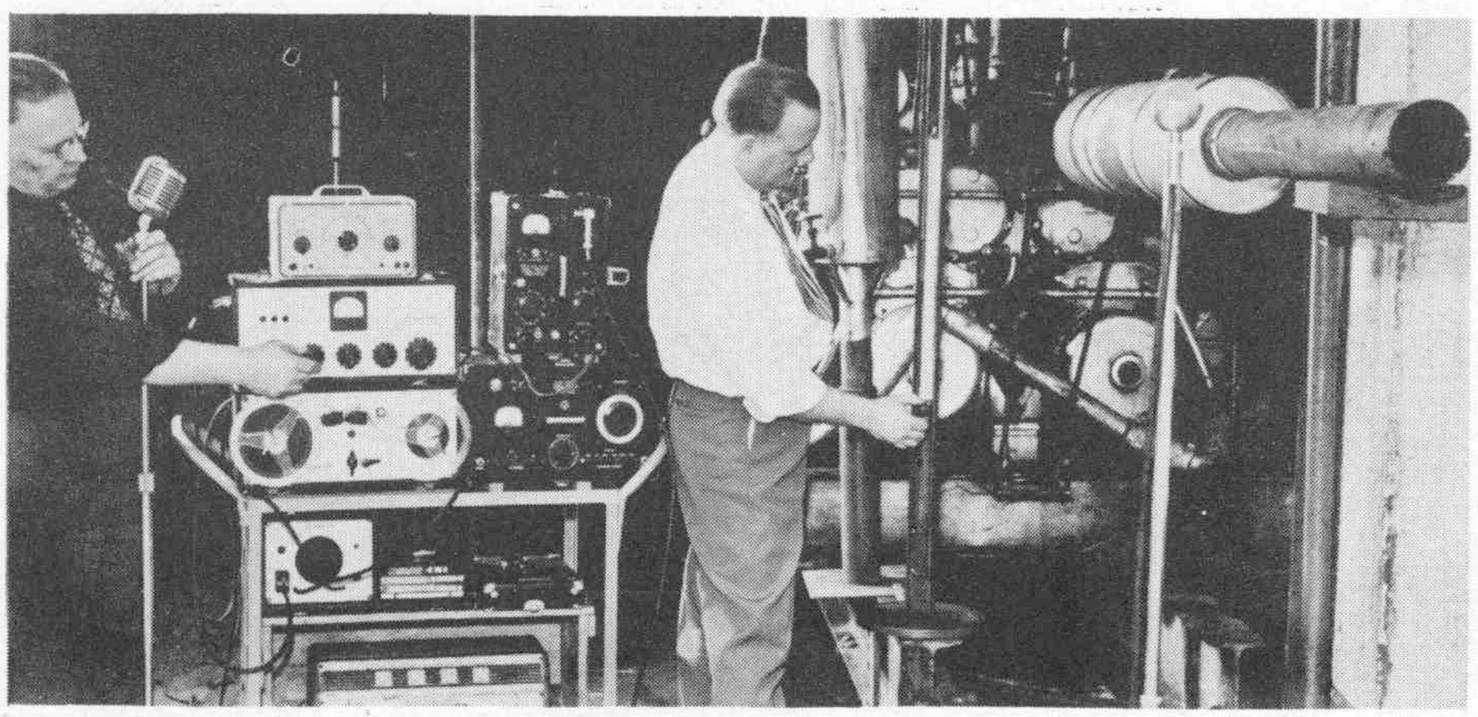
Magnecord Ink

PUBLISHED BY MAGNECORD, INC. 360 N. MICHIGAN AVE., CHICAGO 1, ILL. MARCH-APRIL 1952



MAGNECORDERS AID MUFFLER DESIGN

Accurate measurement and faithful reproduction of noise is essential in selecting and designing proper mufflers for automotive vehicles. To do this, the Donaldson Co., Inc., of St. Paul, Minn., has chosen Magnecorders, and developed a muffler analysing method to accomplish four purposes.

Exhaust noise is recorded accurately in road tests, and the recording provides a permanent record. The noises can be compared instantaneously with any other muffler at identical loads and speeds. Executives can hear a full week's road tests in a few hours without leaving their offices, and, the exhaust noises, recorded in road tests, can be dissected in the laboratory.

At Donaldson, the Magnecorder is first used in designing and testing experimental mufflers for specific vehicles. Donaldson engineers have built up a reference library of over 600 recordings of varying sounds created by different designs and adjustments.

