

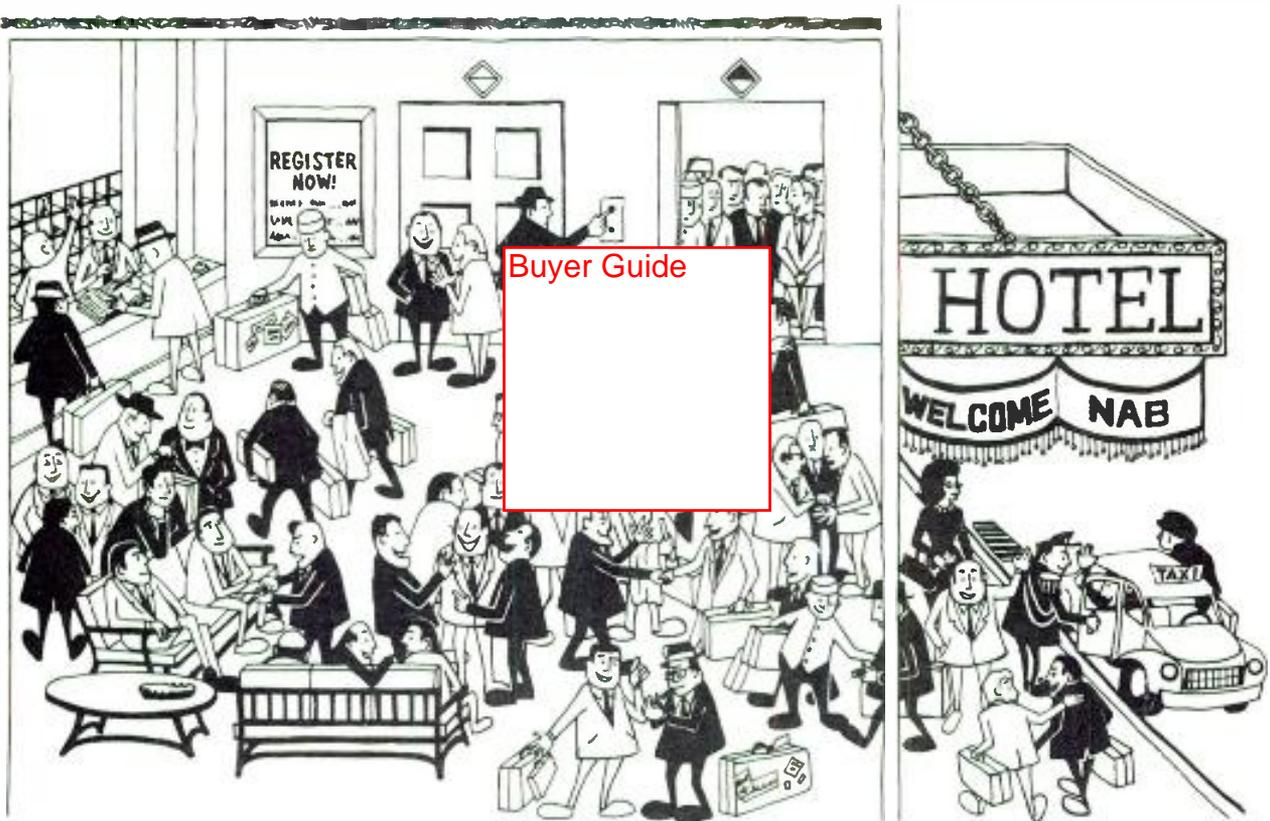
March, 1973/75 cents

BROADCAST **engineering**

the technical journal of the broadcast-communications industry

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pre-**NAB** convention issue

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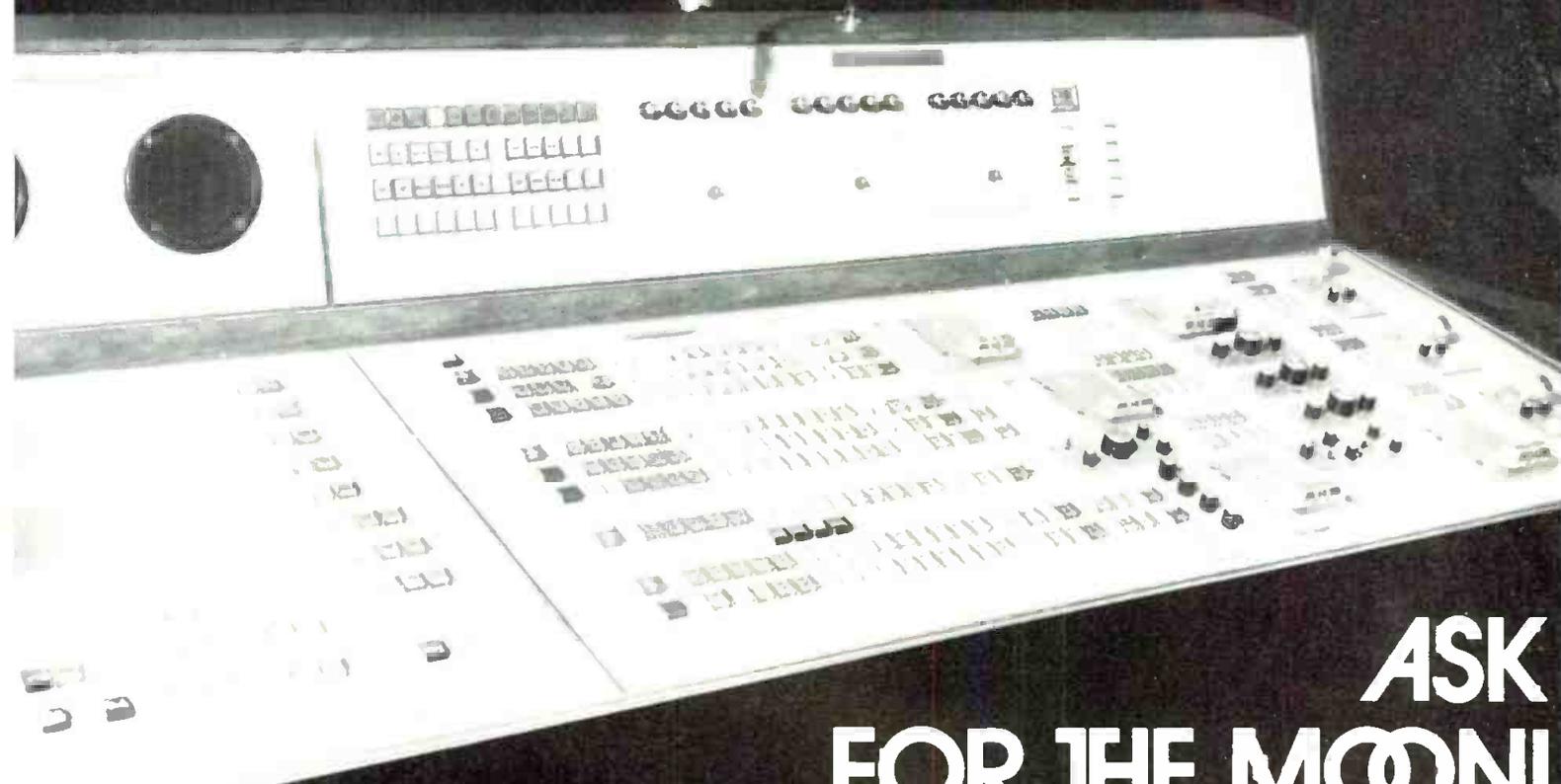
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Bloomington, Indiana 47401

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BROADCAST engineering

The technical journal of the broadcast-communications industry

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- 40 **NAB Exhibits.** Includes floor plans of exhibit areas in the main convention hotels and exhibitor's list of locations within the hotels.

- 50 **NAB New Product Section.** Section devoted exclusively to products that will be introduced at the convention. Also, intent-to-purchase survey.

- 56 **Shoehorn For An Automated Station.** BE Automation Editor gives the inside story of how an AM-FM combination went to automation operation in a house trailer. **Morris Courtright.**

- 62 **An Introduction To Security Systems.** Last of a three-part series on station security systems. **R. Coddington.**

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ABOUT THE COVER

This month's theme is the NAB convention excitement that prevails this time of year. NAB coverage starts on page 28. (Cover design by Webb Streit)

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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.

Controlled Circulation postage paid at Indianapolis, Indiana.



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VIDEO VIGNETTES
NAB BOOTH 300

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DIRECT CURRENT FROM D. C.

March, 1973

by Howard T. Head

NAB Convention time is here once again, and once again we wipe off the silicone grease from our clouded crystal ball to peer in and forecast what the FCC and other government agencies will (or will not) do during the coming year. Looking back over past years' predictions, we count our track record as being reasonably good, with our principal fault (we should know better by now) being that of expecting too much, too soon. But prophets' hopes are buoyed by past failures, and so once again we present our 1973

POMPOUS PREDICTIONS

Lifting of AM Freeze

One of the hottest items is the lifting of the AM Freeze. Previously predicted in a pre-NAB Convention special issue, we were about to send these pages to the printer when the Commission announced that the freeze (in effect since 1968) will be lifted April 10. However, the Commission did toughen its rules for approval. And you can look for this to be a topic of conversation in the FCC-Industry session and on the exhibit floor. Meanwhile, we predict the following:

Emphasis will be placed on two good (5 mv/m) services to as many listeners as possible, thus opening up many cities and towns for applications for second stations. For nighttime allocations, the Commission should follow through on its new method of calculating nighttime limits (see January 1971 D.C.) to require the recalculating of the night limits of all existing AM stations by methods adapted to high-speed computers. Otherwise, nighttime proposals will become so bogged down in the morass of hand-computed night limits first developed almost 40 years ago that the lifting of the nighttime freeze will have little meaning.

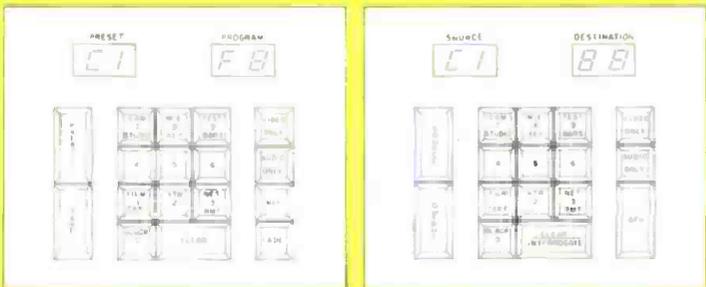
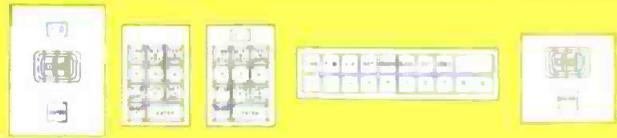
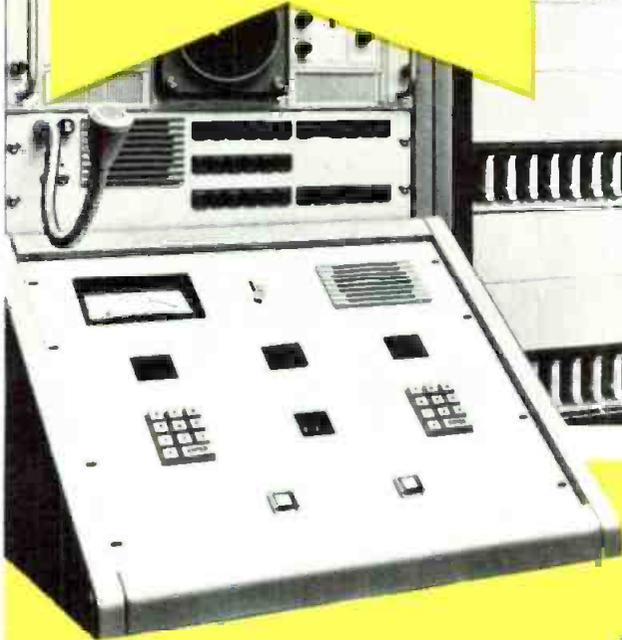
Meanwhile, the Commission will open a separate inquiry into the problems of maintaining existing AM directional antenna systems, often plagued by close design tolerances and seasonal field-strength fluctuations at monitoring points.

Non-Picture Uses of TV Vertical Interval

The National Bureau of Standards (NBS) has finally precipitated the need for some Commission action on non-picture uses of the TV vertical interval by filing a petition for the insertion of a standard time-and-frequency signal on line number 21. EIA will soon formally propose the adoption of its vertical interval reference (VIR) signal on line number 19 (see June 1970 D.C. and July 1970 B.E.).

VIX=80
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The Joint Council on Inter-Society Coordination (JCIC) has formed a special committee which will consider these and a host of other proposals for the use of this "real estate", but there are so many conflicting proposals that agreement on standards is unlikely during the year.

Relatively little commercial material is any longer being produced including the IDC code (see June 1972 D.C.). There will be efforts to revive this code, but technical problems plaguing the presently-authorized system will continue to elude solution.

Satellite Broadcasting

The launch of the ATS-F satellite, originally intended to demonstrate the feasibility of satellite TV broadcasting in the UHF band in India, will be delayed at least until 1974 (see November 1971 D.C.). The satellite will carry transmitters in the 2 GHz band for a TV demonstration over the Rocky Mountain areas of the United States, and possibly FM broadcasting transmitters. The Indian government continues to experience difficulty in producing suitable educational program material, and so the satellite, once launched, will likely remain over the United States (UHF transmitters on board) until the Indians are ready.

CATV Technical Standards

Several committees are actively at work on the task of updating the present CATV Technical Standards, and of generating additional standards in areas not now covered by FCC regulations, such as color picture quality, and technical standards for carriage of Class II, III, and IV signals. This work will progress, but the job is too big to be completed in the coming year.

FM Allocations

With the successful conclusion of an FM treaty with Mexico, the Commission is now in a position to adopt a table of educational FM channel allocations, and to adopt new standards governing the making of new educational FM assignments. Although the Public Broadcasting System (PBS) has been urging the Commission to act promptly in this area, some acceptable solution to the problems of interference to TV reception must be found (May 1971 D.C.). Best bet is for a compromise solution which won't be fully satisfactory to either PBS or TV broadcasters.

TV Translators

The Commission will look favorably on proposals to permit higher power for one-watt TV translators under certain circumstances (see January 1973 D.C.). The Commission will propose the higher power, but there will be no final action during the coming year.

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LETTERS TO THE EDITOR

Selling Snake Oil?

Dear Editor:

The following is my own personal opinion, and not an opinion of my station.

In the January issue on page 11, Vincent T. Wasilewski is quoted as saying "Mr. Johnson's statement ('Television is the principal pusher to a junkie nation') is unreasoned." I believe that a better choice of words would have been to say that Mr. Johnson's verbage was ill chosen.

I realize that a large portion of the advertising dollar is derived from the advertising of various pills, remedies, and cure-alls, but this is nothing more than a 20th century electronic traveling medi-

cine show, more glamorous, indeed, better produced, and selling the same thing . . . Snake Oil! I believe that what Mr. Johnson means is that people through the media have come to rely on pills, potions and salves to cure all their ills. Depressed? . . . Take a pill! . . . Nervous? . . . Take a pill! Pills make the world great. Eat'em up and feel young again.

Mr. Wasilewski, the time has come for the broadcaster to put ethics before the dollar bill. The NAB is a sham. The NAB code of good practice has become a P.R. device. What binds the broadcaster to it? In reality, nothing. How many members of the NAB do you

know who really adhere to the code, who really believe in it? At a time when public belief in the media is on the wane, at a time when we are losing more and more respect, at a time when some people in government would like to muzzle the newsmen, surely you can find something better to do with your time, as figurehead leader of our industry, than to defend "Dr. Plough's traveling salvation and medicine show." Sir, please look deeper. We are training, no, brain washing our children to accept pills as cure-alls. We are feeding them sugar coated magical stories of "breakfast foods" with little or no nutrition, colored and glazed to appeal to their sweet tooth, and you say Mr. Johnson's statement is an unreasoned one? You, sir, are the one making the unreasoned statement. No, that's wrong. Not unreasoned, perhaps reasoned through our collective pocketbooks.

No doubt, sir, tobacco has no relationship with cancer either.

I love broadcasting, but it has become an electronic "lady of the evening." TV is the opiate of the masses.

R. L. Scheibly
WTCR Radio
Ashland, Ky.



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The V11/21 Automatic Digital Logger records and prints out all necessary meter readings, saves valuable engineering time and assures total accuracy.

Here's a complete, self-contained system, including a printer which can display and print date identification, time, channel number and meter readings in volts, amps, watts, etc. The system is capable of sampling, measuring, displaying and

recording analog inputs from single or multiple sources, and is equipped with a real-time, solid state, 24-hour digital clock. Precise time can be displayed visually and also printed out.

This compact unit is only 7" high. Virtually maintenance free, it utilizes plug-in printed circuit cards for quick and easy replacement. Optional elements and equipment can be added for even greater versatility.

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More On Security

Dear Editor:

Congratulations on your series on station security, the first article of which appeared in the January issue of BE. If anything, the times in which the remote site engineer's worst worries were snakebite and lightning have long passed. My own personal experiences as former engineer for several stations have made me even more aware of the problems involved.

Alarm systems for protection of the broadcast plant range in complexity and cost from the simplest "foil-and-magnetic contacts" to exotic coded infrared and microwave perimeter systems. In most cases, the station engineer should have no difficulty in "rolling his own"—if the hardware was available to "outsiders", or could be

For More Details Circle (8) on Reply Card

purchased at the local radio supply. While most components can be fabricated, the advantages in time and convenience of predesigned devices, such as shunt locks, contacts, detectors and dialers should not be overlooked.

While it is not our intent to negate the local alarm company in their business, we are willing to supply components, suggestions, and advice to any engineer who wishes to build his own system and would like a little help. If it saves even one station from potential harm, then our efforts will be worthwhile.

Michael F. McNea
Master Sound Systems, Inc.
Battle Creek, Mich.

Audio-Loud And Clear

Dear Editor:

I just wanted to drop you a note and tell you that the "FM Audio: Technique or Pandemonium" is one of the best articles that I have ever seen in your magazine. Naturally, as acoustical consultants, we are very interested in loudness and especially the average radio and TV station's misunderstanding of this important quantity.

Please urge your author to extend this series, and if possible, put it in more basic language. My twenty-five years of broadcast experience tells that nine out of ten of your readers would never get the very important message this man is making. Again, press for this type material. It is at the very heart of viable radio and TV audio.

Barry Goldberg
B. F. Goldberg &
Assoc., Eng.
Columbia, S.C.

Tape Cart Comments

Dear Editor:

OUCH!! You stepped right, smack-dab on one of our sorest toes! (Page 8, Letters to the Editor, Dec.)

We bought this property in August 1969 and guess what our first problem was . . . **tape machines.**

It took us only a few weeks to

(Continued on page 10)

ALL-IN-ONE SPORTSCASTER HEADSET

This sportscaster can roam about a football field, rubberneck at a basketball game, or quickly position himself for an important golf shot. All with just one piece of equipment. The new Telex CS-90 Sportscaster headset lets him broadcast live (fixed station or mobile) listen to production cues, and monitor his own transmission, all with hands free convenience.

