

SPECIAL ISSUE...PORTABLE RECORDERS

MAGNETIC FILM &

TAPE RECORDING

**HOW TO
RECORD YOUR
VACATION**

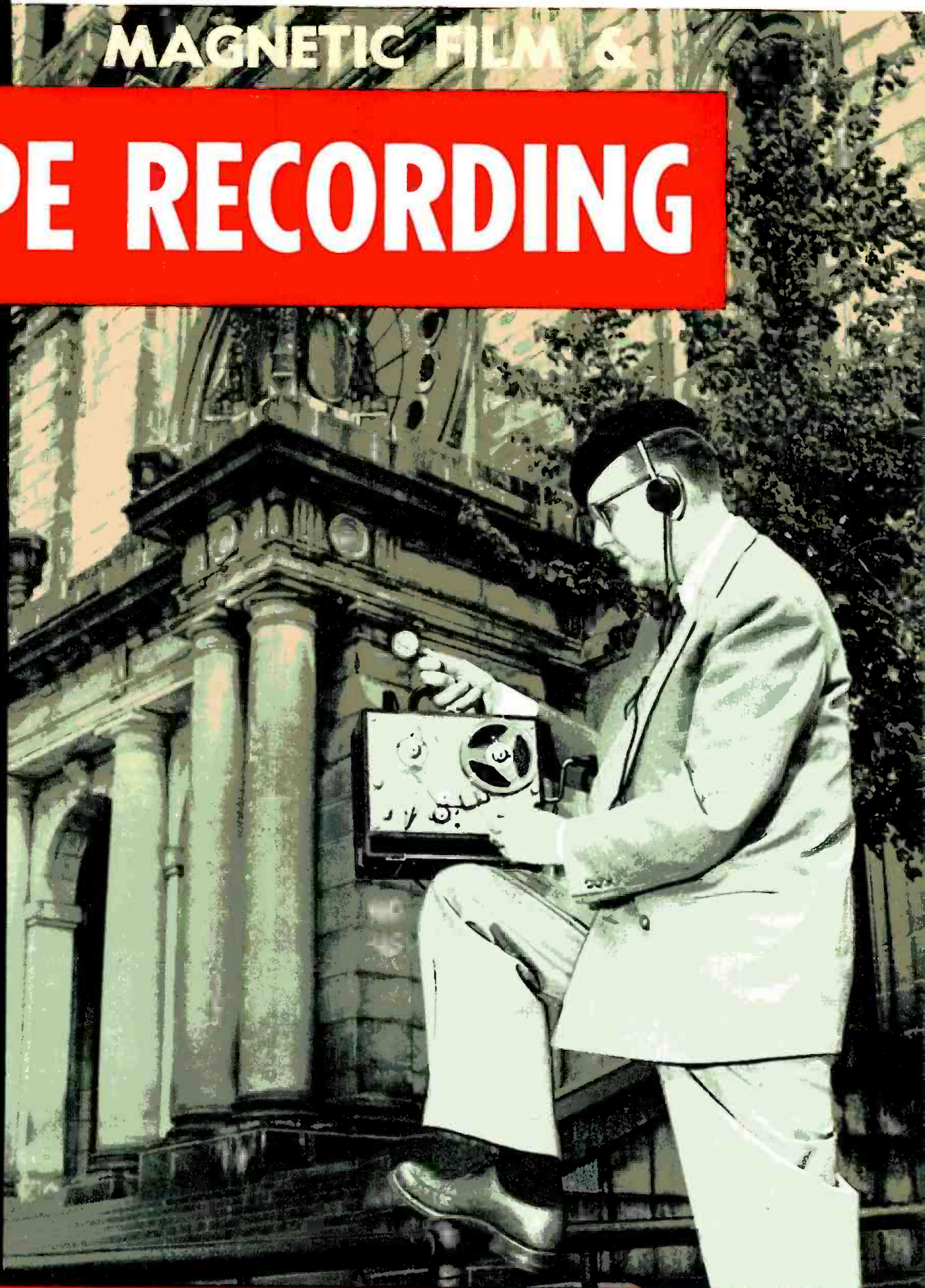
**THE DRAMATIC
STORY OF CBS
"NIGHT WATCH"**

**HOW TO USE
A RECORDER
IN YOUR CAR**

**NEW PRODUCT
REPORT
AMPEX 600
TDC STEREO-TONE**

**PORTABLE
RECORDER
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**RECORDING
DRAMATIC
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AUGUST 1954

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Break Elongation, %	80	95	105	20
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Bending Modulus, psi	500,000	500,000	500,000	350,000
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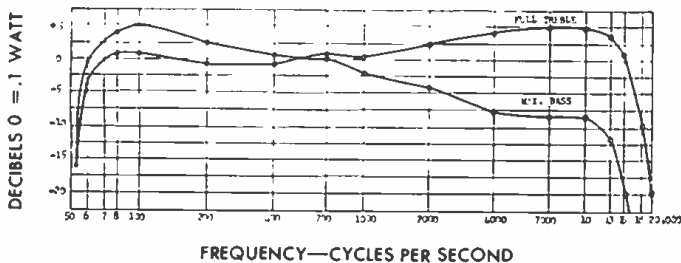
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Vol. 1, No. 4

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Hack Swain*



MAGNETIC FILM &

TAPE RECORDING

VOL. 1 NO. 5

JULY-AUGUST, 1954

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NEW TAPES

COMMERCIAL tape recordings can now be turned out faster than long-playing records; the last obstacle in the path of their mass production has been removed.