Then, a sales engineer, equipped with a portable Magnecorder and a set of experimental mufflers calls on the potential customer. With the customer's engineers, he tests and records each muffler on the test vehicle. Magnecordings are made of each muffler at a series of standard speeds and loads.

Short sections of each recording are spliced to form a continuous reel, each section containing the recording of a different muffler at a comparable speed and load. The Magnecorded results are then brought to the company executives who hear their own engineers report on the tests and then hear the tests.

Since the change from the recorded noise of one muffler to another can be instantaneous on the spliced tape, it gives the customer a direct comparison of the experimental mufflers, and it makes selection comparatively easy.

The chosen muffler and the applicable section of tape are then sent back to the Donaldson research engineers for use in developing the final product.

Each change in design is recorded in road tests, then analysed in the laboratory. Final objective is a much improved muffler designed specifically for the customer—plus a tape that can clearly demonstrate the improvement in the customer's office.

MAGNECORD SHOW "SETS THE PACE" AT MARCH I. R. E.

Magnecord's view of "Sets the Pace" was more than a mere slogan at the annual meeting of the Institute of Radio Engineers March 3-6 in the Grand Central Plaza in New York. The demonstration of Magnecord equipment already on the market and new developments now in the production stage were among the outstanding features of the show.

Although Magnecord demonstrated the first commercial binaural recording equipment at the November Audio Fair in New York, it was again the focal point of the Magnecord exhibit, and was one of the most discussed innovations of the entire show both by the trade and general press and among the engineers.

Binaural is a method of "live" recording which gives the most accurate reproduction possible. Its effect to the ears has been compared to the effect received by the eyes with stereoptican images. It gives a depth or feeling of actual presence wherein position of various sounds can be distinguished and located.

The binaural effect is accomplished by recording with two microphones placed a distance apart, through separate amplifiers.

(Continued on Page 4)

FORM NEW INTERNATIONAL ORGANIZATIONS

Magnecord has formed two new corporations to promote world-wide distribution and manufacture of its equipment. Magnecord Western Hemisphere will handle export markets in all countries of North, Central and South America except the United States, Alaska and Hawaii. Magnecord International Limited will operate similarly in all markets outside the continental limits of the Western Hemisphere.

Ad Auriema, president of Ad Auriema, Incorporated, New York, has been appointed manager of the international groups to handle sales and distribution in these markets. Auriema, a recognized leader in the export of electronic merchandise, will establish distributors for merchandising outlets of Magnecord products in all countries open to export trade.

C. G. Barker, vice president and sales manager of Magnecord, is president of the two international organizations. According to Barker, the formation of these two corporations is a direct indication that world-wide use and enthusiastic acceptance of Magnecord equipment has grown to major proportions. Now professional users of Magnecorders everywhere have the same active service and supply available in the United States.

BARKER

AURIEMA

ENGINEER DESCRIBES 'OPERATION TAPELIFT' IN CALGARY STORM

The most severe June snow storm in Alberta's history struck Calgary last June 6. Sixteen inches of sleet and heavy, wet snow, driven by high winds, built up on telegraph and telephone lines, bringing down poles and snapping wires throughout the communication system. How his station was kept on the air is described by Ross Craig, chief engineer of Station CKXL, Calgary.

About four a.m. on June 6, 1951, I was jolted out of a sound sleep by the jangling of the telephone beside my bed. Our Control room Operator made the terse statement, "We're off the air". Not being able to contact the transmitter on the phone, I hastily dressed and awakened one of our studio technicians. He said, "What's it doing out", and my reply was, "It's snowing and blowing like hell. Probably the line to the transmitter is down." This was confirmed by the Telephone Company.

We rushed to the Studio to gather together some equipment to take to the Transmitter—"just in case" there was still power available. We were joined shortly by the Production Manager, and after a hasty consultation it was decided to try to get through to the Transmitter.

After quite a hazardous ride we arrived, only to learn that power had failed a short time before. Fortunately, we were able to get back to town without difficulty by following a big oil truck.

By the time we started that ride back to town it was daylight and the damage from the storm was only too apparent. We saw pole after pole down and ice laden wires were still snapping and poles swaying and toppling. We knew that to get on the air again soon, and to try to maintain our regular schedule would require some drastic measures —but what, and from where?