He can do all this because Telex has now combined the finest professional microphone available, one of proven broadcast quality, with an equally high-performance headphone.

This wide-range, dynamic, boom microphone has a low frequency response to transmit his voice clearly and crisply, and an omni-directional design to pick up colorful crowd noise. The two channel headphone fits comfortably with a padded headband and foam filled earcushions to screen out ambient noise. It is adaptable to any application or equipment by means of non-terminating cordage and features exclusive Telex audiometric type driver elements. And both headphone and microphone are designed to stand up even if the sportscaster has to work in all types of weather extremes and can't avoid some hard bumps. In fact, if the broadcaster doesn't hold up as well as the CS-90, there is a "push-to-cough" switch that mutes the mike when necessary.

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discover we just couldn't locate people who knew a tape machine from Nellie's old gray mare.

We started immediately to try to locate some type of a training program. We tried our state broadcasters association, our wholesaler and several manufacturers only to receive the same answer every place we turned. . . . ZILCH!

It is our contention that manufacturers should start yesterday to

provide training seminars for engineers, particularly in the small markets. We know our problems have eroded the profit from every manufacturer we've dealt with, yet they refuse to take the long look and handle the problem at its roots, the untrained, beginning engineer.

We have even volunteered to underwrite costs without results.

Show me a manufacturer who will get off his duff and offer regional seminars for engineering personnel in the smaller markets, and you'll see a company who will

begin to see a log of orders from our company.

Any volunteers?

Cy Smith, Mgr.

KLAD

Klamath Falls, Ore.

After The Last Limiter

Dear Editor:

My congratulations on publishing a most pertinent article by Mr. Dennis Ciapura regarding intermodulation distortion.

Although the subject needs further discussion, the main points were brought out and should be a subject of concern in the future.

Having worked for a major equipment manufacturer in the past, I have been aware of the intermodulation distortion specs of transmitters including quite a few units made today. Many are quite good, others are poor, but the manufacturers themselves shy away from publishing such specs because in the past "nobody cared." I suspect the manufacturers have been correct.

The major source of income for my company is from running proofs and flattening out the audio response of transmitters **after the last limiter** so that the greatest amount of modulation may be realized within the current limits prescribed by the FCC. This is not usually an easily obtainable end with a rig that has a lot of IM. Even though great modulation extremes can be shown on the 'scope, the thing usually ends up sounding rather mushy when compared to brand "X" down the road which exhibits superior IM performance.

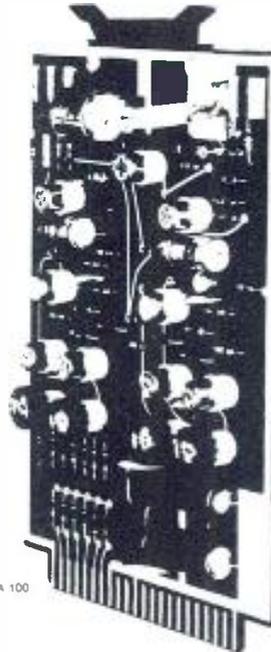
Mr. Ciapura's article dealt well with the general IM case as it relates to both AM and FM transmitters (and systems) but I would like to spotlight **carrier shift** as being the quickest indicator of a probable IM problem in an AM rig. The mathematical proof of this is easy to develop, and the technical reasons why are easy to surmise, but nobody really seems to realize the IM in a rig running 5 percent carrier shift is pretty spectacular in most cases.

Perhaps this note and Mr. Cia-

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BROADCAST ENGINEERING

pura's article will motivate some CE's toward stiffening up some power supplies or neutralizing some finals, depending on which is necessary. Bear in mind, managers. Harmonic Distortion makes you sound louder and dirtier, but IM Distortion makes you sound weaker and dirtier.

Steve Broomell, Pres.
Broadcaster's Service Co.
Laramie, WY.

Equipment Needed

Dear Editor:

We have just started a class in radio broadcasting this school year at Bogan High School. We have already applied for an educational FM station license and are trying to acquire equipment for our new station from our own resources. We already have a 10 Watt transmitter and one Gates turntable.

We would appreciate any other used equipment that stations updating their equipment might give us or send for a nominal price. Such items as another turntable, cartridge tape equipment, an audio console and a good tape recorder are especially needed, though other items like a limiter would also be appreciated very much.

Phillip Windolph, Mgr.
Station WBGH (hopefully)
Bogan High School
3939 W. 79th St.
Chicago, Ill. 60652

Time Keeper Wanted

Dear Editor:

I would like to know if anyone could tell me where I can get the "Time Keeper"—Tape Timer (professional model). I previously saw it advertised for about \$100. Any information would be appreciated.

Richard Mayer
3131 Decatur Ave.
Bronx, N.Y. 10467

NAB Products
Begin
On Page 46

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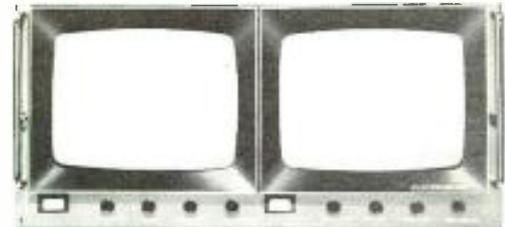
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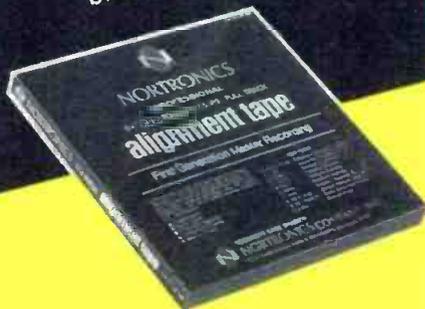
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Model QM-5. All the professional accessories required to properly maintain video recorders. Products are completely effective and totally safe for all components in the video tape path.

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INDUSTRY NEWS

Commission Proposes Program Log Rule Change

Rules opening the program logs of radio and television stations to public inspection, requiring broadcast licensees to retain program logs for the length of the license term or for two years, whichever is greater, and allowing licensees to keep program logs at a second location other than that of the station's main public file, have been proposed by the FCC.

Program logs are not now open to the public. Stations must maintain the program logs and keep them on file for two years for possible Commission inspection.

The National Citizens Committee for Broadcasting (NCCB) had asked the Commission to make a number of rule changes, dealing chiefly with public inspection of program logs and new record-keeping requirements for non-entertainment programs, particularly those involving discussion of controversial issues. NCCB maintained that access to program logs would permit community groups to obtain a reliable analysis of station programming without expensive monitoring.

The Commission said that the NCCB requests regarding record keeping for non-entertainment programs require further study, but

the request for public inspection of program logs can be acted on now. The FCC pointed out that no new record-keeping effort would be required of the licensee. It said that the public interest is not served if community involvement in a licensee's affairs is delayed until renewal time and then expressed only through a petition to deny. It said that making program logs public would help establish a "continuing dialogue" between community groups and the licensee.

Under the FCC proposals, when a new license has been issued, program logs already two years old could be destroyed, and the remaining logs from the previous term could also be disposed of when they become two years old. Because logs are bulky and require special storage, the Commission remarked, it might be useful to keep them at a second accessible location, such as a public library, rather than with the rest of the station's public file. (The rules require that the public file be kept at the station's main studio or at any accessible place in the community of license.)

NAEB Offers Lighting Course

As part of its continuing program of seminars for educational broadcasters, the Educational Broadcasting Institute of the NAEB has invited William M. Klages, the noted television lighting consultant and Vice-President of Imero Fiorentino Associates, to give an intensive 3-day course on "Lighting for Television" April 8 through 10 at the Georgia Educational Television Center, Atlanta, Ga.

Those interested in attending should call the NAEB at (202) 785-1100.



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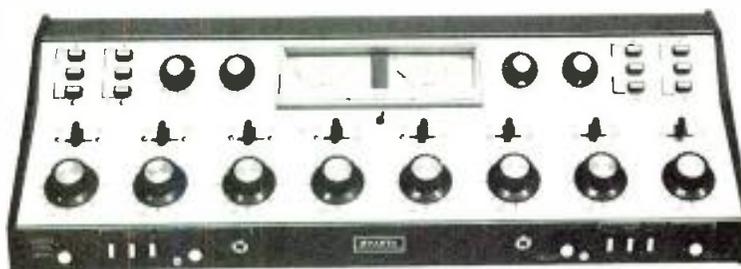
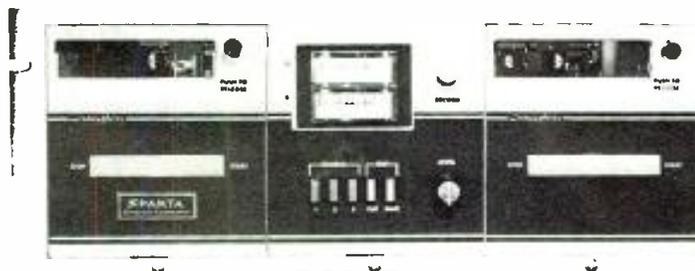
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FCC Denies Cross-ownership Petitions

The Commission has denied a number of petitions requesting reconsideration of Section 76.501—the rule denying cross-ownership of TV networks and Cable TV systems and cross-ownership of TV stations and Cable TV systems operating in the same locality.

However, it is possible that a

number of TV/Cable systems will not be affected, if they can provide fully supported petitions for divestiture waivers based on a grandfathering loophole. Waivers must be filed within 120 days.

Meanwhile, the Commission has extended the grace period for divestiture from Aug. 10 of this year

until Aug. 10 of 1975.

Opponents of the cross-ownership provisions argued that the Commission lacks the statutory authority to impose such restrictions; inadequate notice of proposed rule making was given to network cross-owners; adoption of the rule reversed previous Commission positions regarding local station-system cross-ownership (Docket 15415); and the basis for the rule has been eliminated by developments subsequent to its adoption.

The Commission said that although it had given "thoughtful consideration" to the other contentions "we remain persuaded" that the provisions of Section 76.501 "are in the public interest and should continue in force." It said that adoption of the rule was guided by two principal goals—"increased competition in the economic marketplace;" and "increased competition in the marketplace of ideas"—and it did not choose to wait until cable reached maturity before acting to achieve these goals. It said that the data it used demonstrated that the major broadcast television networks were already such dominant influences in the television field that any further expansion of their control into the new cable television industry was by itself undesirable and "should be stopped and turned around before it became entrenched."



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Continental— A New Company

Continental Electronics Mfg. Co. is the name of a newly organized Texas Corporation, wholly owned by James O. Weldon, who formed the original Company with the same name in 1946. The original Company was sold to Ling Electronics in 1959 and was a subsidiary of LTV Corporations until it was acquired by Resalab, Inc. in 1969.

The new Company has been organized as a successor to Continental Electronics Manufacturing Co., a Delaware Corporation, a Subsidiary of Resalab, Inc. The new Company will have adequate factory facilities since it will operate the facility of the former Company at 4212 South Buckner Boulevard, Dallas, Texas.

Weldon stated that the financing he is providing for the new Company is adequate to perform the obligations taken on by the new Company, and that other financing sources have been made available.

From its founding, Continental Electronics has been actively engaged in the field of high-power radio frequency transmission. It has developed a recognized capability in this field by supplying such equipment as one million watt medium frequency and half million watt high frequency broadcast transmitters for the Voice of America and other International and private broadcast customers; extremely high-power very low frequency (VLF) transmitters for the U. S. Navy and several NATO funded installations in European countries; six hundred thousand watt high frequency communication transmitters for major U. S. Military services; extremely high power land based Radar Transmitters for the Ballistic Missile Early Warning Systems (BMEWS) and various missile-reentry physics programs; high-power radio frequency energy sources for nuclear research and many other electronic systems and devices including a line of AM broadcast transmitters for domestic and International commercial radio stations.

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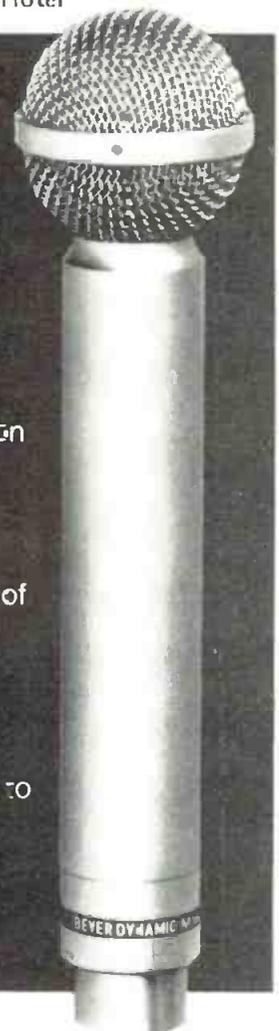
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Tell It To The Commission

When you think you have a good point to make with the FCC, don't keep it to yourself. Let the Commission and the NAB know how you feel, especially now, when they are receptive to re-regulation ideas. The following letter is a copy of one such letter sent by the General Manager of WGNV, Newburgh, New York.

I am sure a number of other stations have found, or will find, themselves in the same position as we did recently . . . a position which might be ameliorated by a more realistic approach to the matter of emergency operation.

A station with a 500-Watt pre-sunrise authorization and, for example, a 5-kW daytime power, goes on the air at 6 AM local time. The hour and a quarter (between 6 AM and 7:15 in December and January) of low power operation is heavily commercial on a regular basis.

Faced with the desirability of emergency operation to inform his entire daytime service area of school closings, heavy snow (or ice) warnings, bus service curtailment or cancellations, the broadcaster, if he goes to full daytime power before local sunrise, must scrub all commercial material and broadcast only music and emergency information.

This places the broadcaster in a quandary; he must sacrifice significant income in order properly to serve the needs of his service area and finds it difficult, if not impossible, to make a purely "public interest" decision.

It would seem that realistic re-regulation might enable stations with pre-sunrise authorization to use full daytime power in certain emergency situations without deleting already scheduled commercial material.

The situation, as I see it, is considerably different than it was when the restrictions on emergency operation were originally written; then, the required non-commercial emergency operation "kept the broadcaster honest" by eliminating the prospect of making a few dollars as a motivation for going to emergency operation; now, however, with commercial material already scheduled during PSA time, the rules invite the broadcaster to forego service to his daytime area in the interest of avoiding a financial loss.

Any real prospect of some relief on this score?

Campbell K. Thompson
General Manager

Editor's Note: If you agree with Campbell Thompson, let the FCC know it. If several of you send in letters on the same subject, it's more likely there will be consideration and action. Address your letters to: Federal Communications Commission, 1919 M Street, NW., Washington, D.C. 20036; and you might want to address a copy to Mark Evans, Part 73 Task Force, National Assn. of Broadcasters, 1771 N Street NW., Washington, D.C. 20036.

Broadcast Journalism Awards

The New Jersey Public Broadcasting Authority and Princeton film producer John Drimmer have been named winners of Alfred I. duPont-Columbia University Awards in Broadcast Journalism for 1971-1972.

Drimmer and the NJPBA were presented the journalism achievement awards in ceremonies at Columbia University in New York for the 30-minute production entitled "Towers of Frustration" telecast on the NJPBA's Trenton station, WNJT-TV, Channel 52. The program provides an inside view of the people, problems, and conditions in the Stella Wright public housing complex in Newark's central ward.

Both Drimmer and the NJPBA are the youngest recipients of the award. Drimmer is just 25 years old, and the N.J. TV network was less than a year old when the program was aired. The award is one of 10 presented nationally this year by duPont and Columbia.

The program was telecast nationally by Public Broadcasting Service (PBS) and has recently been accepted for distribution by the Eastern Educational Television Network.

In naming Drimmer and NJPBA as winners, jurors commented, "Experiment and controversy on the nation's public TV stations was at an all time low because of short funds and sagging morale . . . There were exceptions, WNJT (Channel 52) the public station in Trenton, N.J. put together a half hour documentary, 'Towers of Frustration' of which any network could have been proud . . . If anyone in Washington wanted proof of a local public TV operation doing top-quality work worthy of network distribution, this well-edited thoroughly reported half hour was it."

The film, according to the jurors, "depicts problems which are indeed national in application, shared as they were by dozens of instant high-rise slums coast to coast."

The selection of winners was made by a seven-member jury of men and women distinguished in the fields of journalism and public affairs. The duPont-Columbia awards program was established at Columbia in 1968 through agreement between the Alfred I. duPont Awards Foundation and the Graduate School of Journalism. The program is funded by the Foundation created in 1943 by the late Jessie Ball duPont, widow of the Florida financier who died in 1935. The foundation was established "to stimulate distinguished performance throughout the United States on the part of those who participate in or who are responsible for the dissemination of news and education through mass media, especially radio and television."



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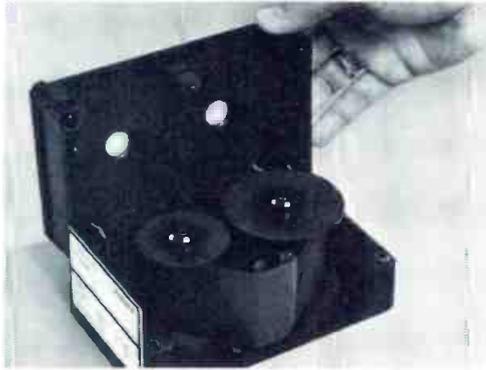
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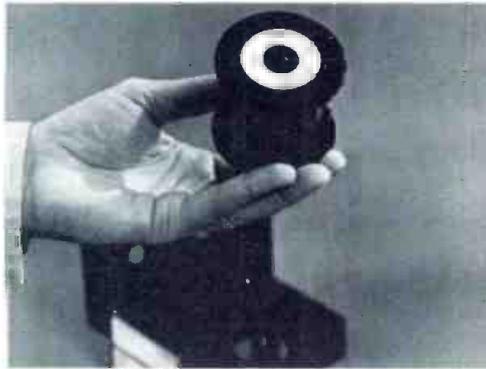
ACR-25

The ACR-25 cassette recorder/reproducer is the ultimate in quality recording—and much more. It's the most versatile production tool yet made—and much more. It's the quickest, most flexible, no-hands automatic spot and short-segment program player, hands down. It will have as much impact on TV broadcasting as the first commercial video tape recorder, our VR-1000—and the first high-band VTR, our VR-2000.



