast Equipment Corp.
bs. North American Phillps Corp.
Corporation RCA Broadcast
uip. Communications Systems
v.
Corporation RCA Electronic
mponents
Communications Inc.
rt Bosch Corp. Fernseh Div.
pre Inc.
ron Co. Inc.
TT Instruments Metrix Division
ronix Inc.
Mation, Inc.
e Measurements Inc.
met Co.
Electronic Sales Co.
o Engineering Co. Inc.

erators, Signal Marker

K Dynascan Corp.
der-Tongue Labs.
Elect. Inst. Co., Inc.
Elemetrics Corp.
er Instruments Corp.
rotech Inc.
oni Instruments
Corporation RCA Broadcast
uip. Communications Systems
v.
Corporation RCA Electronic
mponents
ITT Instruments Metrix Division
ronix Inc.
Electronic Sales Co.
o Engineering Co. Inc.

erators, Signal Pulse

See Adv. Page

ston Electronics Inc. 5

ch (Formerly: Microdot)
ntic Research Corp. Teleproducts
v.
ron Electronics Inc.
ova American Time Products
a Pulse Div. of Systron-Donner
a Electronics Inc. (Va.)
hetz Engineering Labs., Inc.
asciences Corp. Video Products
iv.
on Electronics, Div. of
cGraw-Edison Co., Daven &
easurements
J/Ceco Industries, Inc.
lett Packard Co.
neywell Inc. Test Instruments Div.
Elemetrics Corp.
der Instruments Corp.
tronic Res. Labs. Inc.
rconi Electronics Inc.
rconi Instruments
da Microwave Corp., The
Corporation RCA Broadcast
quip. Communications Systems
iv.
er Communications Inc.
art Bosch Corp. Fernseh Div.
er Magnetic Sales Corp.
ncer-Kennedy Labs., Inc.
ker Industries Systems Division
tronix Inc.
Terminal Hudson Corp. Terminal
Hudson Electronics
Trepac Corp. America
Video Engineering Co. Inc.

Generators, Signal RF

See Adv. Page

Lampkin Lab. Inc. 80B

Acrodyne Industries
Ailtech (Formerly: Microdot)
Blonder-Tongue Labs.
Boonton Electronics
C Cor Electronics
Collins Radio Company Broadcasting Marketing.
Delta Electronics Inc. (Va.)
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Eico Elect. Inst. Co., Inc.
Engineering Associates
Entron, Inc.
General Radio Co.
Gibbs Mfg. & Research Co.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Kay Elemetrics Corp.
Lampkin Lab. Inc.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Marconi Instruments
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Sadelco, Inc.
Shibaden Corp. of America
Singer Co., The Palo Alto Operation
Spencer-Kennedy Labs., Inc.
SPI-ITT Instruments Metrix Division
Tasker Industries Systems Division
Texscan Corp.

Generators, Signal Square Wave

Ailtech (Formerly: Microdot)
American Data Corp.
Atlantic Research Corp. Teleproducts Div.
B & K Dynascan Corp.
Bulova American Time Products
Data Pulse Div. of Systron-Donner
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Eico Elect. Inst. Co., Inc.
General Radio Co.
Gibbs Mfg. & Research Co.
Heath Co.
Hewlett Packard Co.
Leader Instruments Corp.
Marconi Instruments
Phase Corporation
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Terminal Hudson Corp. Terminal Hudson Electronics
Troy Electronic Sales Co.
United Recording Electronics Industries
Weinschel Engineering Co.

Generators, Signal TV Synchronizing

American Data Corp.
Ball Bros. Research Corp. Miratel Division
Chrono-Log Corp.
Cleveland Electronics, Inc.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Concord Elect. Corp.
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Electronic Designers Inc.
Entron, Inc.
GPL Div. Singer Gen.
Grass Valley Group, Inc.
Ikegami Tsushinki Co., Ltd. Export Department
Interntl. Nuclear Corp.
K'SON Corporation
Marconi Electronics Inc.
Marconi Instruments
Phillps Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Rohde & Schwarz Sales
Shintron Co. Inc.
Sylvania Comm. Electronic
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Texscan Corp.
TRACOR, Inc. Instruments Group
Video Engineering Co. Inc.
Visual Educom Inc.

Generators, Signal VITS

American Data Corp.
Electronic Designers Inc.
Marconi Instruments
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Rohde & Schwarz Sales
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Video Engineering Co. Inc.

Generators, Special Effect

See Adv. Page

Danscoll Ltd. 85

Ameco Inc.
American Data Corp.
Applied Elect. Mechanics
Ball Bros. Research Corp. Miratel Division
B & K Dynascan Corp.
Central Dynamics Corp.
Cleveland Electronics, Inc.
Colorado Video Inc.
Danscoll Ltd.
DYNAIR Electronics, Inc.
Grass Valley Group, Inc.
Interntl. Nuclear Corp.
Leader Instruments Corp.
Marconi Electronics Inc.
Modern Video Engineering Co.
Phillps Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Shintron Co. Inc.
Singer Co. Simulation Products Div.
Tektronix Inc.
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
TELESTRATOR Industries
Total Technology
Video Engineering Co. Inc.
Viscount Video Systems Ltd.

Generators, Staircase

See Adv. Page

American Data Corp. 87

American Data Corp.
Colorado Video Inc.
Marconi Instruments
Phase Corporation
Rohde & Schwarz Sales
Tektronix Inc.
TeleMation, Inc.
Telemet Co.
Video Engineering Co. Inc.

Generators, Stereo

See Adv. Page

Wilkinson Electronics, Inc. 17

Catel, a Div. of United Scientific Corp.
CCA Electronics
Heath Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Mastertone Co.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Wilkinson Electronics, Inc.

Generators, Subcarrier

See Adv. Page

Beston Electronics Inc. 5

Beston Electronics Inc.

Generators, Sync

See Adv. Page

American Data Corp. 87
Danscoll Ltd. 85

American Data Corp.
Bulova American Time Products
Danscoll Ltd.
Data Pulse Div. of Systron-Donner
DYNAIR Electronics, Inc.
Dynasciences Corp. Video Products Div.
Entron, Inc.
Gen. Electrodynamics
Hickok Elect. Instrument
Interntl. Nuclear Corp.
K'SON Corporation
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Rohde & Schwarz Sales
Shibaden Corp. of America
Shintron Co. Inc.
Tektronix Inc.
TeleMation, Inc.
Video Engineering Co. Inc.
Visual Electronics Corp.

Generators, Thermoelectric

See Adv. Page

Teledyne Isotopes 95

Teledyne Isotopes Energy Systems Division

Generators, Video Carrier

See Adv. Page

TRACOR, Inc. 27

Entron, Inc.
Rohde & Schwarz Sales
Tektronix Inc.
TRACOR, Inc. Instruments Group
Video Engineering Co. Inc.

Generators, Video Sweep

Ailtech (Formerly: Microdot)
Leader Instruments Corp.

Marconi Instruments
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Telemet Co.
Telonic Industries Inc.
Troy Electronic Sales Co.

Head Nest Rebuilding Services

See Adv. Page

Nortronics Co., Inc. 11

Nortronics Co., Inc.

Headphones, Mono

See Adv. Page

Stanton Magnetics Inc. 21

AKG Division North Amer. Philips Corp.
American Geloso Electronics
Broadcast Electronics
Comquip, Inc.
David Clark Co., Inc.
Duotone Co. Inc.
F&B/Ceco Industries, Inc.
Gates Division of Harris-Intertype
G.C. Electronics
Gotham Audio Corp.
Heath Co.
Koss Corp.
Lafayette Radio Electronics
Magnatech Co.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Scintrex Inc. Communications Div.
Sennheiser Electronics Corp.
Singer Products Co., Inc.
Sony/Superscope
Spotmaster Broadcast Electronics
Stanton Magnetics Inc.
Telectro Systems Corp.
Television Equipment Associates
Telex Communications Division
Terminal Hudson Corp. Terminal Hudson Electronics
Victor Duncan, Inc.
Video Engineering Co. Inc.

Headphones, Stereo

See Adv. Page

Stanton Magnetics Inc. 21

AKG Division North Amer. Philips Corp.
American Geloso Electronics
Astrocom Electronics, Inc.
Broadcast Electronics
Comquip, Inc.
David Clark Co., Inc.
Duotone Co. Inc.
Gates Division of Harris-Intertype
G.C. Electronics
Heath Co.
Lafayette Radio Electronics
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Sansui Electronics Corp.
Scintrex Inc. Communications Div.
Sennheiser Electronics Corp.
Spotmaster Broadcast Electronics
Stanton Magnetics Inc.
Television Equipment Associates
Telex Communications Division
Victor Duncan, Inc.
Video Engineering Co. Inc.
VIF International

Heads, Erase Magnetic

See Adv. Page

MINNEAPOLIS MAGNETICS, INC. 114

Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Electrodyne Div. of MCA Technology, Inc.
Gould Inc. Instrument Systems Div.
Joa Cartridge Service
Lipps Inc.
Magnusonic Devices Inc.
Michigan Magnetics
MINNEAPOLIS MAGNETICS, INC.
Norton Assoc. Inc.
Nortronics Co., Inc.
Precision Laboratories Precision Cine Equipment Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recortec Inc.
Taber Mfg. & Engr. Co.
Tapecaster TCM, Inc.

Heads, Recording Magnetic

See Adv. Page

MINNEAPOLIS MAGNETICS, INC. 114
Vikron 95

Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Electrodyne Div. of MCA Technology, Inc.
Gould Inc. Instrument Systems Div.
Joa Cartridge Service
Lipps Inc.
Magnusonic Devices Inc.
Michigan Magnetics
MINNEAPOLIS MAGNETICS, INC.
Norton Assoc. Inc.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recordex Corporation
Shibaden Corp. of America
Taber Mfg. & Engr. Co.
Tapecaster TCM, Inc.
Video Engineering Co. Inc.
Vikron

Headset with Microphone

AKG Division North Amer. Philips Corp.
American Geloso Electronics
Comquip, Inc.
David Clark Co., Inc.
Magnatech Co.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Scintrex Inc. Communications Div.
Sennheiser Electronics Corp.
Shibaden Corp. of America
Television Equipment Associates
Telex Communications Division
Video Engineering Co. Inc.
VIF International

Heater, Antenna Control

See Adv. Page

Gates 88

CYBRIX CORPORATION
Gates Division of Harris-Intertype
Magnatech Co.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
Valad Electric Heating Corp.

Heaters, Station Van

Precision Laboratories Precision Cine Equipment Corp.
Valad Electric Heating Corp.

Hum Stop Coil, Video

See Adv. Page

Audio-Video Engineering Co. 30

Audio-Video Engineering Co.
TeleMation, Inc.
Video Engineering Co. Inc.

Industrial TV --See also TV Systems, Closed Circuit

Alcor Inc.
Alma Engineering Inc.
American Data Corp.
Anaconda Electronics
ATV Research
Audiotronics Corp.
Ball Bros. Research Corp. Miratel Division
Berkey-Colortran Inc.
Blonder-Tongue Labs.
Boston Insulated Wire & Cable Co.
Bradford Information Systems
Catel, a Div. of United Scientific Corp.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Comquip, Inc.
Concord Elect. Corp.
DYNAIR Electronics, Inc.
GBC Closed Circuit TV Corp.
General Electric Co. Mobile Radio Dept.
Gen. Electrodynamics
GPL Div. Singer Gen.
Gulf Telephone & Electronics
Ikegami Tsushinki Co., Ltd. Export Department
Interntl. Nuclear Corp.
Janson Industries
Javelin Division Apollo Lasers, Inc.
Jos. Schneider & Co. Optische Werke Div.
Kapco Enterprises
K'SON Corporation
Orbit Radio and Video
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Rust Corp.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Scientific Systems, Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Shintron Co. Inc.
Singer Co. Simulation Products Div.
Sylvania Comm. Electronic
Tasker Industries Systems Division
Tektronix Inc.
Teledyne Brown Engineering Co. Science & Engrg. Div.
TeleMation, Inc.
Tele Measurements Inc.
Teltron, Inc.
Video Engineering Co. Inc.
Vikoa Inc.
Visual Communication Products Oper. General Electric Co.
Visual Educom Inc.

Integrated Circuits --See also Semiconductors

American Electronics Lab., Inc.
Ampex Corp.
A-Tel-A-Matic
Collins Radio Company Broadcasting Marketing,
Hewlett Packard Co.
Melcor Electronics Corp.
Motorola Semiconduct Motorola Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Solitron Devices Inc. Semiconductor Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Grou
Thor Electronics Corp.
Transco Products International
Visual Communication Products Ope General Electric Co.

Intercom Systems

Bogen Division Lear Siegler Inc.
Central Dynamics Corp.
David Clark Co., Inc.
Fisher Berkeley Corp.
G.C. Electronics
Heath Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shintron Co. Inc.
Television Equipment Associates
Terminal Hudson Corp. Terminal Hudson Electronics
Visual Electronics Corp.

ITFS System

Andrew Corp.
Audiotronics Corp.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
RF Systems, Inc.
TeleMation, Inc.
Varian Solid State Div. Micro-Link Products

Jack Panel Assemblies

See Adv. Pa

Cooke Engineering Co. 8
Gates 8

A-Tel-A-Matic
Atlantic Research Corp. Teleproduct Div.
Audio Accessories Inc.
AVA Elect. & Machine Corp.
Collins Radio Company Broadcasting Marketing,
Cooke Engineering Co.
Delta Electronics Inc. (Va.)
Gates Division of Harris-Intertype
Gulf Telephone & Electronics
Holland Electronics
Lectronic Res. Labs. Inc.
Mastertone Co.
McCurdy Radio Ind. Inc.
Potomac Instruments, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Switchcraft Inc.
Telectro Systems Corp.
Terminal Hudson Corp. Terminal Hudson Electronics
Trompeter Electronics
Video Engineering Co. Inc.

Kits

See Adv. Pa

Television Technology Corp. 11

ATV Research
Bardwell McAlister Inc.
Eico Elect. Inst. Co., Inc.
Electronic Engineering Co. of Californ

neering Associates
Enterprises
ly Electronics
Electronics
h Co.
ngsworth Solderless Terminal Co.
ney & Phillips Inc.
ronic Res. Labs. Inc.
Richardson Co.
ron Industries Inc.
e Corporation
Corporation RCA Broadcast
quip. Communications Systems
iv.
ITT Instruments Metrix Division
ivision Technology Corp.
minal Hudson Corp. Terminal
udson Electronics
wipe Co.
Electronic Supply Co. Div. of
RW
Products Co.

bs, Control

See Adv. Page

o Electronic
Products, Inc. 110

b Electronic Products, Inc.

ased Broadcast Equipment

See Adv. Page

oadcast Equipment
easing Corp. 86

adcast Equipment Leasing Corp.
Div. Anchor Leasing Corp.

nses, Optical Fixed

See Adv. Page

genieux Corp. of
America 104

genieux Corp. of America
riflex Company of America
Tel-A-Matic
V Research
hrends, Inc.
non USA, Inc. Optics Division
hu, Inc. Electronics Division
mquip, Inc.
ncord Elect. Corp.
smicar Optical Co., Ltd.
nningham Corp. Subs. of Gleason
Works
enson Electronic Corp.
stcoast Camera Center, Inc.
&B/Ceco Industries, Inc.
BC Closed Circuit TV Corp.
velin Division Apollo Lasers, Inc.
rrold Electronics Corp. CATV
Systems Div.
s. Schneider & Co. Optische Werke
Div.
ank Precision Industries
ink Precision Ind. Broadcast Div.
CA Corporation RCA Broadcast
Equip. Communications Systems
Div.
H. Tyler Co. Div. of Weather Scan,
Inc.
ele-Cine Inc.
eledyne Camera Systems
ele Measurements Inc.
ctor Duncan, Inc.
deo Engineering Co. Inc.
isual Educom Inc.

enses, Optical Zoom

See Adv. Page

ngenieux Corp. of
America 104
anon USA, Inc. 83

mperex Corp.
Angenieux Corp. of America
Arriflex Company of America
Behrends, Inc.
Canon USA, Inc. Optics Division
Cohu, Inc. Electronics Division
Comquip, Inc.
Concord Elect. Corp.
Cosmicar Optical Co., Ltd.
Cunningham Corp. Subs. of Gleason Works
Denson Electronic Corp.
Eastcoast Camera Center, Inc.
F&B/Ceco Industries, Inc.
GBC Closed Circuit TV Corp.
Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Jos. Schneider & Co. Optische Werke Div.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Rank Precision Industries
Rank Precision Ind. Broadcast Div.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Shibaden Corp. of America
Tele-Cine Inc.
Teledyne Camera Systems
Tele Measurements Inc.
Television Equipment Associates
Victor Duncan, Inc.
Video Engineering Co. Inc.
Visual Educom Inc.

Lighting, Preset Dimmer

Kliegl Bros. Lighting
Skirpan Lighting Control Corp.
Tele Measurements Inc.
Video Engineering Co. Inc.

Lighting, TV Controls

Behrends, Inc.
Berkey-Colortran Inc.
Century Strand, Inc.
F&B/Ceco Industries, Inc.
Janson Industries
Kliegl Bros. Lighting
Mole Richardson Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Skirpan Lighting Control Corp.
Tele Measurements Inc.
Ultra Audio Products
Utility Tower Co.
Video Engineering Co. Inc.
Waber Electronics Inc. Div. SGL Industries, Inc.

Lighting, TV Portable System

Comquip, Inc.
GBC Closed Circuit TV Corp.
Harwood Mfg. Co.
Kliegl Bros. Lighting
Mole Richardson Co.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Skirpan Lighting Control Corp.
TeleMation, Inc.
Tele Measurements Inc.
Union Connector Co., Inc.
Video Engineering Co. Inc.

Lighting, TV Studio System

Bardwell McAlister Inc.
Behrends, Inc.
Berkey-Colortran Inc.
Century Strand, Inc.
F&B/Ceco Industries, Inc.
GTE Sylvania Inc. Lighting Products Group
Janson Industries
Kliegl Bros. Lighting
Mole Richardson Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Skirpan Lighting Control Corp.
TeleMation, Inc.
Tele Measurements Inc.
Union Connector Co., Inc.
Utility Tower Co.
Video Engineering Co. Inc.

Lightning Arresters

Andrews Tower Inc.
Collins Radio Company Broadcasting Marketing.
Cook Electric Co.
G.C. Electronics
GE Electronic Components Sales Dept.
Jerrold Electronics Corp. CATV Systems Div.
Joslyn Electronic Sys.
Siemens Corporation
Utility Tower Co.
Vikoa Inc.

Lightning Protection Systems

GE Electronic Components Sales Dept.
LightNing Elimination Associates
Wilkinson Electronics, Inc.

Lights, Studio Set

Comquip, Inc.
GTE Sylvania Inc. Lighting Products Group
Kliegl Bros. Lighting
Mole Richardson Co.
R. H. Tyler Co. Div. of Weather Scan, Inc.
TeleMation, Inc.
Union Connector Co., Inc.
Video Engineering Co. Inc.

Lights, Tower Control

See Adv. Page

Hughey & Phillips Inc. 106

Gates Division of Harris-Intertype
Hughey & Phillips Inc.
Jampro Antenna Co.
Radio Mfg. Co.

Lights, Tower Obstruction

See Adv. Page

Hughey & Phillips Inc. 106

Andrews Tower Inc.
Collins Radio Company Broadcasting Marketing.
Electronic Lights Inc.
Fort Worth Tower Co., Inc.
Gates Division of Harris-Intertype
Hughey & Phillips Inc.
Jampro Antenna Co.
Rohn Manufacturing Div. of Unarco Industries Inc.
Sola Basic Industries Dielectric Communications Div.
Utility Tower Co.

Limiter Compressor

See Adv. Page

Gates 7, 88

Burwen Laboratories
CCA Electronics
Gately Electronics
Gates Division of Harris-Intertype
Harvey Radio Pro A/V Div.
Magnatech Co.
MCA Technology, Inc.
Neve Inc., Rupert
Rupert Neve Incorporated
Spectra Sonics
Television Equipment Associates
Wilkinson Electronics, Inc.

Line Surge Protector

See Adv. Page

Wilkinson Electronics, Inc. 17

C Cor Electronics
Gates Division of Harris-Intertype
Wilkinson Electronics, Inc.

Line Taps, CATV

American Technology Co.
Anixter-Pruzan CATV Division
AVA Elect. & Machine Corp.
Cascade Electronics
C Cor Electronics
Entron, Inc.
Magnavox Company CATV Division
Video Engineering Co. Inc.

Load Resistor, Coaxial

Bird Electronic Corp.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Rohde & Schwarz Sales
Weinschel Engineering Co.

Maintenance Services, AM

Tri-Tronics

Maintenance Services, Cartridge Tape

Broadcast Prod. Co. Inc. Bcst. Division
Collins Radio Company Broadcasting Marketing.
Gates Division of Harris-Intertype
International Tapetronics Corp.
Joa Cartridge Service
Liberty Industries
Marathon Broadcast Equip.
Mastertone Co.
Nortronics Co., Inc.
RCA Corporation RCA Service Company Div.
Sparta Electronic Corp.
Tri-Tronics

Maintenance Services, FM

American Electronics Lab., Inc.
Collins Radio Company Broadcasting Marketing.
Fort Worth Tower Co., Inc.
Liberty Industries
Nortronics Co., Inc.
RCA Corporation RCA Service Company Div.
Soll, Inc., Joseph M.
Taber Mfg. & Engr. Co.
Tri-Tronics
Utility Tower Co.

Maintenance Services, Microwave

American Electronics Lab., Inc.
Collins Radio Company Broadcasting Marketing.
Fort Worth Tower Co., Inc.
Liberty Industries
Microwave Assoc. Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Service Company Div.
Utility Tower Co.

Maintenance Services, TV

Alcor Inc.
Angenieux Corp. of America
Fort Worth Tower Co., Inc.
GBC Closed Circuit TV Corp.
Liberty Industries
Nortronics Co., Inc.
RF Systems, Inc.
Soll, Inc., Joseph M.
Taber Mfg. & Engr. Co.
Teledyne Brown Engineering Co. Science & Engrg. Div.
Tele Measurements Inc.
Television Technology Corp.
Utility Tower Co.
Visual Communication Products Oper. General Electric Co.

Meters, Antenna Base

See Adv. Page

Gates 88
Potomac Instruments, Inc. 96

Gates Division of Harris-Intertype

Potomac Instruments, Inc.

Meters, Distortion

Atlantic Research Corp. Teleproducts Div.
Dyma Engineering, Inc.
ELPA Marketing Industries, Inc.
Gates Division of Harris-Intertype
Heath Co.
Lectronic Res. Labs. Inc.
Marconi Instruments
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Meters, Field Strength AM and FM

See Adv. Page

Potomac Instruments, Inc. 97
Rohde & Schwarz Sales 88
Wilkinson Electronics, Inc. 17

Collins Radio Company Broadcasting Marketing,
Defense Electronics
Delta Electronics Inc. (Va.)
Engineering Associates
Gates Division of Harris-Intertype
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Narda Microwave Corp., The
Potomac Instruments, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Singer Co. Los Angeles Operation
Solar Electronics Co.
Sparta Electronic Corp.
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Wilkinson Electronics, Inc.

Meters, Field Strength TV-UHF

See Adv. Page

Potomac Instruments, Inc. 97
Rohde & Schwarz Sales 88
Sadelco, Inc. 104

Ameco Inc.
Anixter-Pruzan CATV Division
Blonder-Tongue Labs.
CATV Equipment Co.
Defense Electronics
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Engineering Associates
Fung Engineering Co.
Jerrold Electronics Corp. CATV Systems Div.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Potomac Instruments, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rohde & Schwarz Sales
Sadelco, Inc.
Sencore Inc.
Singer Co. Los Angeles Operation
Terminal Hudson Corp. Terminal Hudson Electronics
TV Cable Supply Co.
Video Engineering Co. Inc.
Vikoa Inc.

Meters, Flutter and Wow

ELPA Marketing Industries, Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gotham Audio Corp.
Kay Elemetrics Corp.
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Micom Inc.
Mincom Div. 3M Co.
Rek-O-Kut Inc.
Sentinel, Inc.
Tascam Corporation

Meters, Frequency AF

See Adv. Page

Lampkin Lab. Inc. 80B

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Engineering Associates
GE Electronic Components Sales Dept.
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Lampkin Lab. Inc.
Lectronic Res. Labs. Inc.
Marubeni America Corp. Milda Electronics
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Simpson Electric Co.
Singer Co. Los Angeles Operation
SPI-ITT Instruments Metrix Division
Time & Frequency Tech., Inc.
United Systems Corp. Subs. of Monsanto Co.

Meters, Frequency RF

See Adv. Page

Lampkin Lab. Inc. 80B

Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Engineering Associates
ES Enterprises
GE Electronic Components Sales Dept.
General Microwave Corp.
Heath Co.
Hickok Elect. Instrument
Lampkin Lab. Inc.
Lectronic Res. Labs. Inc.
Marubeni America Corp. Milda Electronics
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division
Time & Frequency Tech., Inc.
United Systems Corp. Subs. of Monsanto Co.

Meters, Frequency Calibrating

Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
General Radio Co.
Lampkin Lab. Inc.
Lectronic Res. Labs. Inc.
Marubeni America Corp. Milda Electronics
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RF Systems, Inc.
Rohde & Schwarz Sales
Singer Co. Los Angeles Operation

Meters, Grind Dip

Leader Instruments Corp.