While we were discussing the best way to go about it, the representative of a local Electrical Equipment firm called the Studios and offered to rent us a 10 KW power plant, and to install it for us immediately. This assistance, we of course welcomed, and our number one problem—that of power for the Transmitter—would be solved. They obtained a 220 V, 10 KW plant and set to work installing it. Incidentally, we worked from this standby power for a full week, before our regular power was restored.

Now that is was apparent that we were going to have power what to do about the programming? Here again there was no equipment to speak of at the Transmitter, capable of meeting such a schedule as ours. We decided to Magnecord our full program schedule ahead of its regular time of presentation, and rush the tapes to our Transmitter, from where they would be played on the air.

We then set up two PT63 Units at the Transmitter, along with two 45RPM record players, to handle a special show of 45's in the afternoon. After a quick alignment check the PT63's were ready. In the meantime, another PT6 was put to work in the Studio recording the regular schedule. To accomplish this properly, all clocks in the studios were set back two hours, to allow time for the tapes to be transported to the Transmitter and "cued in" on the PT63's. We were back on the air by 2:25 p.m. that same afternoon, and continued with news on the hour, etc. In some cases, we were able to make up for commercial commitments, that would otherwise have been lost.

With the arrival of the first tape at the Transmitter, a shuttle service was inaugurated with cars arriving on the half hour regularly, with tapes, and food for the Operators, until the emergency was over. This, our Manager, Fred Shaw, dubbed "Operation Tapelift", and it stuck.

Everything went well the first day, and we started again at four a.m. the next morning to Magnecord our first program due on the air at 6:00 a.m. Normally, we are on a 24-hour operation, but we decided not to wear our personnel out entirely, not knowing how long this type of operation would have to last. We were not in the least worried about the Magnecorders breaking down, but the possiblity of the human element breaking down were we to continue on a 24-hour schedule, we seriously considered. Things went smoothly this day too.

The Telephone Company were also doing their utmost for us. They dispatched three crews to work especially on our line, and by 7:30 that night, they had one circuit through —our broadcast pair—after putting up new poles in some locations, replacing others, and stringing about five miles of new wire.

We then switched back to the studios to resume operation with our regular facilities. The Magnecorders had performed a yoeman service. The "thumb button" located beside the function switch got so hot that John Newberry, our Studio Technician almost burned his thumb on numerous occasions turning the machine on and off. This is not surprising, in view of the fact that this PT6 was going continuously, except for a thirty second break every half hour, from the start of the "Operation" until the time that line facilities were actually restored.

So good was this operation, including timing, quality of the programs, etc., that the great majority of our listeners were not even aware that we were working from the Transmitter. This is evidenced by the fact that we received the usual number of 'phone calls at the Studios for musical requests.

MAGNECORDERS FORM VITAL PART OF TOURING CIVIL DEFENSE SHOWS

Magnecord units play an important role in the production of the Federal Civil Defense Administration's travelling "Alert America" convoys which will tour the entire nation on behalf of civil defense.

Each of the three convoys will consist of ten 32-foot trailers carrying elements of a portable exhibit which when assembled will be about the size of a basketball court. The convoys will visit principal target areas, and will cover the entire 48 states over the next nine months. Each of the units contain four PT6-J and PT6-AH Magnecorders.

In each city the exhibit will be set up in an armory, exhibit hall or gymnasium for three to five days. It will be the focal point for a local "Civil Defense Week." It was designed by the designer of the Freedom Train, and will be dramatic in its impact, using motion and three-dimensional effects throughout.

Half the exhibit will drive home the reality and nature of the threat that faces us. The other half will spell out what the individual citizen can do, and how civil defense services are organized at the state and local level to protect their communities.

Principle elements of the show include peacetime uses of atomic energy in industry, agriculture, transportation and medicine; the far different type of war that might come—atomic air attacks, sabotoage, psychological warfare, chemical and biological warfare; a film strip of an actual atomic explosion; diorama of what one bomb could do to a typical city; how civil defense can meet this menace; structure of national, state and local civil defense organization; and, methods and tools of civil defense in pre-attack, post warning and post-attack phases.

Three of the Magnecords are for voice and music. The fourth unit also has speech recorded, but additionally operates a timing device which activates elements of the exhibit. Metal foil stripped to the back of the tape operates relays which bring on blackouts, anti-aircraft fire, explosions, and the ultimate collapse and burning of a city. Each of the four units has a continuous loop mechanism and is remote operated.