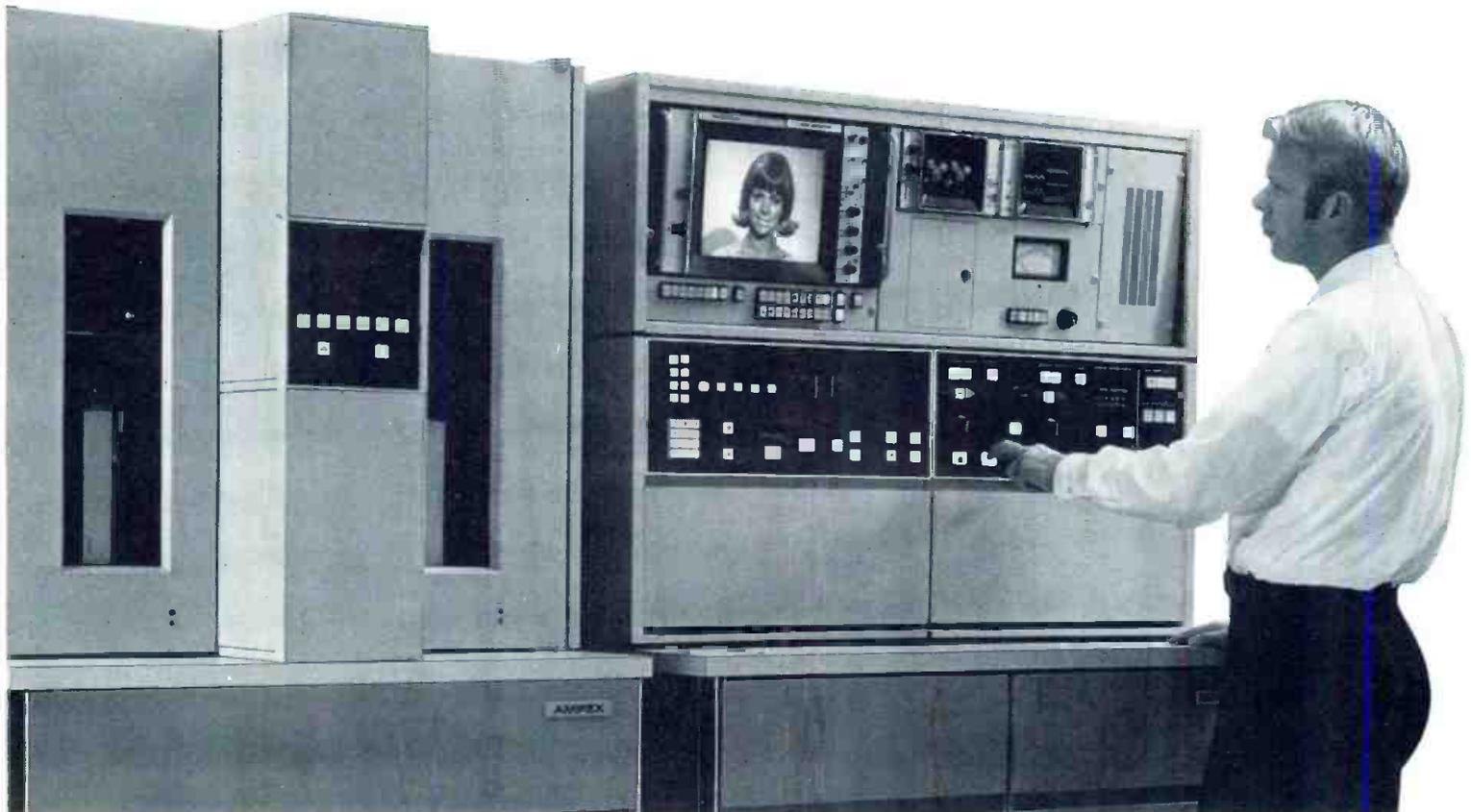
The ACR-25 is much more than a spot player

Certainly the ACR-25 solves the problems of multiple spotting. But it does it quicker and with more flexibility, selectability and automation than any other unit made. It provides continuous play of :30's, ID's and hitchhikers—with no black air. It doesn't just do things better. It does things no other machine can do—and never will be able to without basic design changes.



The ACR-25 is a production tool unmatched anywhere

It does more than solve today's problems, it will meet new requirements years in the future. But paramount is the challenge its capabilities present to imaginative producers. They'll be able to create things quicker, simpler and better than ever before—or perhaps things they have never been able to do before. Here's why:



The ACR-25 cassette

The rugged cassette is high impact, molded plastic to take care of all the rough handling you can give it. It's absolutely unique. The following features are exclusive...no cartridge or other cassette has them:

There are no bearings in the cassette itself. Why subject them to accidental misalignment or damage? Precision bearings are in the ACR-25 where they belong.



The cassette holds and protects the tape, that's all. Once in the transport, it has no function. The machine's bearings support the spools and the tape is lifted away from the cassette with gentle vacuum columns.

A cassette can be reloaded by the operator in seconds. It opens with three thumb-twist screws and closes just as easily.

Spools lift out to be stored or shipped in small, spool-size boxes...not heavy cartridges. This relieves storage space, cuts shipping costs and eliminates expensive cartridge inventory, a substantial saving in both investment and operating costs.

Each cassette can hold up to 6 minutes of tape at 15 ips. In the interest of interchangeability, the standard spool holds 3 minutes of tape plus sufficient leader for threading up a reel-to-reel VTR.

The carousel—random access or sequential

The ACR-25, and only the ACR-25, offers fast, shuffle-free random-access. Load and program the machine for sequential play if you like, but you also have the option of true random-access programming. Saturation spot schedules, schedule changes, and make-goods are all accomplished by simply punching up a new program. No duplicate cassettes or manual reloading of the carousel are necessary.

For removal, any cassette can be reached, right side up with the label in reading position in one second!

The transports

There are two of them, so one segment can follow another immediately, with no black air.

A minute spot finished on one transport can be stopped, rewound, unthreaded, returned to the carousel and the next spot loaded, threaded and cued in less time than it takes to play a :10 ID on the other transport. A full six minute cassette takes only 20 seconds!

Control

Although manual and semi-automatic control are available at any time, automatic control is standard on every ACR-25. It may even be directly controlled by an external computer with the proper interface, but the standard ACR-25 programmer is always there to back it up.

The ACR-25 can program up to 40 events, divided into as many sequences as desired—several hours worth, depending on the programming.

Think how simple that could make what is now a five VTR station break! Or an hour newscast, complete with your on-the-scene production, network dubs, sports, weather, multiple spots and cuts to the anchorman.

The ACR-25 as a recorder

Translate all the above broadcast features into recording capabilities—from multiple sources—and you can see what a versatile production tool the ACR-25 can be; for example, you can dub both A and B rolls, plus cassette or cartridge audio, onto an ACR-25 cassette, pre-set it with a button for any spot in the programming and play it—all without taking the cassette out of the machine! The possibilities for the inventive producer are almost limitless!

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Project Re-regulation

Dear SBE Members:

For the past several months the FCC has been accepting statements, formal or informal, from interested parties on their opinions, ideas, or suggestions for changes in FCC Rules & Regulations. The Commission has already issued several changes and it is expected that the review and change process will continue for many months.

SBE members are directly involved with Part 73 of the Rules and should be interested in any changes made therein.

Three SBE board members have been appointed by SBE's board of directors to serve as national chairmen in coordinating responses from the Society's member-

ship:

TV: John Wilner/1573 Parkside Avenue
Trenton, New Jersey 08683

FM: James Wulliman/Milwaukee Journal Stations
720 E. Capitol Drive/Milwaukee, Wisc. 53201

AM: Edwin Karl/WSNL-TV/425 Broadhollow Rd.
Melville, New York 11746

It is suggested that this subject be made a project for each chapter as well as individual members. Why not appoint a local committee and forward your conclusions to the appropriate national chairman for submittal to the FCC?

Suggestions from individuals are also welcome.

Robert W. Flanders, President
Society of Broadcast Engineers, Inc.

Articles Are Needed For SBE

Through these pages, provided by special arrangement with the publisher of **Broadcast Engineering** magazine, members of the Society of Broadcast Engineers, Inc., may now communicate with each other; SBE headquarters can pass along information to the general membership; SBE chapters can report and announce information concerning their meetings or other activities; and we can air issues of vital concern to all of us who are employed one way or another in the field of broadcast engineering.

Here are some reminders from SBE Headquarters: Chapter Chairmen: Be sure not to overlook obtaining annual rebates from SBE headquarters. A rebate of up to \$100 is possible based on member-

ship attendance for the previous year. To obtain this rebate it is necessary to complete the Annual Attendance Report Form which may be obtained from Virginia Doss, Asst. Sec'y-Treas., SBE, P.O. Box 88123, Indianapolis, Ind. 46208. Virginia would also like chapters to remind members that attractive SBE tie tacks are available from her for \$3.50 (members only).

When corresponding with SBE about your membership, include your membership number. Be sure to submit change of address promptly.

Letters to the Editor, Chapter News, Articles, and other information for publication should be sent to the SBE Editor, P.O. Box 131, Dunmore, Pa. 18512. We are in need of technical articles for publication.

Annual Meet Set For March 25

The Annual Meeting of the Society of Broadcast Engineers will be held on opening Sunday of the NAB Convention, at the Shoreham Hotel, Washington, D.C. An open refreshment bar at 1:30 P.M. will precede the 2:00 P.M. meeting. The exact location of the Annual Meeting can be found in other pages of **Broadcast Engi-**

neering in which the program schedules are listed.

If you are an SBE member, be sure to attend this meeting to take advantage of the opportunity to make known your recommendations on how you feel the SBE should be run, and how it can best serve you and other members.

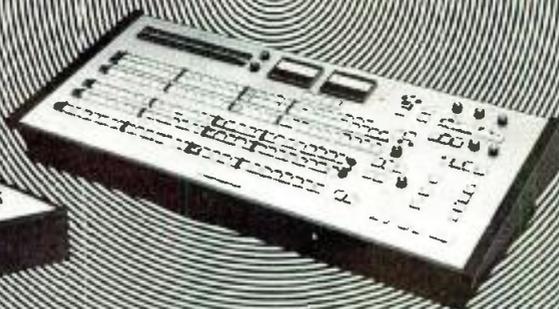
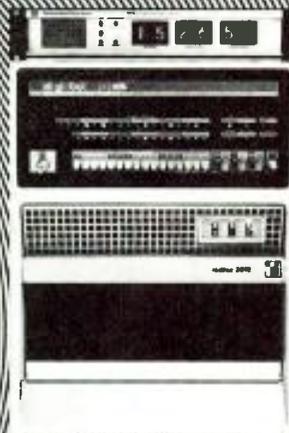
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Signed _____ Date _____ 19 _____
 I agree to abide by the Constitution and By-Laws of the Society if admitted.

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 Action Deferred for More Information _____ Candidate Notified _____
 Chairman's Signature _____ Entered in Records _____

Be Sure To Sign

Monthly Chapter Report



Reports of SBE chapter meetings and announcements of future events will be published in these pages monthly. It is important that chapters send information on meetings and other news as promptly as possible. Include photographs whenever available; preferred

photo size is 8 x 10 but smaller sizes are also usable.

The monthly deadline for submitting copy is the 25th of the 2nd month preceding the month of publication. For example, the date by which copy must be received by the SBE editor for the May 1973

issue is March 25th; for publication in the June issue, the date is June 25th; and so on. Letters to the SBE Editor are welcome.

Send all material for publication to: SBE Editor, Joe Risse, P.O. Box 131, Dunmore, Pa. 18512.

SBE Chapter News

Chapter 1—Binghamton, N.Y.
Chairman: Larry Taylor,
WENY TV, Mark Twain Hotel,
Elmira, N.Y. 14901

On January 4th, at the Owego Treadway Inn, George Swetland of Electronic Engineering Of California (EEOC) presented slides and an exposition on his company's tape editing and SMPTE time code generating equipment. Swetland's talk included principles of operation and equipment manufacture. The program was arranged by Bob Griffiths of Telemet.

The chapter added a new feature in appointment by the chairman of Tim Braddock, chief of WONT-

FM, Oneonta, and one of the chapter's newest members, to be FCC reporter on new rules and regulations of the Commission as well as on existing laws. The meeting was preceded by refreshments and dinner.

Chapter 2—Northeastern Pa.
Chairman: Paul Evanosky,
WVIA-FM-TV, Old Boston Road,
Avoca, Pa. 18640

Members and guests met on February 5th at the Wilkes Barre/Scranton Airport Conference Room to hear Bob Griffiths, regional salesmanager, Telemet Corporation, give an interesting presentation on "Remote Control by Digital Techniques for AM-

FM-TV Broadcast Stations."

Results of annual election conducted by mail-in ballot and counted at the meeting are as follows: Chairman: Paul Evanosky, WVIA FM TV; Secretary: Charles Morgan, WARM; Treasurer: Milan Krupa, WPTS, Pittston, Pa. It was also announced at this meeting that the chapter's petition nominating Charles Morgan as national SBE Director has been officially received by SBE headquarters, and that Mr. Morgan's name will appear on the national ballot expected to be put in the mail soon.

Chapter 11—Boston, Mass
Chairman: Norman L. Rivers,
57 Sargent Ave., Whalom Dist.,
Fitchburg, Mass. 01420

At the most recent meeting reported by the chapter, Lou Burroughs, vice president of professional products for Electro-Voice, presented "How Not to Use Microphones." He covered many phases of microphone techniques including placement and selection. The question and answer session that followed and the sustained applause afterward indicated appreciation of the 35 members and guests for the excellent program.

Chapter 16—Seattle, Wash.
Chairman: Clay Freinwald,
KMO Radio, P.O. Box 1277,
Tacoma, Wash. 98401

The January 17th meeting, which followed a social hour and lunch at the King's Row restaurant, included a tour of the nearby University of Washington closed-circuit TV shop and a display at that location of several live color cameras of different manufacturers. The display, arranged by Bob Ingalls, in-

Chapters in the Making

The following areas represent locations for possible future chapters. Information on any planned organizational or technical meetings may be obtained from the individual listed as the contact in each case. Anyone interested in formation of a chapter in other locations may contact SBE President Robert

Flanders, P.O. Box 88123, Indianapolis, Indiana, 46208, or at WRTV, 1330 North Meridian, Indianapolis, Indiana. It is also urged that you keep the SBE Journal editor advised at P.O. Box 131, Dunmore, Pa. so that your efforts to form a chapter might be enhanced by publication in our Journal.

Location	Contact
Tucson, Arizona	H. J. Bart Paine, Telephone 882 6644, or Chuck Deen, KOOL TV, 511 W. Adams, Phoenix, Ariz., telephone 271 2345
Miami, Florida	John Blattner, 11001 N. Kendall Dr. Apt A107, Miami 33156
St. Louis, Mo.	Arthur H. Rounds, 1321 Aspen Drive, Florissant, Mo. 63031
Puerto Rico:	Bob Beurket, Asst. Chief Engineer, WRIK TV, Ponce/ San Juan, Puerto Rico. Telephone 809 724 7575



Neve Consoles cost less than you think.

You're looking at a Neve PSM (Portable Sound Mixer), fully fitted with 12 input channels. Cost? Only \$7,875. If it's partially fitted, the price drops even lower.

In fact, you can buy a Neve Broadcasting Sound Control Console for as little as \$5,500.

Flabbergasted? Probably — if you know what goes into any Neve Console, and what you'll get out of it.

A money-saving suggestion: compare broadcasting consoles — feature by feature. You'll find that Neve actually costs less than most.

Don't just compare price. Compare performance and quality. For example, any Neve Console (small, large or in between) gives you a total harmonic distortion *guaranteed to be less than 0.075%*.

What's more, typical certified tests have shown less than 0.02% on every channel.

Neve equips broadcasters with everything from compact portables and circular DJ desk installations to giant, ultra-sophisticated TV and radio consoles. R.F. interference? Not with Neve. Our consoles are designed to block it, even in intense fields such as those in Chicago's Hancock Building and the Empire State Building in New York.

Need a customized console? Regardless of the size, we'll install it in your studio *in hours* — not weeks. We'll do it on the day we promise. No waits. No frets. No bother with in-studio modifications later. Before it reaches you, a Neve Console is thoroughly tested, totally perfected.

The sound of Neve is worldwide. Our audio control consoles are now used for broadcasting, music recording, ad commercial and motion picture production in major studios in 27 countries. Why not find out exactly what we can do for you — before you pay too much for too little?

Neve

Rupert Neve Incorporated, Berkshire Industrial Park, Bethel, Conn. 06801. (203) 744-6230
Hollywood: Suite 616, 1800 N. Highland Ave., Hollywood, Ca. 90028. (213) 465-4822
Rupert Neve of Canada, Ltd., 7528 Bath Rd., Malton, Toronto, Ontario, Canada. (416) 677-6611
Rupert Neve & Co., Ltd., Cambridge House, Melbourn, Royston, Herts, England.

Write for Bulletin BE-2

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cluded the Phillips-Norelco LDS-1, the Fernseh KCU-40, and the TVC Plumbicon Model 500. All cameras were on and available for direct comparison of picture quality and other features.

Bob Dietsch passed along information on a recent Commission News Report "Beep Tone Requirements for Recording Two-Way Conversations for Broadcast Waived by FCC" ... (See Industry News, Feb. **Broadcast Engineering**.)

Chapter 17—Minneapolis-St. Paul, Minn.

Chairman: Lance J. Raygor, CCTV, University of Minnesota, Minneapolis, Minn. 55413

Members and guests met on January 17th at KTIS AM-FM, located at Riley Hall at Northwestern College, Roseville, to hear Lewis Munn, Network Engineer for Northwestern College Radio, speak on the uses of the computer in the design of AM directional arrays. Openings on chapter committees still exist for anyone interested in serving in these important posts.

Chapter 18—Philadelphia, Pa.

Chairman: Jack Jones, WCAU TV, City Line Avenue Philadelphia, Pa. 19131

Refreshment hour and dinner preceded the January 29th meeting at Williamson's Restaurant, Schuylkill Expressway and City Line Avenue. Tom Gluyas, administrator, transmitter systems engineering, RCA, and Larry Will, chief engineer of Philadelphia's channel 52, presented a paper and slides relating to problems of parallel operation of two high-power UHF (or VHF) transmitters. Attendance was excellent as has been usual for chapter 18. Election of 1973 officers also took place at this meeting and results will be announced in the next issue.

Chapter 22—Central New York

Chairman: Hugh Cleland, WCNY TV-FM, 506 Old Liverpool Rd., Liverpool, N. Y. 13088

At the November 16th meeting, held at the Northway Motor Inn, and presided over by vice-chairman Mort Miller, a general

discussion covered finances, attendance, programs, and benefits to chapters received from national headquarters. Members and guests attended the Central New York Audio-Visual Show.

The December 14th monthly meeting, also held at Northway, featured a presentation by Dave Hunter, General Electric Imaging Devices Operation, Syracuse, on photosensitive tubes, with emphasis on the silicon diode vidicon—this is GE's Epicon—which is playing an increasingly important role in replacing red-channel lead oxide vidicons in live color cameras. Presently the tube is being evaluated by networks, also.

Chapter 23—Portland, Maine

Chairman: Roland A. Desjardins WCBB TV, Box 958, Lewiston, Me. 04240

The November meeting for the chapter, held at the Holiday Inn, Maine Turnpike, followed a refreshment hour and dinner and featured guest speaker Steven D. Kerman, former chief of WRPI, and now Manager, Television Products Development, Tektronix, Inc., Beaverton, Oregon. Kerman spoke on "The Tektronix Answer System," which is a system that enables remote monitoring of TV performance over conventional voice-grade telephone circuits by digitizing the television waveform. Use of this system is related to remote control of television transmitters and TV station involvement with common carrier intercity relay work.