Meters, Intermodulation

Heath Co.

Meters, Line Voltage

Alco Electronic Products, Inc.
Heath Co.
Lectronic Res. Labs. Inc.
RCA Corporation RCA Electronic Components
Terminal Hudson Corp. Terminal Hudson Electronics

Meters, Panel Replacement

G.C. Electronics
General Microwave Corp.
Lectronic Res. Labs. Inc.
Triplett Corporation

Meters, Phase Angle

See Adv. Page

Potomac Instruments, Inc. 96

Collins Radio Company Broadcasting Marketing,
Dranetz Engineering Labs., Inc.
GE Electronic Components Sales Dept.
General Radio Co.
Lectronic Res. Labs. Inc.
Neve Inc., Rupert
Potomac Instruments, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Rupert Neve Incorporated
Singer Co. Los Angeles Operation

Meters, Power

Bird Electronic Corp.
Boonton Electronics
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Dranetz Engineering Labs., Inc.
Engineering Associates
General Microwave Corp.
Hickok Elect. Instrument
Lectronic Res. Labs. Inc.
Marconi Instruments
Narda Microwave Corp., The
National Electrolab Assoc. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Simpson Electric Co.
Terminal Hudson Corp. Terminal Hudson Electronics

Meters, Standing Wave

Bird Electronic Corp.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Delta Electronics Inc. (Va.)
General Microwave Corp.
General Radio Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division
Weinschel Engineering Co.

Meters, Volt Ohm

See Adv. Page

Hickok Elect. Instrument 118

Alco Electronic Products, Inc.
Heath Co.
Hickok Elect. Instrument
Instrument Laboratories
International Instrument Div. Sigma Instruments, Inc.
Leader Instruments Corp.
Marubeni America Corp. Milda Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Triplett Corporation

Meters, VU

Burwen Laboratories
Gately Electronics
G.C. Electronics
Hickok Elect. Instrument
Instrument Laboratories
International Instrument Div. Sigma Instruments, Inc.
Lectronic Res. Labs. Inc.
MCA Technology, Inc.
Neve Inc., Rupert
Pulse Dynamics Mfg. Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rupert Neve Incorporated
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Triplett Corporation

Microphone Stand and Boom

See Adv. P

AKG Division 1
Audio Distributor Inc. 1
Electro-Voice Inc. 1
Sony/Superscope 98,

AKG Division North Amer. Philips Corp.
ALTEC
Alto Communications Inc. Broadcast Marketing Div.
American Geloso Electronics
ATLAS Sound
Audio Distributor Inc.
Behrends, Inc.
CATV Equipment Co.
CCA Electronics
Century Strand, Inc.
Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Custom Craft Designs
Dyma Engineering, Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
F&B/Ceco Industries, Inc.
Gately Electronics
Gates Division of Harris-Intertype
G.C. Electronics
Gotham Audio Corp.
Innovative Television Equipment, Inc.
Jerrold Electronics Corp. CATV Systems Div.
Mole Richardson Co.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp
Primo Co. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Service Company Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Shure Brothers Inc.
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Tele Measurements Inc.
Television Equipment Associates
Television Products Co. Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Turner Division Conrac Corporation
Victor Duncan, Inc.
Video Engineering Co. Inc.

...ophones, Boom

See Adv. Page

...G Division 48
...tro-Voice Inc. ..... IFC
...es 88

...Division North Amer. Philips
...rp.
...C
...rican Geloso Electronics
...ends, Inc.
... Equipment Co.
...is Radio Company Broadcasting
...arketing,
...quip, Inc.
...on Electronic Corp.
...a Engineering, Inc.
...ro-Voice Inc. Div. of Gulton
...dustries, Inc.
...y Electronics
...s Division of Harris-Intertype
...Electronics
...am Audio Corp.
...ative Television Equipment, Inc.
...evin An MCA Technology
...mpany
... Richardson Co.
...ps Broadcast Equipment Corp.
...bs. North American Philips Corp.
... Corporation RCA Broadcast
...quip. Communications Systems
...v.
...ix Corporation
...er Magnetic Sales Corp.
...ultz Inc., Albert
...nheiser Electronics Corp.
...e Brothers Inc.
...er Products Co., Inc.
...rta Electronic Corp.
...tmaster Broadcast Electronics
... Measurements Inc.
...ision Equipment Associates
...minal Hudson Corp. Terminal
...udson Electronics
...sonic) ACS Inc.
...ner Division Conrac Corporation
...or Duncan, Inc.
...o Engineering Co. Inc.

...rophones, Desk

See Adv. Page

...G Division 48
...mquip 112
...tes 88
...ny/Superscope 98, 99

...G Division North Amer. Philips
...Corp.
...TEC
...erican Geloso Electronics
...dio Distributor Inc.
...rends, Inc.
...gen Division Lear Siegler Inc.
...TV Equipment Co.
...A Electronics
...llins Radio Company Broadcasting
... Marketing.
...mquip, Inc.
...ma Engineering, Inc.
...ctro-Voice Inc. Div. of Gulton
... Industries, Inc.
...tely Electronics
...tes Division of Harris-Intertype
...C. Electronics
...tham Audio Corp.
...velin Division Apollo Lasers, Inc.
...ngevin An MCA Technology
... Company
...stertone Co.
...ilips Broadcast Equipment Corp.
... Subs. North American Philips Corp.
...lse Dynamics Mfg. Corp.
...A Corporation RCA Broadcast
... Equip. Communications Systems
... Div.
...vox Corporation
... H. Tyler Co. Div. of Weather Scan,
... Inc.
...der Magnetic Sales Corp.
...hultz Inc., Albert
...nnheiser Electronics Corp.
...ure Brothers Inc.
...nger Products Co., Inc.
...ny/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
TEAC Corp of America
Tele Measurements Inc.
Television Equipment Associates
Terminal Hudson Corp. Terminal
Hudson Electronics
(Trusonic) ACS Inc.
Turner Division Conrac Corporation
Victor Duncan, Inc.
Video Engineering Co. Inc.

Microphones, Floor

See Adv. Page

AKG Division 48
Electro-Voice Inc. ..... IFC
Gates 88
Sony/Superscope 99

AKG Division North Amer. Philips
Corp.
ALTEC
American Geloso Electronics
Audio Distributor Inc.
Behrends, Inc.
Bogen Division Lear Siegler Inc.
CATV Equipment Co.
CCA Electronics
Collins Radio Company Broadcasting
Marketing.
Comquip, Inc.
Electro-Voice Inc. Div. of Gulton
Industries, Inc.
Gately Electronics
Gates Division of Harris-Intertype
G.C. Electronics
Gotham Audio Corp.
Langevin An MCA Technology
Company
Mastertone Co.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Ryder Magnetic Sales Corp.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Shure Brothers Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Tele Measurements Inc.
Television Equipment Associates
Terminal Hudson Corp. Terminal
Hudson Electronics
(Trusonic) ACS Inc.
Turner Division Conrac Corporation
Victor Duncan, Inc.
Video Engineering Co. Inc.
VIF International

Microphones, Hand Held

See Adv. Page

AKG Division 48
Audio Distributor Inc. 116
Electro-Voice Inc. ..... IFC

AKG Division North Amer. Philips
Corp.
ALTEC
American Geloso Electronics
Audio Distributor Inc.
Behrends, Inc.
Bogen Division Lear Siegler Inc.
CATV Equipment Co.
CCA Electronics
Collins Radio Company Broadcasting
Marketing.
Comquip, Inc.
Dyma Engineering, Inc.
Electro-Voice Inc. Div. of Gulton
Industries, Inc.
Gately Electronics
Gates Division of Harris-Intertype
G.C. Electronics
Gotham Audio Corp.
Langevin An MCA Technology
Company
Mastertone Co.
Miles Reproducer Co.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Ryder Magnetic Sales Corp.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Shure Brothers Inc.
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
TEAC Corp of America
Tele Measurements Inc.
Television Equipment Associates
Telex Communications Division
Terminal Hudson Corp. Terminal
Hudson Electronics
(Trusonic) ACS Inc.
Turner Division Conrac Corporation
Victor Duncan, Inc.
Video Engineering Co. Inc.

Microphones, Lavalier

See Adv. Page

Electro-Voice Inc. ..... IFC
Gates 88
Sony/Superscope 98

AKG Division North Amer. Philips
Corp.
ALTEC
American Geloso Electronics
Bogen Division Lear Siegler Inc.
CATV Equipment Co.
CCA Electronics
Collins Radio Company Broadcasting
Marketing.
Comquip, Inc.
Electro-Voice Inc. Div. of Gulton
Industries, Inc.
Gately Electronics
Gates Division of Harris-Intertype
G.C. Electronics
Gotham Audio Corp.
Langevin An MCA Technology
Company
Mastertone Co.
Miles Reproducer Co.
Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
RCA Corporation RCA Electronic
Components
Revox Corporation
R. H. Tyler Co. Div. of Weather Scan,
Inc.
Ryder Magnetic Sales Corp.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Shure Brothers Inc.
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Tele Measurements Inc.
Television Equipment Associates
Terminal Hudson Corp. Terminal
Hudson Electronics
(Trusonic) ACS Inc.
Turner Division Conrac Corporation
Victor Duncan, Inc.
Video Engineering Co. Inc.

Microphones, Parabolic and Shotgun

See Adv. Page

Electro-Voice Inc. ..... IFC
Sennheiser Electronics
Corp. 80A
Sony/Superscope 98

AKG Division North Amer. Philips
Corp.
Comquip, Inc.
Electro-Voice Inc. Div. of Gulton
Industries, Inc.
Radio Mfg. Co.
Ryder Magnetic Sales Corp.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Sony/Superscope
Television Equipment Associates
Victor Duncan, Inc.
Video Engineering Co. Inc.

Microphones, Wireless

CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Comquip, Inc.
Miles Reproducer Co.
North Amer. Electronics
Orbit Radio and Video
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Ryder Magnetic Sales Corp.
Schultz Inc., Albert
Sennheiser Electronics Corp.
Sparta Electronic Corp.
Tele Measurements Inc.
Television Equipment Associates
(Trusonic) ACS Inc.
Victor Duncan, Inc.
Video Engineering Co. Inc.

Microwave Systems, STL

See Adv. Page

Moseley Assoc. Inc. 92
Radio Research
Instrument Co., Inc. 119

Andrew Corp.
CCA Electronics
Coastcom Division Scott-Buttner Corp.
Collins Radio Company Broadcasting
Marketing.
Gates Division of Harris-Intertype
Mastertone Co.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Narda Microwave Corp., The
North Amer. Electronics
Radio Research Instrument Co., Inc.
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Sparta Electronic Corp.
TeleMation, Inc.
Tele Measurements Inc.
Varian Solid State Div. Micro-Link
Products
Video Engineering Co. Inc.

Microwave Systems, 2500 MHz

Alcor Inc.
Andrew Corp.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Collins Radio Company Broadcasting
Marketing.
Microwave Assoc. Inc.
North Amer. Electronics
RCA Corporation RCA Broadcast
Equip. Communications Systems
Div.
Singer Co., The Palo Alto Operation
TeleMation, Inc.
Varian Solid State Div. Micro-Link
Products
Video Engineering Co. Inc.

Mixers --See also Consoles

See Adv. Page

American Data Corp. 87
Blanchard Electronics 102
Danscoll Ltd. 85
Gates 7
McMartin Industries
Inc. 105
Neve Inc., Rupert 46
Rupert Neve
Incorporated 46
Vital Industries ..... BC

Alcor Inc.
ALTEC
American Data Corp.
American Geloso Electronics
Audio Designs & Mfg.
Blanchard Electronics
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Danscoll Ltd.
Delta Electronics Inc. (N.C.)
Electrodyne Div. of MCA Technology, Inc.
Gately Electronics
Gates Division of Harris-Intertype
Gotham Audio Corp.
Lamb Laboratories
Lang Electronics Inc.
Magnatech Co.
MCA Technology, Inc.
McMartin Industries Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
North Amer. Electronics
Orbit Radio and Video
Precision Elect. Inc.
QRK Electronic Prod.
Quad-Eight Electronics
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Rupert Neve Incorporated
Schultz Inc., Albert
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Switchcraft Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Tascam Corporation
TeleMation, Inc.
Tele Measurements Inc.
Video Engineering Co. Inc.
Vital Industries
Weinschel Engineering Co.

Modulators, TV

Ameco Inc.
Anixter-Pruzan CATV Division
Catel, a Div. of United Scientific Corp.
Coastcom Division Scott-Buttner Corp.
DYNAIR Electronics, Inc.
Gates Division of Harris-Intertype
North Amer. Electronics
Orbit Radio and Video
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Shibaden Corp. of America
TeleMation, Inc.
Tele Measurements Inc.
Telemet Co.
Video Engineering Co. Inc.

Monitors, AM System

See Adv. Page

Belar Electronics Lab., Inc. 117
Gates 88
Moseley Assoc. Inc. 92
Time & Frequency Tech., Inc. 47
Wilkinson Electronics, Inc. 7, 114

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Magnatech Co.
Mastertone Co.
McMartin Industries Inc.
Melcor Electronics Corp.
Metron Instruments
Moseley Assoc. Inc.
National Electrolab Assoc. Ltd.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tele Measurements Inc.
Time & Frequency Tech., Inc.
Wilkinson Electronics, Inc.

Monitors, FM System

See Adv. Page

Belar Electronics Lab., Inc. 117
Gates 88
Kenwood Electronics, Inc. 103
Time & Frequency Tech., Inc. 47

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Karg Laboratories, Inc.
Kenwood Electronics, Inc.
Magnatech Co.
Mastertone Co.
McMartin Industries Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tele Measurements Inc.
Time & Frequency Tech., Inc.

Monitors, FM System SCA

See Adv. Page

Gates 88

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Karg Laboratories, Inc.
Magnatech Co.
Mastertone Co.
McMartin Industries Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Tele Measurements Inc.
Time & Frequency Tech., Inc.

Monitors, Frequency

See Adv. Page

Belar Electronics Lab., Inc. 117
Gates 88
McMartin Industries Inc. 113
Metron Instruments 99
Time & Frequency Tech., Inc. 47

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Eidson Electronic Co.
ES Enterprises
Gates Division of Harris-Intertype
General Microwave Corp.
Lampkin Lab. Inc.
Magnatech Co.
Mastertone Co.
McMartin Industries Inc.
Metron Instruments
Narda Microwave Corp., The
RCA Corporation RCA Broadcast Equip. Communicatiohs Systems Div.
Sparta Electronic Corp.
Time & Frequency Tech., Inc.
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Monitors, Modulation

See Adv. Page

Gates 88
McMartin Industries Inc. 113
Metron Instruments 99
Moseley Assoc. Inc. 92
Time & Frequency Tech., Inc. 47
Wilkinson Electronics, Inc. 114

Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
General Microwave Corp.
Lampkin Lab. Inc.
Magnatech Co.
Mastertone Co.
McMartin Industries Inc.
Metron Instruments
Moseley Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Tele Measurements Inc.
Time & Frequency Tech., Inc.
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Monitors, Phase

See Adv. Page

Potomac Instruments, Inc. 96

Belar Electronics Lab., Inc.
Collins Radio Company Broadcasting Marketing.
Dranetz Engineering Labs., Inc.
Gotham Audio Corp.
Potomac Instruments, Inc.
Sparta Electronic Corp.

Monitors, Power

Bird Electronic Corp.
General Microwave Corp.
Lectronic Res. Labs. Inc.
Melcor Electronics Corp.
Sparta Electronic Corp.

Monitors, Stereo

See Adv. Page

Gates 88
Kenwood Electronics, Inc. 103

Belar Electronics Lab., Inc.
Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Kenwood Electronics, Inc.
McMartin Industries Inc.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Ultra Audio Products

Monitors, Video B&W

See Adv. Page

SC Electronics, Inc. 41

Anixter-Pruzan CATV Division
Audiotronics Corp.
Ball Bros. Research Corp. Miratel Division
Belar Electronics Lab., Inc.
Concord Elect. Corp.
Conrac Div. Conrac Corp.
Cunningham Corp. Subs. of Gleason Works
GBC Closed Circuit TV Corp.
GPL Div. Singer Gen.
Javelin Division Apollo Lasers, Inc.
K'SON Corporation
Leader Instruments Corp.
Modtec Corp.
North Amer. Electronics
Orbit Radio and Video
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Phllips Cr
Rank Cintel Rank Precision Ind. Ltd Broadcast Div.
Rank Precision Ind. Broadcast Div.
RCA Corporation RCA Service Company Div.
R. H. Tyler Co. Div. of Weather Sca Inc.
Robert Bosch Corp. Fernseh Div.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Shibaden Corp. of America
Singer Co. Simulation Products Div
Sony Corp. of America
Tektronix Inc.
Teledyne Brown Engineering Co. Science & Engrg. Div.
TeleMation, Inc.
Tele Measurements Inc.
Television Equipment Associates
Video Engineering Co. Inc.
Visual Electronics Corp.

Monitors, Video Color

See Adv. P

Ball Bros. Research Corp. .....
SC Electronics, Inc. .....

Audiotronics Corp.
Ball Bros. Research Corp. Miratel Division
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Conrac Div. Conrac Corp.
Dyma Engineering, Inc.
K'SON Corporation
Leader Instruments Corp.
Modtec Corp.
Orbit Radio and Video
Rank Cintel Rank Precision Ind. Ltd. Broadcast Div.
RCA Corporation RCA Service Company Div.
R. H. Tyler Co. Div. of Weather Scan Inc.
Robert Bosch Corp. Fernseh Div.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Tektronix Inc.
TeleMation, Inc.
Television Equipment Associates
Video Engineering Co. Inc.
Visual Electronics Corp.

Monitors, Video Pulse Cross

See Adv. Pa

Ultra Audio Products .....

Ampex Corp.
Ultra Audio Products

Monitors, Waveform

Ball Bros. Research Corp. Miratel Division
California Instruments Co.
Colorado Video Inc.
Leader Instruments Corp.
North Amer. Electronics
Philips Broadcast Equipment Corp. Subs. North American Philips Cor
Robert Bosch Corp. Fernseh Div.
Tektronix Inc.
Teledyne Brown Engineering Co. Science & Engrg. Div.
Tele Measurements Inc.
Ultra Audio Products
Video Engineering Co. Inc.

plexers

See Adv. Page

on Electronics Inc. 5
tcom Division 94

Mfg. Co.
Electronics Inc.
com Division Scott-Buttner Corp.
Electric Co.
o Systems
iv. Singer Gen.
Victor Corp.
Enterprises
Video Systems, Inc.
Amer. Electronics
Corporation RCA Broadcast
ip. Communications Systems

Tyler Co. Div. of Weather Scan.

s Tarzian Inc. Broadcast
ipment Div.
y Laboratories, Inc.
n Devices Inc. Semiconductor

onix Inc.
lation, Inc.
Measurements Inc.
Engineering Co. Inc.

ow Band FM Equipment

See Adv. Page

eley Assoc. Inc. 92

dyne Industries
in Electronics, Div. of
Graw-Edison Co., Daven &
asurements
artin Industries Inc.
ley Assoc. Inc.
ntific Systems, Inc. Broadcast
uipment Div.
rex Inc. Communications Div.
r Products Co., Inc.

works, Matching Audio

See Adv. Page

Corporation 12

Avionics Inc.
C
s Radio Company Broadcasting
rketing.
on Electronics, Div. of
Graw-Edison Co., Daven &
easurements
y Electronics
Technology, Inc.
Corporation
Measurements Inc.
lectronics, Inc.

works, Matching RF

d Mfg. Co.
Avionics Inc.
s Radio Company Broadcasting
rketing.
inental Electronics Mfg. Co. Subs.
Resalab, Inc.
eral Radio Co.
Power Electronics Co.
ral Data Devices Inc.
a Microwave Corp., The
a Electronic Corp.
lectronics, Inc.

works, Phasing --See also hasing Units

n Avionics Inc.
Electronics
s Radio Company Broadcasting
arketing.
inental Electronics Mfg. Co. Subs.
Resalab, Inc.
Power Electronics Co.
tronics, Inc.
Corporation RCA Electromagnetic
Aviation Systems Div.
a Electronic Corp.
Measurements Inc.

TT Electronics, Inc.

Ohmmeters

Anixter-Pruzan CATV Division
California Instruments Co.
Collins Radio Company Broadcasting Marketing.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Franz Vertriebs-gesellschaft m.b.H.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Honeywell Inc. Test Instruments Div.
ITT Jennings
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Simpson Electric Co.
SPI-ITT Instruments Metrix Division
Triplett Corporation

Operating Impedance Bridge

Dranetz Engineering Labs., Inc.
General Radio Co.
Heath Co.
Rohde & Schwarz Sales

Oscillators, AM

Alltech (Formerly: Microdot)
Arbor Systems Inc.
Bulova American Time Products
CCA Electronics
Collins Radio Company Broadcasting Marketing.
CYBRIX CORPORATION
Dyma Engineering, Inc.
Engineering Associates
Gates Division of Harris-Intertype
Gibbs Mfg. & Research Co.
Heath Co.
Instrument Laboratories
Kay Elemetrics Corp.
Leader Instruments Corp.
Marconi Instruments
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Singer Products Co., Inc.
Trepac Corp. America

Oscillators, FM

Alltech (Formerly: Microdot)
Belar Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Heath Co.
Kay Elemetrics Corp.
Leader Instruments Corp.
Marconi Electronics Inc.
Marconi Instruments
Microwave Assoc. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Singer Co., The Palo Alto Operation
Singer Products Co., Inc.

Oscillators, Tone

Belcom Electronics Mfg. Co.
Bulova American Time Products
Gates Division of Harris-Intertype
General Radio Co.
MCA Technology, Inc.
Neve Inc., Rupert
Phase Corporation
Radio Mfg. Co.
Rupert Neve Incorporated
Total Technology
Trepac Corp. America

Oscillators, TV

Heath Co.
Kay Elemetrics Corp.
Lectrotech Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
Rohde & Schwarz Sales
Tektronix Inc.

Oscilloscope Camera

Entron, Inc.
Hewlett Packard Co.
Polaroid
SPI-ITT Instruments Metrix Division
Tektronix Inc.

Oscilloscopes, Dual Trace

B & K Dynascan Corp.
Eico Elect. Inst. Co., Inc.
Entron, Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Marconi Instruments
Marubeni America Corp. Milda Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Telonic Industries Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Troy Electronic Sales Co.

Oscilloscopes, Rack Type

Hewlett Packard Co.
Hickok Elect. Instrument
Lectronic Res. Labs. Inc.
Marubeni America Corp. Milda Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Video Engineering Co. Inc.

Oscilloscopes, Triggered Sweep

See Adv. Page

Hickok Elect. Instrument 117

B & K Dynascan Corp.
Eico Elect. Inst. Co., Inc.
Entron, Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Marubeni America Corp. Milda Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Troy Electronic Sales Co.

Oscilloscopes, Wideband

B & K Dynascan Corp.
Eico Elect. Inst. Co., Inc.
Entron, Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Mercury Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Troy Electronic Sales Co.

Oscilloscopes with Plug-ins

California Instruments Co.
Entron, Inc.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
SPI-ITT Instruments Metrix Division
Tektronix Inc.

Patch Panel

See Adv. Page

Cooke Engineering Co. 82
Gates 88

Atlantic Research Corp. Teleproducts Div.
Audio Accessories Inc.
AVA Elect. & Machine Corp.
Cooke Engineering Co.
Gates Division of Harris-Intertype
Phelps Dodge Communications Co. Div. Phelps Dodge Industries Inc.
Potomac Instruments, Inc.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shively Laboratories, Inc.
Switchcraft Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Trompeter Electronics
Video Engineering Co. Inc.
Virginia Panel Corporation

Phasing Units --See also Networks, Phasing

See Adv. Page

Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
A-Tel-A-Matic
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Hy-Power Electronics Co.
Multronics, Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Wilkinson Electronics, Inc.

Photographic Processing Chemicals, B&W

Hunt Chemical Corp., Philip A.

Photographic Processing Chemicals, Color

Hunt Chemical Corp., Philip A.

Power Supplies, AC

Advanced High Voltage Co.
ALTEC
Ameco Inc.
American Data Corp.
Anaconda Electronics
Anixter-Pruzan CATV Division
Behrends, Inc.
Bulova American Time Products
California Instruments Co.
Cascade Electronics
C Cor Electronics
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.

David Clark Co., Inc.
Delta Electronics Inc. (N.C.)
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Eico Elect. Inst. Co., Inc.
Electrodyne Div. of MCA Technology, Inc.
Engineering Associates
Entron, Inc.
Essex International Inc. RBM Div.
F&B/Ceco Industries, Inc.
Fisher Berkeley Corp.
G.C. Electronics
GE Electronic Components Sales Dept.
Heath Co.
Honeywell Inc. Test Instruments Div.
Ikegami Tsushinki Co., Ltd. Export Department
Lectronic Res. Labs. Inc.
Magnavox Company CATV Division
Melcor Electronics Corp.
Mole Richardson Co.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Topaz Electronics
Video Engineering Co. Inc.

Power Supplies, Precision

See Adv. Page

Beston Electronics Inc. 5

Advanced High Voltage Co.
ALTEC
American Data Corp.
Beston Electronics Inc.
Bristol Div. of Acco
Bulova American Time Products
Burwen Laboratories
Collins Radio Company Broadcasting Marketing,
Engineering Associates
Heath Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
MCA Technology, Inc.
Precision Laboratories Precision Cine Equipment Corp.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Resalab Inc.
Roh Corporation
Spectra Sonics
SPI-ITT Instruments Metrix Division
Troy Electronic Sales Co.
Video Engineering Co. Inc.