TAPE TALK ON

New Magnecord Products

Continuous Player

To meet the new and growing demand of entertainment, transportation, stores, markets, factories, and offices for continuous tape recorded music, Magnecord engineers have developed and are now producing a continuous reproduction unit—the Magnecord 4-14X—to be used with existing amplifiers or public address systems.

The 4-14X, a bifilar reproducer, has dual track heads and an automatic reverse mechanism. With 14-inch reels played at a standard speed of 7½-inches per second, two hours are played from one track. The machine reverses automatically and plays the track on the other half of the standard ¼-inch recording tape.

This gives a full four hour program without repitition before the machine, automatically reversing again, begins replay of the first channel. Ten-inch reels can also be used, and the unit has an alternate speed of 3¾ inches per second.

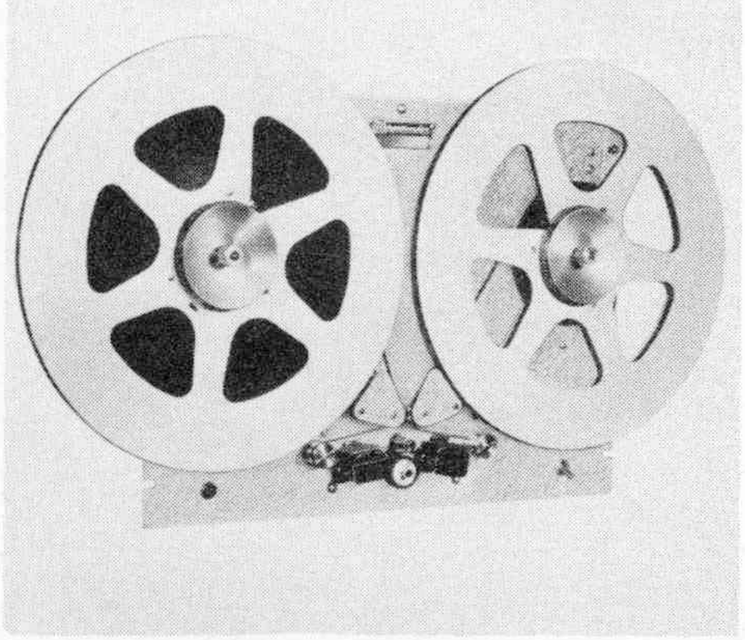
The 4-14X is powered by a synchronous motor and two reel motors. The separate torque reel motors control action of the take-up and pay-off reels and maintain flutter-free tape tension. Use of electric motors eliminates friction clutches or drag mechanism found in gear-type mechanical units.

The reversing mechanism is activated by silver paint or foil on the tape. As the foil passes over the contact points, the circuit is shorted, throwing a relay which starts the unit back in the opposite direction on the other track. No manual switching is required, and music continues uninterrupted.

The compact unit is easily installed. It is powered by standard 110 V 60 cycle single phase AC, but due to its low power drain may also be operated from a converter or portable power supply. It is shock mounted to withstand vibration, bumping or jarring.

The 4-14X fills the bill wherever there is a need or desire for continuous quality music. The unit is virtually self-operating. Reels need not be rewound, but may be stopped at any point on the tape, and will restart at the flick of a switch. A panel light indicates when the unit is in operation.

The flexibility of tape permits announcements to be quickly and easily spliced in. Orders for the 4-14X have already been received from two railroads, an air line, several chain stores, a dance studio, amusement parks and roller skating rinks.