"LUCKILY, I HAVE THE STATION PROGRAMMED FOR 97 YEARS!"



Chapter 28—Milwaukee, Wis. Chairman: Ed Wille, Kencom, 1835 W. Caldwell St., Milwaukee, Wis. 53218

On Tuesday, January 16th, dutch treat dinner at Nino's Steak Roundup, Milwaukee, was followed by a technical session at the Veterans Administration Hospital, Main Building, Wood, Wisconsin. The guest speakers were George W. Spuda, Network Director and Supervisor, Medical Photography; and John Lafferty, TV Specialist. Spuda provided an insight on Medical TV and Photography. His station and the department he heads are known nationwide for outstanding work. Unique production is done using color medical cameras; VTR's in quad; and 1 inch, 3/4 inch, and 1/2 inch cartridges. Lafferty covered operation and maintenance of this equipment plus the ITFS transmitter.

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NOW: A VCR FOR THE TELEVISION PROFESSIONAL WHO WANTS THE ULTIMATE IN PERFORMANCE AND VERSATILITY.



The technology of magnetic video tape recording, revolutionary in its original concept and evolutionary in its development over the years, is moving another major step ahead. And with that major step comes the prospect of broad new opportunities for the use of the medium.

Tape cartridges and cassettes, now widely used with audio recording and playback equipment, are beginning to bring the same advantages of extreme convenience and automatic operation to color television recording.

Already a number of video cartridge or cassette players have been introduced. Their formats are designed to produce good quality color at reasonable cost. However, until now a compact recorder/reproducer that offered the convenience of cartridge loading *plus* color performance that approached broadcast quality was not in sight. The VCR-100 from IVC answers this need.

The VCR-100 uses the same high performance IVC color format that made one-inch videotape recording a reality for the broadcast world, and established it as the one-inch standard for the television industry.

Yet picture quality is only part of the story. Consider these features:

- The VCR-100 is the most compact VCR available today. And it weighs only 44 pounds.
- It offers a record and play time of one hour.
- VCR-100 video tapes are guaranteed to be tape interchangeable with the more than 11,000 other IVC recorders in use.

It takes only a couple of minutes to remove the eight-inch NAB reel of tape from the cartridge and play it on any IVC recorder—all the way up to \$20,000 sophisticated teleproduction recorders. Similarly tape masters or copies made on IVC editing and production recorders can be put in cartridges and played on our VCR.

- Three motors, capstan servo, direct drive scanner, dropout compensation (optional) and 5MHz bandwidth mean superb performance and a time base stability that makes the VCR-100 *the only VCR suitable as a true distribution device.*
- Two channels permit maximum flexibility in audio recording.
- 2,000-hour guaranteed head life is made possible by a retractable head that makes contact with the tape only during record and playback.
- Unlike other VCR's that require high energy tape, the VCR-100 uses either standard or high energy tape.

Manufactured in the United States, the VCR-100 is designed for those in industry, education, medicine, government and CATV who want the best. Here is a product for the professionals—yet moderately priced.

We have over 85 distributors in the U.S. and Canada as well as five direct sales offices who can tell you what it's all about.

Write International Video Corporation, 990 Almanor Avenue, Sunnyvale, California 94086, for their names, addresses and the VCR-100 story.



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Now, you can give entertainers and broadcasters instant, finger-tip control of sound right at the microphone. The new Switchcraft T*F series "Q-G" cord plug has a built-in switch for "on-off" control of audio. The mike mounts on the plug so the switch knob is easy to operate by thumb—but its low profile alleviates inadvertent operation of the switch.

This new cord plug carries all the other great features of Switchcraft "Q-G" plugs: available in 3, 4 or 5 pin configurations; exclusive "ground contactors" for grounding/shielding through the connector; unique "captive design" insert screw to give a rigid assembly and positive electrical continuity; cable clamp to hold the cable securely; and a flexible strain relief to reduce cable wear.

Add this new Switchcraft "Q-G" cord plug with "on-off" switch to your line of audio connectors. Backed with Switchcraft's merchandising programs and promotions, it's bound to become a top seller for applications requiring control of audio at the mike. For more details, contact your Switchcraft Representative or District Sales Manager at Switchcraft, 5581 N. Elston Ave., Chicago, Ill. 60630.

SWITCHCRAFT

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Pre-Convention News

The recipients of two of the NAB's highest annual awards have already been announced. A. James Ebel will receive the 1973 Engineering Award, and Ward L. Quaal will be given the Distinguished Service Award.

Ebel, a leading authority on satellite communications, is vice president and general manager, KOLN-TV, Lincoln, Neb., and KGIN-TV, Grand Island, Neb.

The award will be presented at the Broadcast Engineering Conference to be held in conjunction with NAB's 51st annual convention March 25-28 in Washington.

Ebel, chairman of the Communications Satellite Study Committee of CBS affiliates and the combined Satellite Study Committees of ABC, CBS and NBC affiliates, received his commercial broadcast operator's license while a junior in high school.

Since his start in broadcasting in the 1920s, he has been an engineer, teacher, broadcast engineering consultant and has held numerous posts within the industry.



**James Ebel . . . Engineering
Award for 1973.**

He has served on a number of technical committees and, in 1971, was a United States delegate to the World Administrative Radio Conference in Geneva, Switzerland. He presently is a member of the President's Frequency Management Advisory Council.

He also is the author of several articles on broadcast engineering, and he is a past chairman of NAB's Engineering Advisory Committee and the Engineering Conference Committee.

Ebel received his B.A. degree from the University of Iowa in 1936, and his M.A. from the University of Illinois in 1941.

Distinguished Service Award

Ward L. Quaal, president of WGN Continental Broadcasting Co., Chicago, was selected by NAB's Convention Committee at a meeting held in conjunction with a four-day winter meeting of the NAB Board of Directors.

Quaal will receive the award—the broadcasting industry's highest honor—at the opening session of NAB's annual convention in Washington on Monday, March 26.

Established in 1953, the award is presented to individuals who make "a significant and lasting contribution to the American system of broadcasting by virtue of singular achievement or continuing service for or in behalf of the industry or in any or all phases."

Quaal began his broadcasting career in 1934 as an announcer, writer and salesman for WDMJ, Marquette, Mich.

He entered the University of Michigan in 1937 and was an announcer for local and network programs on the staff of WJR, Detroit.

Following his graduation in 1941, he joined WGN and then served

BROADCAST ENGINEERING

three years in the U.S. Navy. He returned to WGN in 1945 as special assistant to the general manager.

Four years later he left to become director of the Clear Channel Broadcasting Service in Washington, D.C.

In 1952, Quaal joined the Crosley Broadcasting Corp. as assistant general manager and the following year was named vice president and assistant general manager of Crosley's radio, television and short wave properties.

He returned to WGN in 1956 as vice president and general manager. Since then he has initiated an extensive expansion program which today includes KDAL radio-TV, Duluth, Minn.; KWGN-TV, Denver; WGN Continental Electronic Systems, a community television antenna subsidiary in Michigan and California.

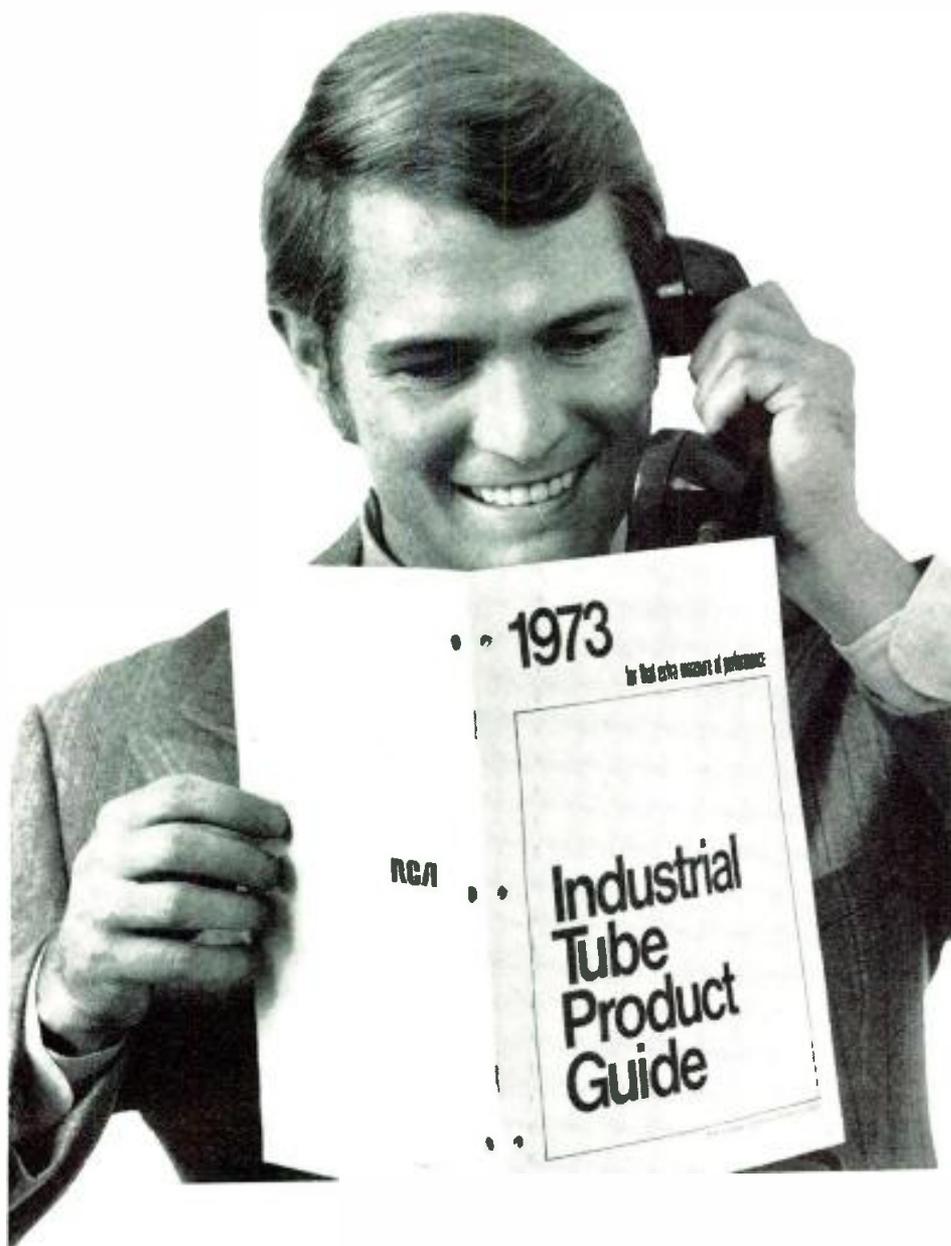
Quaal also established WGN Continental Sales Co., and WGN Continental Productions Co. to handle domestic and international syndication of radio and television programs produced by the parent company and the production of video tape television commercials.

He is a past chairman of the Board of Governors of the Council of Better Business Bureaus International. He also is president and chief executive officer of the Clear Channel Broadcasting Service, past president of Broadcast Pioneers and past chairman and a director of the Better Business



Ward Quaal, NAB Distinguished Service Award Winner From WGN.

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More service, more product, more product information... you get it all—faster—when you work with your RCA Distributor. He's in business to help you get the top-quality RCA Industrial Tubes you need when you need them. And, to help you make the best choice, he can provide you with the latest product information—like the newly revised and up-dated 1973 Guide to RCA Industrial Tube Products. More comprehensive than ever before, it covers a total of approximately 800 commercial types—industrial receiving, power, camera, photo, image, microwave, and display tubes. And it also shows how these types can replace nearly 2300 industry types.

Get your copy of this new RCA Guide, the TPG-200H, from your RCA Industrial Tube Distributor today. Or write RCA, Commercial Engineering, Section 20-C G7, Harrison, New Jersey 07029.

RCA Electronic Components

Bureau of Metropolitan Chicago.

In 1969, he was awarded the "Advertising Man of the Year" golden medallion by the Chicago Advertising Club and was named "Communicator of the Year" by the Jewish United Fund.

Previous Winners

Previous recipients of the NAB award are David Samoff (1953), William S. Paley (1954), former NAB President Mark Ethridge

(1955), Robert E. Kintner (1956), Herbert Hoover (1957), Frank Stanton (1958), Robert W. Samoff (1959), Clair R. McCollough (1960), former NAB President Justin Miller (1961), Edward R. Murrow (1962), Bob Hope (1963), Donald H. McGannon (1964), Leonard H. Goldenson (1965), Sol Taishoff (1966), Chet Huntley and David Brinkley (1967), Lowell Thomas (1968), John Fetzer (1969), Rosel Hyde (1970), Neville Miller (1971), and Billy Graham (1972).

PROPOSED SCHEDULE FOR 1973 NAB CONVENTION WORKSHOPS

Monday

8:30-10:00 AM

Legal
Radio News (RTNDA)
Research
OSHA Workshop (Tentative Title)
AWRT Workshop
Minority Training and Placement

2:30-4:00 PM

Government Workshop:

Legislative Issues (Government Relations)
Panel on Network News (Tentative Title)

Tuesday

8:00-9:30 AM

Legal
Radio News (RTNDA)
Research
Promotion and Public Relations for the Smaller Market Station (BPA)
Broadcast Collections (IBFM)
Minority Affairs

Wednesday

8:00-9:30 AM

Legal
OSHA Workshop (Tentative Title)
Promotion and Public Relations for the Smaller Market Station (BPA)
Research (BRC)
Television (Children's Programming)
Broadcast Collections (IBFM)

Proposed 1973 NAB CONVENTION Schedule

Monday, March 26, 1973

4:15 P.M.—5:00 P.M.

TV Board

Nominations and Elections

Tuesday, March 27, 1973

9:45 A.M.—12:00 N

SECONDARY MARKET TELEVISION SESSION

1. Your Congressman's Office

An informal discussion between a congressman's administrative aide and the chairman of the Secondary Market Television Committee on methods to better accomplish the broadcasters objectives.

2. Local News and Editorials

A representative of RTNDA reviews innovations in local news, especially techniques used in secondary market news operations. Emphasis to be on professional results achieved through availability of economical Super 8 magnetic tape film and recently developed mini-size video-tape recorders. Concludes with a representative of the National Broadcast Editorial Association commenting on effective editorial techniques.

3. Secondary Market Feedback

An open question and answer period, chaired by Bill Turner, Chairman, Secondary Market Television Committee and including question responses by members of the Committee, as opposed to NAB staff.

Tuesday, March 27, 1973

9:45 A.M.—12:00 N

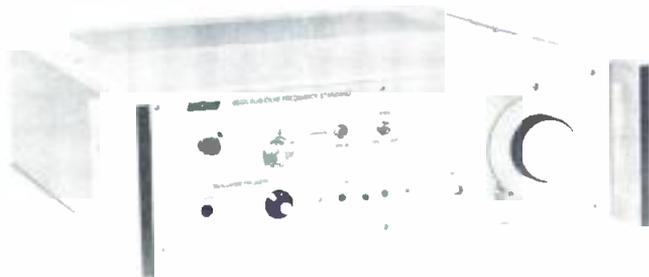
RADIO MANAGEMENT CONFERENCE

1. Meet Your New Radio Directors

A walk on introduction to reelected and newly elected Radio Board members.

2. American Forces Radio Salute—30th Anniversary

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Only rubidium standard found in TV application. Compact, rugged, designed for color subcarrier generation. Utilizes stable quartz crystal oscillator whose frequency is controlled by the atomic resonance in the ground state of rubidium 87. Features continuous rotation phase shifter and built-in Time Scale Selector. Long-term stability is 3×10^{-11} . Write or call for full technical and application information.

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—Eric Small
Chief Engineer,
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"We've tested other cartridges. A lot of other cartridges. Our tests showed no cartridge superior to the Audiopak A-2 in ruggedness, mechanical design, or (most important of all) consistency in phase stability."

"What you're looking at here is what we call the DTC. That's short for Disc Tape Cart Transfer system. It's as close to completely automatic cart making as the state of the art permits. Control logic is solid state."

"We make 50 to 150 carts a week. We've got to be able to rely on them. That's why we have standardized on the Audiopak A-2."

"Since all our music is on carts, they must be dependable. Without a doubt, the A-2 gives us the reliability we need."

Shown here with Mr. Small is John Bailis, Maintenance Supervisor.



New Audiopak® A-2 Broadcast Cartridges

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An experienced crew is ready now to handle all your tower/antenna needs, whenever and wherever they occur. Scores of satisfied customers in:

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3. Radio Information Office

A brief report and review of upcoming activities by the RIO Director Charles T. Jones Jr.

4. Re-Regulation of Radio

A review of Commission Rules and Regulations that have been revised and hopefully announcement of additional revisions achieved through joint efforts of NAB Working Group on Radio Regulation and the FCC Part 73 Task Force. Participants: Commissioner Wiley, Dick Chapin, George Bartlett and John Summers.

5. Radio Advertising

Bureau Presentation

A presentation dealing with sales psychology and techniques, the need for creative commercials at the local level, sales training requisites, etc. Participants will include Miles David, Robert Alter and Carl Loucks.

Wednesday, March 28, 1973

9:45 A.M.—12:00 N

TELEVISION MANAGEMENT CONFERENCE

1. Television Renewals

John Summers and FCC Representative

2. TIO Report

Roy Danish, Director TIO

3. Advertising Legislation and Counter-Advertising

Grover Cobb

4. TV All-Industry Music

Licensing Committee—Les Arries

5. CATV—Copyright Panel

Moderator:

Panelists:

Copyright Proprietors

Arthur Scheiner Counsel—MCA

CATV Owners

Gary Christensen,
General Counsel, NCTA

Broadcasters

Michael Horne, Counsel, AMST

Wednesday, March 28, 1973

9:45 A.M.—12:00 N

SMALL MARKET RADIO SESSION

1. The Small Market

Broadcaster and His Congressman

a. Scheduled as the opening presentation with a panel to consist of a member of Congress, a Congressional Administrative Aide and Broadcaster. The broadcaster recommended is Clint Formby, Chairman, Small Market Radio Committee.

b. The discussion will center on how best to establish more effective relations with members of Congress.

Each participant will take five to eight minutes of personal observation and comments on how broadcasters work with Congressmen, the attitude of Congressmen toward broadcaster's efforts for closer liaison, including "do's" and "don't's" to bring about more effective communications, etc.

2. Small Market

Radio and the FCC

The Committee proposes to continue this most effective presentation for small market broadcasters. The FCC panel will basically consist of key Commission staff personnel in an open question and answer session, moderated by one of the Commissioners.

Senators And BBC Official AT NAB

Two U.S. Senators, the chairman of the Federal Communications Commission and the British Broadcasting Corporation's director of engineering will be featured speakers at the 51st annual convention of the National Association of Broadcasters.

