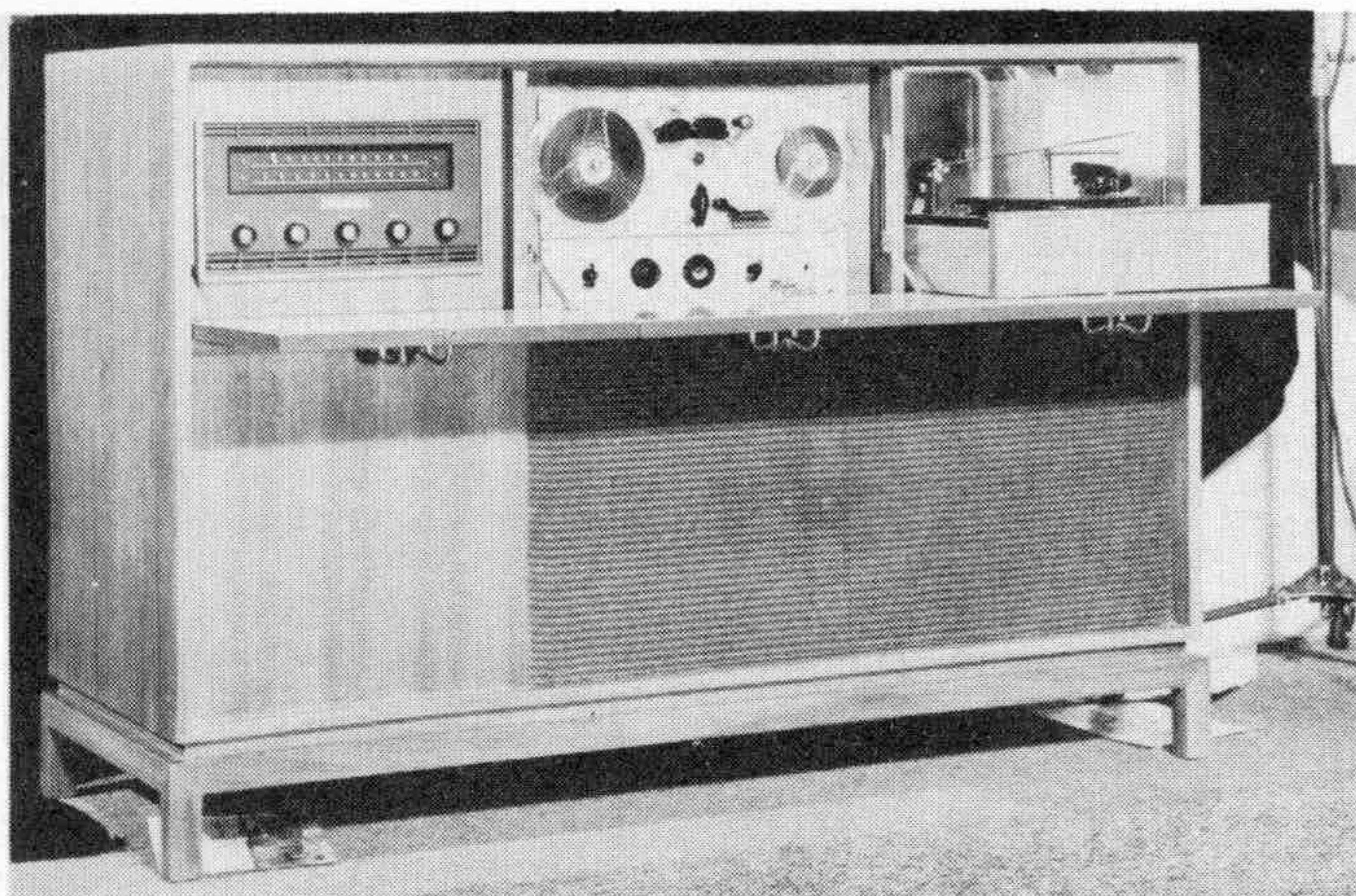


HALLICRAFTER USES MAGNECORD FOR SHOW



The photo above shows a Magnecorder installed in a custom installation designed by Hallcrafters and shown as a feature of the Hallcrafter display at the recent Annual Furniture Market in Chicago.