Preamplifiers, Audio

See Adv. Page

American Data Corp. 87
Danscoll Ltd. 85
Gates 88
Roh Corporation 12
Russco Electronics Mfg. Inc. 105

Acrodyne Industries
Alcor Inc.
ALTEC
American Data Corp.
American Geloso Electronics
Ampro Corp.
Arbor Systems Inc.
Audio Designs & Mfg.
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Bradford Information Systems
Broadcast Electronics
Burwen Laboratories
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Concept 70, A Div. of Dyma Engineering, Inc.
Crown International
Danscoll Ltd.
David Clark Co., Inc.
Delta Electronics Inc. (N.C.)
Delta Electronics Inc. (Va.)
Denrad Mfg. Co. Inc.
Dyma Engineering, Inc.
DYNAIR Electronics, Inc.
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Electrodyne Div. of MCA Technology, Inc.
Fairchild Sound Equipment Corp. A Robins Industries Corp.
Gately Electronics
Gates Division of Harris-Intertype
Interntl. Nuclear Corp.
Koss Corp
Lang Electronics Inc.
Langevin An MCA Technology Company
Leader Instruments Corp.
LPB Inc.
Marti Electronics
MCA Technology, Inc.
McCurdy Radio Ind. Inc.
McMartin Industries Inc.
Melcor Electronics Corp.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
Neve Inc., Rupert
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Phillips Corp.
Precision Elect. Inc.
Precision Laboratories Precision Cine Equipment Corp.
QRK Electronic Prod.
Quad-Eight Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electromagnetic & Aviation Systems Div.
RHA Audio Communications Corp.
RHG Elect Labs, Inc.
Riker Communications Inc.
Roh Corporation
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Sansui Electronics Corp.
Schafer Electronics
Schultz Inc., Albert
Scientific Systems, Inc. Broadcast Equipment Div.
Shure Brothers Inc.
Sony/Superscope
Sparta Electronic Corp.
Spectra Sonics
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Telex Communications Division
Total Technology
United Recording Electronics Industries
Video Engineering Co. Inc.
VIF International
Visual Communication Products Oper. General Electric Co.
Wilkinson Electronics, Inc.

Preamplifiers, Turntable

See Adv. Page

Broadcast Electronics 111
Gates 88
Ramko Research 108
Russco Electronics Mfg. Inc. 105

Ampro Corp.
Broadcast Electronics
Burwen Laboratories
CCA Electronics
Dyma Engineering, Inc.
Gately Electronics
Gates Division of Harris-Intertype
Lafayette Radio Electronics
Marathon Broadcast Equip.
Mastertone Co.
MCA Technology, Inc.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
Neve Inc., Rupert
QRK Electronic Prod.
Ramko Research
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roh Corporation
Rupert Neve Incorporated
Russco Electronics Mfg. Inc.
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Video Engineering Co. Inc.
Wilkinson Electronics, Inc.

Preamplifiers, Video

Acrodyne Industries
Ameco Inc.
AMF Electrical Products Development Division
C Cor Electronics
Gen. Electrodynamics
Interntl. Nuclear Corp.
Kay Elemetrics Corp.
Philips Broadcast Equipment Corp. Subs. North American Phillips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Shintron Co. Inc.
Tele Measurements Inc.
TV Cable Supply Co.
Video Engineering Co. Inc.

Pressurization Equipment, Transmission Line

Andrew Corp.
Collins Radio Company Broadcasting Marketing,
Cook Electric Co.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Phelps Dodge Communications Co.
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Soll, Inc., Joseph M.
Sparta Electronic Corp.

Probes, Oscilloscope

Arbor Systems Inc.
Eico Elect. Inst. Co., Inc.
Entron, Inc.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Mercury Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Sencore Inc.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Texscan Corp.
Troy Electronic Sales Co.

Processing Chemicals, Film

Hunt Chemical Corp., Philip A.

Processors, Film B&W

Comquip, Inc.
F&B/Ceco Industries, Inc.
Filmline Corp.
Photo-Pic Systems
Precision Laboratories Precision Cine Equipment Corp.
Technology Incorporated HF Photo Systems Div.
Treise Engineering

Processors, Film Color

Comquip, Inc.
F&B/Ceco Industries, Inc.
Filmline Corp.
Innovative Television Equipment, Ir
Jamieson Film Co.
Photo-Pic Systems
Precision Laboratories Precision Ci Equipment Corp.
Technology Incorporated HF Photo Systems Div.
Treise Engineering

Processors, Silver Recovery L

Comquip, Inc.
Filmline Corp.
Photo-Pic Systems
Profit Recovery Systems Div. of CF
Technology Incorporated HF Photo Systems Div.
Treise Engineering

Processors, VTR

See Adv. F

Danscoll Ltd. .....

Danscoll Ltd.

Projectors, Film

Comquip .....

ABTO, Inc.
Arriflex Company of America
Behrends, Inc.
Christie Electric Corp.
Comquip, Inc.
Eastman Kodak Co.
F&B/Ceco Industries, Inc.
GAF Corp.
Kalart Victor Corp.
Lipsner Smith Corp.
Listec TV Equip. 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 C
Precision Laboratories Precision Ci Equipment Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Sca Inc.
Robert Bosch Corp. Fernseh Div.
Tele-Cine Inc.
TeleMation, Inc.
Video Engineering Co. Inc.

Projectors, Film Cassette Loading

Comquip, Inc.
Hokushin Elect. Co.
Listec TV Equip. Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Projectors, Film Rear

Behrends, Inc.
Christie Electric Corp.
Comquip, Inc.
F&B/Ceco Industries, Inc.
Kalart Victor Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Video Engineering Co. Inc.
Wilson Corp., H.

Projectors, Slide

See Adv. P

Spindler & Sauppe, Inc. .....

ABTO, Inc.
Christie Electric Corp.
Comquip, Inc.
Eastman Kodak Co.
F&B/Ceco Industries, Inc.
GAF Corp.
Harwald Company
Kalart Victor Corp.

Bros. Lighting
TV Equip. Corp.
Corporation RCA Broadcast
Ip. Communications Systems

Tyler Co. Div. of Weather Scan.

Tarzian Inc. Broadcast
ipment Div.
er & Sauppe, Inc.
ation, Inc.
anc Corp.

ictors, TV Large Screen

eco Industries, Inc.
losed Circuit TV Corp.
al Television Ntwk.
Div. Singer Gen.
shin Elect. Co.
n Industries
Victor Corp.
easurements Inc.
Engineering Co. Inc.

ictors, Video Test Slide

See Adv. Page

iller & Sauppe, ... 91

Research Div. of Kollmorgen
p.
lt Bosch Corp. Fernseh Div.
iller & Sauppe, Inc.

raphonic Systems

a Div. of United Scientific Corp.
abs
pt 70, A Div. of Dyma
ineering, Inc.
Co.
Laboratories
Inc., Rupert
rt Neve Incorporated
rsal Research Labs

r, Weather

See Adv. Page

o Research
trument Co., Inc. 119

Research Instrument Co., Inc.
eon Company Raytheon Data
stems Co.
Corporation RCA Broadcast
uip. Communications Systems

stems, Inc.
r Industries Systems Division

omes

See Adv. Page

s 88

nce Industries
ew Corp.
Division of Harris-Intertype
ro Antenna Co.
atech Co.
lin Inc.
Corporation RCA Broadcast
uip. Communications Systems

Corporation RCA Missile &
face Radar Div.
ly Laboratories, Inc.

ivers, AM

P/A Prod. Corp.
n Division Lear Siegler Inc.
e Engineering Co.
ro-Voice Inc. Div. of Gulton
dustries, Inc.
n Co.
Research Lab. Inc.
rette Radio Electronics
oni Instruments
ley Assoc. Inc.
nal Electrolab Assoc. Ltd.

Potomac Instruments, Inc.
RCA Corporation RCA Electromagnetic & Aviation Systems Div.
RHA Audio Communications Corp.
RHG Elect Labs, Inc.
Rohde & Schwarz Sales
Schultz Inc., Albert
Singer Products Co., Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Time & Frequency Tech., Inc.
Wilkinson Electronics, Inc.

Receivers, Data

See Adv. Page
Trepac Corp. America 102

Trepac Corp. America

Receivers, EBS

Ball Bros. Research Corp. Miratel Division
Mastertone Co.
Tri-Tronics

Receivers, FM

See Adv. Page
Wilkinson Electronics, Inc. 17

Ameco Inc.
American Geloso Electronics
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Cooke Engineering Co.
Eico Elect. Inst. Co., Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
GTE Lenkurt Incorporated
Heath Co.
Lafayette Radio Electronics
Lectronic Res. Labs. Inc.
Marconi Instruments
Marti Electronics
McMartin Industries Inc.
Permadynne Electronics Corp.
Potomac Instruments, Inc.
Precision Elect. Inc.
RCA Corporation RCA Electromagnetic & Aviation Systems Div.
RCA Corporation RCA Service Company Div.
Revox Corporation
RHG Elect Labs, Inc.
Rohde & Schwarz Sales
Sansui Electronics Corp.
Schultz Inc., Albert
Singer Products Co., Inc.
Tandberg of America Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Wilkinson Electronics, Inc.

Receivers, HF

American Electronics Lab., Inc.
Collins Radio Company Broadcasting Marketing.
Cooke Engineering Co.
Engineering Associates
Karg Laboratories, Inc.
Marconi Electronics Inc.
Marconi Instruments
Narda Microwave Corp., The
RHG Elect Labs. Inc.
Rohde & Schwarz Sales
Singer Products Co., Inc.

Receivers, Multiplex

Belar Electronics Lab., Inc.
Eico Elect. Inst. Co., Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
GTE Lenkurt Incorporated
Heath Co.
Johnson Electronics, Inc.
Karg Laboratories, Inc.
McMartin Industries Inc.
Permadynne Electronics Corp.
RHG Elect Labs, Inc.
Schultz Inc., Albert
Singer Products Co., Inc.
Sony/Superscope
Trepac Corp. America

Receivers, SCA

Belar Electronics Lab., Inc.
Bell P/A Prod. Corp.
Eico Elect. Inst. Co., Inc.
Karg Laboratories, Inc.
Marti Electronics
McMartin Industries Inc.
Permadynne Electronics Corp.
Singer Products Co., Inc.

Receivers, Time Signal

Lectronic Res. Labs. Inc.
Radio Mfg. Co.
SIMEX/COAST NAVIGATION SCHOOL
Singer Products Co., Inc.

Receivers, TV Color

See Adv. Page
SC Electronics, Inc. 41

Admiral Corporation
Audiotronics Corp.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Cohu, Inc. Electronics Division
Concord Elect. Corp.
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
Heath Co.
Jerrold Electronics Corp. CATV Systems Div.
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
RCA Corporation RCA Service Company Div.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Singer Co. Simulation Products Div.
Soll, Inc., Joseph M.
Sylvania Comm. Electronic
Tele Measurements Inc.
Video Engineering Co. Inc.

Receivers, TV Monochrome

See Adv. Page
SC Electronics, Inc. 41

Admiral Corporation
Anixter-Pruzan CATV Division
Audiotronics Corp.
Cohu, Inc. Electronics Division
Concord Elect. Corp.
Heath Co.
Javelin Division Apollo Lasers, Inc.
Nemo Recording Labs
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Rank Precision Ind. Broadcast Div.
SC Electronics, Inc. Subs. of Audiotronics Corp.
Shibaden Corp. of America
Singer Co. Simulation Products Div.
Sony Corp. of America
Sylvania Comm. Electronic
Telesync Corp.
Video Engineering Co. Inc.

Recorder Replacement Motor

Broadcast Products Inc.
Minarik Elect.
Sparta Electronic Corp.
Tapecaster TCM, Inc.
Telectro Systems Corp.

Recorders, Camera Tape to Film

See Adv. Page
Mediatech 93

Comquip, Inc.
Mediatech
Palmer Films, Inc., W. A.
Teledyne Camera Systems
Victor Duncan, Inc.

Recorders, Cassette

Astrocom Electronics, Inc.
Audiotronics Corp.
Bell Sound Studios A & B Duplicators Div.
Comquip, Inc.
Cramer Division Conrac Corp.
CYBRIX CORPORATION
Heath Co.
International Tapetronics Corp.
Lafayette Radio Electronics
Martel Electronics Inc.
MCA Technology, Inc.
Mincom Div. 3M Co.
MINNEAPOLIS MAGNETICS, INC.
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Sansui Electronics Corp.
Schafer International
Sony/Superscope
Telectro Systems Corp.
Telex Communications Division
Terminal Hudson Corp. Terminal Hudson Electronics

Recorders, Disc Magnetic

CMX Systems
Colorado Video Inc.
Comquip, Inc.
Data Disc Inc.
Data Memory Inc.
Dyma Engineering, Inc.
Memorex Corp.
Peripheral Data Machines, Inc. (PER DATA)
Schultz Inc., Albert
Systems Marketing Corp. And Sono-Mag Corp.
Telectro Systems Corp.
TeleMation, Inc.

Recorders, Film Light

Comquip, Inc.
Magna-Tech Electronic Co., Inc.
Mincom Div. 3M Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Recorders, Film Magnetic

Behrends, Inc.
Comquip, Inc.
Langevin An MCA Technology Company
Magna-Tech Electronic Co., Inc.
Precision Laboratories Precision Cine Equipment Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Stancil-Hoffman Corp.
Tele-Cine Inc.
Telectro Systems Corp.
Victor Duncan, Inc.

Recorders, Logging Magnetic

Alto Communications Inc. Broadcast Marketing Div.
Ampex Corp.
Broadcast Products Inc.
CCA Electronics
Gould Inc. Instrument Systems Div.
Harvey Radio Pro A/V Div.
Honeywell Inc. Test Instruments Div.
Lang Electronics Inc.
Magnatech Co.
Metrotech/Scully Div. of Dictaphone Corp.
Miles Reproducer Co.
Nagra Magnetic Recorders, Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Radio Mfg. Co.

RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Richmond Hill Laboratories Inc.
Scully Recording Instruments Co.
Soundscriber Corporation
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Telectro Systems Corp.

Recorders, Magnetic Tape Logging

Alto Communications Inc. Broadcast Marketing Div.
Ampex Corp.
Broadcast Products Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Honeywell Inc. Test Instruments Div.
Magnatech Co.
Mastertone Co.
Metrotech/Scully Div. of Dictaphone Corp.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schafer Electronics
Singer Products Co., Inc.
Soundscriber Corporation
Sparta Electronic Corp.
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Telectro Systems Corp.
Telex Communications Division

Recorders, Magnetic Tape Video

See Adv. Page
BSC Incorporated 32

Akai America, Ltd.
Alcor Inc.
Ampex Corp.
Audiotronics Corp.
BSC Incorporated
CATV Equipment Co.
Concord Elect. Corp.
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
GBC Closed Circuit TV Corp.
General Television Ntwk.
GPL Div. Singer Gen.
Harvey Radio Pro A/V Div.
Ikegami Tsushinki Co., Ltd. Export Department
International Video
Javelin Division Apollo Lasers, Inc.
Mincom Div. 3M Co.
Panasonic, VTR/CCTV Dept. Matsushita Electric Corp. of America
Philips Broadcast Equipment Corp. Subs. North American Phillips Corp.
Rank Cintel Rank Precision Ind. Ltd., Broadcast Div.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Scully Recording Instruments Co.
Shibaden Corp. of America
Singer Co. Simulation Products Div.
Sony Corp. of America
Telectro Systems Corp.
Video Engineering Co. Inc.
Visual Electronics Corp.

Recorders, Paper Logging and Graphic

See Adv. Page
Moseley Assoc. Inc. 92

B & K Dynascan Corp.
Bristol Div. of Acco
GE Electronic Components Sales Dept.
General Radio Co.
Gould Inc. Instrument Systems Div.
Heath Co.
Lectronic Res. Labs. Inc.
Moseley Assoc. Inc.
Rust Corp.
Rustrak Instrument Gulton Ind. Inc.
Simpson Electric Co.
Systems Marketing Corp. And Sono-Mag Corp.

Recorders, Tape Audio

See Adv. Page
Audio Distributor Inc. 116
Comquip 112
Gates 88
Tape-Athon Corp. 96

Accurate Sound Corp.
Alcor Inc.
Alto Communications Inc. Broadcast Marketing Div.
American Geloso Electronics
Ampex Corp.
Arriflex Company of America
Astrocom Electronics, Inc.
Audio Distributor Inc.
Audiotronics Corp.
Behrends, Inc.
Bell & Howell Consumer Products Group
Broadcast Electronics
Broadcast Products Inc.
CCA Electronics
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing.
Comquip, Inc.
Concord Elect. Corp.
Crown International
CYBRIX CORPORATION
Denson Electronic Corp.
Electrodyne Div. of MCA Technology, Inc.
Gates Division of Harris-Intertype
General Radio Co.
Gotham Audio Corp.
Harvey Radio Pro A/V Div.
IGM
Lang Electronics Inc.
Langevin An MCA Technology Company
Magnatech Co.
Magna-Tech Electronic Co., Inc.
Martel Electronics Inc.
Mastertone Co.
MCA Technology, Inc.
Metrotech/Scully Div. of Dictaphone Corp.
Miles Reproducer Co.
Nagra Magnetic Recorders, Inc.
Nemo Recording Labs
Orbit Radio and Video
Otari of America, Ltd.
Peripheral Data Machines, Inc. (PER DATA)
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recordex Corporation
Revox Corporation
Roberts Div. of Rheem Mfg. Co.
Ryder Magnetic Sales Corp.
Sansui Electronics Corp.
Schafer Electronics
Schultz Inc., Albert
Scully Recording Instruments Co.
Singer Products Co., Inc.
Sony/Superscope
Soundscriber Corporation
Sparta Electronic Corp.
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Taber Mfg. & Engr. Co.
Tandberg of America Inc.
Tape-Athon Corp.
Tascam Corporation
TEAC Corp of America
Telectro Systems Corp.
Tele Measurements Inc.
Telex Communications Division
Terminal Hudson Corp. Terminal Hudson Electronics
Victor Duncan, Inc.
VIF International

Recorders, Tape Audio Cartridge

See Adv. Page
Contel Mfg. 80D
Gates 88
RAPID-Q 119
Tapecaster TCM, Inc. 112

Alto Communications Inc. Broadcast Marketing Div.
Ampro Corp.
Bell & Howell Consumer Products Group
Broadcast Electronics
Broadcast Prod. Co. Inc. Bcst. Division
Broadcast Products Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
Concord Elect. Corp.
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Dyma Engineering, Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gates Division of Harris-Intertype
IGM
International Tapetronics Corp.
Joa Cartridge Service
Lang Electronics Inc.
MaCarta
MacKenzie Laboratories, Inc.
Mastertone Co.
MCA Technology, Inc.
Nemo Recording Labs
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recordex Corporation
Roberts Div. of Rheem Mfg. Co.
Schafer Electronics
Schultz Inc., Albert
Scully Recording Instruments Co.
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tandberg of America Inc.
Tapecaster TCM, Inc.
Telectro Systems Corp.
Tele Measurements Inc.
Telex Communications Division

Recorders, Video Kinescope

Ampex Corp.
Comquip, Inc.
Mincom Div. 3M Co.
Palmer Films, Inc., W. A.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Teledyne Camera Systems
Tele Measurements Inc.
Video Engineering Co. Inc.

Recorders, Video Tape Clean Air Hood

Liberty Industries
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Television Equipment Associates
Video Engineering Co. Inc.

Recording Services, Audio Tape

See Adv. Page
The CnB Studios 44

Accurate Sound Corp.
Alto Communications Inc. Broadcast Marketing Div.
Audio Magnetics Corp.
Bell Sound Studios A & B Duplicator Div.
Cine Sonic Sound Inc.
The CnB Studios
Duotone Co. Inc.
IGM
Nemo Recording Labs
Orbit Radio and Video
Recordex Corporation
Schafer Electronics
Ultra Audio Products

Recording Services, Videotape Film

Mediatech
Palmer Films, Inc., W. A.

Recording Synchronizers

See Adv. Pa
Electronic Engineering Co. of California .....

Electronic Engineering Co. of Califor

Reels, Cable and Mike

See Adv. Pa
Hannay Reels 1
Roll-A-Reel 1

Hannay Reels Clifford B. Hannay & Son Inc.
Industrial Electric Reel
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roll-A-Reel

Reflectors, Passive

Advance Industries
Andrews Tower Inc.
Collins Radio Company Broadcasting Marketing.
Fort Worth Tower Co., Inc.
Microelect Co. Inc.
Rohn Manufacturing Div. of Unarco Industries Inc.
Utility Tower Co.

Regulators, Voltage

Arbor Systems Inc.
B & K Dynascan Corp.
California Instruments Co.
Collins Radio Company Broadcasting Marketing.
GE Electronic Components Sales De
General Radio Co.
Kato Engineering Co.
Lectronic Res. Labs. Inc.
Northlake Engineering, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Topaz Electronics
Total Technology
Video Engineering Co. Inc.

Remote Control Monitors, VIT

See Adv. Pa
Gates .....
Telemet Co. 11

Gates Division of Harris-Intertype
Telemet Co.
Video Engineering Co. Inc.

Remote Control Systems

See Adv. Pa
Moseley Assoc. Inc. .....

Alto Communications Inc. Broadcast Marketing Div.
Atlantic Research Corp. Teleproduct Div.
Belcom Electronics Mfg. Co.
Bristol Div. of Acco
CCA Electronics

l Dynamics Corp.
Systems
Radio Company Broadcasting
keting,
ental Electronics Mfg. Co. Subs.
esalab, Inc.
y Systems Corp.
Systems
ering Associates
Division of Harris-Intertype
ctronic Components Sales Dept.
tech Co.
-Tech Electronic Co., Inc.
Electronics
rtone Co.
ey Assoc. Inc.
tial Electrolab Assoc. Ltd.
Corporation RCA Broadcast
ip. Communications Systems
D
Audio Communications Corp.
ond Hill Laboratories Inc.
Corp.
ms Marketing Corp. And
o-Mag Corp.
Corp. America
Engineering Co. Inc.

Remote Pickup Systems, Radio

See Adv. Page

RCA Electronics 35

Electronics

Reverberation Systems

See Adv. Page

Audio Distributor Inc. 116
Schild Sound
Equipment Corp. 89

Distributor Inc.
Schild Sound Equipment Corp. A
Robins Industries Corp.

Recorders, Film

Behrends, Inc.
Comquip, Inc.
F&B/Ceco Industries, Inc.
Herald Company
Holt Victor Corp.
Monade Prod. Corp.
Precision Laboratories Precision Cine
Equipment Corp.
RCA Corporation RCA Broadcast
Equip. Communications Systems

Recorders, Tape

Bell Sound Studios A & B Duplicators
Inc.
Broadcast Products Inc.
Collins Radio Company Broadcasting
Marketing,
Marathon Broadcast Equip.
Monade Prod. Corp.
Otari Research
RCA Corporation RCA Broadcast
Equip. Communications Systems
Inc.
Recordex Corporation
Spartec Inc.
Taber Products Co., Inc.
Tapecaster Electronic Corp.
Television Equipment Associates

Relay Devices, Ladder

See Adv. Page

Relay Space Devices Inc. 13

Space Devices Inc.

Scramblers, Speech

Collins Radio Company Broadcasting
Marketing,
Dolby Research Lab. Inc.
Taber Products Co., Inc.
Telefunken Corp. America

Screens, Projection Front

Behrends, Inc.
Comquip, Inc.
F&B/Ceco Industries, Inc.
Raven Screen Corp.
Tele Measurements Inc.
Telesync Corp.
Video Engineering Co. Inc.

Screens, Projection Rear

Behrends, Inc.
F&B/Ceco Industries, Inc.
Raven Screen Corp.
Tele Measurements Inc.
Video Engineering Co. Inc.
Wilson Corp., H.

Semiconductors, IC's

Motorola Semiconduct Motorola Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Transco Products International

Semiconductors, Rectifier General

Amperex Corp.
Collins Radio Company Broadcasting Marketing,
GE Electronic Components Sales Dept.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
TRW Electronic Supply Co. Div. of TRW
Westinghouse Electric Corp.

Semiconductors, Rectifier High Voltage Stack

See Adv. Page

Wilkinson Electronics, Inc. 17

Amperex Electronic Corp. Power Tubes
Ampex Corp.
Collins Radio Company Broadcasting Marketing,
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.
Wilkinson Electronics, Inc.

Semiconductors, Rectifier Power

Amperex Corp.
Collins Radio Company Broadcasting Marketing,
GE Electronic Components Sales Dept.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Sylvania Semiconductor
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Semiconductors, Rectifier Silicon Controlled-SCR

See Adv. Page

Wilkinson Electronics, Inc. 17

Amperex Corp.
Collins Radio Company Broadcasting Marketing,
GE Electronic Components Sales Dept.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.
Wilkinson Electronics, Inc.

Semiconductors, Thyristor

GE Electronic Components Sales Dept.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Solitron Devices Inc. Semiconductor Div.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Semiconductors, Transistor AF

Heintz and Kaufman Ltd.
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 Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Semiconductors, Transistor FET

Amperex Corp.
Heintz and Kaufman Ltd.
Motorola Semiconduct Motorola Inc.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Semiconductors, Transistor General

CATV Equipment Co.
GE Electronic Components Sales Dept.
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 Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Semiconductors, Transistor RF

Heintz and Kaufman Ltd.
Hewlett Packard Co.
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 Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thor Electronics Corp.
Transco Products International
Westinghouse Electric Corp.