The convention and concurrent Engineering Conference will be held March 25-28 at the Shoreham and Sheraton-Park Hotels in Washington, D.C.

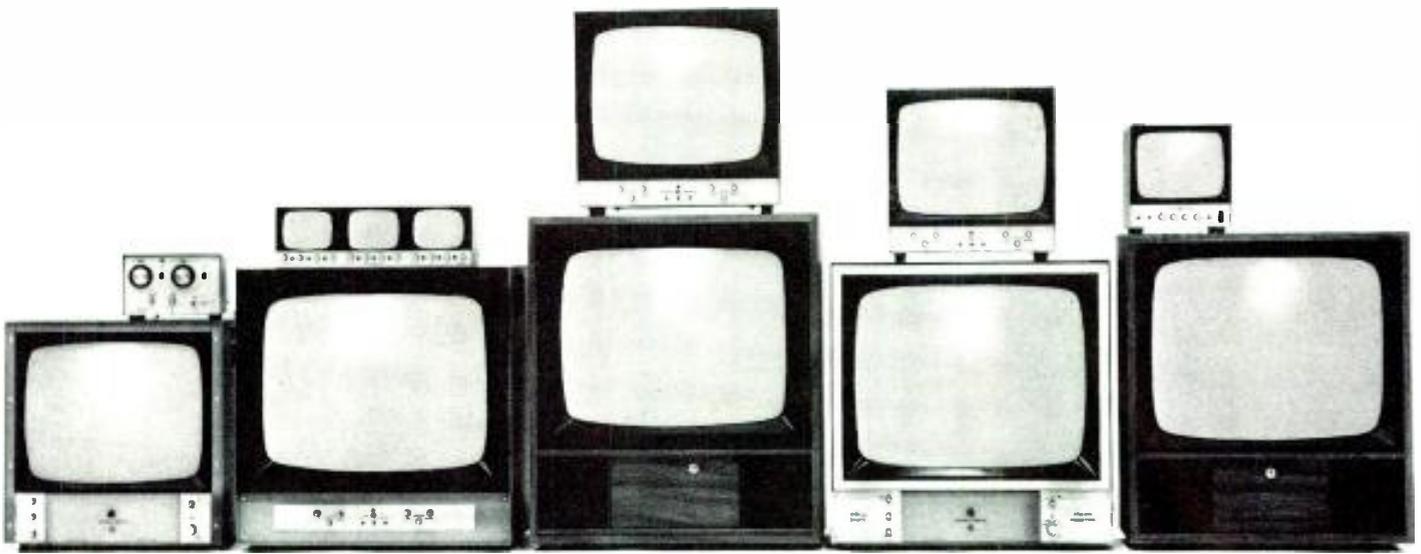
Senator Sam J. Ervin (D-N.C.), leading Congressional authority on constitutional law and a staunch defender of news freedoms, will speak at the first management luncheon on Monday, March 26.

Senator Howard Baker (R-Tenn.), a member of the Senate Commerce Committee and ranking Republican on the Communications Subcommittee, will address the second management luncheon on Tuesday, March 27.

Dean Burch, chairman of the Federal Communications Commission, will speak before a joint management-engineering luncheon on Wednesday, March 28.

James Redmond, the BBC's director of engineering, will address the opening engineering luncheon on Monday.

The speaker for the Tuesday engineering luncheon will be announced later.



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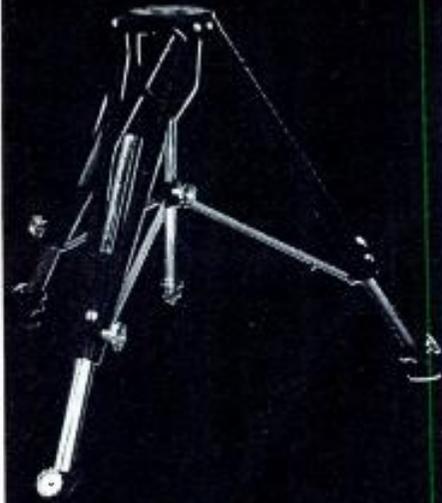
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For More Details Circle (34) on Reply Card

It pays to belong to the NAB. It pays because they constantly do battle with government agencies that otherwise might unfairly deal with the broadcast industry. As a member, you back the industry and your individual operation.

Since the ban on cigarette advertising, it has become more and more obvious that the Congress rates broadcasting head and shoulders above newspapers and magazines as an influential media. And as the Congressional attitude grows and runs off into spreading confusion (now it's a thumbs down on aspirin ads), the organized broadcasting voice must speak out firmly and logically against the movement before every product (even though legally sold) becomes suspect.

But it doesn't end there. The FCC encourages challenges to license renewals. Working on the proposition that you don't need to be a chicken to judge an omelet, they send out questionable inspectors who are more concerned about your paperwork than your chief product. With this going for them, they add children's programming to the list.

In the face of this, it would seem that the darkest hours are ahead. Not necessarily so. About the time that we think we're in a power dive to the bottom of self determination, we find the FCC listening and acting on technical de-regulation (depending upon your point of view).

The Federal Communications Commission's Task Force on Re-Regulation has commended the National Association of Broadcasters for initiating a "new concept" in federal regulation and promised further steps to ease the burden on both radio and television and the government.

Its views were expressed by FCC Commissioner Richard E. Wiley and members of his Task Force during a meeting at NAB

headquarters with Board Chairman Richard W. Chapin and his special NAB Working Group on Re-Regulation.

The Commissioner said FCC recognizes the "contributions NAB has made" to the re-regulation effort; that, in a sense, it "really initiated the whole concept" of closer industry-FCC cooperation.

In a review of the progress and potential of their joint effort to eliminate or simplify the voluminous rules and regulations applying to broadcasting's day-to-day operations, Wiley and his staff said they would "push ahead" on these phases of re-regulation:

- Approval of a monitor directional AM-FM stations can use where a third-class operator is to perform antenna duties now assigned to a first-class operator. (FCC has ruled that third-class operators may perform such duties provided a type-approved monitor is used, but has not yet given its approval of such monitoring equipment.)

- Permit installation of extension meters for transmitter readings where the transmitter can not be observed from the control point. (Rules now require that the transmitter be "visible" from the control point. In some cases, it has been necessary to cut holes in walls or floors, or install mirrors, closed circuit TV cameras and similar equipment to "see" the transmitter from the operating console.)

- Propose the restructuring of broadcast bands available for remote pickups to provide for their better use.

Commissioner Wiley said FCC also is "hard at work" on simplifying the license renewal form for smaller stations. He said the staff has it "on the front burner" and hopes to come up with a definite proposal in a month or so.

The NAB Working Group ap-

BROADCAST ENGINEERING

proved and submitted to the FCC representatives for their consideration a detailed report on a proposed "automatic transmission system" for AM and FM radio stations that would provide "fail proof" transmitter and antenna operations without the necessity of existing technical rules.

NAB's report, prepared by an Engineering Advisory Subcommittee after two and a half years of study, said the development of broadcast equipment during the past 50 years is one of man's greatest achievements, advancing from "cumbersome motor-driven transmission devices to an all-electronic, solid-state system which is highly reliable, has an excellent performance record and requires a minimum of human supervision.

On the other hand, it said, FCC rules and regulations have failed to keep pace and the industry still must operate "within a frame of reference" developed when the Communications Act was adopted in 1934.

FCC staffers attending the meeting with Wiley were Jack Pettit, general counsel; Wally Johnson, chief of the Broadcast Bureau; Harold Kassens, his assistant; Steve Crane, consultant; John Taff, engineering assistant; and Phil Cross, legal assistant.

Members of Chapin's Working Group present were: Sam W. Anderson, KFFA, Helena, Ark.; Harold R. Kreslstein, Plough Broadcasting, Memphis, Tenn.; Stanley W. McKenzie, KWED, Seguin, Tex.; Dick Painter, KYSM, Mankato, Minn.; Lee Allan Smith, WKY, Oklahoma City, Okla.; and Joseph F. Tennesen, KFKA, Greeley, Colo.

Newsman's Shield Law

The NAB said it "is now clear" that Federal legislation dealing with newsmen's privilege "must be absolute and must apply to all governmental proceedings, both State and Federal."

In a February filing with a House of Representatives subcommittee considering such legislation, NAB said it "strongly urges passage of unqualified newsmen's privilege legislation."

The Association said opponents' arguments are largely conjectural,

and it knows of no cases where newsmen have impeded justice by withholding information relative to serious crimes, national security, or other matters of paramount public concern.

"In effect," NAB said, "the opposite is true. Newsmen, where able to protect confidential sources, have been instrumental in ferreting out crime."

NAB said the real issue before Congress "is whether newsmen

will be protected so as to insure they can fully perform their role of informing the public without government interference or intimidation at any level—be it local, state or federal.

"Any qualification appended to a statutory newsmen's privilege, irrespective of how well intentioned, would bear the seeds of such governmental interference or intimidation, for any qualification

(Continued on page 37)

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would necessarily be subject to varying interpretations by a wide range of judicial and quasi-judicial authorities at diverse levels of the governmental structure."

Examples of such erosion, NAB said, already have taken place under qualified state shield laws which were supposed to protect newsmen's sources and information.

Election Act Discrimination

Vincent T. Wasilewski, president of the NAB has recommended changes in the Federal Election Campaign Act to eliminate provisions broadcasters have found to be patently discriminatory, confusing and frustrating.

The industry spokesman outlined NAB's position in a letter to Philip S. Hughes, director of the Office of Federal Elections, General Accounting Office, in response to Hughes' request for comment on the new law limiting campaign spending and its administration.

Wasilewski said two provisions of the act "discriminate against the broadcaster in favor of other media with whom he is in direct competition for advertising" and are "repugnant to the accepted concept of free and open competition."

Print Media Advantage . . . Again

One requires broadcasters to sell time to qualified candidates at a station's "lowest unit charge" but permits newspapers and magazines to bill them at charges not exceeding those for "comparable use" of space.

The other prohibits candidates from putting more than 60 percent of their allowable spending in radio and television but permits them to spend all of it, if they wish, in other media.

"We strongly urge that these provisions be amended to remove the patent discrimination which they currently embody," Wasilewski wrote.

"If Congress still believes that candidates should receive 'lowest unit charge' treatment, then that determination should apply across-the-board to all communications media—not just broadcasting.

Likewise, candidates should be permitted to use their spending limitations without restriction. Within the confines of the overall spending limitation, a candidate's use of various communication media should be governed solely by his personal evaluation of their effectiveness in his particular campaign."

Open To Candidates

The NAB president also recommended elimination of a provision

for revocation of a station's license if it willfully or repeatedly fails to "allow reasonable access to permit purchase of reasonable amounts of time for the use of a broadcast station" by candidates for federal office.

He said there is no need for the requirement in view of broadcasting's adherence to the "equal opportunity" section of the Federal Communications Act and the absence of any history of a federal

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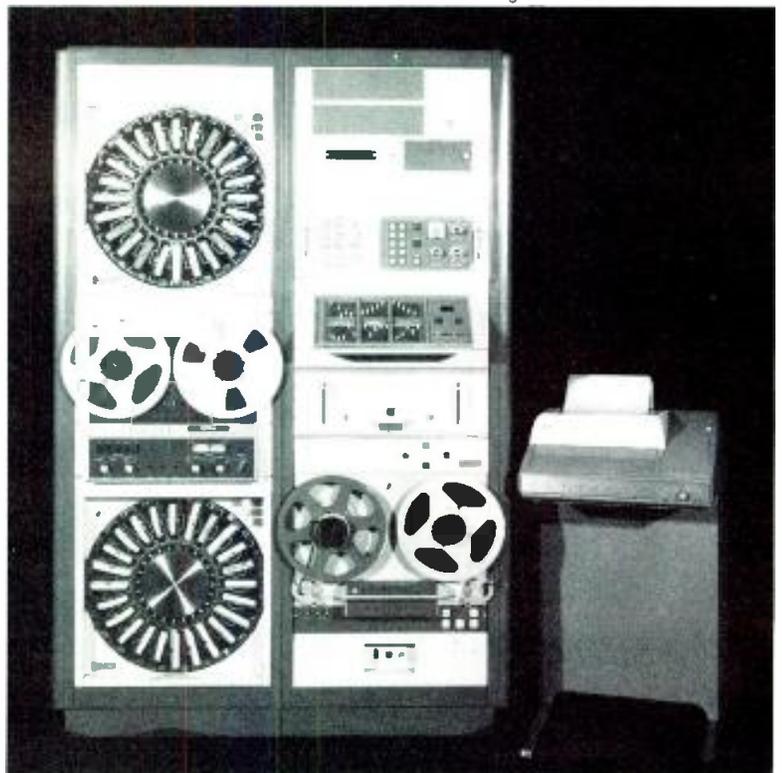
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candidate being refused the right to purchase time.

In the last election, he said, the new provision served mainly to confuse broadcasters, candidates and even the Federal Communications Commission and "had the unexpected practical effect of inhibiting, rather than promoting, access by federal candidates."

Faced with the obligation to provide time to all federal candidates, he said, many broadcasters prepared rundowns on the number of spot announcements each could purchase in terms of length, time of day, etc. While the approach assures "reasonable access" and is "eminently fair," he said, in many cases some candidates could not purchase as much time as they would like and time reserved for other candidates may not be used — "to the detriment of those who want to use it."

Frustrating, Cumbersome

Wasilewski said broadcasters and candidates found "most cumbersome" and "frustrating" provisions and regulations governing the certification of time purchases by or on behalf of federal candidates and the allocation of expenditures.

For example, he said, if a House candidate mentioned briefly that he worked closely with the President and the Senate candidate from his state, the broadcaster probably would wind up violating the law no matter what he did. Technically, he would be required to allocate part of the funds to the President and the Senate candidate and would have to, but probably couldn't, get a written certification from both. Moreover, he said, the broadcaster could not delete the President-Senator reference even if he knew it was to be included because the Communications Act precludes him from "censoring" a political announcement.

Wasilewski said a "rather alarming result" of the certification requirement is to discourage groups of individuals acting independently of campaign organizations to use the broadcast media. Since their expenditures would be charged against a candidate's spending, "it is extremely unlikely that the candidate will authorize

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them to certify that their expenditures on his behalf will not violate his spending limitation . . . He naturally wants to control his expenditures and use his money as he sees fit."

Costly Paperwork

A group of radio and television executives has urged Congress to order a sharp cutback in required costly paperwork before small market broadcasters are inundated completely and unable—physically or financially—to program in the public interest.

Three of the industry spokesmen said a good start could be made by extending the broadcaster's license from three to five years and two favored even longer licenses for broadcasters who consistently provide quality service.

The pleas were made before the Senate's Small Business Subcommittee at the opening of hearings called by Chairman Thomas J. McIntyre (D-N.H.) to consider recommending enactment of a Small Broadcaster Protection Act.

Grover C. Cobb, executive vice president for government relations, and John Summers, general counsel, represented the National Association of Broadcasters. They were joined by Ray Johnson, executive vice president and general manager of Radio Medford, Inc., with radio and television stations in Medford, Ore., and a radio station in Redding, Calif.; Lorraine W. Levine, president and general manager of KCBN, Reno, Nev., and president of the Nevada Broadcasters Association; and by Donald A. Thurston, president of Berkshire Broadcasting, North Adams, Mass., which operates radio stations in three Western Massachusetts communities.

Let's Defend Our Freedoms

In another action, the Board of Directors of the National Association of Broadcasters has adopted unanimously the following resolution:

"We, the Board of Directors of the National Association of Broadcasters, affirm our conviction that broadcast journalism is fully pro-

tected under the First Amendment of the Constitution of the United States.

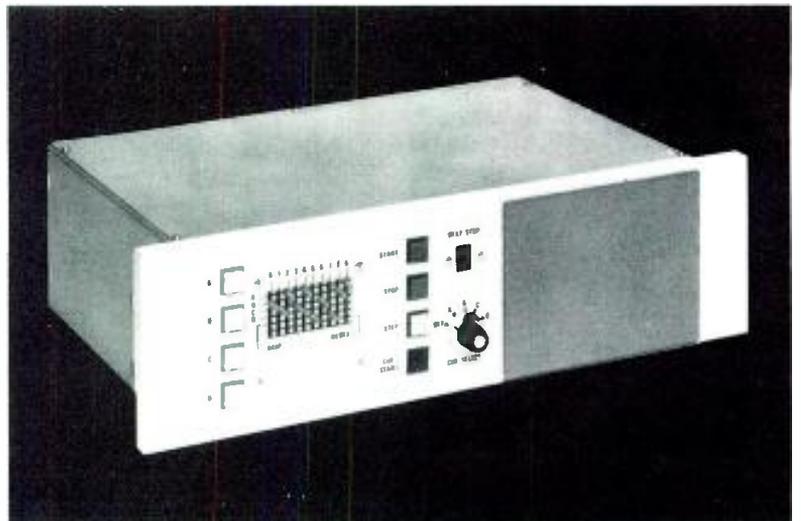
"We further affirm that the ideal so established—freedom of the press from government interference at any level—is fundamental to our free society, to the public's right to know, and to broadcasting's responsibility to the public to inform them accurately and objec-

tively.

The Board's action was recommended by a special subcommittee headed by Willard E. Walbridge, former Board chairman, which held that broadcasting's "record of response as journalists has been good" and that radio and television "owe it to the American people we serve to defend their freedoms even as we defend our own."

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NAB Exhibit Directory

You'll notice from the list of manufacturers in this section that there are a number of new exhibitors. And there are other older ones returning after standing on the sidelines.

In fairness to the NAB and a few other exhibitors not shown or listed, we must mention that the information shown here was up to date only as of our press time.

We invite you to review the New Products Special section, in which we show products that will be introduced at the convention for the first time. And because some manufacturers like to hold off, you'll certainly want to plan to spend plenty of time in the exhibit areas of the Shoreham and Sheraton Park Hotels.

In the maze of exhibit booths and exhibit halls, it will pay you to hold onto your copy of BE and refer to these early sections. It really takes a roadmap to find your way around.

Certainly the schedules sessions are important. But the exhibit areas are equally important. Here is one of the few chances you have to talk with design engineers who can give you about as much information on their units as you care to absorb. Besides, you're likely to meet a lot of people you'd seldom get a chance to see otherwise.