Binaural Aids Muffler Sales Show

Sometimes a demonstration can be too good! In a way, that was the experience of the Walker Manufacturing Company's Walker-Michigan division of Jackson, Michigan, who used a Magnecord binaural recorder to demonstrate their industrial silencers at the Automotive Suppliers Institute last December in Atlantic City.

"We had originally purchased the equipment for our engineering department's use in experimental sound analysis work," wrote Mr. Robert W. Heath of the Walker Company. "However, the use of the binaural Magnecorder proved so valuable a sales and demonstration aid, that we are sending it out to regional shows and have ordered a second binaural unit for our engineering department."

The equipment was mounted behind a glass panel and six head sets were provided on two semi-circular benches. There were no seats and people were often standing two and three deep behind each headset to have the opportunity of hearing the display.

The recorded tape consisted of two 15-minute retaped programs at 15" per second on a 10" reel. The recording was comprised of product demonstration and music. These were interspersed on the tape with three minutes of product and one minute of music. The product demonstration was presented in the form of a trip through the Walker engineering laboratories. Different exhaust and muffler sounds and problems as well as a

basic explanation of binaural sound were included.

"The binaural demonstration was the hit of the show," Heath continued. Queries came from distributors, other manufacturers and even advertising agencies representing other manufacturers. It generated a tremendous interest in our display, and gave a sound selling story. It also developed a great deal of prestige with our distributors who took pride in the presentation and the fact that we had utilized this new and improved research tool.

"As an indication of the demonstrations popularity we cite the fact that we were unable to rewind the tape at the close of the Show at five o'clock. Other booths in the Show would be practically empty, yet every night people were listening to the head sets at the last minute.

"At 5:30 PM the power was cut off from a central board and the entire show went dead except for emergency lights. We would not rewind the tape until the following morning when the master switch was again closed."

We'll Be There . . .

Magnecord will be in Sound Theatres 301-303 in the Grand Central Palace for the Institute of Radio Engineers show March 20-23 in New York. Stop in and see us and the new products we'll display!

Magnecord Sits Out Wild Binaural Storm

Binaural sound has become the latest storm center of the audio field. Recent issues of High Fidelity and Audio Engineering have been replete with articles on "three dimensional" hearing and reproduction. No audio publication or section is complete without some news of this "latest" development which Magnecord has developed and promoted for the past two years.

The universal acclaim of the binaural recording principles and standards set by Magnecord and the great satisfaction of audiophiles has forced competitors in both magnetic tape and disc recording fields to follow the Magnecord lead.

Actually, the storm broke several months ago. To get recognition of binaural sound, Magnecord promoted a number of binaural broadcasts. These were handled by both the company itself and its sales representatives and distributors. It wasn't long before broadcasting publications were swamped with letters from station managers claiming to have been the first to do these. People don't demand credit for anything less than an outstanding development.