Shifters, Phase Microwave

Andersen Labs Inc.
Collins Radio Company Broadcasting Marketing,
General Radio Co.
Hewlett Packard Co.
Lectronic Res. Labs. Inc.
Micro Communications, Inc.
Microwave Assoc. Inc.
Narda Microwave Corp., The
Raytheon Company Raytheon Data Systems Co.
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.
Weinschel Engineering Co.

Slow Scan TV Systems

Colorado Video Inc.
Gates Division of Harris-Intertype
Gen. Electrodynamics
Teledyne Brown Engineering Co. Science & Engrg. Div.
Teltron, Inc.
Video Engineering Co. Inc.

Sound Systems, Outdoor

Alcor Inc.
ALTEC
American Geloso Electronics
Applied Elect. Mechanics
ATLAS Sound
Audio Distributor Inc.
Bell P/A Prod. Corp.
Bogen Division Lear Siegler Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Electrodyne Div. of MCA Technology, Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Jensen Sound Laboratories Div. Pemcor, Inc.
Lafayette Radio Electronics
Langevin An MCA Technology Company
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Shure Brothers Inc.
Spectra Sonics
Terminal Hudson Corp. Terminal Hudson Electronics
Ultra Audio Products

Sound Systems, Portable

Alcor Inc.
ALTEC
American Geloso Electronics
Applied Elect. Mechanics
ATLAS Sound
Audio Distributor Inc.
Bell Sound Studios A & B Duplicators Div.

Bogen Division Lear Siegler Inc.
CCA Electronics
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Custom Craft Designs
Electrodyne Div. of MCA Technology, Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Gately Electronics
Jensen Sound Laboratories Div. Pemcor, Inc.
Langevin An MCA Technology Company
Neve Inc., Rupert
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Pulse Dynamics Mfg. Corp.
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Roberts Div. of Rheem Mfg. Co.
Rupert Neve Incorporated
Shure Brothers Inc.
Singer Products Co., Inc.
Spectra Sonics
Tape-Athon Corp.
Terminal Hudson Corp. Terminal Hudson Electronics
Ultra Audio Products

Sound Systems, Studio

Alcor Inc.
American Geloso Electronics
Behrends, Inc.
CCA Electronics
Cleveland Electronics, Inc.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Delta Electronics Inc. (N.C.)
Edison Electronics, Div. of McGraw-Edison Co., Daven & Measurements
Gately Electronics
Gotham Audio Corp.
Jensen Sound Laboratories Div. Pemcor, Inc.
Langevin An MCA Technology Company
Magna-Tech Electronic Co., Inc.
Melcor Electronics Corp.
Neve Inc., Rupert
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rupert Neve Incorporated
Scintrex Inc. Communications Div.
Shure Brothers Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Spectra Sonics
Total Technology
(Trusonic) ACS Inc.
Visual Electronics Corp.

Sound Systems, Theater

Alcor Inc.
ALTEC
American Geloso Electronics
Audio Distributor Inc.
Behrends, Inc.
Bell Sound Studios A & B Duplicators Div.
Bogen Division Lear Siegler Inc.
Comquip, Inc.
Concept 70, A Div. of Dyma Engineering, Inc.
Delta Electronics Inc. (N.C.)
Electrodyne Div. of MCA Technology, Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
Gately Electronics
Jensen Sound Laboratories Div. Pemcor, Inc.
Langevin An MCA Technology Company
Melcor Electronics Corp.
Neve Inc., Rupert
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHA Audio Communications Corp.
Rupert Neve Incorporated
Scintrex Inc. Communications Div.
Shure Brothers Inc.
Spectra Sonics
(Trusonic) ACS Inc.

Speakers and Enclosures

Alcor Inc.
ALTEC
American Geloso Electronics
ATLAS Sound
Behrends, Inc.
Bogen Division Lear Siegler Inc.
Cleveland Electronic Speaker Div.
Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Electrodyne Div. of MCA Technology, Inc.
Electro-Voice Inc. Div. of Gulton Industries, Inc.
G.C. Electronics
Gotham Audio Corp.
Hartley Prod. Corp.
Heath Co.
Jensen Sound Laboratories Div. Pemcor, Inc.
Koss Corp
Lafayette Radio Electronics
Langevin An MCA Technology Company
Oaktron Industries Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schultz Inc., Albert
Scientific Systems, Inc. Broadcast Equipment Div.
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spectra Sonics
Tandberg of America Inc.
TEAC Corp of America
Tele Measurements Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
(Trusonic) ACS Inc.

STL Equipment

See Adv. Page

Marti Electronics 35
Moseley Assoc. Inc. 92

Alto Communications Inc. Broadcast Marketing Div.
Andrews Tower Inc.
CCA Electronics
Coastcom Division Scott-Buttner Corp.
Collins Radio Company Broadcasting Marketing,
David Clark Co., Inc.
Dyma Engineering, Inc.
Electromagnetic Sciences, Inc.
GTE Lenkurt Incorporated
Magnatech Co.
Marti Electronics
Mastertone Co.
Microwave Assoc. Inc.
Moseley Assoc. Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHG Elect Labs, Inc.
Richmond Hill Laboratories Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Tektronix Inc.
Trepac Corp. America
Varian Solid State Div. Micro-Link Products
Visual Communication Products Oper. General Electric Co.
Visual Electronics Corp.

Studio Scenery

Feller Vacuum Form Studios
Janson Industries
Video Engineering Co. Inc.

Subcarrier Multiplex Equipment

See Adv. Page

Coastcom Division 94

Coastcom Division Scott-Buttner Corp.

Switchers

See Adv. Page

American Data Corp. 87
Danscoll Ltd. 85
Grass Valley Group, Inc. 31
Richmond Hill Laboratories Inc. 100
Sparta Electronic Corp. 74
Telemet Co. ..... IBC
Viscount Video Systems Ltd. 10
Vital Industries ..... BC

Alco Electronic Products, Inc.
Alma Engineering Inc.
American Data Corp.
Ampex Corp.
Atlantic Research Corp. Teleproducts Div.
Audio Designs & Mfg.
Ball Bros. Research Corp. Miratel Division
Central Dynamics Corp.
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Cohu, Inc. Electronics Division
Concept 70, A Div. of Dyma Engineering, Inc.
Cook Electric Co.
Cunningham Corp. Subs. of Gleason Works
Danscoll Ltd.
DYNAIR Electronics, Inc.
Essex International Inc. RBM Div.
Fung Engineering Co.
Gates Division of Harris-Intertype
GBC Closed Circuit TV Corp.
General Microwave Corp.
Grass Valley Group, Inc.
IGM
Interntl. Nuclear Corp.
Javelin Division Apollo Lasers, Inc.
Kapco Enterprises
Kay Elemetrics Corp.
K'SON Corporation
Marconi Electronics Inc.
McCurdy Radio Ind. Inc.
Mincom Div. 3M Co.
Neve Inc., Rupert
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
R. H. Tyler Co. Div. of Weather Scan, Inc.
Richmond Hill Laboratories Inc.
Riker Communications Inc.
Roh Corporation
Rupert Neve Incorporated
Sarkes Tarzian Inc. Broadcast Equipment Div.
Seacor Inc.
Shintron Co. Inc.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
TeleMation, Inc.
Telemet Co.
Total Technology
Video Engineering Co. Inc.
Vikoa Inc.
Viscount Video Systems Ltd.
Visual Educom Inc.
Visual Electronics Corp.
Vital Industries

Switches, Coaxial

See Adv. P

Shively Laboratories, Inc. .....

Alford Mfg. Co.
American Data Corp.
American Electronics Lab., Inc.
Andrew Corp.
A-Tel-A-Matic
Atlantic Research Corp. Teleprodu Div.
Bird Electronic Corp.
Blonder-Tongue Labs.
CATV Equipment Co.
Collins Radio Company Broadcastin Marketing,
CYBRIX CORPORATION
Delta Electronics Inc. (Va.)
Electronic Inst. & Spec.
Fung Engineering Co.
Gates Division of Harris-Intertype
General Microwave Corp.
Integral Data Devices Inc.
ITT Jennings
Jampro Antenna Co.
Kay Elemetrics Corp.
Lectronic Res. Labs. Inc.
Magnecraft Electric Co.
Matrix Systems Corp.
Micro Communications, Inc.
Narda Microwave Corp., The
OAK Industries Inc. CATV Division
Prodelin Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Soll, Inc., Joseph M.
Sparta Electronic Corp.
Terminal Hudson Corp. Terminal Hudson Electronics
Texscan Corp.
Trompeter Electronics
TRW Electronic Supply Co. Div. of TRW
TV Cable Supply Co.
Virginia Panel Corporation

Switches, Crossbar

American Data Corp.
Andrew Corp.
Atlantic Research Corp. Teleproduc Div.
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Collins Radio Company Broadcastin Marketing,
Cunningham Corp. Subs. of Gleaso Works
CYBRIX CORPORATION
Delta Electronics Inc. (Va.)
Integral Data Devices Inc.
Interntl. Nuclear Corp.
Marconi Electronics Inc.
Matrix Systems Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Robert Bosch Corp. Fernseh Div.
Rust Corp.
Tape-Athon Corp.
Trompeter Electronics
Video Engineering Co. Inc.
Viscount Video Systems Ltd.
Vital Industries

Switching Systems

See Adv. P

American Data Corp. .....
Gates .....
Grass Valley Group, Inc. .....
Roh Corporation .....
Telemet Co. .....
Viscount Video Systems Ltd. .....

Alcor Inc.
Alma Engineering Inc.
American Data Corp.

...ex Corp.
...ew Corp.
... Systems Inc.
...ltic Research Corp. Teleproducts
...ord Information Systems
...al Dynamics Corp.
... TER ELECTRONIC LABS., INC.
...E Information Systems Inc.
...land Electronics, Inc.
...Systems
... Inc. Electronics Division
...s Radio Company Broadcasting
...rketing,
...ept 70, A Div. of Dyma
...gineering, Inc.
...ngham Corp. Subs. of Gleason
...rks
...IX CORPORATION
...coll Ltd.
... Electronics Inc. (Va.)
...AIR Electronics, Inc.
... Division of Harris-Intertype
... Valley Group, Inc.
...nd Electronics
...al Data Devices Inc.
...tl. Nuclear Corp.
...national Video
...eneral Controls
...in Division Apollo Lasers, Inc.
...N Corporation
...o Video Systems, Inc.
...oni Electronics Inc.
...ex Systems Corp.
...urdy Radio Ind. Inc.
...le Color, Inc.
...onics, Inc.
... Inc., Rupert
... Sales & Distributing Corp.
...Corporation RCA Broadcast
...uip. Communications Systems
...mond Hill Laboratories Inc.
... Communications Inc.
...rt Bosch Corp. Fernseh Div.
...Corporation
...rt Neve Incorporated
...Corp.
...es Tarzian Inc. Broadcast
...quipment Div.
... Inc., Joseph M.
...chcraft Inc.
...ems Marketing Corp. And
...no-Mag Corp.
...er Industries Systems Division
...viation, Inc.
...emet Co.
...ac Corp. America
...mpeter Electronics
...o Engineering Co. Inc.
... Inc.
...inia Panel Corporation
...unt Video Systems Ltd.
...al Electronics Corp.
... Industries

...e, Magnetic Recording Audio

...-Gevaert Inc.
... Communications Inc. Broadcast
...arketing Div.
...ex Corp.
...o Devices, Inc.
...o Magnetics Corp.
...ends, Inc.
... & Howell Consumer Products
...roup
...Sound Studios A & B Duplicators
...v.
...dcast Electronics
...dcast Products Inc.
... Incorporated
... Electronics
... Sonic Sound Inc.
...ns Radio Company Broadcasting
...arketing,
...quip, Inc.
...vn International
...one Co. Inc.
...ktromesstechnik E M T Wilhelm
...anz G M B H
...s Division of Harris-Intertype
... Magnetic Recording Tape Div.
...orhan Nat'l. Sales Co. Inc.
... Cartridge Service
...x, Inc. Subs. of Rohm and Haas
...o.
Lafayette Radio Electronics
Magnatech Co.
Magnetic Prod. Div. 3M Company
Mastertone Co.
Memorex Corp.
Miles Reproducer Co.
Nortronics Co., Inc.
Otari of America, Ltd.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Recordex Corporation
Ryder Magnetic Sales Corp.
Schafer Electronics
Schultz Inc., Albert
Singer Products Co., Inc.
Sony/Superscope
Soundscriber Corporation
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
TDK Electronics Corp.
Tele Measurements Inc.
Transco Products International
Victor Duncan, Inc.
Wide Response

Tape, Magnetic Recording Audio Cartridge

See Adv. Page

Alto Communications Inc. Broadcast Marketing Div.
American Geloso Electronics
Audio Devices, Inc.
Audio Magnetics Corp.
Bell & Howell Consumer Products Group
Bell Sound Studios A & B Duplicators Div.
Birmingham Tape Cartridge Co.
Broadcast Electronics
Broadcast Prod. Co. Inc. Bcst. Division
Broadcast Products Inc.
BSC Incorporated
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing,
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Cramer Division Conrac Corp.
Fidelipac Div. of TelePro Industries, Inc.
Gates Division of Harris-Intertype
IGM
International Tapetronics Corp.
Irish Magnetic Recording Tape Div. Morhan Nat'l. Sales Co. Inc.
Joa Cartridge Service
Magnetic Prod. Div. 3M Company
Marathon Broadcast Equip.
Mastertone Co.
Memorex Corp.
Nemo Recording Labs
Nortronics Co., Inc.
Q-TV Sales & Distributing Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Recordex Corporation
Schafer Electronics
Schultz Inc., Albert
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Systems Marketing Corp. And Sono-Mag Corp.
Tapecaster TCM, Inc.
TDK Electronics Corp.
TelePro Industries, Inc.
Transco Products International
Visual Electronics Corp.

Tape, Magnetic Recording Computer

Arbor Systems Inc.
Audio Devices, Inc.
CYBRIX CORPORATION
Magnetic Prod. Div. 3M Company
Memorex Corp.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Systems Marketing Corp. And Sono-Mag Corp.
TDK Electronics Corp.

Tape, Magnetic Recording Test

Ampex Corp.
G.C. Electronics
International Tapetronics Corp.
Mastertone Co.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Schultz Inc., Albert
Systems Marketing Corp. And Sono-Mag Corp.
Taber Mfg. & Engr. Co.
Tascam Corporation
VIF International

Tape, Magnetic Recording Video

Anixter-Pruzan CATV Division
Audio Magnetics Corp.
BSC Incorporated
Computer Image Corp.
Comquip, Inc.
Concord Elect. Corp.
Diamond Power Specialty Corp. Subs. Babcock & Wilcox Co.
GBC Closed Circuit TV Corp.
Irish Magnetic Recording Tape Div. Morhan Nat'l. Sales Co. Inc.
Javelin Division Apollo Lasers, Inc.
Karex, Inc. Subs. of Rohm and Haas Co.
Magnetic Prod. Div. 3M Company
Memorex Corp.
Mincom Div. 3M Co.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recordex Corporation
R. H. Tyler Co. Div. of Weather Scan, Inc.
Robert Bosch Corp. Fernseh Div.
Schultz Inc., Albert
Shibaden Corp. of America
Sony Corp. of America
TDK Electronics Corp.
Tele Measurements Inc.
Video Engineering Co. Inc.

Tape, Recording Logging

Alto Communications Inc. Broadcast Marketing Div.
Audio Devices, Inc.
Broadcast Products Inc.
Cine Sonic Sound Inc.
IGM
Magnetic Prod. Div. 3M Company
Metrotech/Scully Div. of Dictaphone Corp.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Richmond Hill Laboratories Inc.
Schafer Electronics
Singer Products Co., Inc.
Soundscriber Corporation
Sparta Electronic Corp.
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tape-Athon Corp.
Tele-Cine Inc.

Tape Cart Loaders

See Adv. Page

Ramko Research

Tape Cleaners

See Adv. Page

Audio Magnetics Corp.
Lipsner Smith Corp.
Miller Stephenson Chemical Co.
Recortec Inc.
Taber Mfg. & Engr. Co.
Television Equipment Associates
Virginia Panel Corporation

Tape Decks, Magnetic

Accurate Sound Corp.
Alto Communications Inc. Broadcast Marketing Div.
Ampex Corp.
Ampro Corp.
Ástrocom Electronics, Inc.
Broadcast Electronics
Broadcast Products Inc.
BSC Incorporated
CCA Electronics
CHESTER ELECTRONIC LABS., INC. GTE Information Systems Inc.
Cine Sonic Sound Inc.
Collins Radio Company Broadcasting Marketing,
Comquip, Inc.
Cramer Division Conrac Corp.
Crown International
Electrodyne Div. of MCA Technology, Inc.
Gates Division of Harris-Intertype
Gotham Audio Corp.
IGM
International Tapetronics Corp.
Lang Electronics Inc.
Langevin An MCA Technology Company
Magnatech Co.
Otari of America, Ltd.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Q-TV Sales & Distributing Corp.
Radio Mfg. Co.
RAPID-Q Div. of Garron Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recordex Corporation
Revox Corporation
Roberts Div. of Rheem Mfg. Co.
Sansui Electronics Corp.
Schafer Electronics
Schultz Inc., Albert
Scully Recording Instruments Co.
Singer Products Co., Inc.
Sony/Superscope
Soundscriber Corporation
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
Tandberg of America Inc.
Tape-Athon Corp.
Tapecaster TCM, Inc.
TEAC Corp of America
Tele Measurements Inc.
Telex Communications Division
VIF International

Tape Duplicators

Alcor Inc.
Ampex Corp.
Audiotronics Corp.
Behrends, Inc.
Bell Sound Studios A & B Duplicators Div.
Electrodyne Div. of MCA Technology, Inc.
Lang Electronics Inc.
Langevin An MCA Technology Company
Mastertone Co.
Orbit Radio and Video

Philips Broadcast Equipment Corp.
Subs. North American Philips Corp.
Recordex Corporation
Recortec Inc.
Schultz Inc., Albert
Telectro Systems Corp.
Telex Communications Division

Tape Racks, Cartridge

See Adv. Page

Broadcast Electronics 100
Gates 88
Sparta Electronic Corp. 74

Broadcast Electronics
Concept 70, A Div. of Dyma Engineering, Inc.
Gates Division of Harris-Intertype
Joa Cartridge Service
Mastertone Co.
Neumade Prod. Corp.
Sparta Electronic Corp.
Tele Measurements Inc.
TelePro Industries, Inc.

Tape Recording Accessories

See Adv. Page

Broadcast Electronics 111

Broadcast Electronics
ELPA Marketing Industries, Inc.
Nortronics Co., Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Recortec Inc.
Technology Incorporated HF Photo Systems Div.

Tape Transport

Ampro Corp.
Comquip, Inc.
Cramer Division Conrac Corp.
Gates Division of Harris-Intertype
IGM
Langevin An MCA Technology Company
MCA Technology, Inc.
Peripheral Data Machines, Inc. (PER DATA)
Radio Mfg. Co.
Sparta Electronic Corp.
Systems Marketing Corp. And Sono-Mag Corp.
VIF International

Teletype Alarm Receiver

Atlantic Research Corp. Teleproducts Div.
Audio Engineering Co.
Concept 70, A Div. of Dyma Engineering, Inc.
Trepac Corp. America

Test Sets, Multifunction

See Adv. Page

American Data Corp. 87
Sadelco, Inc. 104
Telemet Co. ..... IBC

American Data Corp.
Sadelco, Inc.
Telemet Co.

Test Slides, Video

D AND S CORLEY LIMITED
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Tele Measurements Inc.
Television Equipment Associates
Teltron, Inc.
Video Engineering Co. Inc.

Testers, Semiconductor

Acrodyne Industries
American Electronics Lab., Inc.
Collins Radio Company Broadcasting Marketing,
Delta Electronics Inc. (N.C.)
Delta Electronics Inc. (Va.)
Eico Elect. Inst. Co., Inc.
General Microwave Corp.
Heath Co.
Hickok Elect. Instrument
Jud Williams Company
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
Ramko Research
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Sencore Inc.
SPI-ITT Instruments Metrix Division
Tektronix Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Transco Products International
Triplett Corporation
Troy Electronic Sales Co.

Testers, Vacuum Tube

Eico Elect. Inst. Co., Inc.
Heath Co.
Hickok Elect. Instrument
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
Lectrotech Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Sencore Inc.
Singer Products Co., Inc.
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Triplett Corporation

Time Announcers

See Adv. Page

Gates 88

Ampro Corp.
CYBRIX CORPORATION
ES Enterprises
Gates Division of Harris-Intertype
IGM
Schafer Electronics
Sparta Electronic Corp.
Stancil-Hoffman Corp.
Systems Marketing Corp. And Sono-Mag Corp.

Time Base Corrector, Helical Scan and Quad

See Adv. Page

Andersen Labs Inc. 80C

Andersen Labs Inc.
Television Microtime, Inc. Subs. Andersen Laboratories, Inc.

Timers, Program

See Adv. Page

Tapecaster TCM, Inc. 82

Cooke Engineering Co.
Tapecaster TCM, Inc.

Tool Kits

See Adv. Page

Jensen Tools & Alloys 106
Western Electronic Prods. Co. 82

Anixter-Pruzan CATV Division
Channellock, Inc.
Greenlee Tool Co.
Heath Co.
Jensen Tools & Alloys
P. K. Neuses Inc.
Systems Marketing Corp. And Sono-Mag Corp.
Terminal Hudson Corp. Terminal Hudson Electronics
Upson Tools Inc.
Vaco Products Co.
Western Electronic Prods. Co.
Xcelite

Tower Beacon Light Flashers

See Adv. Page

Hughey & Phillips Inc. 106

Electronic Lights Inc.
Hughey & Phillips Inc.
Jampro Antenna Co.
Mastertone Co.
Radio Mfg. Co.
Rohn Manufacturing Div. of Unarco Industries Inc.
Utility Tower Co.

Tower Light Indicator Panels

See Adv. Page

Hughey & Phillips Inc. 106

CCA Electronics
Hughey & Phillips Inc.
Mastertone Co.

Tower Lighting Isolation Transformers

See Adv. Page

Hughey & Phillips Inc. 106

Hughey & Phillips Inc.

Towers, Antenna

Advance Industries
Allied Tower Co. Inc.
Andrews Tower Inc.
Antenna Products Company
Collins Radio Company Broadcasting Marketing,
Dresser Crane Hoist and Tower Div.
Dyma Engineering, Inc.
E Z Way Prod. Inc.
Fort Worth Tower Co., Inc.
Gates Division of Harris-Intertype
G.C. Electronics
Gulf Telephone & Electronics
Jampro Antenna Co.
Kline Iron & Steel Co. Tower Division
Magnatech Co.
Mastertone Co.
Microelect Co. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RF Systems, Inc.
Rohn Manufacturing Div. of Unarco Industries Inc.
Sparta Electronic Corp.
Stainless, Incorporated
Swager Tower Corp.
Tri-Ex Tower Corp.
Up Right Scaffolds
Utility Tower Co.

Towers, Antenna Receiving

Allied Tower Co. Inc.
Ameco Inc.
Andrews Tower Inc.
Antenna Products Company
Dresser Crane Hoist and Tower Div.
E Z Way Prod. Inc.
Gulf Telephone & Electronics
Microelect Co. Inc.
RF Systems, Inc.
Rohn Manufacturing Div. of Unarco Industries Inc.
Singer Products Co., Inc.
Stainless, Incorporated
Swager Tower Corp.
TV Cable Supply Co.
Up Right Scaffolds
Utility Tower Co.

Towers, Antenna Transmitting AM

See Adv. Pa

Gates 8

Advance Industries
Allied Tower Co. Inc.
Alto Communications Inc. Broadcast Marketing Div.
Andrews Tower Inc.
Antenna Products Company
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Dresser Crane Hoist and Tower Div.
E Z Way Prod. Inc.
Fort Worth Tower Co., Inc.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Kline Iron & Steel Co. Tower Division
Mastertone Co.
Microelect Co. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohn Manufacturing Div. of Unarco Industries Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Stainless, Incorporated
Swager Tower Corp.
Tri-Ex Tower Corp.
United State Towers
Up Right Scaffolds
Utility Tower Co.

Towers, Antenna Transmitting FM

See Adv. Pa

Gates 8

Advance Industries
Allied Tower Co. Inc.
Alto Communications Inc. Broadcast Marketing Div.
Andrews Tower Inc.
Antenna Products Company
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Dresser Crane Hoist and Tower Div.
E Z Way Prod. Inc.
Fort Worth Tower Co., Inc.
Gates Division of Harris-Intertype
Jampro Antenna Co.
Kline Iron & Steel Co. Tower Division
Magnatech Co.
Microelect Co. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohn Manufacturing Div. of Unarco Industries Inc.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Sparta Electronic Corp.
Stainless, Incorporated
Swager Tower Corp.
United State Towers
Up Right Scaffolds
Utility Tower Co.

Towers, Antenna Transmitting TV

See Adv. Pa

Gates 8

Advance Industries
Allied Tower Co. Inc.
Andrews Tower Inc.
Antenna Products Company
Dresser Crane Hoist and Tower Div.