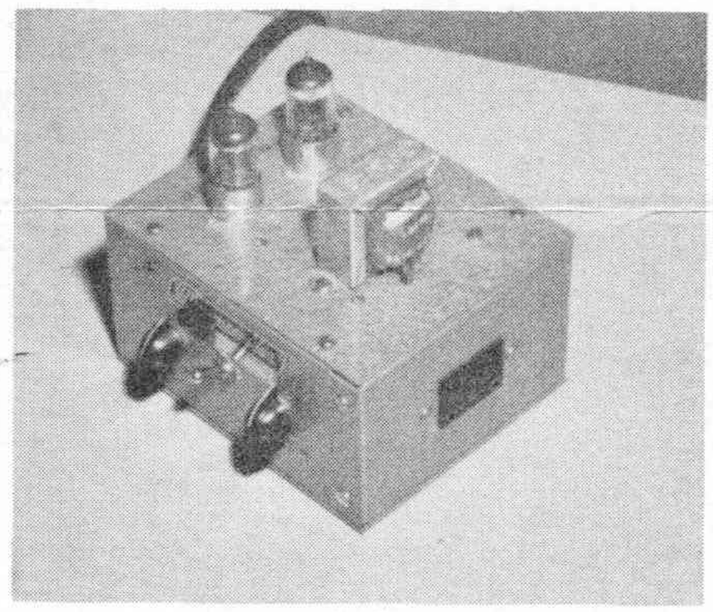


Voice-Operated Relay

Magnecord has begun commercial production of a Voice Operated Relay unit to automatically start and stop a Magnecord recording unit. The Relay causes the recorder to start recording when speech or other material appears in the circuit, and stops the recorder automatically after speech has ceased.

The relay is bridged between the amplifier and mechanical unit by inserting it in the power cord connecting the two. It takes its power from the amplifier unit. A six-prong male Jones plug is inserted into the power receptacle of the amplifier, and a similar plug from the mechanical unit is placed into a female plug on the Relay.

By means of the "Threshold" control, the unit is adjusted to start recording at any predetermined audible signal level. A "'Release Time" control determines the length of time the recorder continues to operate after the signal is stopped. This last may be adjusted to allow sufficient time to prevent confusion between messages. An "Override" switch takes the Relay out of the circuit and permits continuous recording.



In the past, Magnecord has produced these units in limited quantity and only by request. The Relays have been used to control recorders monitoring airport radio circuits, state police intercommunication circuits, railway train dispatching lines and similar applications.

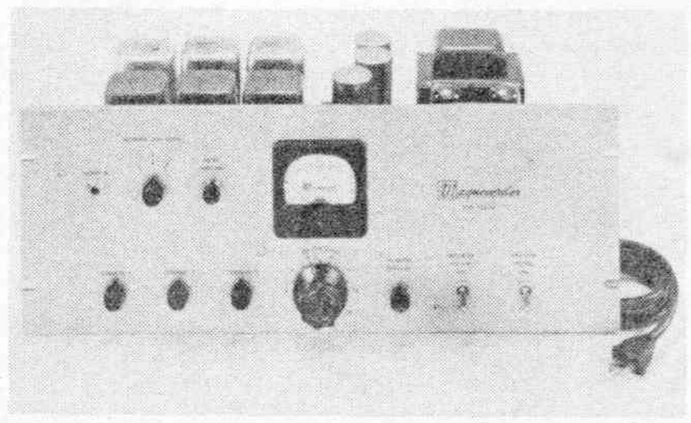
The small, two-tube unit is six inches by five and one quarter inches and weighs a little more than two and one half pounds. It is designed primarilly for use between the PT6-J and PT6-A unit, but can be adapted for any Magnecord unit.

Dubbing Amplifier

The PT6D3 amplifier was designed to fulfill the need for a simple flexible and easily operated dubbing channel. The PT6D3 is arranged to accept the output of a playback machine and feed this output to three PT6A recorders. Standard Magnecord parts are used throughout the PT6D3 amplifier.

The input circuit will bridge a 600 ohm 0 dbm circuit. The incoming signal is fed first to a master gain control and then through an amplifier stage to individual gain controls. The output of the individual gain controls is fed to the output stage and then through the standard Magnecord equalizer circuit. The outputs of the equalizers are connected to the individual recording machines.

One of the features of this unit is a calibrating circuit which by means of a momentary contact push button feeds a standardization signal to the input circuit. This 60 cycle signal may be recorded on the tape and used for calibrating purposes. Thus it is possible to adjust with the individual gain controls the gain of each circuit so that reproduction of equal levels will be achieved on all the tapes. Following adjustment of the individual gain controls, the overall gain may be varied by



use of the master gain control. This control operates equally on all three channels.