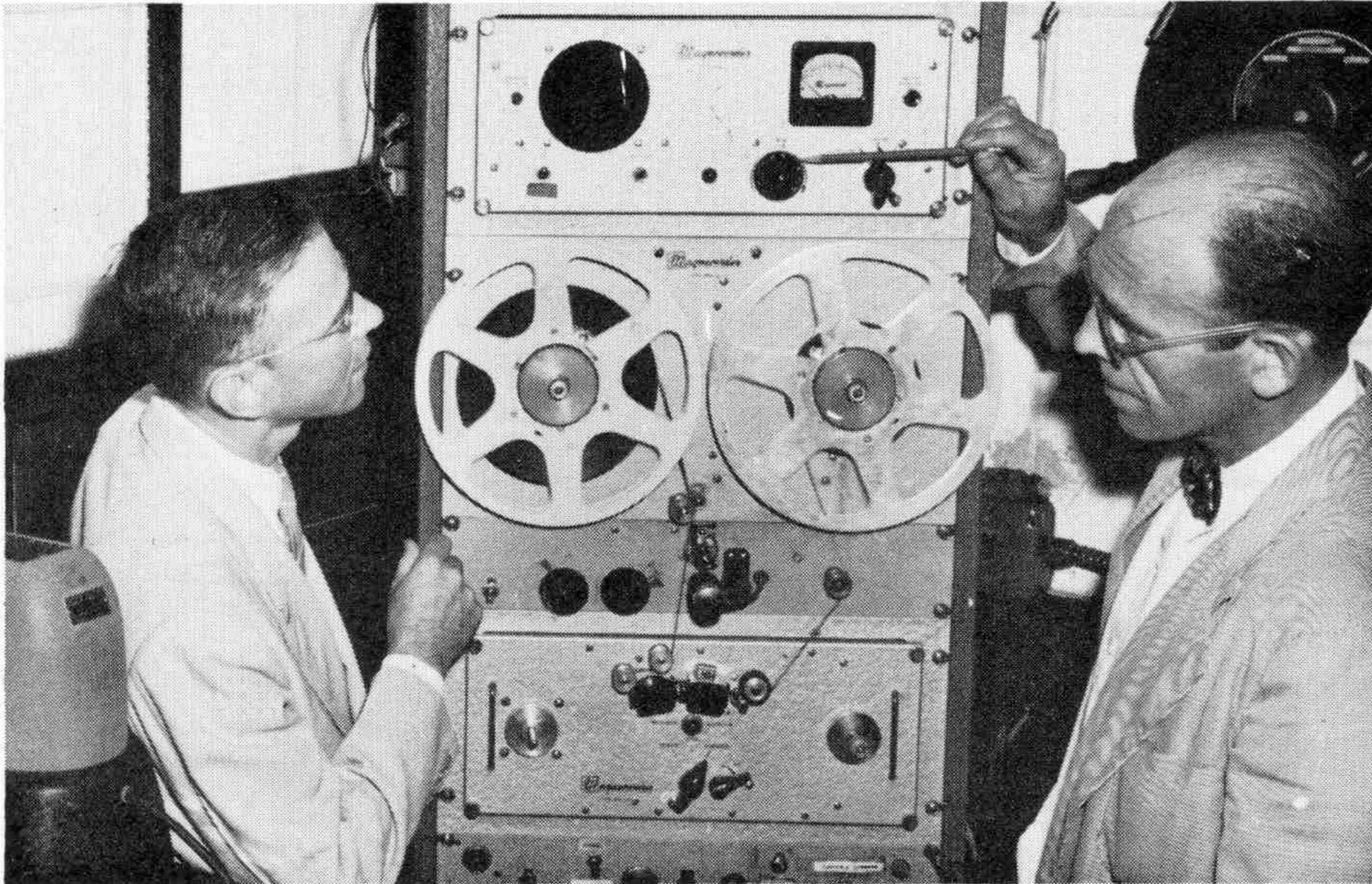
Within the past few months, binaural discs and binaural disc players have appeared on the market, as well as several other magnetic tape recorders. One comelately to the field, has made an attempt to discredit Magnecord developments and initiative in the binaural field by attacking the word "binaural" itself, and the "standards" of microphone placement.

Magnecord engineers have been, per force, close to the problem of microphone placement. Original theories have been changed as they were proven wrong by practice. Today they agree that there is no set formula for binaural microphone placement. This placement depends entirely on too many variables such as the size of the orchestral group, spacing of the group, tonal quality of the hall itself, and the method of playback (speakers or headphones).

Magnecord does not lay claim to "invention" of binaural sound. These principles have long been understood. It does not claim to have had a part in the first binaural broadcasts. It points only to the record which shows Magnecord engineers designed and developed the first commercially practical method of recording sound binaurally. Magnecord production made this binaural recording available.

Let it rain, let it rain, let it rain.

MAGNECORDERS PROVIDE LINK WITH EIGHTEENTH CENTURY



Minor Wine Thomas (left) and Richard Showman, both of the Colonial Williamsburg staff, examine the Magnecorder in use at the Reception Center. The sound tape passes from the supply reel over rollers and then past the light and photoelectric cell. When a bloop on the sound tape passes in front of the light, the cell activates a relay to the motor housed below the slide projectors (left). The motor operates a bar which causes the slides to change and the projectors to turn on and off. Showman is pointing to the volume control on the Magnecorder.