...y Prod. Inc.
...orth Tower Co., Inc.
...Division of Harris-Intertype
...p Antenna Co.
...ron & Steel Co. Tower Division
...nlect Co. Inc.
...orporation RCA Broadcast
...p. Communications Systems
...Manufacturing Div. of Unarco
...ustries Inc.
...Laboratories, Inc.
...Products Co., Inc.
...Electronic Corp.
...ess, Incorporated
...ar Tower Corp.
...State Towers
...ht Scaffolds
...Tower Co.

...slator Systems, High Power

See Adv. Page

...rision Technology Corp. 111

...yne Industries
...Latus & Co., Inc.
...E Broadcast Products Div. of ...tronics, Missiles & ...mmunications, Inc.
...leation, Inc.
...ision Technology Corp.

...slator Systems, Low Power

See Adv. Page

...s-Benco Ltd. 81
... . 88
...rision Technology Corp. 111

...dyne Industries
...ex Corp.
...s Radio Company Broadcasting ...rketing.
...-Benco Ltd.
...Latus & Co., Inc.
...E Broadcast Products Div. of ...tronics, Missiles & ...mmunications, Inc.
... Division of Harris-Intertype
...ami Tsushinki Co., Ltd. Export ...partment
...ro Antenna Co.
...oni Electronics Inc.
...Corporation RCA Broadcast ...uip. Communications Systems ...v.
...ystems, Inc.
... Audio Communications Corp.
...co
...le & Schwarz Sales
...r Products Co., Inc.
...Mation, Inc.
...rision Technology Corp.

...nsmission Lines

See Adv. Page

... . 88

...Communications Inc. Broadcast ...rketing Div.
...co Inc.
...ew Corp.
...en Corp. Electronic Division
...C Electronics
...ns Radio Company Broadcasting ...rketing.
...ombia Electronic Cbl.
...ya Engineering, Inc.
...s Division of Harris-Intertype
...bro Antenna Co.
...tronic Res. Labs. Inc.
...natech Co.
...tertone Co.
...o Communications, Inc.
...da Microwave Corp., The
...ps Dodge Communications Co.
...ps Dodge Communications Co.
...v. Phelps Dodge Industries Inc.
...o Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Shively Laboratories, Inc.
Singer Products Co., Inc.
Soll, Inc., Joseph M.
Sparta Electronic Corp.

Transmission Sets

Atlantic Research Corp. Teleproducts Div.
GTE Lenkurt Incorporated
Lectronic Res. Labs. Inc.
Narda Microwave Corp., The
Phelps Dodge Communications Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Riker Communications Inc.
TeleMation, Inc.
United Recording Electronics Industries

Transmitter Kits

Gates Division of Harris-Intertype
Heath Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, AM Carrier

See Adv. Page

Sparta Electronic Corp. 74

Bristol Div. of Acco
CCA Electronics
Dyma Engineering, Inc.
GTE Lenkurt Incorporated
LPB Inc.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.

Transmitters, AM Low Power

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
LPB Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RHA Audio Communications Corp.
Singer Products Co., Inc.
Sparta Electronic Corp.

Transmitters, AM 250 Watt

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Mastertone Co.
Radio Mfg. Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, AM 500 Watt

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, AM 1 kw

See Adv. Page

CCA Electronics 23
Gates 7, 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, AM 5 kw

See Adv. Page

Continental Electronics Mfg. Co. 25
Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, AM 10 kw

See Adv. Page

Continental Electronics Mfg. Co. 25
Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, AM 25 kw

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Contel Mfg. Div. of Continental Electronic Wholesale Corp.
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.

Transmitters, AM 50 kw

See Adv. Page

CCA Electronics 23
Continental Electronics Mfg. Co. 25
Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
Hy-Power Electronics Co.
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Visual Communication Products Oper. General Electric Co.
Wilkinson Electronics, Inc.

Transmitters, AM over 50 kw

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
Hy-Power Electronics Co.
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, AM to order

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Continental Electronics Mfg. Co. Subs. of Resalab, Inc.
Gates Division of Harris-Intertype
Hy-Power Electronics Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM

See Adv. Page

Gates 88
Sparta Electronic Corp. 74

American Electronics Lab., Inc.
Bristol Div. of Acco
CCA Electronics

Collins Radio Company Broadcasting Marketing,
Dyma Engineering, Inc.
Fung Engineering Co.
Gates Division of Harris-Intertype
GTE Lenkurt Incorporated
Marconi Electronics Inc.
Mastertone Co.
Miles Reproducer Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electromagnetic & Aviation Systems Div.
Singer Products Co., Inc.
Soll, Inc., Joseph M.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 10 Watt

See Adv. Page

Gates 7, 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
Ampex Corp.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
GTE Lenkurt Incorporated
Magnatech Co.
Marti Electronics
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 50 Watt

See Adv. Page

Gates 7, 88
Wilkinson Electronics, Inc. 17

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Singer Products Co., Inc.
Wilkinson Electronics, Inc.

Transmitters, FM 100 Watt

See Adv. Page

Gates 88

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Marti Electronics
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Wilkinson Electronics, Inc.

Transmitters, FM 250 Watt

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

CCA Electronics
Gates Division of Harris-Intertype
Mastertone Co.
Wilkinson Electronics, Inc.

Transmitters, FM 500 Watt

See Adv. Page

Gates 88

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 1 kw

See Adv. Page

American Electronics Lab., Inc. 9
Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Fung Engineering Co.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 2.5 kw

See Adv. Page

American Electronics Lab., Inc. 9

American Electronics Lab., Inc.

Transmitters, FM 3 kw

See Adv. Page

Gates 88

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Magnatech Co.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 5 kw

See Adv. Page

Gates 7, 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 7.5 kw

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Wilkinson Electronics, Inc.

Transmitters, FM 10 kw

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Magnatech Co.
Marconi Electronics Inc.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Wilkinson Electronics, Inc.

Transmitters, FM 15 kw

See Adv. Page

Gates 88

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 20 kw

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Magnatech Co.
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 40 kw

See Adv. Page

Gates 88
Wilkinson Electronics, Inc. 17

CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
Mastertone Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, FM 50 kw

See Adv. Pa

Gates .....

CCA Electronics
Gates Division of Harris-Intertype
Singer Products Co., Inc.
Sparta Electronic Corp.

Transmitters, FM 100 kw

See Adv. Pa

Gates .....

CCA Electronics
Gates Division of Harris-Intertype
Singer Products Co., Inc.

Transmitters, FM to order

See Adv. Pa

Gates .....

American Electronics Lab., Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing,
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Singer Products Co., Inc.
Sparta Electronic Corp.
Wilkinson Electronics, Inc.

Transmitters, TV

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Ikegami Tsushinki Co., Ltd. Export Department
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Soll, Inc., Joseph M.
Television Technology Corp.
Varian Solid State Div. Micro-Link Products
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 1 Watt

Acrodyne Industries
CCA Electronics
DYNAIR Electronics, Inc.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
Fung Engineering Co.
Gates Division of Harris-Intertype
GTE Lenkurt Incorporated
Orbit Radio and Video
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rohde & Schwarz Sales
Television Technology Corp.
Varian Solid State Div. Micro-Link Products

Transmitters, TV 10 Watt

Acrodyne Industries
CCA Electronics
Delta-Benco Ltd.
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
Gates Division of Harris-Intertype
GTE Lenkurt Incorporated
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rodelco
Television Technology Corp.
Varian Solid State Div. Micro-Link Products

Transmitters, TV 20 Watt

Acrodyne Industries

lectronics
E Broadcast Products Div. of
tronics, Missiles &
mmunications, Inc.
Division of Harris-Intertype
Corporation RCA Broadcast
ip. Communications Systems
co
ision Technology Corp.

smitters, TV 60 Watt

yne Industries
Electronics
E Broadcast Products Div. of
ctronics, Missiles &
mmunications, Inc.
Division of Harris-Intertype
Corporation RCA Broadcast
ip. Communications Systems
co
ision Technology Corp.

smitters, TV 100 Watt

See Adv. Page
88

dyne Industries
Electronics
-Benco Ltd.
E Broadcast Products Div. of
ctronics, Missiles &
mmunications, Inc.
Division of Harris-Intertype
Corporation RCA Broadcast
uip. Communications Systems
co
ision Technology Corp.

smitters, TV 500 Watt

See Adv. Page
88

Electronics
E Broadcast Products Div. of
ctronics, Missiles &
mmunications, Inc.
s Division of Harris-Intertype
oni Electronics Inc.
Corporation RCA Broadcast
uip. Communications Systems
v.

smitters, TV 1 kw

See Adv. Page
88

dyne Industries
Electronics
s Division of Harris-Intertype
oni Electronics Inc.
Corporation RCA Broadcast
uip. Communications Systems
v.
al Communication Products Oper.
eneral Electric Co.

nsmitters, TV 2 kw

See Adv. Page
88

Electronics
EE Broadcast Products Div. of
lectronics, Missiles &
ommunications, Inc.
s Division of Harris-Intertype
Corporation RCA Broadcast
quip. Communications Systems
iv.

nsmitters, TV 5 kw

See Adv. Page
88

A Electronics
EMCEE Broadcast Products Div. of Electronics, Missiles & Communications, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 6 kw

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 10 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, TV 11 kw

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 12 kw

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, TV 15 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 25 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, TV 30 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 35 kw

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, TV 50 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.

Transmitters, TV 55 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV 100 kw

See Adv. Page
Gates 88

CCA Electronics
CCA RF Industries, Inc.
Gates Division of Harris-Intertype
Marconi Electronics Inc.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV Specify Power

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Visual Communication Products Oper. General Electric Co.

Transmitters, TV to order

See Adv. Page
Gates 88

CCA Electronics
Gates Division of Harris-Intertype
Miles Reproducer Co.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Television Technology Corp.

Turntables, Phonograph

See Adv. Page
Audio Distributor Inc. 116
Broadcast Electronics 111
Gates 7, 88
QRK Electronic Prod. 22
Russco Electronics Mfg. Inc. 105
Sparta Electronic Corp. 74

AKG Division North Amer. Philips Corp.
Audio Distributor Inc.
Broadcast Electronics
Broadcast Products Inc.
CCA Electronics
Collins Radio Company Broadcasting Marketing.
CYBRIX CORPORATION
Dyma Engineering, Inc.
Franz Vertriebs-gesellschaft m.b.H.
Gates Division of Harris-Intertype
Gotham Audio Corp.
Heath Co.
Koss Corp
LPB Inc.
Mastertone Co.
McCurdy Radio Ind. Inc.
Micro-Trak Corporation (Formerly: Gray Research & Dev.)
QRK Electronic Prod.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
Rek-O-Kut Inc.
Russco Electronics Mfg. Inc.
Sansui Electronics Corp.
Schultz Inc., Albert
Singer Products Co., Inc.
Sony/Superscope
Sparta Electronic Corp.
Spotmaster Broadcast Electronics
Video Engineering Co. Inc.

TV Systems, Closed Circuit

Admiral Corporation
Alcor Inc.
American Data Corp.
Anaconda Electronics
Anixter-Pruzan CATV Division
A-Tel-A-Matic
ATV Research
Audiotronics Corp.
AVA Elect. & Machine Corp.
Ball Bros. Research Corp. Miratel Division
Berkey-Colortran Inc.
Boston Insulated Wire & Cable Co.
Catel, a Div. of United Scientific Corp.
CHESTER ELECTRONIC LABS., INC.
GTE Information Systems Inc.
Cohu, Inc. Electronics Division
Colorado Video Inc.
Comquip, Inc.
Concord Elect. Corp.
Cunningham Corp. Subs. of Gleason Works
Danscoll Ltd.
Davis & Sanford Co. Inc.
Delta Electronics Inc. (N.C.)
Denson Electronic Corp.
DYNAIR Electronics, Inc.
F&B/Ceco Industries, Inc.
GBC Closed Circuit TV Corp.
Gen. Electrodynamics
Gulf Telephone & Electronics
Ikegami Tsushinki Co., Ltd. Export Department
Interntl. Nuclear Corp.
International Video
Janson Industries

Javelin Division Apollo Lasers, Inc.
Jerrold Electronics Corp. CATV Systems Div.
K'SON Corporation
Marconi Electronics Inc.
Mincom Div. 3M Co.
Mosler Electronic Systems Div.
Orbit Radio and Video
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electromagnetic & Aviation Systems Div.
Riker Communications Inc.
Robert Bosch Corp. Fernseh Div.
Sarkes Tarzian Inc. Broadcast Equipment Div.
Shibaden Corp. of America
Singer Co. Simulation Products Div.
Soll, Inc., Joseph M.
Sylvania Comm. Electronic
Tasker Industries Systems Division
Tektronix Inc.
Teledyne Brown Engineering Co. Science & Engrg. Div.
TeleMation, Inc.
Tele Measurements Inc.
Telesync Corp.
Teltron, Inc.
Varian Solid State Div. Micro-Link Products
Video Engineering Co. Inc.
Vikoa Inc.
Visual Communication Products Oper. General Electric Co.
Visual Educom Inc.
Westinghouse Electric Corp. Electric Tube Div.

Vacuum Tubes, Camera Image-Orthicon

Amperex Corp.
GE Electronic Components Sales Dept.
General Electric Co. Imaging Devices Operation
Heintz and Kaufman Ltd.
RCA Corporation RCA Electronic Components
Robert Bosch Corp. Fernseh Div.
Shibaden Corp. of America
Tele Measurements Inc.
Teltron, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.

Vacuum Tubes, Camera Plumbicon

Amperex Corp.
Amperex Electronic Corp. Electro-Optical Devices Div.
Amperex Electronic Corp. Power Tubes
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
Shibaden Corp. of America
Tele Measurements Inc.
Teltron, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.
Westinghouse Electric Corp.

Vacuum Tubes, Camera Vidicon

Amperex Corp.
Amperex Electronic Corp. Electro-Optical Devices Div.
A-Tel-A-Matic
ATV Research
GBC Closed Circuit TV Corp.
GE Electronic Components Sales Dept.
General Electric Co. Imaging Devices Operation
Gen. Electrodynamics
Heintz and Kaufman Ltd.
ITT Electron Tube Div.
Javelin Division Apollo Lasers, Inc.
Philips Broadcast Equipment Corp. Subs. North American Philips Corp.
RCA Corporation RCA Electronic Components
Shibaden Corp. of America
Siemens Corporation
Teltron, Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Texas Instrument Components Group
Thomson-CSF Electron Tubes
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.
Visual Communication Products Oper. General Electric Co.
Westinghouse Electric Corp. Electric Tube Div.

Vacuum Tubes, Cathode Ray Oscilloscope

Amperex Electronic Corp. Electro-Optical Devices Div.
Heintz and Kaufman Ltd.
Lectronic Res. Labs. Inc.
RCA Corporation RCA Electronic Components
Terminal Hudson Corp. Terminal Hudson Electronics
Thomson-CSF Electron Tubes
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.

Vacuum Tubes, Cathode Ray TV Color

Amperex Corp.
GE Electronic Components Sales Dept.
RCA Corporation RCA Electronic Components
Terminal Hudson Corp. Terminal Hudson Electronics
Thomson-CSF Electron Tubes
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.
Westinghouse Electric Corp. Electric Tube Div.

Vacuum Tubes, Cathode Ray TV Monochrome

Amperex Corp.
Amperex Electronic Corp. Electro-Optical Devices Div.
RCA Corporation RCA Electronic Components
Shibaden Corp. of America
Terminal Hudson Corp. Terminal Hudson Electronics
Thor Electronics Corp.
Transco Products International
Video Engineering Co. Inc.
Westinghouse Electric Corp. Electric Tube Div.

Vacuum Tubes, Rectifier

Amperex Electronic Corp. Power Tubes
Lectronic Res. Labs. Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Transco Products International
Westinghouse Electric Corp. Electric Tube Div.

Vacuum Tubes, Translator

Thomson-CSF Electron Tubes

Vacuum Tubes, Transmitting

Amperex Corp.
Amperex Electronic Corp. Power Tubes
Collins Radio Company Broadcasting Marketing.
Eimac Div. Varian Associates
Gates Division of Harris-Intertype
GE Electronic Components Sales Dept.
ITT Electron Tube Div.
Joa Cartridge Service
Lectronic Res. Labs. Inc.
Raytheon Company Raytheon Data Systems Co.
RCA Corporation RCA Electronic Components
Singer Products Co., Inc.
Terminal Hudson Corp. Terminal Hudson Electronics
Thomson-CSF Electron Tubes
Thor Electronics Corp.
Transco Products International
Varian Solid State Div. Micro-Link Products

Vacuum Tubes, Transmitting Rebuilt

Econco Broadcast Service Inc.
Freeland Products Co.
Terminal Hudson Corp. Terminal Hudson Electronics
Transco Products International
Westinghouse Electric Corp. Electric Tube Div.

Vector Display, Color

Beston Electronics Inc.

Viewfinder for Closed Circuit Cameras

Comquip, Inc.
Javelin Division Apollo Lasers, Inc.
Video Engineering Co. Inc.
Visual Educom Inc.

Voltmeters, AC

A-Tel-A-Matic
B & K Dynascan Corp.
Boonton Electronics
Bristol Div. of Acco
California Instruments Co.
Dranetz Engineering Labs., Inc.
Eico Elect. Inst. Co., Inc.
GE Electronic Components Sales Dept.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Honeywell Inc. Test Instruments Div.
Instrument Laboratories
International Instrument Div. Sigma Instruments, Inc.
ITT Jennings
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Simpson Electric Co.
Singer Co. Los Angeles Operation
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Triplett Corporation

Voltmeters, DC

A-Tel-A-Matic
B & K Dynascan Corp.
Boonton Electronics
Bristol Div. of Acco
California Instruments Co.
Eico Elect. Inst. Co., Inc.
GE Electronic Components Sales De
General Microwave Corp.
Heath Co.
Hewlett Packard Co.
Hickok Elect. Instrument
Honeywell Inc. Test Instruments Div
International Instrument Div. Sigma Instruments, Inc.
ITT Jennings
Leader Instruments Corp.
Lectronic Res. Labs. Inc.
RCA Corporation RCA Broadcast Equip. Communications Systems Div.
RCA Corporation RCA Electronic Components
Rohde & Schwarz Sales
Simpson Electric Co.
SPI-ITT Instruments Metrix Division
Terminal Hudson Corp. Terminal Hudson Electronics
Triplett Corporation

Voltmeters, FET

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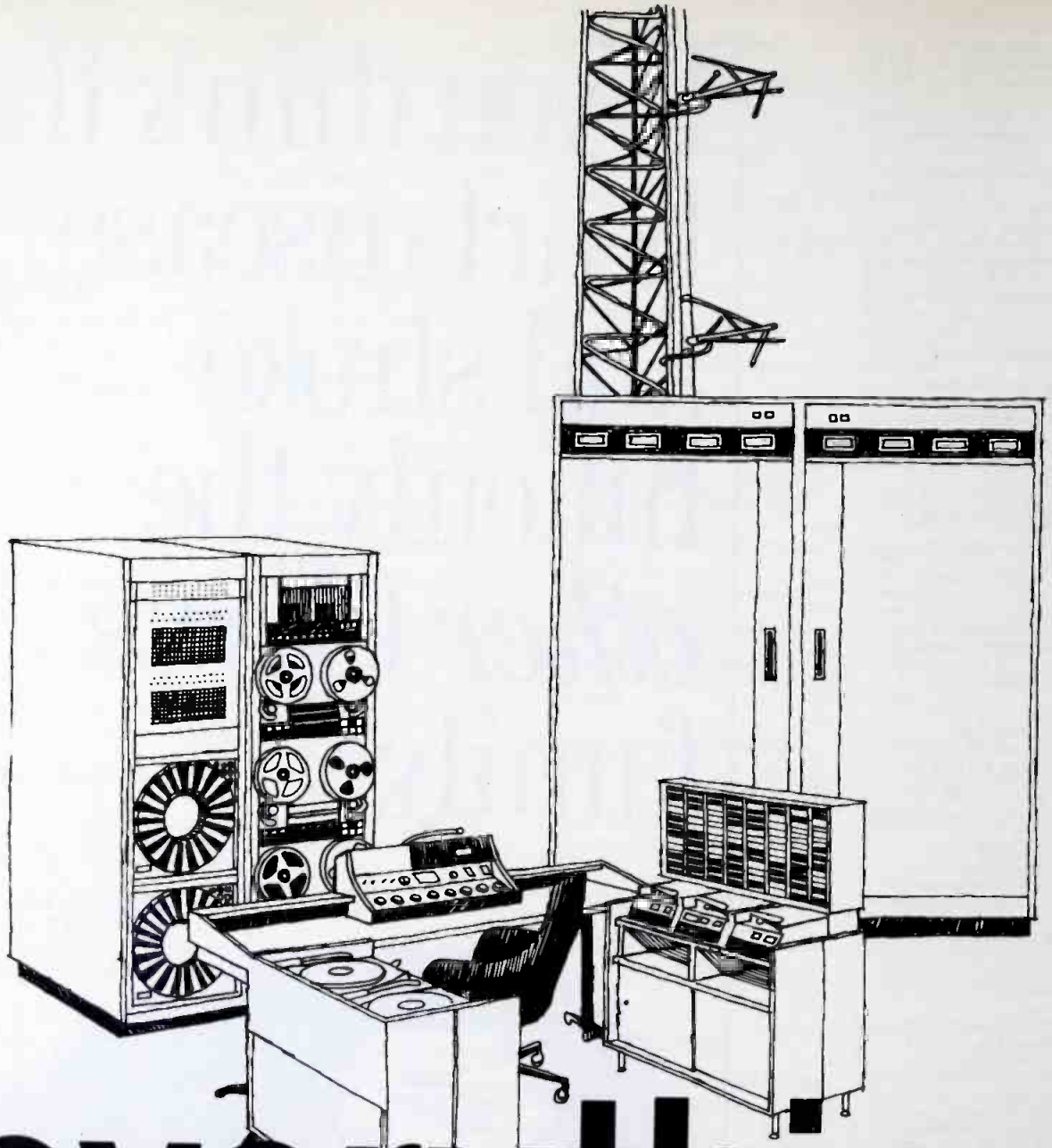

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McCurdy Radio Ind. Inc. 1051 Clinton St. Buffalo N.Y. 14206

McMartin Industries Inc. 605 N. 13th St. Omaha Neb. 68102

Mediatech 824 Busse Highway Park Ridge Ill. 60068

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Memorex Corp. San Tomas & C... Santa Clara Cal. 95052

Mercury Electronics 315 Roslyn... Mineola N.Y. 11501

Metron Instruments 1051 S. ... River Dr. Denver Colo. 80223

Metrotech/Scully Div. of Dictap... Corp. 475 Ellis St. Mountain... Cal. 94040

Michigan Magnetics 203 W. Thi... Vermontville Mich. 49096

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Microelect Co. Inc. 3575 25th St... Salem Ore. 97302

Micro-Trak Corporation (Form... Gray Research & Dev.) 630 ... St. Holyoke Mass. 01040

Microwave Assoc. Inc. South Ave... Industrial Prk. Burlington ... 01803

Miles Reproducer Co. 598 Broa... New York N.Y. 10012

Miller Stephenson Chemical Co. ... 7 Danbury Conn. 06810

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MINNEAPOLIS MAGNETICS, ... 8125 Pleasant Ave. S. Minnea... Minn. 55420

Minnesota Mining & Mfg. Co. 3M ... ter St. Paul Minn. 55101

Mobile Color, Inc. P.O. Box 7... Omaha Neb. 68107

Modern Video Engineering Co. 1... Fifth Street Muskegon Mich. 49...

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Mole Richardson Co. 937 N. Sycam... Ave. Hollywood Cal. 90038

Moseley Assoc. Inc. 111 Cas... Drive Goleta Cal. 93017

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Nasco Television Systems 947 Ja... ville Ave. Fort Atkinson Wis. 53...

National Electrolab Assoc. Ltd. Bo... Blaine Wash. 98230

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Neve Inc., Rupert Berkshire Indus... Park Bethel Conn. 06801

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of America, Ltd. 8295 S. La. enega Blvd. Inglewood Calif. 0301

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Prestolite Company Port Huron Mich. 48060
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Quick-Set Inc. 3650 Woodhead Drive Northbrook Ill. 60062

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United Recording Electronics Industries 11922 Valerio St. North Hollywood Cal. 91605
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United Systems Corp. Subs. of Monsanto Co. 918 Woodley Rd. Dayton Ohio 45403
Universal Research Labs 2501 United Lane Elk Grove Village Ill. 60007
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Upson Tools Inc. Box 4750 Rochester N.Y. 14612
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When your microphone becomes the industry standard, what do you do for an encore? Something even better!

the LITTLESHOT

an innovative new condenser microphone with the best virtues of cardiod and shotgun

and the BIGSHOT

worthy successor to the famous MKH 805

ou did it. You and your fellow professionals. ade our MKH 805 shotgun condenser micro- hone the industry standard.

While we're not particularly surprised, we *are* rateful. Grateful you appreciate our MKH 805's nusually wide, flat response, extreme direction- ity and high overload resistance. Grateful you ppreciate its ruggedness, compactness and ght weight. And most of all, we're grateful ou use it so widely, both in studio and eld-recording, that it's become the most lked-about microphone success story decades.

But the MKH 805 shotgun micro- hone was a hard act to follow, specially since we don't bring out ew products for change's sake. Now, owever, we are pleased to bring you ur new MKH 415 and 815—the "littleshot" nd the "bigshot"—two remarkable microphones epresenting a third generation of Sennheiser con- enser microphone design.

he littleshot

ot too long ago, we discovered our shotgun micro- hone being used for applications beyond our riginal intentions. Because of its small diameter nd longer-than-normal size, reporters used it for nterviews at normal miking distances. And be- ause of its flat response and high directionality, tudios often used it to pick up performers and actually "close-mike" instruments from a istance, due to its lack of proximity effect, and pop" reduction.