We don't have a list of hospitality suites, but that probably will be included in the NAB booklet that is passed out in the registration line. You'll find them an extension of the exhibit area friendly attitude . . . and a

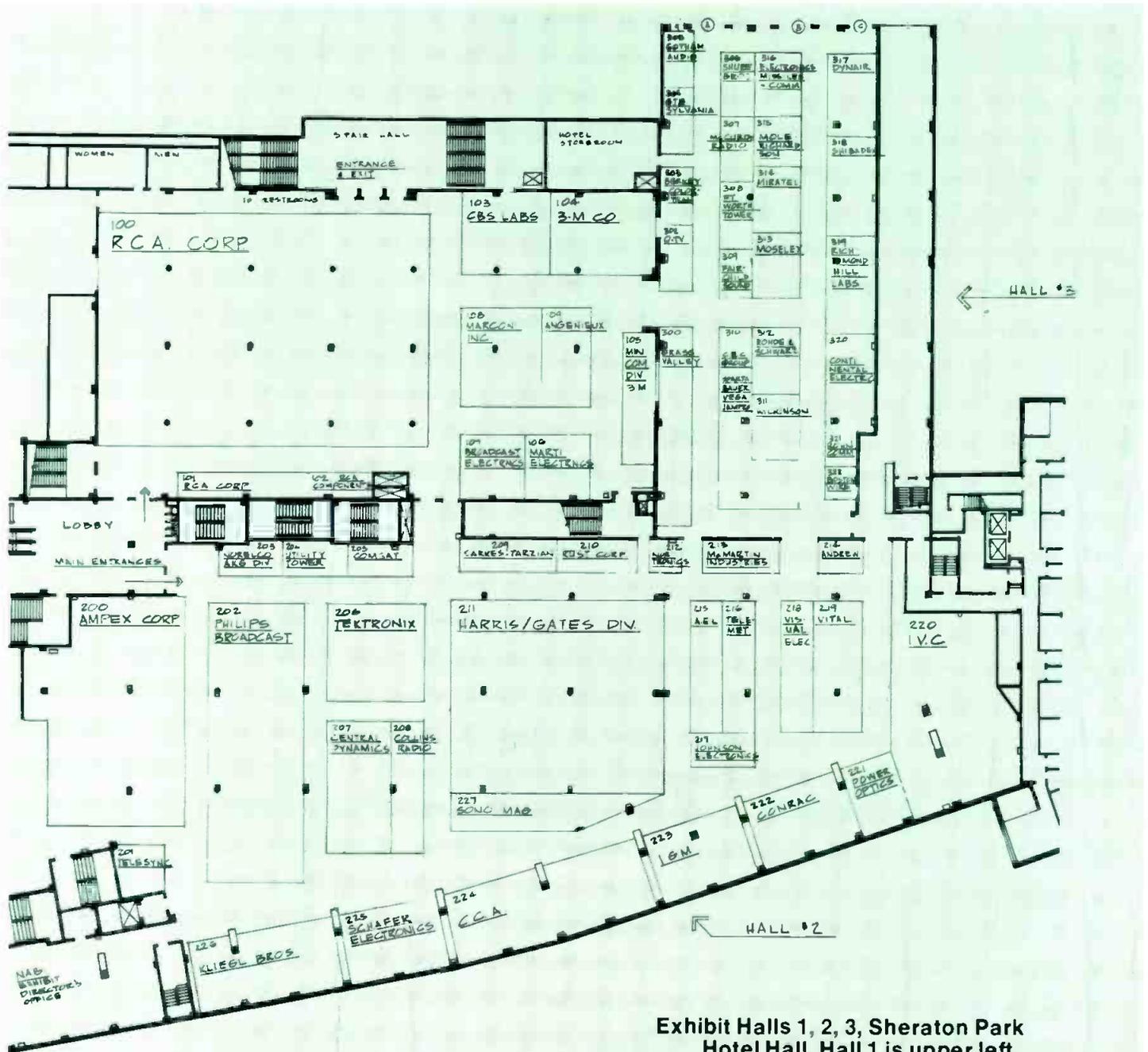


Exhibit Halls 1, 2, 3, Sheraton Park Hotel Hall. Hall 1 is upper left.

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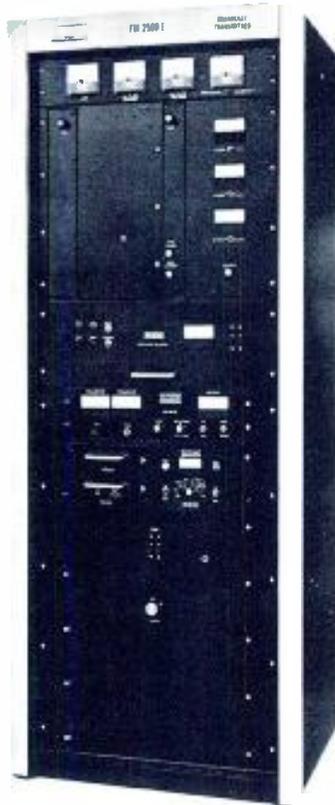
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(Continued from page 40)

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- ABTO. 501. Shoreham
Acrodyne. 607. Shoreham. AMB. Room
AEL. 215. Sheraton Park. Hall 2
Alford Mfg. Co.. 618. Shoreham. AMB. Room
Allied Tower. 609. Shoreham. AMB. Room
Amco Eng.. 558. Shoreham
A-M Corp. 530. Shoreham
Amer. Data Corp.. 610. Shoreham. AMB. Room
Amer. Elect.. 556. Shoreham
Ampex. 200. Sheraton Park. Hall 2
Andrew. 214. Sheraton Park. Hall 2
Angenieux. 109. Sheraton Park. Hall 1
AT&T. 527. Shoreham
Audio Devices. 520. Shoreham
- Bauer. 310. Sheraton Park. Hall 3
Belar. 544. Shoreham
Berkey Colortran. 303. Sheraton Park. Hall 3
Beston Elect.. 700-701. Shoreham. Birdcage Walk
Bird. 539. Shoreham
Robert Bosch. 526. Shoreham
Boston Wire. 322. Sheraton Park. Hall 3
Broadcast Computer. 533. Shoreham
Broadcast Data Base. 611. Shoreham. AMB. Room
Broadcast Elect.. 107. Sheraton Park. Hall 1
Broadcast Facsimile. 554. Shoreham
Broadcast Prods.. 514. Shoreham
- Canon TV. 507. Shoreham
CBS Labs. 103. Sheraton Park. Hall 1
CCA. 224. Sheraton Park. Hall 2
C.E.C. Group. 310. Sheraton Park
Central Dynamics. 207. Sheraton Park. Hall 2
Century Strand. 601. Shoreham. AMB. Room
Cohu. 519. Shoreham
Collins Radio. 208. Sheraton Park. Hall 2
Colorado Video. 550. Shoreham
Coltape. 564. Shoreham
Commercial Elect.. 524. Shoreham
Communications Carriers. 603. Shoreham. AMB.
Room
Compunet. 542. Shoreham
Comsat. 205. Sheraton Park. Hall 2
Conrac. 222. Sheraton Park. Hall 2
Continental Elect.. 320. Sheraton Park. Hall 3
- Data Comm. Corp.. 557. Shoreham
Datatron. 548. Shoreham
Delta Elect.. 532. Shoreham

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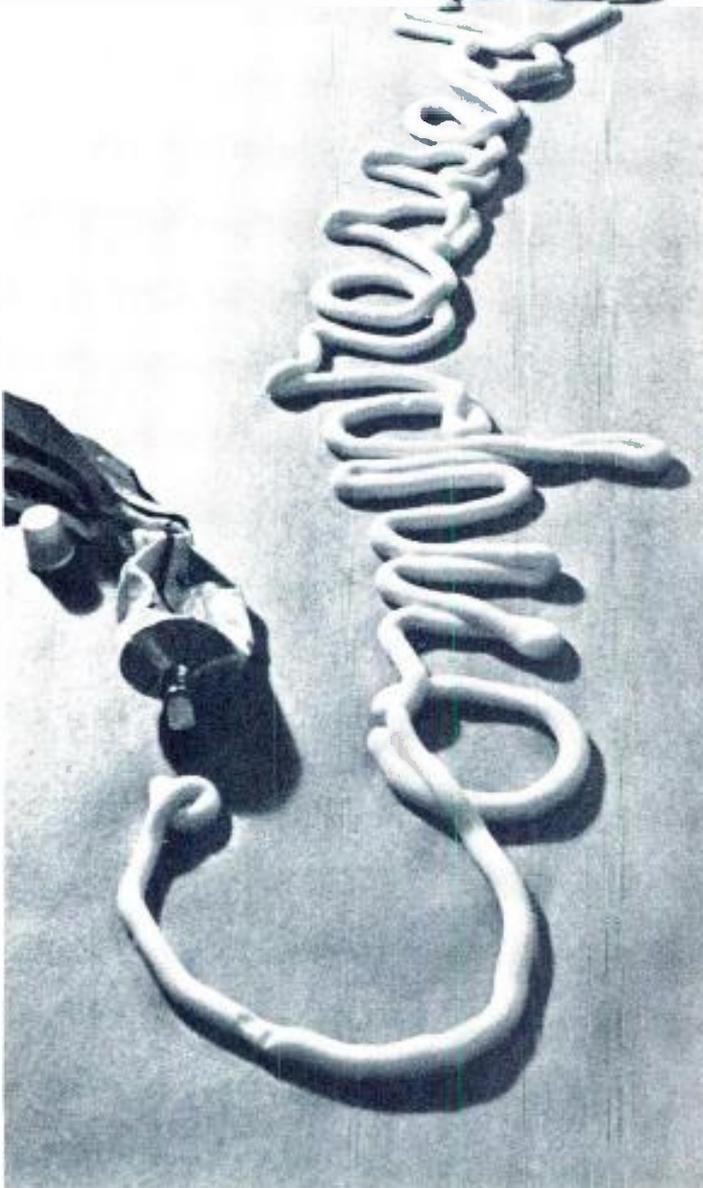


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Dynair, 317, Sheraton Park, Hall 3

Eastman Kodak, 528, Shoreham
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Electronic Missiles & Comm, 316, Sheraton Park,
Hall 3

Electro Sound, 604, Shoreham, AMB, Room

Fairchild Sound, 309, Sheraton Park, Hall 3
Fidelipac, 511, Shoreham
Florentino, 509, Shoreham
Ft. Worth Tower, 308, Sheraton Park, Hall 3

Gotham Audio, 305, Sheraton Park, Hall 3
Grass Valley, 300, Sheraton Park, Hall 3
GTE Sylvania, 304, Sheraton Park, Hall 3

Harris/Gates Div., 211, Sheraton Park, Hall 2
HF Photo Systems, 602, Shoreham, AMB, Room
Houston Photo, 613, Shoreham, AMB, Room

IBM Corp., 615, Shoreham
IGM, 223, Sheraton Park, Hall 2
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Innovative TV, 563, Shoreham
Internatl. Tapetronics, 538, Shoreham
IVC, 220, Sheraton Park, Hall 2

Jamieson Film, 535, Shoreham
Jampro, 310, Sheraton Park, Hall 3
Jerrold Elect., 503, Shoreham
Johnson Elect., 217, Sheraton Park, Hall 2

Kliegl Bros., 226, Sheraton Park, Hall 2

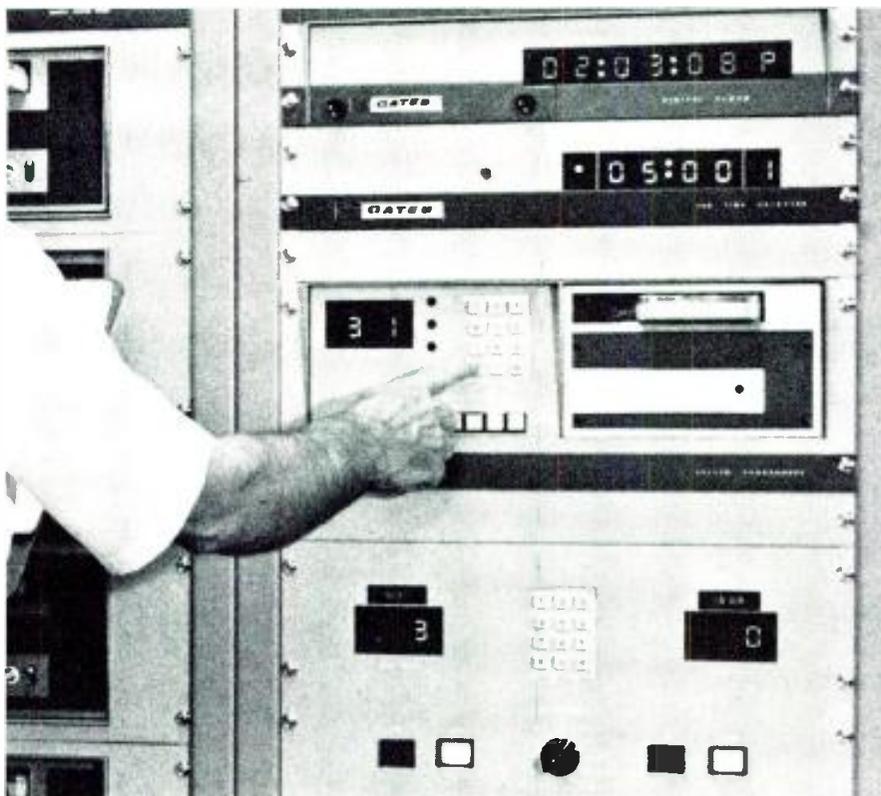
Landy Assoc., 555, Shoreham
Listec TV Equip., 529, Shoreham
LPB Inc., 540, Shoreham

3-M Co., 104, Sheraton Park, Hall 1
Marconi, 108, Sheraton Park, Hall 1
Marti Elect., 106, Sheraton Park, Hall 1
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McMartin, 213, Sheraton Park, Hall 2
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Micro Comm., 616, Shoreham, AMB, Room
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Miratel, 314, Sheraton Park, Hall 3
Mohawk Wire, 562, Shoreham
Mole-Richardson, 315, Sheraton Park, Hall 3
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Norelco AKG, 203, Sheraton Park, Hall 2
Nortronics, 212, Sheraton Park, Hall 2

Paillard Inc., 606, Shoreham, AMB, Room
Paulmar Inc., 617, Shoreham, AMB, Room
Pentagon Indust., 549, Shoreham

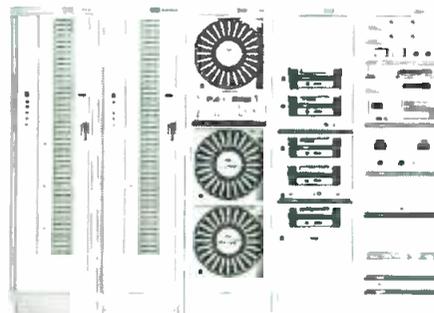
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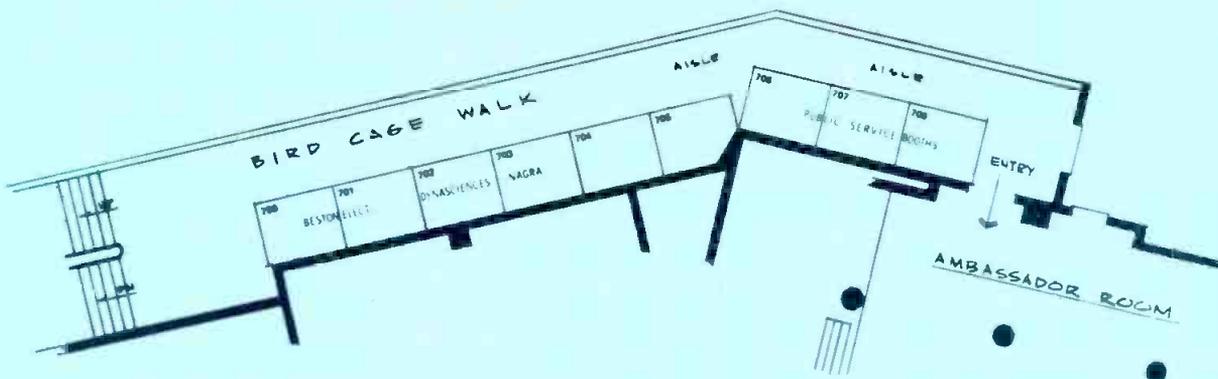
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Exhibit Directory (Cont. from page 44)

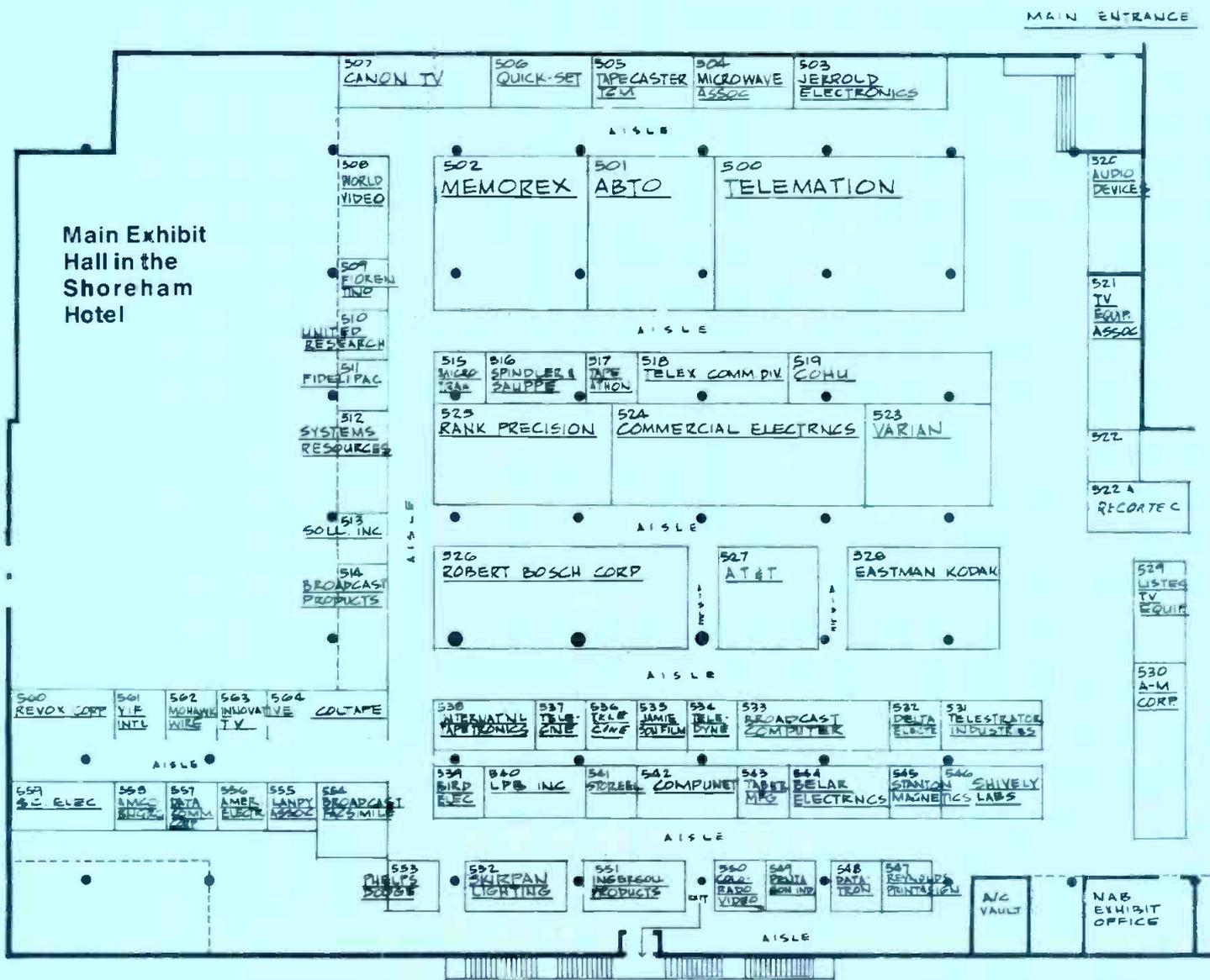
Phelps Dodge, 553, Shoreham
 Philips Best, 202, Sheraton Park, Hall 2
 Potomac Instr., 608, Shoreham, AMB. Room
 Power Optics, 221, Sheraton Park, Hall 2