WILLIAMSBURG, VA.—To one standard Magnecorder, Colonial Williamsburg has added slides, projectors, sound tape, blooming ink and a photo-electric cell and come up with its own time machine to transport people from the 20th century to the 18th.

This "time machine" is in the form of a dissolve-slide program in which a recorded narration is not only synchronized with a series of slides but also automatically dissolves and changes the slides. The equipment is used in restored 18th century Williamsburg, Virginia, to tell the story of the days when Williamsburg was a key point in American history. The program is part of the educational activity of Colonial Williamsburg, the organization responsible for the city's restoration.

This unique use of two Magnecorders grew out of a need for explaining the Williamsburg restoration to the half million visitors who flock there every year. In 1948 Colonial Williamsburg set up a Reception Center and equipped it with maps, charts, literature and guides as an official point of introduction to the 18th century. Something more, however, was needed to tell quickly and graphically the dramatic story of the city that had been the scene of many of the events leading up to the American Revolution.

The best answer was a recorded narration with a color-slide program which could combine historical paintings with modern photographs and which could be revised from time to time as the city's restoration continued. That meant finding a method of synchronizing narration and slides. With no solution to the problem then available from manufacturers of audio-visual equipment, two Colonial Williamsburg staff members, Richard Showman and Minor Wine Thomas, started tinkering.

Their first idea involved making an electrical contact between recorder and projector through slots cut in sound tape. Cutting slots, however, weakened the tape.

Showman, an educator and administrator who had built up a working knowledge of electronics, first as a ham radio operator and later as Coordinator of the Naval Training School in Radio at the University of Wisconsin, hit on the idea of using a photo-electric cell. At every point in the narration needing a slide change, he scraped a "window" with acetone on the right side of the sound tape. He set up the Magnecorder so that a light, shining through the "windows" in the tape, hit a photo-electric cell (borrowed from a burglar alarm). The cell activated a relay which changed the slides.

This system still had drawbacks. When the coating was scraped off the tape to let light through, the sound went with it and the program was full of dead spots. The system was also inflexible; once the tape was scraped there was no way of revising it.

With the help of Colonial Williamsburg electrician Hobart Ray, Showman finally developed the system now used to present a 30-minute dissolve-slide program at intervals all day long in the Reception Center. Whenever a slide is supposed to change, a spot on the back side of the sound tape is covered with blooming ink. The sound tape passes in front of a light which hits a photo-electric cell. This cell sends out no impulse so long as it receives light. When the light source is interrupted, however, by one of the bloop on the tape, the cell activates a relay which, in turn, starts the slide-change mechanism.

The slide-change and dissolve mechanism was also worked out by Showman and Ray. The slides for the program are alternated between two automatic slide projectors. Two micro-switches operate each machine, one switch turning the lamp on and off and the other switch operating the slide-change mechanism. The switches are tripped by cams set in a long bar, the bar is operated by a small motor and the motor is activated by a relay from the photo-electric cell.

This system, which Colonial Williamsburg has made available to museums and other organizations, has some conspicuous advantages. It makes possible a dissolve-slide program with automatically synchronized narration and music. The program itself can be revised at any time by adding or subtracting slides and by removing or adding bloop on the sound tape. There are never any breaks in the visual side of the program because one slide dissolves into the next. There are never any dead spots on the sound tape because the bloop are on the back, rather than coated, side of the tape. Narrations for each slide do not have to be uniformly long; in the Colonial Williamsburg program, some slides have only three seconds of narrations and others as much as fifteen seconds.

The system also has some minor, but important, refinements. When one slide machine is projecting, the light on the other machine is out, thereby postponing "buring out" of slides. The photo-electric cell can be made more or less sensitive and the light shining through the bloop correspondingly dimmed or intensified to adjust to the wearing out of the cell and to any changes in lighting in the projection room.

The Colonial Williamsburg Reception Center program currently uses 180 two-by-two color slides synchronized with 1,100 feet of quarter-inch sound tape. This program is in two parts: "Prelude to Independence," which tells the story of the 18th century Williamsburg that helped shape the concept of a free and independent United States of America, and, "How to See Williamsburg."