"Why not," we reasoned, "create a new ondenser microphone especially for these iverse applications, where extreme direc- onality is not required?" The MKH 415, the littleshot" is the result.

Using an improved combination of ressure-gradient and interference prin- iples, the MKH 415 is truly a remarkable nicrophone. Directionally speaking, it ehaves as a super-cardiod below 2 kHz; t higher frequencies, it exhibits a beam- ype (or baseball-bat) pattern. Besides re- ucing leakage, this design provides higher on- xis conversion efficiency, with two more benefits.

First, pops and wind-noise are reduced, even without its accessory windscreen and shockmount. But even more important in many applications, is the MKH 415's virtually total freedom from proximity effect, which, coupled with its unusually flat response, makes possible "close-miking" of singers and instruments without need for bass attenuators. Beyond these features, the extremely wide response, low ambient noise, high output and overload resistance characteristic of all Sennheiser microphones have also been retained.

Physically, the MKH 415's 10" length provides reporters and other outdoor users with the added "reach" they seek, while performers will find the design less fatiguing to use and more aesthetically pleasing, since they need not hide their faces to project their sound.

the bigshot

In the MKH 815, all the good things that made its predecessor's reputation in filmmaking and broadcasting have been retained. And another advantage has been added: through an improvement in the microphone's interference design, by increasing the number of slots along the microphone's sides (to reduce the area of individual ports), the MKH 815 has additional resistance to pops and wind noise. Thus, in many situations formerly requiring additional precautions, the MKH 815's accessory windscreen and shockmount will not be required.

more encores

Besides the amazing new "littleshot" and the improved "bigshot," there are many more new things on the way from Sennheiser. While we'll be talking about them in the future, you can find out about them now by requesting the second edition of our Micro-Revue—which contains a good deal of useful audio information besides. Please write or call:

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Circle Number 92 on Reader Reply Card

A family of standalone television signal products which alone or in combination provide line-by-line or continuous resolution of input video time base errors in monochrome and color composite video signals. Correction to better than ±3 nanoseconds absolute or short-term jitter can be made either to reference sync, or to an average time phase of sync or color subcarrier derived from the input composite video signal.

The nominal input video signal to any of these units is 1.0 v p-p composite video sync negative, 75 ohms terminating internally. The signal source will typically be the DEMOD or TBC output of a VTR, or the output of a standalone or integral Dropout Compensator. Applications not involving a VTR include complex video switching or teleproduction processing facilities, and satellite communication down link receivers, for continuous, automatic correction of re-routed or drifting video signals.

Delta 44 TIME BASE CORRECTOR
(AVAILABLE NOW – SEE YOUR DISTRIBUTOR)

Base product of the Delta Series. Input window ±2.2 microseconds wide with respect to external fixed or drifting H or color subcarrier reference. Output resolution: monochrome – ±25 nanoseconds; color – ±3 nanoseconds, both with respect to selected fixed or drifting reference. Standalone Time Base Corrector for all heliscan and quad VTRs equipped with head servo systems which reference external sync in reproduce mode. All versions include adjustable color processing amplifier which rebuilds V and H blanking intervals using sync and subcarrier from reference source.

Delta 28 TIME BASE DIRECTOR
(AVAILABLE IN OCTOBER)

Input processor accessory to Delta 44. Detects time phase of H pulse or burst in input video signal line by line, and derives drifting average value for use as window-shifting reference in the Delta 44 in place of fixed reference. Interfaces to heliscan VTRs equipped with "electronic editor" feature (head servo references external V sync in reproduce mode), and quad VTRs not equipped with "Intersync" or "Pixlock" head servo circuitry, both of whose maximum acceleration is less than 25 cycles/sec^2. Drifting reference may be looped through Delta 44 to gen lock studio sync generator, permitting limited post-production processing and dubbing of tape from v-locked VTR.

Delta 7 HEAD VELOCITY ERROR CORRECTOR
(AVAILABLE IN NOVEMBER)

Input processor accessory to Delta 44, or may be used as standalone signal processor when time base correction is not required. Detects average rate of acceleration or deceleration of video head to tape velocity through line by line computation of burst phase differences in incoming video, and inserts a new, complementing, linearly varying delay in each succeeding line. This reduces the hue shift effects attributable to the head velocity error component of the total detected error to ±3 nanoseconds with respect to color burst phase at the beginning of each line. Interfaces to VTRs which reference external V and H in reproduce mode.

Delta 635 FULL LINE DRIFT CORRECTOR
(AVAILABLE IN EARLY 1973)

Input accessory to Delta 44. Locates H pulse of each incoming TV line, computes its time phase with respect to stable external reference H, and delays that line appropriately to cause its arrival at the Delta 44 input within ±0.5 microseconds of the time of arrival of the next external reference H pulse. Interfaces to heliscan monochrome and color VTRs whose H frequency drift is less than 25 cycles/sec^2.

Delta 400 HEAD SERVO DRIFT SUPPRESSOR
(AVAILABLE IN SEPTEMBER)

Output accessory for Delta 44. Utilizes the internal voltage input to the Delta 44 Delay Status Meter to generate steering voltage of ±12 VDC at 10 milliamps. This voltage is available as an input to any VTR with a V-locked head servo system. It provides a means of holding the off-tape signal of VTR in the window of the Delta 44, after-modification and adjustment of the VTR to utilize these signals.

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Associations Keep Industry On Target

The International Tape Association is a professional trade association for the tape industry. They have brought together for the first time a wide range of manufacturers and suppliers from throughout the world to identify and develop positions on matters of great importance. The ITA has quickly become a focal point not only for the tape industry but for consumer and government interests as well.

The ITA Newsletter is sent out by-monthly to ITA Regular and Sustaining Members. The Newsletter reports industry-wide developments to its members as well as to consumer and government interests. It also contains feature articles from ITA members and from experts in the fields of government, education, training, business, insurance, medicine, and other areas on the use and application of the industry's goods and services.

In addition to receiving the associations Newsletter Sustaining Members will receive a source list of the ITA member companies, the products and services they offer.

Sustaining Memberships in ITA are welcome only from firms who are not eligible for Regular Membership but who are interested in the Audio/Video Tape and Video Information Medium Industry. Sustaining Members are permitted to attend ITA Seminars and functions at the same reduced fee as Regular Members. They also have access to certain information which is determined by the ITA Board of Directors but do not have the right to vote.

For further information on ITA membership, write to Larry Finley, Executive Director, International Tape Association, Inc., 315 West 70th Street, New York, N.Y. 10023.

A summer FCC count of over-the-air broadcast stations shows that there is still growth in some types of service. Notably, FM has been gaining more ground. In June of 1969 there were an even 2000 FM stations on the air. A year later their number had moved to 2134. From there it went to 2258 in 1971 and now it is well over 2300.

During this same period, AM . . . in the freeze, has moved only from 4251 to 4367. The growth in FM probably can be attributed to the increasing profitability of FM and the fact that there has been no FM freeze. Of course, educational FM is on the move, too. This activity should translate FM into a much more viable market.

Here are the 1972 summer standings:

AM Radio	4367
FM Radio	2352
Educational FM	521
UHF TV Commercial	190
VHF TV Commercial	511
UHF TV Educational	125
VHF TV Educational	89

(Continued on page 90)

DELTA-BENCO *ANNOUNCES*

THE TS-010D

SOLID STATE 10 WATT TV REBROADCAST TRANSMITTER

MODEL TS-010D with IU-TS

FCC APPROVED

The Model TS-010D comprises two self-contained units, the Benavac Mark II dual hetrodyne channel processor and the VPS-10 amplifier. Any off-air channel 2 to 83 can be converted and re-transmitted on any VHF channel 2 to 13.

When required, an identification unit, Model IU-TS, is available to provide automatic station identification by superimposing a 4 KHz, AM modulated code signal on the aural carrier of the transmitter channel.

WRITE FOR PRICES AND SPECIFICATIONS TO:

DELTA-BENCO LTD.
70 RONSON DRIVE • REXDALE • ONTARIO
(416) 247-7431 TELEX 02-21211

Circle Number 44 on Reader Reply Card

FCC Offices

(Continued from page 46)

Rule Changes-
See Page 32

District No. 20
(Vacancy), Engineer-in-Charge, Federal Bldg., Buffalo, N.Y. (14203). Phone: 842-3216.

District No. 21
Melvin S. Vittum, Engineer-in-Charge, Federal Bldg., Honolulu, Hawaii (96808). Phone: 546-5640.

District No. 22
Eugene W. Klein, Engineer-in-Charge, Federal Bldg., San Juan, Puerto Rico (00903). Phone: 722-4562.

District No. 23
Harold De Voe, Engineer-in-Charge, U.S. Post Office & Courthouse, Anchorage, Alaska (99501). Phone: 272-1822.

District No. 24
Harold R. Richman, Engineer-in-Charge, 1919 M. St. N.W., Room 216, Washington, D.C. (20554). Phone: 632-7000.

FCC's Washington Offices

If you would like to correspond with someone at the FCC write to: Federal Communications Commission, 1919 M Street N.W. Washington, D.C. 20554.

To telephone the FCC call the Information Operator at 655-4000. The first number (in parenthesis) is the room number, and the next is the phone number.

Broadcast Bureau
Wallace E. Johnson, Chief, (314) 632-6460
Robert J. Rawson, Deputy Chief, (314) 632-6460. Harold Kassens, Assistant Chief, (314) 632-6460.

(Continued on page 84)

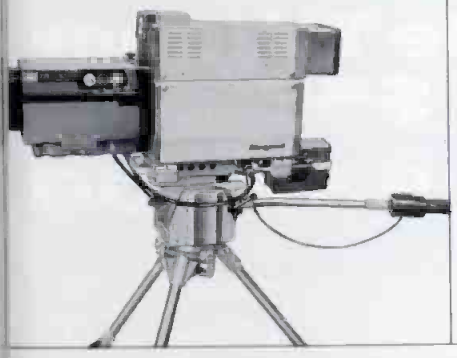
Canon offers the perfect zoom lens for the camera of your choice

P10 x 20B1

P17 x 30B1

P17 x 30B2

PV10 x 16B



PV17 x 24

PV10 x 15

More and more people are discovering how significantly superior Canon Zoom Lenses are for TV broadcasting purposes. Their outstanding color characteristics, even in dim light, is one of the many reasons why Canon was chosen for telecasting the Munich Olympics.

Canon's wide range of excellent zoom lenses encompass three types of operation control—all-servorized, via flexible cables and by effortless manual control. And it can be attached to fit and operate with any make of TV camera.

Shown on this page are only a few examples of the quality lenses Canon has available to more than meet your particular demands. Specify Canon to stay ahead.

The following are Canon TV Zoom Lenses for the Plumbicon® color cameras currently available on the market:

Size of image tube	Lens	Image format covered
1¼" Plumbicon® color camera	P10 x 20B4 P17 x 30B1 P17 x 30B2	17.1 x 12.8mm (21.4mmϕ)
1" Plumbicon® color camera	PV10 x 16B1 PV10 x 15B2 PV17 x 24B1 PV 6 x 18B1	12.8 x 9.6mm (16mmϕ)

® Reg. TM N.V. Philips of Netherlands.

The Canon TV Lenses Naming System

P10 x 20

- 20 — Minimum Focal Length
- x — Zoom Ratio
- P10 — Application

Symbol	Image Format	Applications
P	21.4mmϕ	1¼" Plumbicon
PV	16mmϕ	1" Plumbicon
B	45.7mmϕ 40.6mmϕ	3" & 4¼" Image Orthicon

Canon

● CANON U.S.A., INC.: 10 Nevada Drive, Lake Success, Long Island, New York 11040, U.S.A. (Phone) 516-488-6700 ● CANON U.S.A., INC.: 457 Fullerton Ave., Elmhurst, Illinois 60126, U.S.A. (Phone) 312-833-3070 ● CANON OPTICS & BUSINESS MACHINES CO., INC.: 3113 Wilshire Blvd., Los Angeles, California 90005, U.S.A. ● CANON AMSTERDAM N.V.: Gebouw 70, Schiphol Oost, Holland ● CANON LATIN AMERICA, INC.: Apartado 7022, Panama 5, Panama ● CANON INC.: 9-9, Ginza 5-chome, Chuo-ku, Tokyo 104, Japan

Circle Number 46 on Reader Reply Card

BROADCAST FACILITIES: Martin I. Levy, Chief, (302) 632-6485. Harold G. Kelley, Assistant Chief, (302) 632-6491. **Aural Existing Facilities:** Otis T. Hanson, Chief, (352) 632-7010. **Aural New & Changed Facilities:** Ralph H. Garrett, Chief, (300) 632-6909.

Technical & Allocation: Albert Evangelista, Chief, (350) 632-6433. **Television Applications:** Samuel L. Saady, Chief, (304) 632-6357.

COMPLAINTS & COMPLIANCE: William B. Ray, Chief, (332) 632-6968. **Complaints:** Arthur L. Ginsburg, Chief, (332) 632-7048. **Broadcast Specialist:** George A. Curtis, (330) 632-7551. **Compliance:** John H. McAllister, Chief, (332) 632-7595.

HEARING: Thomas B. Fitzpatrick, Chief, (440) 632-6402. P. W. Valicenti, Assistant Chief, (440) 632-6402.

LICENSE: Quentin S. Proctor, (242) 632-6334. **AM-FM:** David Tau Jr., Chief, (246) 632-7136. **TV Branch:** Ann S. Stanton, Chief, (234) 632-6417.

RENEWAL & TRANSFER: Joseph F. Zias, Chief, (316) 632-6993. **Renewal:** Richard J. Shiben, Chief, (318) 632-7069. **Transfer:** (Vacancy), Chief, (324) 632-7256.

RESEARCH & EDUCATION: James B. Sheridan, Chief, (A-34 632-7213. **Educational Broadcasting:** Robert L. Hilliard, Chie (A-340) 632-7531. **Research:** A exander Korn, Chief, (A-340) 63 7213.

RULES & STANDARDS: (V cancy), Chief, (A-304) 632-7575.

Cable Television Bureau
Sol Schildhause, Chief, (430) 632-6480

LICENSING & AUTHORIZATIONS: Edward J. Brown, Chie (432) 632-6494. **Rules Policy Research:** Jacob Mayer, Chie (432) 632-6488.

Common Carries Bureau
INTERNATIONAL & SATELLITE: Abbott C. Roseman, Chie (502) 632-6415. **Cable, Radio Satellite Facilities:** (Vacancy Chief, (502) 632-7265.

Office Of The Executive Directo
John M. Torbet, Executive Dir. (852) 632-6390

UDGET & FISCAL: Richard F. ian, Chief, (846) 632-7194. iance Branch: Michael Leivitz, Chief, (548) 632-6900.
ATA PROCESSING: Richard Tuey, Chief, (644) 632-6933-4. istant Chief: John J. Garvey, 4) 632-7115. **Operations:** uis Thomas, Chief, (M-10) 632-5. **Programming:** Joseph P. t, Chief, (646) 632-7846. **Sysns Analysis:** Roland Page, ief, (648) 632-7846.
MERGENCY COMMUNICAONS: Kenneth W. Miller, Chief, 201) 632-7232. **Communicains Resources:** Raymond W. ddon, Chief, (201) 632-7232. **mmunications Systems:** (Vancy), Chief, (201) 632-7232. **tional Industry Advisory mmittee:** Lavelle W. Hughes, ecutive Secretary, (A-203) 632-32.
MANAGEMENT INFORMAON: Bernard I. Kahn, Chief, 8) 632-7513. **Management alysis:** Bertie E. Hislop & Alan McKie, (848) 632-7513.
PERSONNEL: Delbert H. Flint, ief, (212) 632-7120. **Assistant ief:** Pauline M. Foster, (212) 2-7120. **Employment:** Allen P. gers, Chief, (212) 632-7120. **alth Unit:** Anna J. Roeder, (2) 632-7047.
PROPERTY MANAGEMENT: Rex Marshall, Chief, (A-102) 2-7533. **Procurement:** Kenneth Gordon, Chief, (A-104) 632-72. **Property & Supplies: ores and Property:** Lorenzo nes, (B-10) 632-7528. **Public irms:** William Ballinger, (B-10) 2-7155.

afety & Special Radio Services Bureau
James E. Barr, Chief,
(402) 632-6940
Vernon A. Spring, Assistant ief, (404) 632-6930.

LEGAL, ADVISORY & ENORCEMENT: J. Russel Smith, ief, (408) 632-7235. **Enforcent:** Maurice J. DePont, Chief, 08) 632-7597. **Law & Advisory:** ewton B. Jaslow, Chief, (408) 2-7291.

(Continued on page 86)

AMATEUR & CITIZENS: A. Prose Walker, Chief, (420) 632-7175. **Rules & Legal:** Harold R. Woodyard, Chief, (420) 632-7175. **RADIO TECHNICAL COMMISSION FOR MARINE SERVICES:** Howard L. Peterson, Executive Secretary, (A-213) 632-6490.

Office Of Opinions & Review
Leonidas P. B. Emerson, Chief, (844) 632-7220
Earl G. Coston, Engineer, (839) 632-7144.

Office Of Information
Leonard Weinles, Chief, (202) 632-7260.
Lily Marshall, Assistant Chief.

Office Of The Chief Engineer
Raymond E. Spence Jr., Chief (714) 632-7060

FREQUENCY ALLOCATION & TREATY: C. Phyll Horne, Chief, (706) 632-7025. **Frequency Registration & Notification:** William Torak, Chief, (704) 632-7087. **International Records & Reports:** Paul Carroll, Chief, (709) 632-7017. **Treaty:** Francis Williams, Acting Chief, (710) 632-7054.

RESEARCH: (Vacancy), Chief, (A-214) 632-7040. Harry Fine, Acting Chief, (A-214) 632-7040. **Applied Propagation:** Roger B. Carey, Chief, (A-212) 632-7080. **Space Systems:** Elton Davis Chief, (A-214) 632-7040. **Specia Projects:** Jules Dietz, Chief, (A 214) 632-7040.

TECHNICAL: Julian T. Dixon Chief, (754) 632-7043. **Experi mental Services:** Clayton Han son, Chief, (758) 632-7067. **RI Devices:** Herman Garlan, Chief (756) 632-7095. **Technical Stand ards:** John T. Robinson, Chief (700) 632-7093.

Field Engineering Bureau
Curtis B. Plummer, Chief, (734) 632-6980

ENGINEERING & FACILITIES Hobart W. Johnson, Chief, (738 632-7593. **Antenna Survey:** Jo seph G. Thomas, Chief, (740 632-7521. **Standards & Facili ties:** William A. Luther, Chief (738) 632-7593.

FIELD OFFICES: J. Patrick Scanlon, Chief, (744) 632-7090 **Inspection & Measurements:** Willis E. Ours, Chief, (744) 632-7014. **Investigation & Certification:** (Vacancy), Chief, (744) 632-

92. **Operator & Examination:** hn W. Reiser, Chief, (744) 632-40.

MONITORING SYSTEMS: Ivan Lorenzen, Chief, (728) 632-45. **Methods & Review:** Carl T. hn, Chief, (728) 632-6345.

If you've been wondering who ou should call at the FCC to give ou the specific kind of informa-on you need, you'll find this sting most interesting. In order hat **Broadcast Engineering** roduce a true reference issue, e felt it necessary to include is kind of material. If you would ke to see other types of refer-nce material included in next ear's issue, drop the editor a ne and let us know your needs.

NAB Asks For Claim Relief

The National Association of roadcasters has urged the Federal ommunications Commission to ject a claim by a citizens' group r expenses incurred in opposing a ense renewal for station WSNT Sandersville, Ga.

NAB said in a statement that CC approval of the request would mount to involuntary "exact-ent" of the licensee.

"It is the NAB's position that rdering a station to pay a petition-r's attorney and/or other expenses gainst its will is a sanction," the AB statement said. "The Com-unications Act. . .does not in-lude the power to assess attorney nd other expenses in a situation here the licensee has not volun-arily agreed to pay such expen-es."

NAB urged the FCC to adhere o its past policy which said, in art, that "it would be inappro-riate for the Commission to com-el reimbursement of expenses in he absence of a voluntary agree-ment of the parties" involved.

Don't Miss Our Direct Current

Page 4

Station Monitors

(Continued from page 26)

desired for a specific service or purpose. For example, the station may use a Network service and would want constant monitoring of the Network line. The amplifier should have a gain control near the operator so that this could be reduced (or, rather, the level reduced) to a background level until it is desired for more definite listening for cues. This should be a remote gain control, unless the amplifier can be located within reach of the operator. The control can be on the speaker or on the input of the amplifier as is most suited for the situation. Although I have never had direct experience with one, there is available a single speaker unit with two voice coils into which two separate amplifiers may be fed.

Common studio: In some stations a studio is used with another control room. For example, a TV studio may be used at times as a radio studio also. This common studio would be equipped with a speaker for TV and one for radio. The mute and on air light relays must be interlocked so that a program originating in the studio will not be bothered by a program from the sister station.

The interlocking is not difficult and can be accomplished with the addition of one single mute relay for the secondary studio speaker. The console in TV and the console in radio will have a mute relay for its own speaker, plus relays for o air lights.

It is necessary that muting c both speakers take place when e ther the TV console or the radi console mike key is closed. Th relay added would mute the sec ondary speaker (let's say it will b radio), and its coil should be wire in parallel with the mute and on ai light relay from TV console. Whe the TV mike key is closed, this wil mute both speakers. The on ai light relay provided with the radi console would not have 120 VAC wired to its contacts, but instea have DC relay voltage from TV control. When this relay is close by the radio mike key, its contact will then provide relay voltage fo the other relays and thus mute bot speakers and turn on the TV studi air light.

Multiple speaker muting: I some locations, such as News rooms, there may be a number o speakers on various monitors going on and off intermittently. It may also be desirable to do recording in the newsroom with a microphone and all this chatter from speakers can prevent this. Here is one meth od to mute all speakers at one time. Build a speaker cabinet and mount enough small speakers to satisfy all the needs of the newsroom. Small 3-inch speakers can be used, as that may be what is in the mobile radios that are being monitored.

sconnect the speaker in each
t, wire it through a single ganged
itch to the speaker box. Have a
nged switch that will handle the
nber of speakers involved.
Now, with one switching mot-
n, all speakers can be muted
mediately. Make sure there is a
istor switched onto the receiver
amplifier when the speaker is
itched off. As an additional fea-
e, wire one set of contacts on
switch to a light on the box to
dicate that the speakers are
itched off. Of course, you could
unt a relay at each speaker and
e all the relays common to one
gle switch. This would do the
just as well.

Bridging: All monitor systems
ould bridge the program source.
enerally the audio is a bus feed-
program somewhere for pro-
m purposes. The monitor taps
o the bus. To prevent loading of
ogram busses, the amplifier in-
ts should use a bridge circuit,
her transformer or resistors or
th. This is a must if the amplifier
a low impedance. If it is unbal-
ced it will cause problems, as
ost audio buses are balanced.
se isolating transformers or resis-
rs to prevent upsetting the bal-
ced circuits. Transformers pro-
de the best circuit isolation. Bal-
ced bridging controls are com-
ercially available. These provide
al, ganged potentiometers plus
ries resistors to provide both a
riable as well as fixed levels.

In many cases, a fixed bridging
nnection is all that is required. If
e amplifier is low impedance in-
t, three resistors will do the job.
or example, an amplifier with 600
hm input. Add a 10,000 Ohm re-
stor in series with each leg and
unt a 600 Ohm across the input.
his will give approximately 20 dB
ss and will not affect a 600 Ohm
rcuit. If less loss is desired, one
an go as low as 5,000 Ohms in
ch leg. If only one amplifier will
e bridged across the circuit, one
an go as low as 2700 Ohms in each
g, but it isn't advisable to go
uch lower than this.

Summary

Audio monitor systems are not difficult to design or install, and require very little maintenance. The monitor amplifier should not affect the circuit it is monitoring, so its input should always be a bridge connection. The amplifier should always have a load maintained on the output, especially transistor amplifiers. The 70.7 and 25 Volt distribution systems are easily designed for house monitor systems and require less computations than trying to derive multiple impedance matching by other methods.

For More Information
On Items Advertised
Use Our
Reader Service Cards

IBS Membership Still Growing

IBS was founded in 1939 by 13 college radio stations to act as a trade association, assisting the stations in obtaining national advertising, representing them to the FCC, and furnishing information to other schools interested in educational radio or constructing campus stations. The System is a non-profit Rhode Island corporation.

Although these statistics are impressive, the real story of IBS growth is in the area of its services to the industry. These include the availability of IBS printed forms, the College Radio Placement Service (an annual poll of commercial stations on their requirements and qualifications for summer positions), a programming service, Iota Beta Sigma national honorary, an annual National Convention, **College Radio** magazine (published monthly during the academic year), and FCC representative ...especially Call Letter reser vation.

The System strives to expan both the depth and the scope of it programs and servic (an annual poll of commercia stations on their requirements an improving existing ones.