Q-Set, 506, Shoreham
 Q-TV, 302, Sheraton Park, Hall 3
 Rank Precision, 525, Shoreham

Raymar Assoc., 608A, Shoreham, AMB. Room
 RCA Components, 102, Sheraton Park Hall 1
 RCA Corp., 100-101, Sheraton Park, Hall 1
 Recortec, 522A, Shoreham
 Revox, 560, Shoreham
 Reynolds Printasign, 547, Shoreham
 Richmond Hill, 319, Sheraton Park, Hall 3
 Rohde & Schwarz, 312, Sheraton Park, Hall 3



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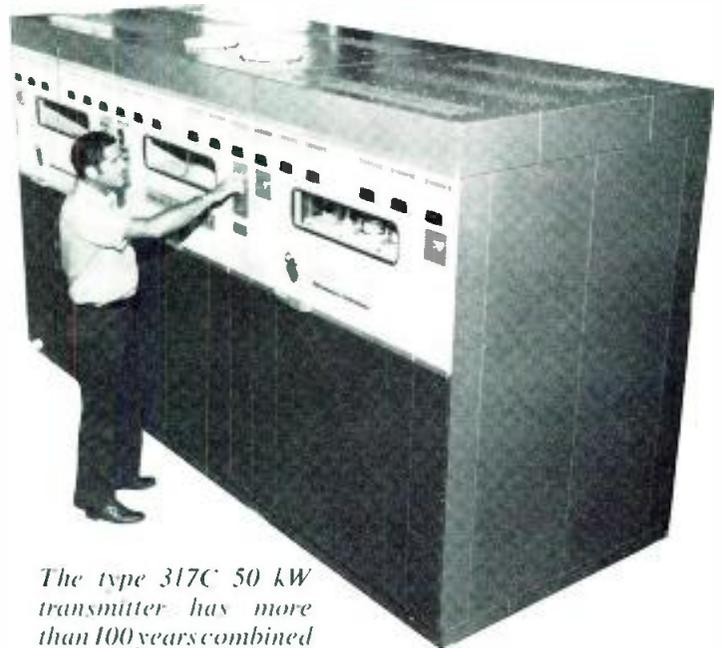
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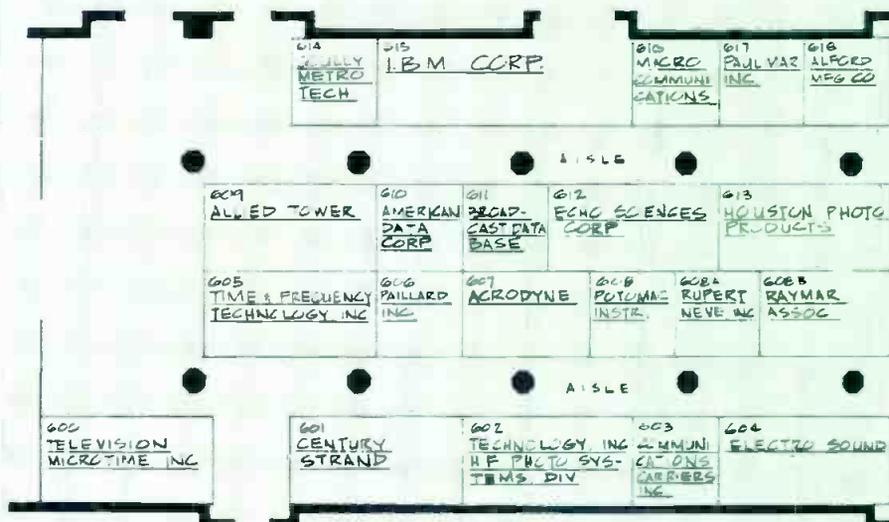
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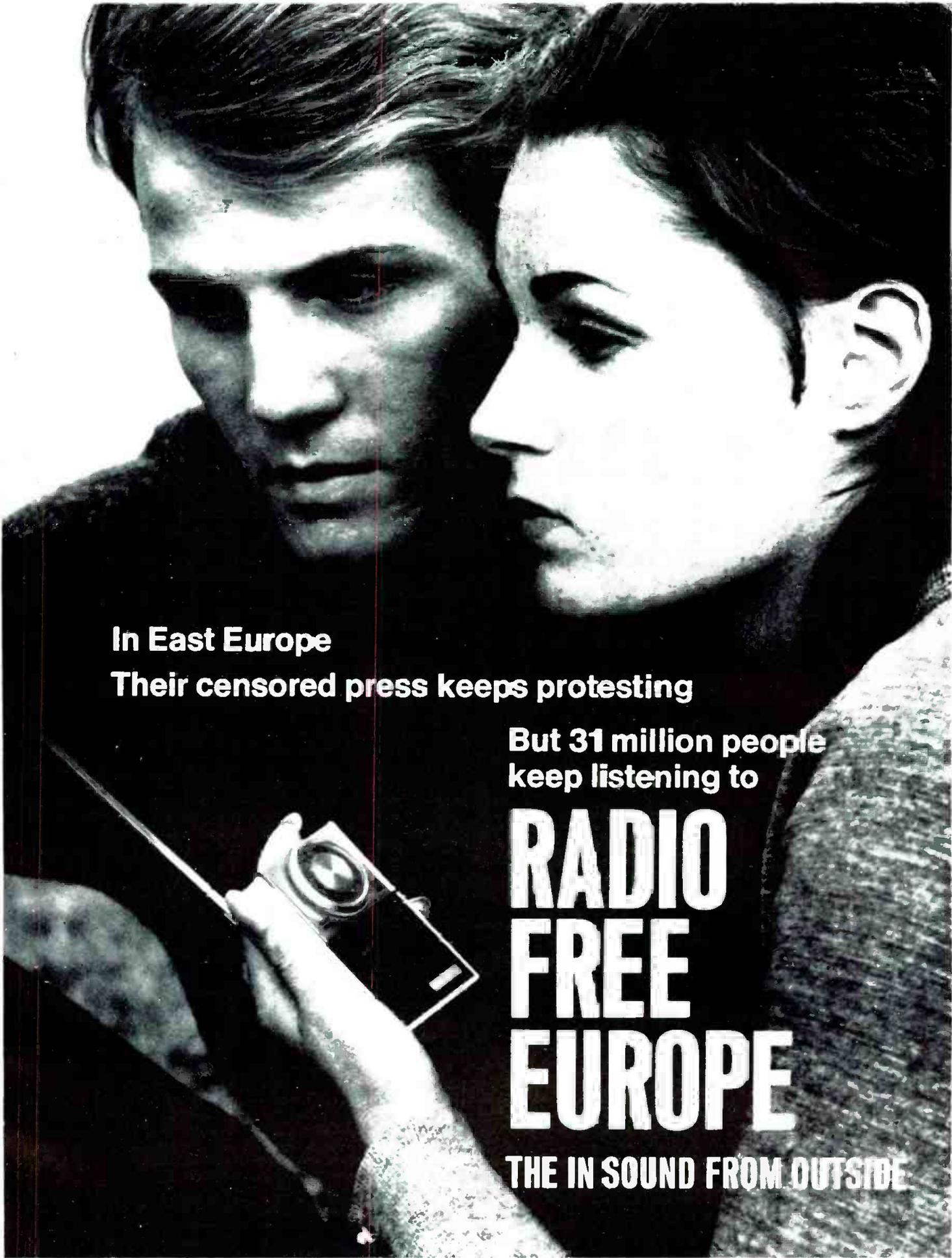
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Time & Freq. Tech. Inc., 605, Shoreham, AMB. Room
TV Equip. Assoc., 521, Shoreham
United Research, 510, Shoreham
Utility Tower, 204, Sheraton Park, Hall 2
Varian, 523, Shoreham
Vega, 310, Sheraton Park, Hall 3
VIF Internatl., 561, Shoreham
Visual, 218, Sheraton Park, Hall 2
Vital, 219, Sheraton Park, Hall 2
Wilkinson, 311, Sheraton Park, Hall 3
World Video, 508, Shoreham

AMB. Room stands for the Ambassador Room, Shoreham Hotel.



Ambassador Room, Shoreham Hotel

BROADCAST ENGINEERING



**In East Europe
Their censored press keeps protesting**

**But 31 million people
keep listening to**

**RADIO
FREE
EUROPE**

THE IN SOUND FROM OUTSIDE

New Products on Exhibit

WFMY-TV experienced its biggest year ever in 1972 and helped by the autumn political campaigns, October became a record month for station revenues. According to Doyle Thompson, Chief Engineer, "We couldn't have done it without the Cart."

Thompson was referring to RCA's TCR-100 Video Tape Cartridge Recorder which arrived at WFMY-TV last June.

The TCR-100 is used on-air for commercials, promos, public service announcements, station IDs, and opening and closing billboards. On the average, the Cart handles 100 to 150 cartridges a day and, since its arrival, it has brought about some significant changes at the Greensboro station.

Savings in operating costs naturally are important to any broad-

caster. With video tape operations on the increase, savings in headwheel refurbishing and video tape costs can make a real contribution to profitability. The TCR-100 is doing just that.

WFMY-TV, with four RCA reel-to-reel video tape recorders, is already a member of RCA's 1000-

hour headwheel club. Some of its headwheels, in fact, have logged 1600 and 1800 hours. With the Cart, the number of hours of useful headwheel life is even greater, says Thompson.

As always, the excitement in the exhibit areas will be to see what's been introduced by whom.

In The Exhibit Arena

The time may come when there isn't much new to see in the exhibit areas of the annual NAB convention. It may come, but it certainly won't happen this year.

The time may come when there are no new companies joining the NAB exhibitors list. But that won't happen this year, either. Matter of fact, if anything, there are more new products and more new faces than there have been in a long time. Obviously, a great many people are bullish on broadcasting.

(Continued on page 52)

TV/broadcast

consoles - cabinets



ALL NEW! Styled Cabinets and Consoles specially designed for broadcast, TV, monitoring and communications systems.

Amco, a leader for years, in modular electronic enclosures introduces a long needed practical and styled cabinet system complete with accessories, color guide and color selections.

Featured is a system of custom styling the exterior visual portions of consoles while utilizing standard cabinetry for instrumentation. This unique combination, supplemented by a wide selection of standard colors, affords a means for creating attractively custom styled consoles at a practical cost, and savings in delivery time.

Of particular interest is a unique "Poly-Dimensional" cabinet. This series, styled to blend with other consoles and cabinets offered in this system, is available in standard sizes that may be used individually or stacked. Readily modified to non-standard sizes in height, width or depth.

The whole system is amazingly easy to apply and order.

Selection of chassis mounting hardware completes the system.

Delivery lead time averages 4 weeks.

Write for your free copy of Catalog 400 and Color Guide 310-A.

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 LOW.....55
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 HUMIDITY.....92%
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DISNEY WORLD OPEN

Nicklaus	- 10	17TH Hole
Palmer	- 9	17TH Hole
Trevino	- 9	14TH Hole

(TREVINO EAGLED 13TH HOLE)

380YD

FARM REPORT

AREA EGG MARKET

EXTRA LARGE	\$ 44-45
LARGE	37-41
MEDIUM	33-36
SMALL	28-33

When do you think all U.S. troops will be out of Vietnam?

Over 2 years	22%
Within 2 years	17%
By '72 election	15%

Today on
The French Chef




VIDIFONT. The broadcasters' choice.

Vidifont has quality characters, in true upper and lower case, and a selection of fonts, with proportional spacing. Big reasons why Vidifont has become the broadcasters' choice, and the most

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To see Vidifont used in actual on-air formats, call (203) 327-2000, for a free demonstration of our

new Vidifont videotape.

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For More Details Circle #2 on Reply Card

See Vidifont and more at NAB Booth 103

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When time is of the essence . . . and you need equipment enclosures "yesterday" . . . it's good to know you can count on INSTANT EMCOR to ship your requirements **within 3 days**. That's because we stockpile 69 models of our EMCOR I and EMCOR II series of modular enclosure frames —vertical, slope front, turret, desk and counter height, instrument, low silhouette and steel work/writing top . . . ready to go on 72 hour notice.

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See us at NAB Convention, Space 551

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Ingersoll Products



For More Details Circle (151) on Reply Card

Products On Exhibit

(Continued from page 50)

Among the new faces, you'll find some changing old ones. Gates, for example will complete its move into video with a line of cameras. CCA will press forward with TV transmitters. And meanwhile, you'll see the return of Ampex and Visual to better times.

But if you don't make it to the convention, this section of our pre-NAB special should be all the more important to you. We are showing here (and we will continue in our NAB wrap-up issue) products that make their debut. If you won't be attending the convention, we suggest you use our Reader Service card to get more information on these new products.

On the other hand, if you plan to attend the convention, this section and our numerous ads should point out equipment you'll want to inspect.

What's Ahead

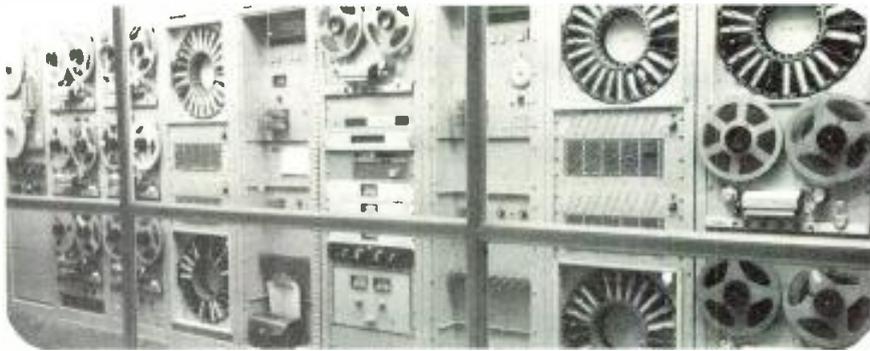
A few months ago **Broadcast Engineering** surveyed the TV and TV combination stations, and we discovered some very interesting figures. In Table 1 you see 1972 station purchases made. Table 2 shows the answers of the same group when they were asked what equipment they thought they would purchase in 1973. Some 1,000 questionnaires were sent to the TV industry. Out of this number, 430 completed and returned the forms. Those of you familiar with surveys will understand that 43 percent returns is very high, high enough to warrant serious consideration. (20 percent usually is considered an acceptable return percentage.)

Table 1

Which of the following equipment has your station purchased in the past year:

Video Monitor	53.4%
Antenna System	19.3%
Automatic Equipment Control	15.3%
Video Tape Recorder	37.6%
Automatic Tape Cart Control	14.1%
Automatic Transmitter Logging	15.5%
Color Camera	23.5%
Film Cine Camera	12.0%
Character Generator	24.8%
Video Studio Console	10.6%
Image Enhancer	18.1%
Film Chain Equipment	20.2%
Special Effects Generator	18.8%
Lenses	14.6%
TV Lighting Controls and Systems	15.3%
Microphone	43.9%
STL Equipment	22.6%
Remote Control System	19.0%
Switcher	25.8%
Video Tape Editor	12.7%
Transmitter	19.3%
Audio Console	19.0%

As the technology becomes more and more sophisticated, it is not easier and easier for management to make equipment purchase decisions. Granted, our surveys show that there are a considerable number of



Photos of Radio Comerciales S.A., Guadalajara, Jal., Mexico

How to get your share of the Latin American broadcast market.

Right now, there are close to 6,000 radio and television stations in Spanish-speaking areas of the world. Competition among stations is keen. To remain competitive - and keep pace with Latin America's rapidly growing economy - their equipment must be kept in top condition. Clearly, a substantial market exists for all kinds of broadcast equipment and components. New and used.

One publication — RADIO y TELEVISION — serves this vast purchasing potential. It provides saturation coverage among buyers and those who influence purchasing at broadcast facilities throughout Latin America and Spain. Owners, managers, engineers and technicians at commercial and educational radio and TV stations, recording studios, electronic equipment manufacturers and related businesses.

As the Spanish-language counterpart of Broadcast Engineering, RADIO y TELEVISION delivers technically-oriented editorial aimed at helping readers to select, operate and maintain equipment and components for maximum **signal quality**. This unique content provides the precise environment that induces buyer receptivity. It enables advertisers to "sell the broadcaster when his mind is on signal quality."

There's a lot more to the story. And we'd be happy to give you more information about this unique medium and the dynamic market it serves.



Radio y Televisión

The technical journal of the Latin American broadcasting industry.

1014 WYANDOTTE STREET

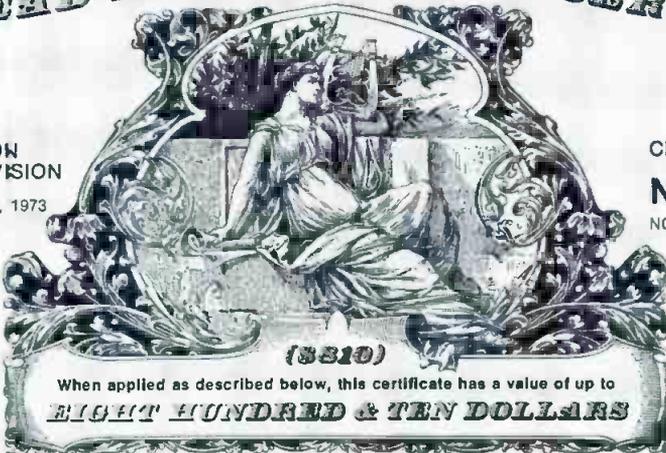


KANSAS CITY, MISSOURI 64105

Have a head

VIDEO HEAD REFURBISHING CERTIFICATE

AMPEX CORPORATION
MAGNETIC TAPE DIVISION
PROGRAM ENDS JUNE 30, 1973
CERTIFICATE VOID AFTER
SEPTEMBER 30, 1973



(8810)

CERTIFICATE
No. SAMPLE
NOT TRANSFERABLE

Date Issued _____

AMPEX

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When applied as described below, this certificate has a value of up to
EIGHT HUNDRED & TEN DOLLARS

Upon presentation of this certificate, subject to the requirements and procedures specified below,
Ampex Corporation, Magnetic Tape Division

**WILL PAY THE FULL COST OF REFURBISHING CUSTOMER'S
AMPEX ROTARY VIDEO HEAD WHEEL**

Issued to:
SAMPLE COPY ONLY

Customer _____

Address _____

City _____ State _____ Zip Code _____

Individual responsible for head at customer site _____

_____ Ampex Magnetic Tape Division sales order number(s)

_____ Ampex Magnetic Tape Division invoice number(s)

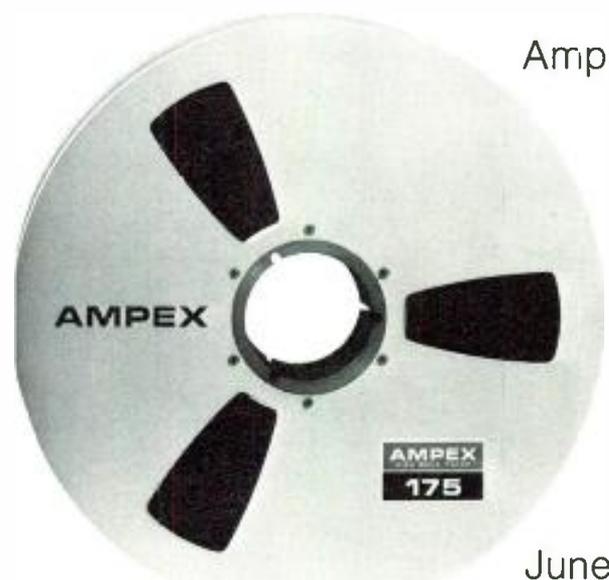
_____ Ampex AVSD invoice number for head wheel refurbishing
(to be filled in by customer)

Authorized Signature:

_____ Bruce C. McGillaway, National Sales Manager

Requirements and procedures are defined on back of certificate. Ask your Ampex tape specialist for your personal copy.

rework-on us.