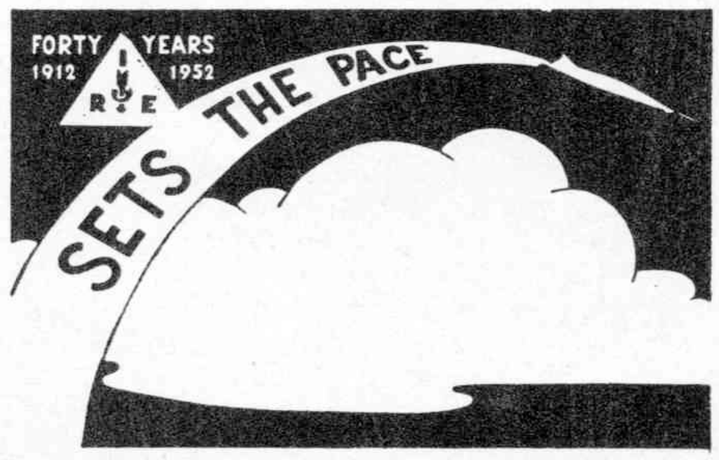
Another feature of the Magnecord PT6D3 dubbing amplifier lies in the fact that these units may be stacked—that is if it were desired to make twelve copies simultaneously, it would be necessary to have twelve PT6A units and four PT6D3 units. Of course, it would also be necessary to have some sort of reproducing machine. This might well be a PT6-JA, although any suitable Magnecorder may be used.

Still another feature of the PT6D3 lies in the motor control circuit. This circuit is connected through a switch so that if the Magnecorder PT6A units being used are all preset either to forward or rewind, they may be controlled simultaneously by the motor control switch. This feature is also carried through the stacking operation, thus permitting one switch to control three, six, nine, twelve, or any number of recorder units. This is a very important feature when large numbers of copies are being made. It allows for rapid forward or high-speed rewind operation of the equipment.

The PT6D3 is provided with two power supplies, one for supplying filament and plate potentials to the amplifier tubes contained in the unit; and the other for supplying filament and plate potentials to the bias oscillators in the recorder units.

Still another feature of the PT6D3 is the fact that it contains a volume meter which is provided with a switch so that it can be brindged across any one of the three recording channels. In addition to the meter, the switch also controls a head phone jack which can be used for monitoring the signal being fed to any individual channel. Operation of the meter switch in no way affects the recording.

The PT6D3 occupies 7 inches of standard 19 inch rack space, weighs thirty pounds and is approximately 10 inches deep.



College Applications Vary

A University of Kentucky student makes an "on-the-spot" Magnecording as a part of the University's series, "Visiting Kentucky's Industries."

Listeners of 30 Kentucky radio stations have ridden the front end of a Cincinnati-Louisville diesel, travelled aboard an Ohio river towboat, visited Mammoth Cave, stood at the brink of Cumberland Falls, and watched operations deep inside a coal mine.

These 30-minute, on-the-spot broadcasts, "Visiting Kentucky's Industries," were part of a 13-week series tape recorded by the radio arts department of the University of Kentucky to acquaint Kentuckians with each other.

It is typical of the increasingly wide and varied uses being made of magnetic tape recording equipment in schools and colleges throughout the country.

Results of a survey of educational users by Magnecord, bringing to light many unusual applications by educational institutions were described recently by C. G. Barker,, sales manager.

The Agricultural Experiment Station of the University of Delaware, for example, utilizes the mobility and flexibility of magnetic recording to broadcast a daily farm show as part of its extention service. Field and studio recordings form a major part of the broadcasts originating from the office of the director. director.

The Radio Workshop of James Miliken University records its activities for programming on seven commercial radio stations. The University also uses the equipment in conventional applications with speech classes for reading, discussions, drama, and interpretation.

KGRW, the Grinnell College Radio Workshop, tape records 150 half-hour shows a year for its own daily use, for weekly programs of other Iowa stations, and special releases for commercial stations throughout the country. Last year a 13-part adaptation of Alcott's "Little Women" was distributed to 20 stations in 18 states.

Magnetic recording equipment is a permanent installation of the Green Room, adjacent to the Conservatory Concert Hall at Oberlin College, and all programs are recorded. Some tapes are edited and retained while discs recordings are made from some finished tapes. Last year 210 programs were recorded and made available to students and faculty.

The Cornell University band director uses magnetic recorders to audition incoming students, check progress of individuals, and record concerts. Since band members have limited time for band work, programs are recorded and editted to fit strict time schedules of the radio station.

Broadcasts of the Fort Wayne Bible College, presented locally five days a week, are recorded and duplicated for use of other radio stations in the United States and Hawaii. In some instances, programs are recorded previous to air time for transcription later.

San Jose College records the work of student teachers to permit joint evaluation by the student and his supervisor. Additionally, many instructors record their presentations to analyse and improve them. Speeches of visiting lecturers are also recorded and are made a permanent part of the curriculum.