IBS Services

Two services of particular inter est to new stations are the IB general, technical and sales cor sultation service, and the IBS Mas **ter Handbook. The MH** is a com plete manual of station operatio encompassing programming, sales technical, and administrative infor mation. Since IBS's inception, prime effort has been to furnish sta tions with technical data and assis tance. The System has technica requirements (as well as othe

es) for Voting membership, and gnificant portion of the MH is oted to engineering informa-

BS has also developed a region- tivity and runs periodic region- onferences. Regions publish sletters, run programming ex- nges, regional sales offices, and news networks.

recent addition to IBS ser- s is being instituted by the ecord Company Relation Depart- et. The RCRD is publishing a kly IBS Charts & Review sec- as a feature of **College Radio** agazine. In addition, the RCRD furnish to Record Manufactur- promotional offices data on B member stations.

Membership

dustry Affiliate membership is ther new facet of IBS. As a lt of a complete revision of IBS anizational structure and By- s three years ago, the System offers Affiliate membership to firms in the industry. Three classes of Industry Affiliate membership are offered.

As outlined in the By-Laws, a broadcast group related to an institution of higher or secondary education, or an organization whose purpose coincides in whole or in part with that of the System is eligible for membership. IBS does not offer individual membership. Station dues are $45 per year.

Conferences in IBS's 14 regions are held once a year, and a National Convention is held each spring.

Further information on the IBS may be obtained by writing to: Intercollegiate Broadcasting System, Bethlehem, Pa.

Send Your Exchange Ideas to Broadcast Engineering Yes – We Pay

Professional Association Officer List

The following is a list of addresses and presidents/chairmen of some of the major active national associations and professional societies. Since each of these annually strive to keep their membership informed on their specific slice of the state-of-the-art we recommend that interested parties contact these groups for further information on membership qualification and fees. Some, such as the Audio Engineering Society and the Society of Motion Picture and Television Engineers, publish technical journals at regularly scheduled intervals.

Equally important, we suggest you take an active interest in your state association. It does pay to get together with people in your area to discuss communications problems. What's more, it should be easier to have your ideas heard in these smaller groups. You can get involved.

American Cinema Editors Inc.
Frederick Y. Smith, Pres.
422 South Western Ave.
Los Angeles, Calif. 90005

Armed Forces Communications and Electronics Assn.
Dr. Joseph Boyd, Pres.
1725 I St., N.W.
Washington, D.C. 20006

Assn. For Broadcast Engineering Standards Inc.
George Comte, Pres.
1130 17th Street, N.W.
Washington, D.C. 20036

Assn. of Motion Picture Television Producers Inc.
Jack Valenti, Pres.
8480 Beverly Blvd.
Hollywood, Calif. 90048

Audio Engineering Society
J. G. Woodward, Pres.
60 E. 42nd St.
New York, N.Y. 10017

Broadcast Pioneers
Leonard J. Patricelli, Pres.
589 5th Ave.
New York, N.Y. 10017

Canadian Assn. of Broadcasters
Henry Audet, Pres.
85 Sparks St.
Room 909
Ottawa, Canada

Canadian Cable Television Association
W. E. Jarmain, Chmn.
1010 St. Catherine W.
Suite 1004
Montreal 110, Canada

tholic Broadcasters Assn.
ev. Karl Holtsnider, Pres.
129 S. Santec St.
leveland, Ohio 44114

he Educational Television and Radio Association of Canada
enry H. Mamet, Chmn.
2 Bloor St. W.
oronto 5, Canada

stitute of Broadcasting Management
lan Dickey, Chmn.
ox 4891
ashington, D.C. 20008

stitute of Electrical and Electronics Engineering Inc.
onald G. Fink, Gen. Mgr.
5 East 47th St.
ew York, N.Y. 10017

ter-American Assn. of Broadcasters
erbert E. Evans, Pres.
graham Building
ite 925
2 S.E. 2nd Ave.
iami, Fla. 33131

tercollegiate Broadcasting System
eorge F. Eustis Jr., Pres.
ox 592
ails Gate, N.Y. 12584

(Continued on page 94)

(Continued from page 93)

International Frequency Registration Bd.
International Telecommunication Union
Place des Nations
1211 Geneva, Switzerland

International Radio & Television Foundation
Maurie Webster, Pres.
420 Lexington Ave.
New York, N.Y. 10017

International Radio & Television Society
Max E. Buck, Pres.
420 Lexington Ave.
New York, N.Y. 10017

Joint Council on Edu. Telecommunications
Frank W. Norwood, Exec. Sec.
1126 Sixteenth St., N.W.
Washington, D.C. 20036

Motion Picture Assn. of America
Jack J. Valenti, Pres.
1600 Eye St., N.W.
Washington, D.C. 20006

National Association of Broadcasters
Vincent T. Wasilewski, Pres.
1771 N Street, N.W.
Washington, D.C. 20036

National Assn. of Educational Broadcasters
William G. Harley, Pres.
1346 Connecticut Ave.
Washington, D.C. 20036

National Assn. of FM Broadcasters
Robert Ardrey, Chmn.
420 Madison Ave.
Suite 803
New York, N.Y. 10017

National Assn. of Television and Radio Announcers
Alvin Dixon, Pres.
1408 S. Michigan Ave.
Chicago, Ill. 60605

National Assn. of Television Program Executives Inc.
John Comas, Pres.
670 Valley Rd.
Lancaster, Pa. 17601

National Broadcasters Club
Arthur Stambler, Pres.
1737 DeSales St., N.W.
Washington, D.C. 20036

National Cable Television Assn.
Donald V. Taverner, Pres.
918 16th Street, N.W.
Washington, D.C. 20006

National Religious Broadcasters
Dr. Eugene R. Bertermann, Pres.
Box 308
Madison, N.J. 07940

(Continued on page 96)

IEEE Stays On Target

The Institute of Electrical and Electronics Engineers, Inc. is one of the largest engineering societies in the world. It was started in 1884. Today there are more than 160,000 members.

The purposes of the organization are scientific and educational, directed toward the theory and practice of electrical engineering, electronics, radio, allied branches of engineering or the related arts and sciences.

Throughout the year the man sections of the IEEE hold man meetings, conferences and sym posiums for the purpose of keepin all members informed on the late innovations, experiments, and po sible future directions.

While many groups have spl into specific interest areas, the remain aligned with the IEEE. An this includes the Canadian broa

(Continued from page 95)

Society of Broadcast Engineers Inc.
Robert Flanders, Pres.
1330 N. Meridian
Indianapolis, Ind. 46202

Society of Motion Picture & Television Engineers
Wilton R. Holm, Pres.
9 East 41st St.
New York, N.Y. 10017

Television Pioneers
W. D. Rogers, Pres.
Box 1475
Lubbock, Tex. 79408

sters.

Benefits of IEEE Membership

As a member of a local IEEE tion, you may attend and par- pate in meetins where matter of ticular technical interest in the ality are discussed by people o know them best. At these etings you will meet and ex- ange views with people who re your interests. You may join e or more of the IEEE Groups Societies, which provides the portunity to broaden knowledge your specialty field.

There is the opportunity for per- nal contributions, to serve on EE Committees to learn what ers are doing, and to contribute ur own knowledge to the profes- on.

Meetings

In addition to the local Section eetings, the IEEE sponsors a rge number and variety of other eetings, symposia and confer- ences to meet the interests of all its members.

The world's largest technical meeting, the IEEE International Convention and Exposition, is held in New York City every March. The four-day program draws engineers and scientists from all parts of the world to learn about and discuss the latest developments in electrical and electronics engineering. Complementing the technical sessions is an exhibition of technological products by hundreds of manufacturers.

Special annual meetings sponsored by IEEE Regions and Sections at a location geographically convenient provide a smaller scale equivalent to the International Convention and Exposition.

Also, throughout the year, IEEE Groups and Societies sponsor or co-sponsor with other organizations many major conferences in areas of special interest. These meetings provide the most up-to-date coverage available on their specific subjects.

Membership

Interest in electrical/electronics engineering is the basic requirement for membership in the IEEE. The grade of membership to which you will be admitted, depends on the extent of your involvement in, and contribution to the field of electrical/electronics engineering.

The grade of **Fellow** is conferred only upon a person of outstanding and extraordinary qualifications and experience in the fields of electrical and electronics engineering, related arts and sciences, or allied branches of engineering. It is an unusual professional distinction that must be earned, not applied for.

Senior Member is the highest grade for which application can be made and requires experience or attainment reflecting professional competence in the fields of electrical or electronics engineering, related arts and sciences, or allied branches of engineering.

Associate membership is offered to those with engineering interests who are capable of rendering service to IEEE and the profession.

Student membership privileges are extended to registered students enrolled in electrical engineering or related courses.

The IEEE membership offers you professional and person advantages. If you are interested in becoming a member or would like more information write to: The Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, N.Y. 10017.

As an IEEE member, you will know about the conferences and their programs in advance and can attend at a reduced member rate.

Reader Service Card In Sept. Good For 1 Year

New ITV And Lighting Associations

There are two relatively new associations in the industry. The Industrial Television Society (ITS) recently held their fourth annual meeting in Chicago. This year's meeting was aimed toward the business or firm embarking on video tape productions and the program was arranged to serve as an educational function and helpmate for the potential user of VTR. The national judging of tape productions proved to be a valuable tool and educational milestone for the persons already engaged in VTR work.

For more information on the ITS write to: Joseph Gorman, Pres., P.O. Box 542, Niagara Falls, N.Y.

The second is the Illuminating Engineering Society. They held their eighth annual theatre, television and film lighting symposium last May.

The Chairman of the Theater, Television and Film Lighting Committee is C. Schuyler Bramley. Salvatore J. Bonsignore is Chairman of the World Colloguium Committee.

Further information may be obtained by writing: Robert Link, Illuminating Engineering Society, 345 East 47th Street, New York, N.Y.

Audio Society An Industry Leader

AES Journal

The Audio Engineering Society started to publish its own Journal in January 1953. Started as a quarterly, it contains engineering studies and reports from audio authorities in the United States and abroad.

The AES serves members, industry and the public by stimulating and directing advances in this vital technology. It makes new developments promptly and widely

known through semiannual technical sessions and through the AES **Journal**, a professional publication.

Conventions

AES conventions include a full program of technical sessions for the presentation and discussion of papers describing current research and developments in audio. Exhibits of professional equipment from manufacturers here and from other countries give AES members a first-hand look at the latest products for audio application.

Membership

Honorary Memberships and Fellowships are given for past contributions to the profession.

Qualifications for membership in the Audio Engineering Society are as Follows:

A **Member** may be any person active in audio engineering who has an academic degree, or its equivalent in scientific or professional experience in the field of audio engineering and its allied arts, and who is familiar with the application of engineering principles and data in that field.

An **Associate** may be any person interested in the objectives of the Audio Engineering Society.

A **Student** may be any student interested in audio engineering and enrolled in a recognized school, college or university.

At the present time the scope of the Society's concern, while still including the areas delineated at the time of its organization 20 years ago, has expanded in order to keep pace with new technological developments in audio and in order to better meet the Society's responsibility to the engineering community and to society at large.

The membership of the Society includes engineers, scientists, administrators, and technicians involved in research, development, design or operation of all forms of audio apparatus and systems; executives, sales engineers, and technical personnel involved in the production, marketing and installation of audio equipment; and educators who use audio apparatus in teaching or who teach acoustics, electronics, or other sciences basic to audio engineering, sound reproduction and allied fields.

The AES serves its membership by offering opportunities for the exchange of technical information for self-improvement and for professional recognition. The vigorous and progressive state of audio technology at this time will surely be matched by the growth and contributions of the Society during the next two decades of its existence.

For further information on AES membership, write to: Audio Engineering Society, Room 428, 60 East 42nd Street, New York City 10017.

NAB Represents Broadcast Interests

While you can't always agree h the National Association of oadcasters, you must recognize t without their concerted efforts r the years there might not be y sound business reason for ng an owner today.

n each decade of broadcasting tory there have been any num- of challenges for owners, man- ers and engineers. Some chal- ges nudge the state-of-the-art wly uphill. Others threaten the stence of stations.

The voice of broadcasting con- ntly thunders out of Washington nen the NAB's Vince Wasilews- spots another derailing FCC posal. Trouble is, not enough of broadcasters themselves make ir individual voices heard.

The NAB started in a modest ough way with a handful of mbers, back in 1922. A non- ofit organization, its goal was "to ster and promote the develop- nt of the arts of aural and visual oadcasting in all its forms: to pro- t its members in every lawful d proper manner from injustices d unjust exactions; to do all ings necessary and proper to courage and promote customs d practices which will strengthen d maintain the broadcasting in- stry to the end that it may best rve the public."

Association activities center on is aim, and today NAB has among its members over 3,800 radio and television stations throughout the 50 states.

Function of NAB

The function of the National Association of Broadcasters is to represent the industry before Congress, at the White House and before administrative agencies. It has been the channel through which the industry has been moved to alert the public to the effectiveness of radio and television, both as informational and entertainment media and as a means to help move the nation's goods and services. In this latter function it proves to be a very important source in stimulating and boosting the national economy.

Another vital function of the NAB is to oppose schemes to convert the American system of broadcasting from a powerful means of free communication into a medium of special interest enjoyed by a privileged few who can pay for their programs. In its stand against pay television, the Association has had the general support of the public and the leaders throughout the country.

Goals Achieved

The NAB also has been instrumental in promoting various activities leading to the betterment of the communications industry. Some of

these are:

1. Instituting voluntary codes for radio and television which provide broadcasters with guideposts in determining acceptable programming and advertising practices.
2. Upholding the American system of broadcasting, free from government censorhip.
3. Combatting discriminatory legislation proposals.
4. Obtaining more liberal acceptance of radio and television coverage of public proceedings.
5. Improving the industry's relationship with public service groups.
6. Achieving fair labor relations laws and wage-hour regulations.
7. Improving the efficiency of broadcasting operations by gaining authorization by the FCC for remote control for radio and television stations, drafting engineering and recording standards universally acceptable by the broadcasting industry, and introducing simplified program and engineering logs which meet FCC requirements.

Subscribers who are eligib
consist of any individual, firm
corporation engaged in the oper
tion of a TV broadcast station
network, holding a constructi
permit for a television broadca
station in the United States or
dependencies. Subscribers are su
ject to approval by the Televisi
Board of Directors. Again—o
subscription is given for each st
tion and/or network.

Affiliate subscribers are co
posed of individuals, firms or c
porations engaged in the produ
tion or distribution, lease or sale
recorded products recorded pr
grams for television presentatio
subject to approval of the Tele
sion Code Review Board, which
a committee of not more than ni
members, all of whom are su
scribers to the Television Cod
Appointed by the Televisio
Board, they may include one mer
ber from each of the subscribi
nationwide television network
Meetings shall be at least twice
year on a date determined by th

airman.
The National Association of
oadcasters also accepts asso-
e members in fields allied to broadcasting.

Further information on the NAB may be obtained from its Washington headquarters at 1812 K Street, N.W. Washington, D. C. 20006.

Educational Broadcasters

The National Association of
ucational Broadcasters has re-
ted the predictions of govern-
nt surveys: their portion of the
mmunications industry is grow-
more rapidly than any other.
Trouble is, the national associa-
n name often does not fit its
mbership. There are those who
nt to be known as Public Broad-
ters, and they are better known
w that "Sesame Street" and
Misterogers" have made their
y into millions of homes across
country.
But the membership also in-
des over-the-air educational ra-
, campus limited radio, Instruc-
nal TV Fixed Station, Closed
cuit, Instructional TV and on
on.

With this diverse membership and through the leadership of William Harley, the NAEB has grown into one of the largest associations in the broadcast-communications field. In fact, while some refer to it as the "little NAB," the national conventions would lead you to believe that there are none larger.

The convention this year will be held in October in Las Vagas.

The need for strong, local community-based programming in public broadcasting, the crucial role that educational broadcasters must play in the educational structure of American life and the ability to change are all points president Harley will stress in the '70's. Harley warns that "if distasteful realities are what community involve-

ment yields, then that is the arena in which we must operate.

Harley emphasises that educational broadcasting can be a major instrument for the people's participation in the conduct of their affairs. "Such participation," he says, "can range all the way from the initial efforts to understanding problems, trends, and issues through efforts to identify and define alternative approaches and solutions. Every educational radio and television facility must be educational, public and community oriented. To expect less of ourselves is unprofessional. To do less is to fail."

And it was just two years ago when FCC Chairman Dean Burch told an NAEB convention audience, "Do not strive to compete with the commercial broadcasters for the maximum audience. Do your own thing. Don't play a numbers game." Meanwhile, just as John W. Macy, Jr. has warned, the educational, public broadcasting future is restricted mostly by funding. This condition is bound to improve, but that end is not yet in sight.

Information on the NAEB membership qualifications may be obtained by writing to: National Association of Educational Broadcasters, 1346 Connecticut Avenue, N.W. Washington, D.C. 20036.

Special Group For FM Stations

The National Association of F Broadcasters (NAFMB) wa formed by a group of independe FM broadcasters to deal with sp cial problems of the FM broadca industry. It is a non-profit organ zation devoted to the promotio and development of FM radio.

The Association has been i volved in projects related to th FM industry such as—support f the Federal Communicatio Commission's separate progran ming policy for combined AM an FM operations; launched can paign for car radios; set in motio "all-channel" legislation whic would require that all radio se sold in the U.S. be capable of F reception. These are merely a fe of the efforts being initiated und the leadership and the active inte est of NAFMB members.

The Association offers contin ing services of research, progra information, promotion, enginee ing, management and FCC liaiso specifically related to the FM i dustry.

Monthly dues are based upo gross income. Gross income is d fined as all income resulting fro air time sales on the main FM ca rier.

For Information on the NAFMB

You may obtain more informa tion on the NAFMB by writing t the National Association of F Broadcasters, 420 Madison Ave New York, N.Y. 10017

NEW PRODUCTS

(circle number on reader service card for further information)

September Reader Service Card Good For One Year

Audio-Video Recorder Synchronizer

Designed to synchronize an audio tape recorder (ATR) to a quad or slant track video tape recorder (VTR), or another ATR, the ECO BE 450 Synchronizer keeps two mag tapes in frame to frame lock regardless of normal tape stretch or slippage.

The Synchronizer compares identical SMPTE edit codes recorded on any two mag tapes: quad, slant track, sprocketed or unsprocketed audio. If the tapes are within 30 seconds of synchronization, the BE 450 automatically adjusts control voltage to one of the recorders until tapes are in perfect sync. It then keeps the tapes in sync, or manually adjusted offset, in a frame to frame lock.

The BE 450, with identical SMPTE edit code indexing on each tape, can provide exact synchronization between ATR and VTR tapes.

Circle Number 169 on Reader Reply Card

Automatic Film Chain Light Control

Beston Electronics, Inc., a company specializing in operational problem solving equipment, has developed an automatic film chain light level control and a unit that will display color vectors on your oscilloscope or waveform monitor.

The film chain control unit corrects for film and slide density changes. The servo operated neutral density wheel keeps the video level virtually constant with no change in color hue.

The new model 531 vector display provides a vector presentation of NTSC or NTSC compatible chroma. This polar coordinate type display allows operator to obtain correct phase and amplitude relationship of the chrominance signal.

Beston also manufactures a long line of broadcast and closed circuit amplifiers.

Circle Number 170 on Reader Reply Card

Audio Consoles, Control Room Equipment Furniture

Broadcast Electronics, Inc., manufacturers of the Spotmaster Tape Cartridge Systems, announce the availability of a complete line of audio consoles and modular equipment furniture.

The line of quality audio consoles includes 5 and 8 channel, monaural or stereo systems. All console mixing inputs are supplied with preamplifiers, with provision

(Continued on page 106)

for use in low or high level input applications.

Electronic FET switching of input channels to program and audition buses is a design standard on all Spotmaster consoles, as is the utilization of quality ladder attenuators.

The control room furniture includes a single and dual turntable or audio accessory pedestals, console desk-top section that may be utilized in conjunction with the turntable pedestals, or with supporting tubular metal legs.

Broadcast Electronics does not prefer to use Reader Service Card circle numbers. For further information, write to them on your company stationery and send to: Broadcast Electronics, Inc., 8810 Brookville Road, Silver Springs, Md. 20910. Refer them to this page number and issue date of Broadcast Engineering.

Modular Audio Equipment

ROH Corporation, 200 Series, offers a modular audio equipment product line designed for the broadcast industry. Audio modules include frequently used equipment such as preamplifiers, power amplifiers, and line amplifiers, as well as system oriented products like an AGC amplifier, distribution amplifiers, and a solid state switch matrix.

All modules are compatible with a choice of different enclosures or unenclosed module socket assemblies. The product line includes the necessary accessories for system construction.

Circle Number 171 on Reader Reply Card

Pulse Cross TV Monitor

Ultra Audio Products introduces a low cost video monitor incorporating virtually every desirable feature: Pulse cross and normal displays, underscan, 10mHz. response, built-in audio, variable bandwidth, 9" diag. screen, d.c restoration, external mixed-sync. and vertical sync. inputs. The PC-95 is offered unmounted, in carrycase, or singly or 2-across in rackmount. It will also mount side by side with the low cost VW-O waveform monitor.

Circle Number 172 on Reader Reply Card

Plug-in Module Broadcast Console

Fairchild Sound Equipment Corp. has developed a new approach to broadcast console design. Their new design is based on plug-in modules (with limiters in some inputs), allowing a custom approach to each console.

The modules are assembled in building block fashion, according to need. They provide for mic, medium level, high level, and remote inputs and output, communications and monitoring. Each module is a complete channel.

Modules are available individually, in kit form, or completely assembled at the factory.

Equivalent noise of -127 dBm and distortion of 0.1 percent are said to be typical of each operational amplifier used in the console. Console shells are available in standard widths up to 48 inches.

Circle Number 173 on Reader Reply Card

Four-Channel Converter

Owners of existing two-channel stereo systems need only add two extra rear-channel speakers, in addition to the **Sansui** QS100, for a complete updating that accommodates all forms of four-channel sound-synthesized, matrixed or discrete—on discs, tape or FM.

The versatile QS100, now available from **Sansui Electronics Corporation**, combines a synthesizer, a matrix decoder, two channels of power amplification and a complete set of controls and accessory circuits for two- and four-channel stereo performance.

The synthesizer can detect the non-direct ambient information that already exists in most two-channel stereo recordings and broadcasts, processing these signals for rear-channel presentation to produce a remarkably realistic four-channel effect. This is enhanced by Sansui's exclusive phase-modulation technique, which propagates the sound throughout the listening space in the same way the natural, live sound field is developed.

The decoder can accurately re-

(Continued on page 108)

cover and reproduce the four original channels of any compatibly matrixed four-channel recording or FM broadcast. Moving out of the experimental stage, the broadcasts are now originating from an increasing number of FM outlets throughout the nation. Matrixed four-channel discs are also being released by a rapidly growing number of well-known recording companies. In the decoder mode, Sansui's original phase-shift network design prevents the sound dropouts and confused or lost sound-source localization that plague many matrixed systems. And the phase modulators are also operative to implement and sustain the "live sound field" effect.

Circle Number 174 on Reader Reply Card

Video Noise Meter

Rohde and Schwarz introduces a new all solid state Video Noise Meter for noise voltage measurements on composite video signals. Its main application is on TV cameras, film scanners, video tape recorders, radio and coaxial line links, TV transmitters, TV receivers and TV translators.

The Video Noise Meter, Type UPSF, is based on the same principle as its well known tube type predecessor, which is the accepted standard for cameras, video tape recorders and studio equipment. It is basically a wideband (10 Hz - 17 MHz) millivoltmeter, with two indepndent detectors, true rms and peak to peak calibration. The extremely wide measuring range of -85 dB, referred to the standard P and B value of O dB=0.714 V, is obtained by gating out the sync and blanking pulses and measuring the remaining noise level.

In addition, standard weighting filters, low and high pass filters, permit complete analysis of the noise component. A scope output is available for this purpose. Plug-in filters for NTSC or PAL enable the use of the same instrument for different standards. A sag and tilt corrector is incorporated in the instrument. The repeatability of the Video Noise Meter is of the order

0.1 dB, while that of equipments using a substitution method is, at best, of the order of 1 dB or more.

Circle Number 175 on Reader Reply Card

Shure Brothers Inc. has introduced a new, rugged omnidirectional dynamic microphone that provides all the features and performance characteristics required for a variety of broadcast, recording, and professional sound reinforcement applications—and does so with freedom from the problems of mechanically induced noise.

The new microphone, called the Model SM61, offers a smooth, wide-range frequency response and an extremely natural, uncolored sound. Frequency levels are held constant through varying distances between the user and microphone. This permits the performer to "work" the SM61 without variations in tone or balance.

The SM61's shock-mount design eliminates or minimizes cable, handling, and mechanical noises. "Pop" and wind filters make the SM61 suitable for outdoor recording, public-address, and broadcasting applications. Its design protects the SM61's performance characteristics, even against a drop on its nose.

Circle Number 176 on Reader Reply Card

Professional Lab Scope

The **Kenwood** KC-6060A Audio Lab Scope, a professional test instrument, provides an economical means of monitoring the performance of FM stations. The Lab Scope consists of a 1 kHz sine wave oscillator with variable output level from zero to 1 V rms, regulated by a front panel volume control; and a large oscilloscope with a 3-inch viewing screen for easy-to-see waveform displays up to 200 kHz.