The slide program ranges over the restored area of Williamsburg which today covers about three-quarters of a square mile and includes most of the historic landmarks of the 18th century. Colonial houses and buildings still standing have been stripped of later additions and restored to their 18th century beauty. Eighteenth century structures that had disappeared have been reconstructed on their original sites. The famous "green" gardens of colonial days have been re-

(Continued on Page 4)





"A" Unit Maintenance

MAINTENANCE:

The PT6-A and PT63-A Basic Recorder Mechanism is ruggedly built to withstand the requirements of studio and field use. Maintenance is of a minor nature and should the unit require any repairs due to accident or misuse, it should be returned to the distributor from whom it was purchased. When writing in regard to the unit, the type number, serial number, the date and from whom purchased should be mentioned.

ELECTRICAL:

The 12AU7 oscillator tube should be checked occasionally.

MECHANICAL:

All bearings in the PT6-A and PT63-A are either of the self-oiling type or the wick-fed type. The unit is properly lubricated before it leaves the factory and should not require any further lubrication for at least six months.

MOTOR LUBRICATION:

The motors should be lubricated with a few drops of #SAE 10 oil, every three to six months depending on the amount of use. All motors should be oiled at both front and rear.

The felt washers on the takeup and rewind clutch assembly are oiled at the factory, but 2 drops of fine sewing machine oil should be added.

The guide rollers should be disassembled once every three months by removing the small screw on the front. Remove all the parts, clean them with carbon tetrachloride, re-oil the felt wick, and reassemble.

The capstan and pressure roller must be kept free of dirt, and one drop of a light oil should be applied to the pressure roller shaft after it has been cleaned with carbon tetrachloride every three months.

The takeup bearing assembly should be taken apart and the bearings repacked with grease once a year. The felt wicks on the front and rear of the capstan shaft should have three drops of light oil every six months.

Note: It is imperative that no oil be allowed to accumulate on any of the rubber covered idlers as this will cause slippage and impair tape speed regulation. A soft cloth moistened with carbon tetrachloride should be used to remove any oil from the idlers.

CLUTCH ADJUSTMENTS:

Tape tension is maintained by two friction clutches. Their correct adjustment causes the tape to move from one reel to the other in either direction without throwing or stalling.

The clutches are located on the rear ends of the supply reel spindle and the take-up reel spindle. The supply reel spindle clutch is located at the right (facing the rear of the unit) and consists of an oiled felt washer pressing against a knurled disc which is free to rotate in a clockwise direction but prevented from turning in the opposite direction by a spring loaded pawl. Pressing against the opposite side of the felt washer is a sponge rubber pad. A split, knurled adjustment ring bears against the sponge rubber pad and is locked in place by means of a set screw. The set screw must be backed off before the adjustment ring

can be turned. Rotating the adjustment ring clockwise increases the clutch friction.

The supply reel spindle clutch adjustment should maintain a drag as the supply reel rotates when the PT6-A is in forward operation. This drag should be sufficient to stop the supply reel without permitting the tape to loop or throw when the control switch is turned from "FORWARD" to "STOP." The amount of friction should be the minimum necessary to accomplish this; 3-4 inch-ounces.

Too much clutch friction will increase the tape drag to a point at which the tape speed will be below normal.

The take-up reel friction clutch is located on the left side (facing the rear). This is similar in appearance to the other clutch but employs no pawl. It is also necessary to back off the set screw before adjusting this clutch.

The take-up reel spindle friction clutch couples the spindle to the synchronous motor drive when the control knob is set to "FORWARD" and acts as a brake on the take-up reel when the control knob is set to "STOP." The clutch adjustment should provide sufficient friction for the take-up reel and capstan to move the tape at normal speed forward when the take-up reel is almost completely full and the supply reel nearly empty. It should also provide sufficient braking to maintain tape tension and prohibit tape throw when the control switch is turned to "STOP" after the take-up reel has been rotating at high speed during rewind. The split knurled ring should be adjusted to provide the minimum clutch friction to accomplish these two functions; 6-7 inch-ounces.