"These uses," Barker noted, "are fast becoming standard operations as the potentialities of magnetic recording are realized and being practiced by more and more educational institutions.

"In fact the day may not be far distant when an entire curricula may be recorded, and outstanding lecturers will be available to schools throughout the world."

BOB BIRD, BERT WHYTE JOIN SALES ORGANIZATION

Robert E. Bird and Albert L. Whyte have joined the Magnecord sales organization. Their apointments were recently announced by 'Speck' Barker, vice president and sales manager. Both men are widely known in the electronics field.

Bird, former sales manager of the Bird Electronic Corporation of Cleveland, has been named contract sales manager. He will handle general sub-contract production work, and government and industrial applications of Magnecord equipment outside standard lines.

Whyte, former audio consultant for Concord Radio Corporation of Chicago, has been named distributor sales coordinator. In his work, he will act as liaison between Magnecord and its representatives and distributors. Both men will work directly with Barker.

MAGNECORD EXHIBIT AT NEW YORK I.R.E. AGAIN 'SETS PACE'

(Continued from Page 1)

These feed through the mechanical unit onto separate sides of standard ¼-inch recording tape. In playback, the separate sides are played simultaneously back through the amplifiers to separate speakers.

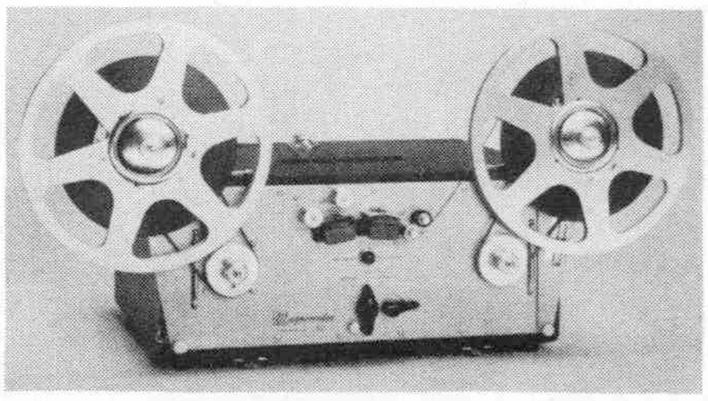
Of particular interest to owners of Magnecorders was a new adapter kit introduced for converting existing PT6 and PT63 equipment for binaural recording. The kit consists of an additional amplifier, a set of connecting cables, a binaural head consisting of a full-track erase head and two half-track recording-playback heads, and an oscillator assembly.

Another new product introduced at the show was the MagneCordette, a unit designed for use with present amplifier and speaker combinations in the home. A handsome wood cabinet houses a "custom" preamplifier and standard PT6-A mechanical unit. The Cordette permits recordings to be made from AM or FM radio tuners or other audio sources. A high-impedance microphone input is also provided. Playback is through the mechanical unit and the preamplifier to the existing home amplifier and speaker combination.

A redesigned and remodeled remote control station for use with a PT7-A recorder and PT7-C amplifier was displayed. The attractively styled box permits complete operation of the recorder from any location. It contains four buttons for control of the mechanical unit—one each for high-speed forward, forward, rewind and stop—and two to set the amplifier for either record or playback.

Pilot lights on the remote box indicate whether the machine is set to record or playback. Any number of boxes may be connected to a single Magnecorder, allowing remote control from any desired number of locations. The box may be connected by any reasonable length of cable.

Adapter extension arms to adapt PT6-A and PT63-A mechanical units for use with 10½-inch reels were also shown. The adapters fit under the thumb screws securing the front panel. Simple belts drive the adapters from pulleys which snap on to the existing reel hubs. With the adapters complete record-playback, rewind and high speed forward is possible with 10½-inch reels.



Also on display at the exhibit was a 10-channel record-playback unit developed by Magnecord on a special order for an industrial application. This unit, built on a PT6-A chassis, is used to record or playback any one of ten separate tracks on a one-inch tape.

The unit was not a standard model, but was exhibited to demonstrate the manner in which magnetic recording may be used to solve unusual problems for the industry.

Other new products shown were the continuous tape playback unit and the voice-operated relay discussed in "Tapetalk" on page 3.

Published in Chicago by MAGNECORD, INC. 360 N. Michigan Ave., Chicago 1, Ill.