Ampex 175 video tape has the lowest head wear of any tape on the market.

To prove it, a certificate like this sample is yours when you buy 100 hours of our tape.

The certificate will pay the cost of reworking your Ampex video head wheel.

If Ampex 175 didn't have the lowest head wear we wouldn't make this offer.

Take advantage of it now—the offer expires June 30, 1973.

Call your Ampex tape sales office listed below.

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D. C. (Bethesda, Maryland), (301) 530-8800

CHICAGO (Elk Grove Village, Illinois), (312) 593-6000

ATLANTA, Georgia, (404) 633-4131

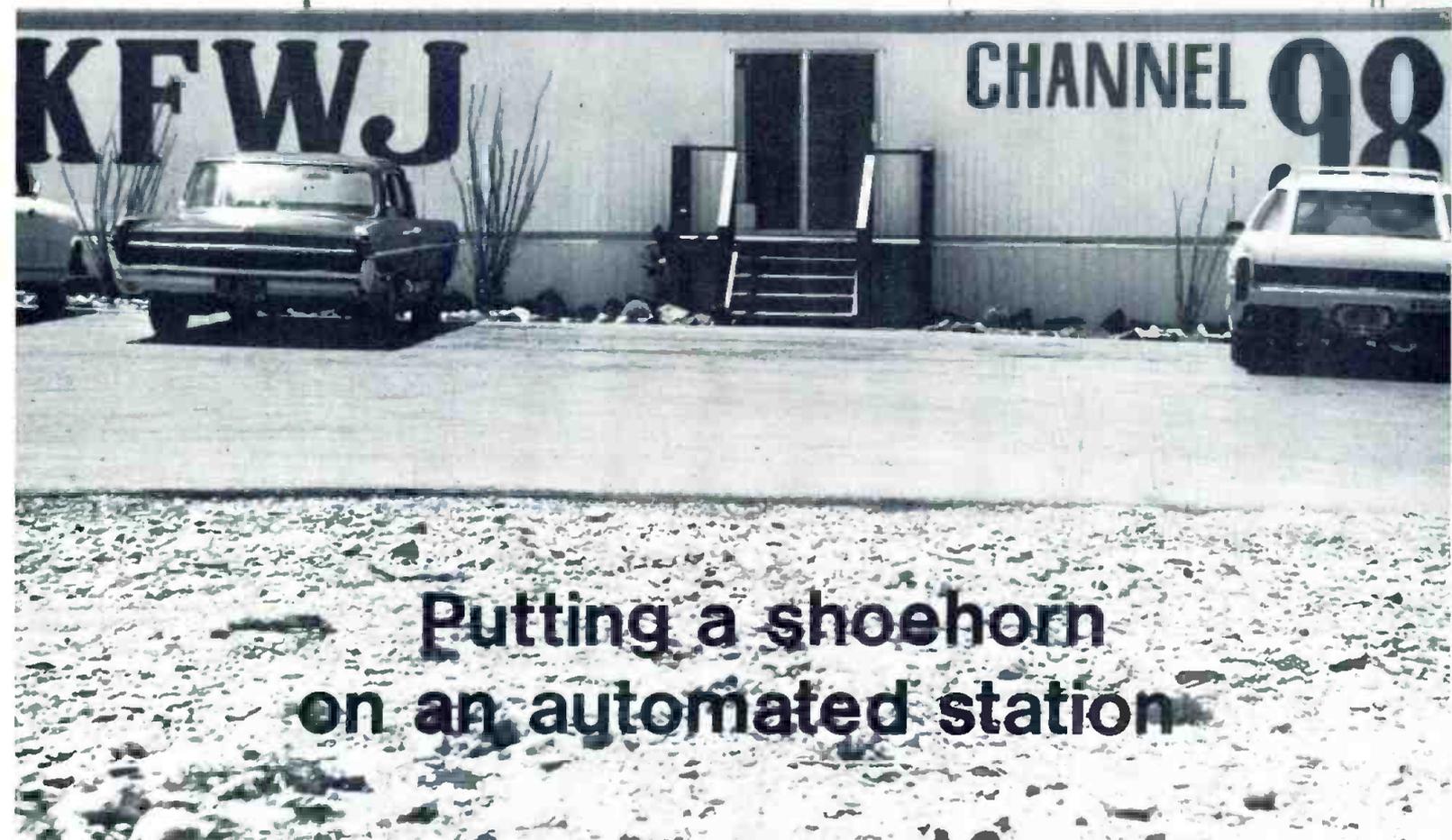
DALLAS, Texas, (214) 637-5100

LOS ANGELES (Glendale), California, (213) 240-5000

AMPEX

**AMPEX CORPORATION
MAGNETIC TAPE DIVISION**

For More Details Circle (45) on Reply Card



Putting a shoehorn on an automated station

Fig. 1 Already home for a fully automated AM station, this trailer will soon include a fully automated FM station.

By Morris Courtright*

Lake Havasu City, Arizona—the new home of the London Bridge. Seeing this massive chunk of granite and slice of Britannia plopped out in the Arizona desert is a source of amusement, amazement, confusion or consternation depending on your viewpoint and experience.

Much the same attitudes accompany installation of automation in a radio station, as can be vouched for by Lee Shoblom at KFWJ. These same emotions also are oft times expressed by visitors to KFWJ who find a fully automated AM

radio station shoehorned into a single trailer.

To top it off, Shoblom's ingenuity will really be tested shortly since he recently walked away from an FCC hearing with a CP for an FM station in his hand. And, you guessed it, the FM is going into the same trailer with everything else. To quote Shoblom, "In the future I may be hiring only small people". Needless to say automation figures quite heavily in the plans for the AM-FM operation which will carry completely separate programming.

First, however, let's take a closer look at this seeming anomaly in the desert; a burgeoning city and a rather sophisticated automation

system in what might seem to be the middle of nowhere to the uninitiated. About ten miles into Arizona after crossing the Colorado river, a sinuous two lane road wends south from a junction marked only by cactus, sagebrush and a state highway marker. Bordered by barren rock and desert and an occasional wild burro, the visitor is just beginning to wonder what he is getting into when the road dramatically leads to a modern city on the shores of Lake Havasu complete with palm trees, grass, beaches, and of course, the London Bridge complete with Olde English Village. The radio oriented visitor will note a large rocky field occupied by the familiar tall orange and white

*BE Automation Editor; Courtright Engineering, Inc., Flagstaff, Ariz.



Fig 2 Lee and Linda Shoblom examine their new automation equipment used to broadcast music and news over a vast area of Arizona and Southeastern California.

tower and a lonely looking trailer. This is KFWJ.

Mobile Home Sweet Home

The entire operation; offices, studio, control room and transmitter room are housed in a 12' x 55' mobile home unit that was custom built in an aircraft hangar in Las Vegas. Originally put together for just a live AM operation, the first major change was addition of the 10 carousel automation system designed to separately program the AM and planned FM. Shoblom concedes, however, that adding the FM transmitter is stretching the point a bit too far, so that goes in a small building at the base of the

tower. Actually, it would go into the trailer except his office has too nice a view of the lake to turn it into a transmitter room.

The most impressive part of the whole setup is the automation system, an SMC Digicard 600. Besides the 10 carousels the machine has net-join, digital clock, back fill, two single play carts, time announce and slow speed tape logger. With an 8-step memory sequence, the machine's 600 card capacity yields a ten hour "walkaway" at 60 events per hour. Most important, you will have to listen quite closely on the air to positively identify the "live sound" as really being automation.

System Operation

Operation of the system is relatively easy, as long as you don't drop a stack of cards. The operator assembles the coded cards in the order the events are to be run and then loads the assembled stack, which comprises the "memory" for the system, into the card reader.

For operator ease, the cards are color coded to identify different types of program elements. Once the stack is loaded, all that is required is to push the go button and stand back while the machine does the work. (It is assumed, of course, that various playback units have already been loaded with the actual recorded material comprising the events.) Additions or deletions may be made at any time merely by adding or removing cards from the stack in the reader.

Of importance to those concerned with the air sound, the system uses secondary cue tones in such a manner that the disc jockey may place any amount of overlap at the beginning or end of other program events. It is this variable tone placement that gives the system its live sound.

To quote from some famous philosopher or other, though, "the switchover to automation is not completely a bed of roses". Even though Shoblom spent considerable time, effort and money picking and choosing the system most suited to his proposed tasks, he will be the first to admit to a few traumatic moments after it was installed. To quote another famous philosopher, "the week after an automation system is installed you will absolutely hate the man who sold it to you, and yourself for buying it. But as soon as you get the hang of it, you'll wonder how you got along without it before."

Automation Obstacles

The major obstacles to over-

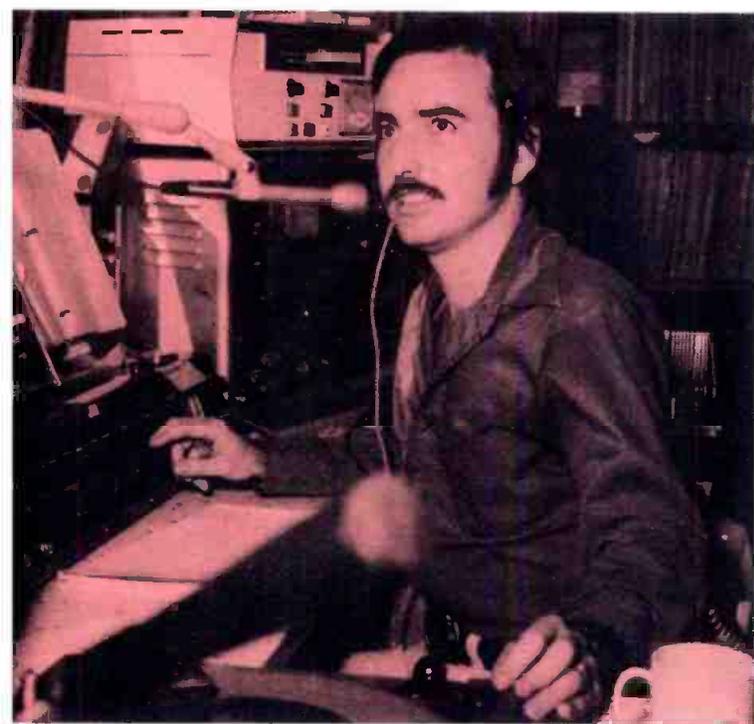


Fig. 3 Tym Lyncr, KFWJ's only fulltime announcer, recording his show for playback later through the automation system.



Fig. 4 Linda Shoblom programming the SMC 600 Digicard System. Each card represents an on-air event and can be changed easily any time up to the moment it is to be played.

come with any automation system are twofold. First, you must develop confidence in the machine. Barring occasional mechanical troubles, the majority of errors encountered at the start are a result of human error in feeding and programming the machine. Second, you must learn to think like the machine does. It is a passive device responding to cue tone and switching instructions. If something weird seems to be going on or the machine all of a sudden grinds to a halt for no apparent reason it will most likely be because that is exactly what it is being told to do. Probably inadvertently.

Nevertheless it is doing what it has been told to do. Poorly erased carts can have extra cue tones, you may be calling on a machine before it has had time to cue up since its last use, you may even be calling for a carousel tray that doesn't have a cart in it. The point is, when something strange does occur, don't be too hasty in accusing the machine.

As noted before, the first few

days after the automation system goes on the air you will feel like throttling the guy who sold it to you. Once you really begin to understand the use of it, however, you will enjoy moments of pure bliss. Moments like those of Lee Shoblom who thoroughly enjoys driving across the London Bridge in his Corvette waving to people who are listening to him on the air at the same time. How else but with automation can you be two places at once.

One Man Band

The major maintenance tasks required to keep an automation system going are the simple tasks of keeping all the heads clean, followed by periodically blowing the dust out of the system. To answer those who may still feel a major engineering effort is needed to keep a large, sophisticated automation system going, merely look at the duties performed by Shoblom: President, General Manager, Station Manager, Sales Manager, News Director, Program Director,

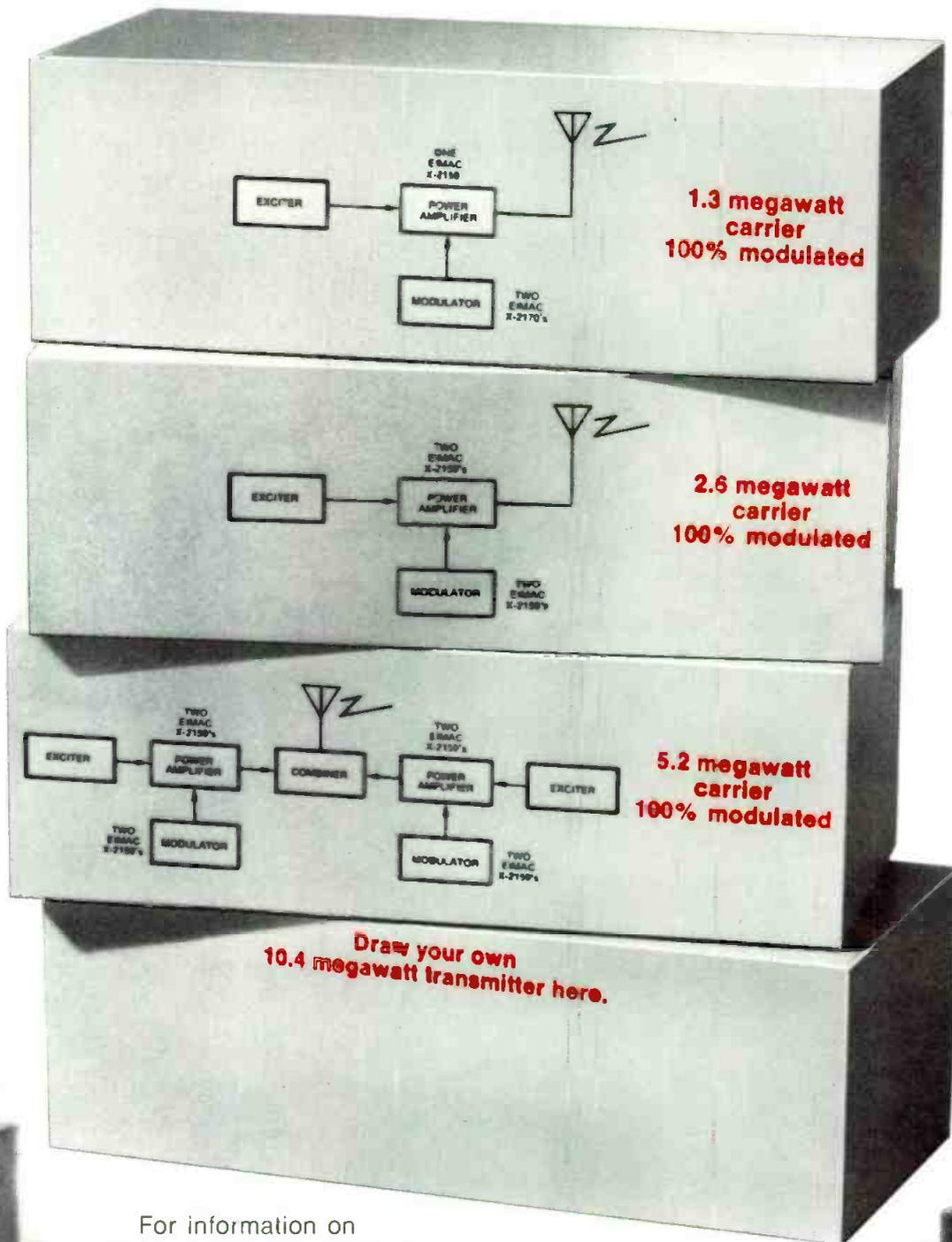
Public Relations Man, Morning Man, Bookkeeper, Chief Engineer and Janitor. This should give some idea of the time spent on engineering for the automation. To quote Lee, "ridiculous, isn't it".

In addition to Lee, Linda Shoblom serves as VP, Promotion Manager, and Air Personality, while the secretary serves as Office Manager, Traffic Director, Public Service Director and Girl Friday. Add to these one full time and one part time announcer and two salesmen and you have the full staff of six people. Anybody like to try that without automation? The freedom to use people for more creative tasks while their show is on the air and to allow the air personalities to be truly creative in putting the show together beforehand will lead to both a more efficient operation and a better sound on the air.

Quoting another famous philosopher about automation, "try it, you'll like it". □

Now hear this:

EIMAC super-power tetrodes provide transmitter "building blocks" up to 10.4 megawatts, 100% modulated.



X-2159



X-2170

For information on the X-2159 and X-2170 super-power tetrodes, contact the EIMAC Division of Varian, 301 Industrial Way, San Carlos, California 94070. Or any of the more than 30 Varian/EIMAC Electron Tube and Device Group Sales Offices throughout the world.



For More Details Circle (46) on Reply Card

The quality that TAV produces is like the camera it uses.

Trans-American Video does great work. They really have an eye for video tape. In fact, they're quite a unique video facilities company. When it started in business over a year ago, it ordered nine of the first Fernseh cameras sold in the U.S. TAV used those cameras to cover the U.S.-Russia track meet and then proceeded to become the world's largest independent mobile color video tape facilities company. Their current credits include NFL Monday Night Football, Young Dr. Kildare series, Burt Bacharach in Shangri-La special, Duke Ellington . . . We Love You Madly special, and Frankenstein, Parts I and II feature.

Today, TAV has over \$8 million worth of equipment. And here's what they have to say about Fernseh cameras:

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"The Fernseh cameras are easy to set up and strike. Once they're registered, they're extremely stable. A video operator does not have to continually ride the pictures."

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