OILING THE CLUTCH FELTS:

The felt washers have been oil treated at the factory to provide the correct amount of slippage. It may be necessary to give each felt washer (supply spindle and take up spindle) one drop of high quality sewing machine oil every several months of use.

CLEANING THE HEADS:

It is necessary that the portions of the erase head and the record-reproduce head which come into contact with the tape be kept free of dust, grease and foreign matter, or the frequency response characteristics will suffer. They should be cleaned with a soft cloth slightly moistened with carbon tetrachloride C. P. after every five hours of operation.

The heads should be realigned periodically with standard alignment tape, which is available from Magnecord.

Note: Do not attempt to apply carbon tetrachloride to any part of the PT6-A or PT63-A when loaded reels are in place as the tape is soluble in carbon tetrachloride and will be ruined if it comes in contact with the solution. After using carbon tetrachloride make sure the heads are completely dry before threading tape and be sure none of the solution is transferred to the tape from the fingers.

HEAD REPLACEMENT:

Replacement erase or record-reproduce heads may be obtained from the distributor from whom the unit was purchased provided the worn heads are returned at the same time, for a nominal service charge.



(Left to right) Clair Van Ansdall, announcer; Frederick Fennell, musical director; Eastman School of Music of the U. of Rochester. Photo taken listening to playback of one of the Magnecord tape recordings for the Eastman Wind Ensemble series Rural Radio Network.

Eastman School Tapes Rehearsals for Instruction

The Eastman School of Music of the University of Rochester, Rochester, New York, recently announced the inception of a unique program of music and instruction over the facilities of the Rural Radio Network and other eastern FM stations, 19 in all.

The hour broadcasts each Monday afternoon is a part of the in-school-listening program of the Rural Network, and consists of rehearsal broadcasts by the Eastman Wind Ensemble under the direction of Frederick Fennell.

Each May the New York State School Music Association sponsors a series of "Competition-Festivals" in which some 45,000 school musicians participate in instrumental forums held in thirteen areas of New York state. Purpose of the Eastman broadcasts is to present rehearsal and performance suggestions to those who participate in the Festivals.

The series by the Eastman Wind Ensemble, a perfectly balanced band of 45 players, is devoted to rehearsal problems of the music to be performed at the spring Festivals. Each work is rehearsed and discussed in detail on the air and then played through without pause.

... and it's recorded by the Eastman School on Magnecorders for play on Magnecorders of the Rural Radio Network.

Smart Thieves Choose

And then there is the story which appeared in *Broadcasting*: The Editors labelled as "smart," the radio-wise thieves who stole radio equipment from a station in Binghamton, N. Y. Among the loot was a Magnecorder.

MaVoTape Balloon Up Issue New Releases

After early production pitfalls common in new ventures, MaVoTape, Inc., producers of "Magne recordings by Vox" are now under way. Coincidental with the announcement that all orders already received would be filled by February 16, came the announcement of eight new releases.

New releases are:

Masterpieces in Miniature by Orazio Frugoni, a potpourri of solo piano works which include 11 selections ranging from the familiar "Clair de Lune" of Debussy to "Jesu—Joy of Man's Desire" by Bach.

Mendelssohn—Symphony #4 by the Vienna Symphony Orchestra conducted by Otto Klemperer. Chabrier—Pieces for Orchestra by the Concerts Colonne Orchestra, Louis Fourestier, Conductor. This latter collection includes the famous "Espana."

Corelli—Twelve Concerti Grossi with Dean Eckertsen conducting the Corelli Tri-Centenary String Orchestra. These Concerti comprise the first complete recording of this work. Due to the length of the composition, MaVoTape will release the Concerti in sections. The first tape will include the first four concerti.

Beethoven Choral Fantasy by the Vienna Symphony Orchestra with Clemens Krauss conducting. Schumann—Concerto for Piano and Orchestra by the Vienna Symphony Orchestra with Otto Klemperer conducting and featuring pianist Guiomar Novaes.

Mozart—Fourth Violin Concerto featuring Reinhold Barchet, violin, with the Pro Musica Orchestra, Stuttgart. Chopin—Piano Recital with Guiomar Novaes. This collection of famous Chopin piano works includes many of the composer's most popular works such as the "Fantasy Impromptu" and the "Minute Waltz."