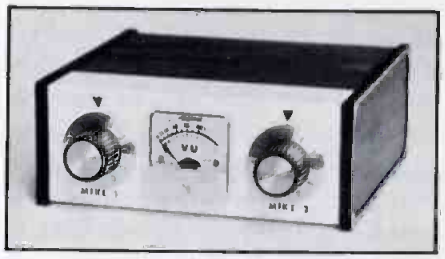
A 5-position selector knob provides the following displays: (1) Test 0.1 V Peak-to-Peak. . .to

(Continued on page 110)

compare the voltage measurement of an input signal against a 1 kHz sine waveform. (2) Waveform Left. . .for left channel audio signal. (3) Waveform Right. . .for right channel audio signal. (4) Stereo Display. . .with left channel signal applying to the vertical section, right channel signal to the horizontal section. (5) FM Multipath. . .to check the performance of a tuner or to adjust the antenna correctly for minimum multipath reception.

Other important tests that can be made by the KENWOOD KC-6060A include checking an amplifier for linearity, frequency response and phase characteristics; testing by square wave signals to determine frequency characteristics; measuring phase difference between two signals; and testing a phone cartridge for frequency response, phase characteristics, erratic stylus tracking, transient characteristics and optimum stylus pressure.

Circle Number 177 on Reader Reply Card



REMOTE BROADCAST AMPLIFIER

The type RA 303 SPORTSAMP is a compact 2 channel battery operated remote amplifier for broadcast use. In addition to the usual considerations given remote amplifier design, care has been taken to provide a unit which will also meet the difficult conditions often encountered in sports broadcasting – high background noise, limited space, and no secure a.c. power. The case size of the RA 303 is only 6 x 6¼ x 2½ inches and weighs complete with low cost battery complement just 2½ pounds. The price is $135. **Audio Engineering Co., 4112 Oak Lane, Gary, Ind. 46408**

Circle Number 136 on Reader Reply Card

Tape Eraser

"Taberaser" is the name given to the new tape eraser introduced by **Taber Manufacturing & Engineering Co.** to the television and recording industries.

The new "Taberaser" is precision made to erase audio, video, instrumentation tape, and magnetic films from 150 mil to 2" widths. The new eraser is designed so that tapes on reels or in cartridges can be degaussed without the necessity of unpackaging.

According to Taber, an added feature of this tape eraser is that the field is automatically diminished slowly at the end of each 30-second cycle, thereby elminating the well-known "Thump". Between 30Hz and 15KHz the depth of erasure is 76db below saturation.

The unit will not overheat and is kept below 71°C by the "Taberaser's" Automatic Heat Limiting circuit, which activates an internal blower until the unit returns to the correct operating temperature.

The 45-lb. eraser measures 6-1/4" high by 14-1/8" wide and 16" deep. Power requirements are 95-135 VAC, 58-62 Hz, 1 phase, 3 wire and uses less than 8 amps under any condition.

Taber Mfg. & Engineering Co., based in San Leandro, California anticipates the "Taberaser" will fill a real need in the television and recording industries for a preci-

n, low-cost eraser. They expect o be received as enthusiastically their tape heads and STL test es.

Circle Number 178 on Reader Reply Card

Super 8 Projector

A new, sound, super 8 motion- ture projector, featuring a total- new design in operation and pearance, has been announced **Eastman Kodak Company.**

The horizontal, low-profile de- gn of the Kodak Supermatic 60 unds projector eliminates the ilky inconveniences of many nventional upright projectors, ovides instant loading of projec- n cartridges, allows movies to be own on a large screen or on a ilt-in Kodak Ektalite projection reen, and makes the projector eal for individualized study or te in carrels.

Circle Number 179 on Reader Reply Card

Dual Channel 5-Mixer Console

McMartin Industries, Inc., Oma- , Nebraska, announces the avail- lility of a dual-channel version, e Model B-503, supplementing e previously available B-501 lonaural and B-502 Stereo five- ixer audio control consoles.

The B-503 features dual program annel capability at a nominal +8 Bm, 600 ohm balanced output. he B-503 provides extreme input exibility with plug-in modules to commodate microphone or high- vel input requirements for each of e five input mixing channels. wo inputs per channel are availa- ble through interlocked pushbutton preswitching.

Each program channel delivers frequency response characteristics of ± 0.5 dB, 30-15,000 Hz with THD of 0.5 percent or less at a + 18 dBm output level.

Individual VU meters for each output channel are included.

The completely self-contained unit includes 4-watt RMS monitor amplifier output and complete cue facilities.

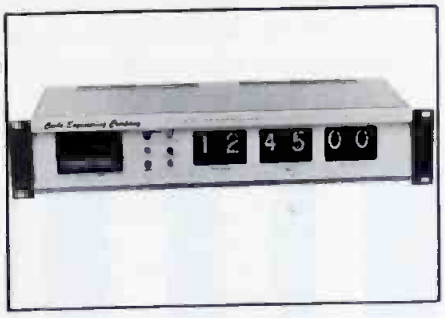
The B-503 is particularly suited for TV production and subcontrol applications.

Circle Number 180 on Reader Reply Card

Broadcast Cassette System

International Tapetronics Corporation has available a new, broadcast oriented cassette system. The

(Continued on page 118)



COOKE MODEL 724 DIGITAL MASTER CLOCK

Drives digital readouts and/or impulse slave clocks. ADVANTAGES: — Long-life nixie readout display in hours, minutes, and seconds — Time base is 1 MHz crystal oscillator — Accepts 1 or 5 MHz external reference — Display 12 or 24 hours — Accuracy of 1-second per month or better — Operates from 12 VDC standby battery — 115/120 VAC, 50/60 Hz.

COOKE ENGINEERING COMPANY — 900 Slaters Lane, Alexandria, Va. 22314 — 703/548-3889

Circle Number 139 on Reader Reply Card

100. AMCO ENGINEERING CO.—Amco's Color Catalog 310-A, and all new Broadcast, Monitor & Control Console Catalog 400 for the broadcast and TV studio is now available. The selection of the equipment in the Amco system is unique in itself. Each category of equipment—as an example, low silhouette monitor—has a base unit identified by number. To this one has a wide variety and selection of standard part arrangements that mount on the base unit. These various combinations, in turn, are given a console number. Thus, ordering is made extremely easy by merely ordering a given number for a complete console and adding digits, -2, -3, or -4, as an example, where multiple units are desired.

101. AMPHENOL BARNES DIV.—Barnes line of sockets, contactors and carriers for solid state devices is described in a new 24 page catalog. The new catalog features an array of rugged easy-to select sockets, carriers and contactors. Quick selection charts offer visual and preliminary specification by sight, number of pins, method of mounting, material used and part number. Barnes catalog separates flat pack, DIP and TO type sockets into two categories—test sockets and production sockets. Contactor and carrier charts are aligned to provide instant cross referencing. The Barnes contactors and carriers offer the ability to test a solid state device without risking damage to the device. Carriers provide the best method of shipment and assure that a device can be tested without removal from the carrier.

102. ANACONDA WIRE AND CABLE CO.—Splicing of new Plus-2 cables, designed for use with T-Carrier systems, is illustrated and described in a bulletin by Anaconda. Plus-2 contains isolated send and receive units and features

ra pairs for interrogation of re-aters, and for voice order cir-ts. Procedures include splicing both the standard filled core nstruction, and non-filled con-uction, of the cable. Protection thods are extensively explained f direct burial, aerial and pedestal l end splices of filled and non-ed core Plus-2 cables. Prepara-n, splicing of cable to repeater bs, and encapsulation of these ices is fully described in a sepa-e section, which also lists rec-mmended encapsulating materi-. The bulletin also describes ecautions applicable to shield nding.

103. ASARCO—A new six-page lder describes application of sarco's Acoustilead® for machin-y enclosures and supplemental alls for noise reduction. Acousti-d—1/64-inch thin lead sheet—is, und for pound, the most effec-e barrier for airborne noise. The lder explains why Acoustilead is rime sound barrier; describes its se of use; and lists the compo-nts of an effective machinery closure. Panel construction and stallation and the construction of und-rated doors and supplemen-l walls are treated in detail. Spe-fic ways to work with leaded pplemental walls, and how to eat completed joints are dia-amed. Ways of improving exist-g, inadequate walls and construc-on of new walls are described and e resultant reductions in trans-ission loss charted.

104. BIRNBACH CO.—A bro-ure on the expansion of Birn-bach's line of retractile cords is now available. The expanded line includes power cords, shielded and unshielded communication cords, cord sets and miniature cords. Lengths retracted, 1 to 4 feet. Expanded lengths, 6 to 25 feet.

105. COLORADO VIDEO, INC.—The CVI 1972 Short Form Catalog lists 27 unique video instruments including data display devices, video analysers, video disc recorders, special effects, image enhancers, test and sync generators, and TV-to-computer interface equipment.

106. CONRAC CORP.—A brochure describing the SNA Series of all solid-state television monitors, ranging from 9-inch through 23-inch screen sizes is now available. Included in the brochure are dimensional drawings of 9-, 14-, 17- and 23-inch units in cabinet, chassis and rack mount configurations. Features are listed, a general description is included and complete technical specifications are detailed. The SNA Series of monochrome television monitors are currently in use in professional broadcast, industrial, educational and data display applications.

107. EASTMAN KODAK CO.—"Silver Recovery with the Kodak Chemical Recovery Cartridge, Type P and Type 3" is the new title for the extensively-revised Kodak Publication No. J-9. The pamphlet outlines procedures for recovering silver from photographic processing solutions, using the Kodak

(Continued on page 117)

Microwave Study Is Available From FCC

The concluding portion of a two-part microwav study carried out for the FCC by Communications an Systems, Inc., has been completed and is now ava able from the National Technical Information Servic

Entitled "Frequency Assignment Techniques f Microwave Systems," Part two is concerned with th mechanics required to implement Part I. It include material on data gathering, identification of specif data to be assembled, and storage, processing an analysis. The study emphasizes the need for a un form, comprehensive, and current data base.

The first part of the study analyzed present micro wave utilization and frequency assignment technique in the bands allocated to the fixed point-to-point radi services and recommended changes leading to mor effective use of the spectrum. It also recommende that the FCC play a more active role in determinin spectrum usage through the medium of a microwav spectrum management task force.

Copies of Part two may be purchased from the Na tional Technical Information Service, Springfield, Va 22151. When ordering the report, specify the followin title, accession number and price: "Frequency As signment Techniques for Microwave Systems" Phas II - PB207536 - $3.00.

Motion Picture/Television Engineers

he SMPTE (Soçiety of Motion ture and Television Engineers) non-profit organization of peoconcerned with the engineering ects of motion pictures, televin, instrumentation, high-speed tography and the allied arts and nces.

he membership includes engirs, scientists, technicians and cutives in motion pictures, teleon, instrumentation and highed photography, educators and dents, and workers in many al- fields.

he objectives of the Society : (1) To provide an organization a climate in which persons of interests can meet, exchange as, and present technical papers the advancement of, and educan within, the sphere of interest the Society; (2) To provide a hnical journal for the publican of papers and the maintenance a record of progress; and (3) To ter the advancement of engiering technology and to sponsor tures, exhibitions and conferces designed to advance the ory and practice of engineering

The Society of Motion Picture gineers was founded in 1916, d in 1950 "Television" was add to its name to recognize the panding segment of its activities.

In 1948 an engineering committe on high-speed photography was ganized in the Society to foster ientific development and to enurage better dissemination of owledge in this field. This proam has expanded to encompass merous aspects of photo-instruentation, including photography d pictorial communication for issiles, satellites and space vehies.

From 24 members in 1916, the ciety has grown today to about 00 members. Although the marity of its members live in the nited States and in Canada, near- 800 are located in over 60 other untries thoughout the world.

SMPTE Jorunal

The **Journal of the SMPTE** is sent to all members monthly. It contains technical articles keyed to the interests of Society members, new product information and industry news.

Over the years, the SMPTE **Journal** and its predecessor, the **Transactions of the SMPTE**, have become the principal technical and historical reference of the industry. **Journal** papers of special interest or importance are reprinted and made available from Society headquarters.

From time to time, reports and manuscripts by the engineering committees are published as special bound volumes, such as: Control Techniques in Film Processing; Elements of Color in Professional Motion Pictures; Proceedings of the Fifth International Congress on High-Speed Photography; Principles of Color Sensitormetry; Special Effects in Motion Pictures; and Motion-Picture Projection and Theatre Presentation Manual. A list of available publications may be obtained by writing to SMPTE Headquarters.

Sustaining Members

Sustaining memberships are available to individuals, firms or corporations who subscribe substantially to the financial support of the Society. Names of sustaining members are published each month in the **Journal**. The Society's Directory includes a descriptive listing of each the sustaining members.

For Information on the SMPTE

If you are interested in becoming a member of the SMPTE or would like more information write to: Executive Secretary, Society of Motion Picture and Television Engineers, 9 East 41st Street, New York, N.Y. 10017.

SEND YOUR LETTERS TO THE EDITOR to Broadcast Engineering 1014 Wyandotte Kansas City, Mo. 64105

Special Engineers' Group

Since its beginning, the SBE objectives have been to: Provide a forum for exchange of professional discussion of mutual broadcast engineering problems; to provide for and to maintain professional recognition of members; to group together broadcast engineers generally in a body to assist in the professional education, and to raise the technical standards of broadcast engineers and to advance the broadcast technician and novice; and to encourage a continuing interest in the broadcast engineering field by students of technical and engineering courses on broadcasting.

Membership

Because the SBE doesn't come on as strong as some national organizations, membership has not grown by leaps and bounds. Yet every time you count them up, it's growing. More than 1,600 members at this time.

The grades of membership are: Student, Associate, Charter, Member, Senior Member, and Fellow. Qualifications for member grade are at least a First Class Phone License or equivalent and adequate experience.

Details for membership are included in the "Constitution and Bylaws" and may be received by writing to: The Society of Broadcast Engineers, PO Box 88123, Indianapolis, Ind. 46208.

Current president of the SBE is Bob Flanders, chief engineer of WFBM-TV, Indianapolis.

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Cable television was on the scene long before it gained any recognition. But it grew. . .and grew. It was represented by an association called the National Cable Television Association.

But when CATV finally burst into full bloom, the prophets were quick to speak of wired cities and blue sky industry predicitons too numerous to mention here. Suddenly, many were struck by the extra farsighted potential of cable, especially broadband two way cable. Everyone wanted into the act.

With the waters muddied, with directions tangled with a shortage of technical help, and a multitude of new demands upon them, the cable operators turned ever more continuously to their national association.

It is possible that without the NCTA the industry might coast a bit further. It's possible, but not probable.

Every year the word is either "promise" or "potential". The final equation seems impossible to solve mainly because of the excessive number of unknowns.

For more information on the NCTA, write to: National Cable Television, Inc., 918 Sixteenth Street N.W., Washington, D.C. 20006 or call 202-466-8111.

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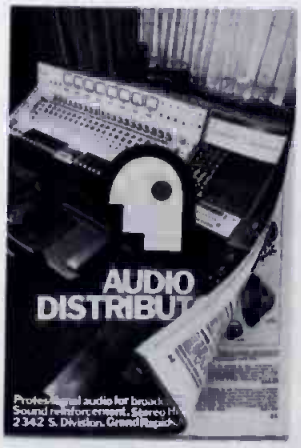

It's crammed with pictures, poop, and prices. Features top grade electronics from around the world. Strictly for professional audio, broadcast, television, recording and motion picture moguls. We specialize in fast, off-the-shelf delivery on recorders. Duplicators. Microphones. Turntables. Reverbs. Amplifiers. Attenuators. Equalizers. Compressors. Speakers. Broadcast and recording consoles. Write for your free copy of our catalog today.

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ch Data

(tinued from page 113)

mical recovery cartridges type nd contains a new section de- ed to the recently-introduced 3 cartridge. The type 3 car- ge was designed for the conve- ce of those users whose vol- requires frequent changes of five-gallon, type 1-P cartridges. publication explains how to all and use this equipment and to use Kodak silver estimating books. A handy table con- ed the previous J-9 publication ining the type of cartridge rec- mended for particular types of tions has been greatly expand- n the revised J-9. Specific car- ge capacities (in gallons) and kimum flow rate (in milliliters minute) for maximum efficien- are included in the table.

10. MAGNAVOX CATV DIV. A new and comprehensive axial Connector Catalog and e list is now available. The 18-page listing includes nearly 200 connectors, terminals, adaptors and accessories. It is divided into two basic sections. Section I calls out Trunk and Distribution Connectors according to cable type and application. Section II calls out fittings according to application, fitting type, then cable type. Included are Magnavox newest 990 Series high RFI integrity connectors and some very novel and useful adaptations of the lowly "F" connector.

121. TELEX COMM. DIV.—A new catalog for the Telex broadcast and industrial line of professional magnetic tape equipment is now available. The comprehensive catalog covers the complete line of recorder/reproducers, reel and cartridge transports, amplifiers, preamplifiers and accessories. The 20-page, two-color brochure gives product information, specifications and ordering information.

COOKE MODEL 728 PROGRAM TIMER

An up/down timer with thumbwheel preset, the model 728 is a valuable production aid on live shows, commercials, video tape production and editing. ADVANTAGES: — Long-life nixie display in minutes, and seconds — BCD output to drive remote digital displays — May be remotely controlled — 115/120 VAC, 50/60 Hz power.

COOKE ENGINEERING COMPANY — 900 Slaters Lane, Alexandria, Va. 22314 — 703/548-3889

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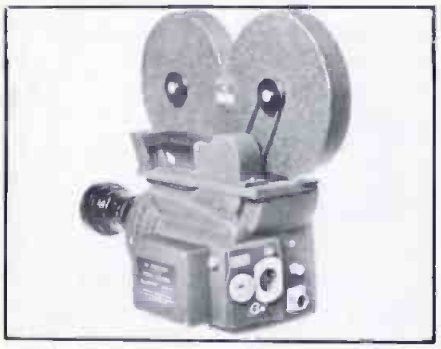

"CORDLESS" 16MM NEWSREEL CAMERA

Frezzolini's new, hand-held, sound-on-film camera shoots TV News, Interviews, Documentaries anywhere without plugging in a power cord. Quick-change internal battery runs eight 400' film loads per charge. Transistor circuitry assures precise running speed. Supplied with Angenieux zoom lens, 400' magazine, amplifier, deluxe case. Free brochure, trades accepted. **COMQUIP, INC., 366 S. Maple Ave., Glen Rock, N.J. 07452. Or call anytime: (201) 444-8811.**

Circle Number 158 on Reader Reply Card

3300A DIGITAL MULTIMETER

Rugged, portable Hickok 3300A Digital Multimeter measures AC and DC voltage, current and resistance on 27 ranges. Offers 20-hour battery operation standard. The 3300A can be used while battery is recharging. The 3½-digit Multimeter withstands shocks without damage to case or circuits. Value price of $435 includes rechargeable battery. **HICKOK ELECTRICAL INSTRUMENT CO., Cleveland, Ohio 44108. Call: (216) 541-8060.**

Circle Number 159 on Reader Reply Card

(Continued from page 111)

cassette units are designed along the same rugged lines as the heavy-duty ITC tape cartridge machines for strictly professional broadcast applications.

The design concept provides features that will allow the cassette recorder to perform most of the functions now provided by reel-to-reel equipment and with the automatic cueing capabilities found in cartridge equipment.

The complete line of ITC single and multiple-deck cartridge units will also be on display, including the economy Encore Series.

Circle Number 181 on Reader Reply Card

Multiplex Translator

The **COASTCOM** Division of **Scott-Buttner Corporation** recently introduced its new SBC-190 multiplex translator that offers significant cost and performance benefits to microwave users.

Designed primarily to provide local drop and insert of six or twelve voice frequency multiplex channels from super-groups 1 and 2 on high density microwave basebands to low density 960 MHz or 2 GHz spurs for local distribution, the SBC-190 may also be used to relocate channel groups within the baseband itself. The SBC-190 multiplex translator concept eliminates any demodulation/modulation equipment at the super-group, group and channel levels and results in an equipment savings to the user of 80 percent in cost over traditional practices.

The compact SBC-190 unit fi into two vertical spaces in a stan ard 19" equipment rack, features solid-state construction, and a or optional 36 pole highly selecti hermetically sealed filter combin tion.

Its design concept also simplifi high impedance bridging practic and provides highly stable freque cy control.

Circle Number 182 on Reader Reply Card

Step Attenuators

Sparta Electronic Corporatio has announced new optional prec sion step attenuators for their e tire audio console line. When t attenuators are ordered for a ne console from the factory, the pri is $20 per channel monaural, $ per channel stereo. If the mixe are purchased separately fro SPARTA for field modification an existing board, the price $25.50 for monaural, and $37.50 f stereo.

All SPARTA "B" - series co soles will accept the high-qualit 20-step attenuator, but the facto should be consulted about install tion in earlier consoles.

SPARTA warrants the produ for one full year, but in practice t attenuators should last for the li of the equipment. The stereo mo el is of concentric constructio rather than ganged, allowing clea ing of the stepping points. Resist accuracy is plus/minus 5 percent.

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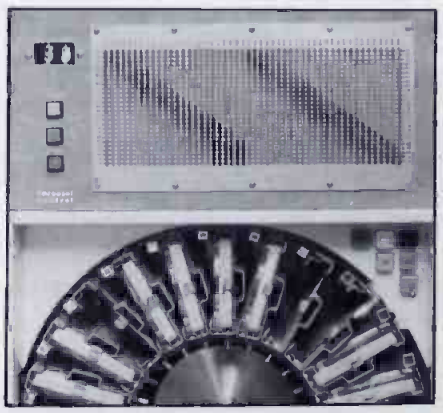

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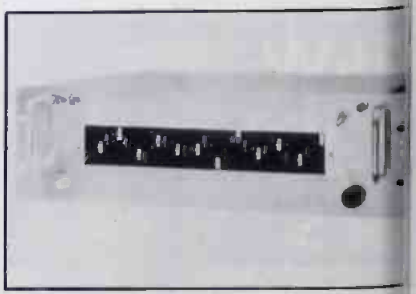

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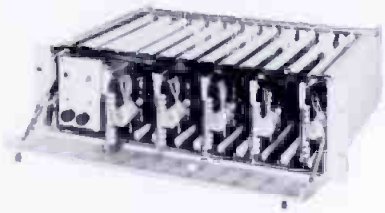

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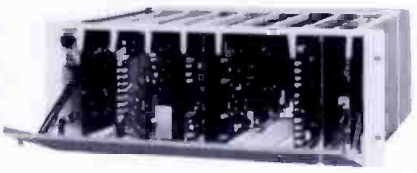

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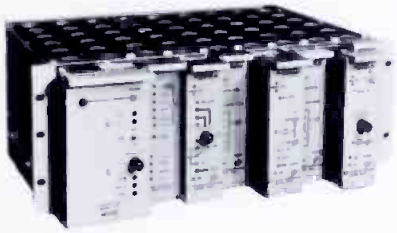

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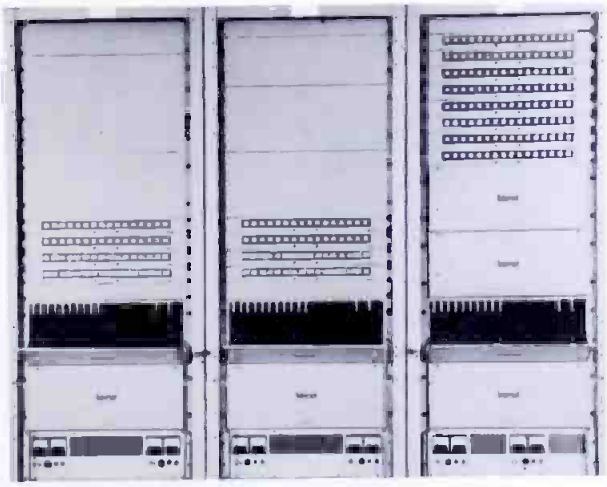

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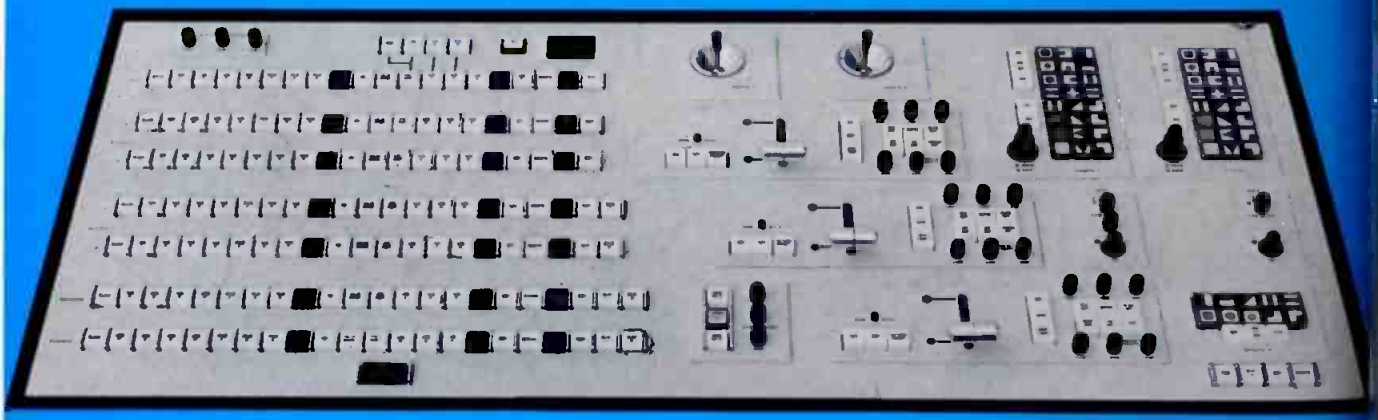

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