Research Scientists Rely on Magne recorders

It's flattering to have scientists of the Armour Research Foundation of Illinois Institute of Technology use Magne recorders. They are, of course, one of the largest and most important institutions set up for industrial development and applied research. Also, they are the developers of magnetic recording and holders of exclusive patents under which they license all manufacturers who produce magnetic recording equipment.

Among their uses is that of the famed physics research department. The acoustics and vibrations section have been pioneers in the scientific study of urban noise. Their important work may some day lead to establishment of national forms of legal noise tolerances and standards.

In the course of their five year study, they have found that traffic noise is louder and more objectionable than industrial area noise to which people most often object. Motor coaches are not the most annoying noise source but only seems so since they operate on boulevards that are otherwise quiet.



As part of the restoration of 18th century Williamsburg, hostesses, guardsmen, craftsmen and other Colonial Williamsburg personnel wear 18th century dress. A hostess is alighting from an 18th century carriage in front of the reconstructed Governor's Palace.

(Continued from Page 2)

planted with the same sorts of materials familiar to 18th century gardeners. The colonial printing office, blacksmith's forge, wigmaker's establishment, apothecary store and other shops have been reopened. So far, about 80 buildings have been restored and some three hundred completely reconstructed.

The program also shows a number of Williamsburg's 18th century structures which today are public exhibition buildings, decorated and furnished as they were 200 years ago. The Capitol, where Patrick Henry cried out against the Stamp Act and where colonial legislators voted unanimously for independence from Britain, is now open to the public as is the Raleigh Tavern where Patrick Henry, Thomas Jefferson, George Washington and other revolutionary leaders, ate, drank and argued politics. The elaborate

Governor's Palace, home of the royal governors of the colony, the colonial Gaol where Blackbeard's pirates were held, the Magazine from which the British removed the colony's powder, the Wythe House which was Washington's headquarters before the siege of Yorktown are all exhibition buildings. The list of restored or reconstructed buildings open to the public also includes the Brush-Everard House, Ludwell-Paradise House, 18th century Courthouse, Bruton Parish Church and shops where bootmaking, cabinetmaking, spinning and other crafts are performed as they were in the 18th century.

The Colonial Williamsburg Reception Center Program presents all these buildings to visitors, not only as feats of research and architecture but also as symbols of one of the most impressive eras of the American past.

WHO USES MAGNE RECORDERS?

Our feature on "Who Uses Magne recorders?" begun last month met with surprising favor. As a result, we are continuing a listing of 25 purchasers who returned warranty cards within the past two weeks. They are selected at random.

We do owe an apology to the radio broadcasting people. We did not mention any radio stations purchasing units. It was the feeling that it would be unfair to the several hundred stations now using Magne recorders to reel off a list of new purchasers—most of whom already are using Magne recorders.

Here is this issues' list from Warranty Cards received Jan. 5-19:

Royal Canadian Mounted Police, Ottawa, Canada.
Brigham Young U., Provo, Utah.
Chevrolet Exper. Test Lab, Detroit
First Baptist Church, Crowley, La.
Carnegie Institute of Technology, Pittsburgh.
Bendix Aviation, Detroit.
Allerton Chemical Co., Rochester.
Miss Porter's School, Farmington, Conn.

Museum of Vertebrate Zoology, Berkeley, Cal.
B.C. Dept. of Education, Vancouver, B.C.
Control Systems Lab, U. of I., Urbana, Ill.
Westinghouse Electric Corp., Baltimore
St. Louis Medical Society, St. Louis, Mo.
O'Brien Electric Co., Los Angeles
Columbia University, Dobbs Ferry, N.Y.
Pacific Telephone & Telegraph, Los Angeles
El Campo High School, El Campo, Tex.
West Indies Missions Inc., Placetas, Cuba
General Electric Co., Lynn, Mass.
New Departure Div., GMC, Bristol, Conn.
Wiederhold Recording Studios, Louisville, Ky.
Salinas Public Schools, Salinas, Kansas
So. California Baptist Convention, Los Angeles
U. of Tennessee, Knoxville, Tenn.
Photo Bell Co., Brooklyn, N.Y.