Until now, reproducing music on tape was a time consuming, painstaking process. With one multiple-record press turning out 1200 hours of music a day for the commercial disc manufacturer, (compared to the low output of tape duplicating systems) the tape recording companies have been at an economic disadvantage.

Now, however, the Ampex Corporation of Redwood City, California has developed a tape duplicating system that is capable of delivering more than 2500 hours of tape recordings in a single, eight hour working day, thereby putting tapes on a better than equal footing with records, production-wise.

The speed-up is accomplished by running tapes at speeds as high as 16 times their normal speed, copying both tracks of dual track tapes simultaneously, and making ten copies during one run-off. One system can now duplicate 2560 hours of music in one eight hour day which is obviously an improvement over past methods. Quality has not suffered in the speed up. For instance, a tape containing frequencies as high as 15,000 cycles per second when duplicated at eight times its normal speed actually presents frequencies reaching 120,000 cycles. Systems which Ampex designed for recording information radioed from experimental aircraft were incorporated in the duplicating system to handle the high frequencies.

Not only is the speed-up alone an economic advantage, but the capital investment for this system is lower than that for disc reproduction. The total investment required in a setup to make 10 copies at once is under \$20,000 as compared to roughly \$25,000 for an automatic, multiple disc press that is capable of reproducing only half as much music in the same operating time.

This means, of course, that it will ultimately be possible to turn out tape records cheaper than conventional discs. All that remains is for the raw tape to be turned out in greater quantity, at a lower price, and the development of an inexpensive tape playback instrument that can be plugged into any conventional reproducing system.

The advantage for you, the consumer, is that soon you will be able to enjoy tape's superior reproduction in your home, playing the artist of your choice and the composition of your choice.

For the disc record, the day of reckoning is in sight. Certainly there is some significance in the fact that RCA was among the first to purchase the new device.

The raw tape cost and cheap playback machine problems may soon be licked, perhaps by fall. Orradio has already changed the price structure of its Irish brand tape, and Pentron engineers are working on a new, small tape play-back unit that may cost less than \$50. Other units, some even more inexpensive are on the way.

There is no reason why every tape reproducer should also be a recorder. Generally speaking, it is desirable to have both



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Sibelius: Finlandia

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Reel 703

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Borodin: Polovtsian Dances

Sibelius: Valse Triste

Reel 704

Debussy: Afternoon of a Faun

Schumann: Manfred Overture

Glinka: Kamarinskaja

Reel 705

Rossini: William Tell Overture

Brahms: Academic Festival Overture

Massenet: Under the Linden-trees

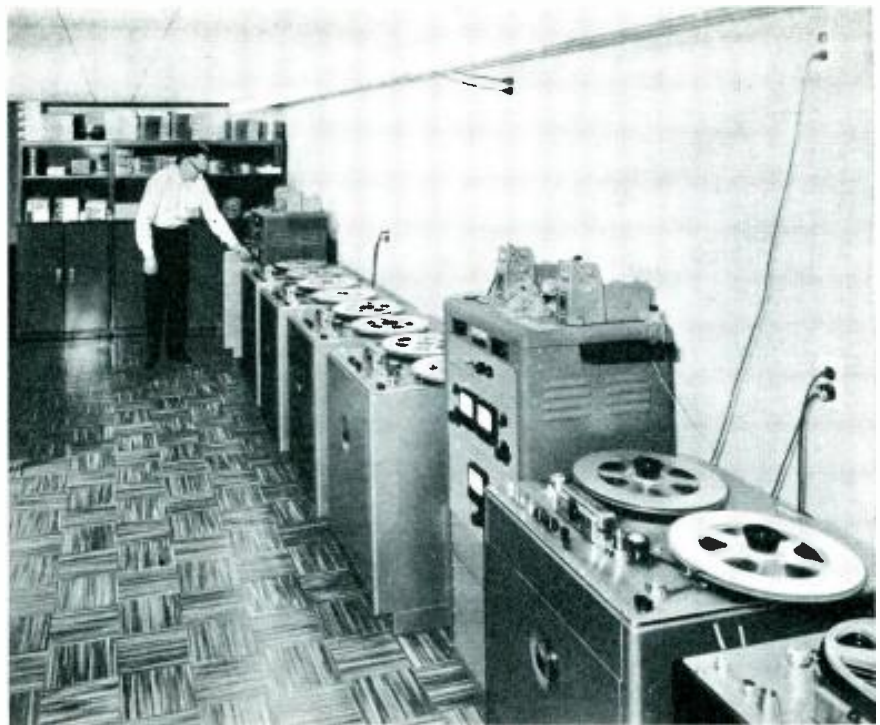
Vittorio Gui conducts The Florence May Festival Orchestra in the famous Teatro Comunale in this exclusive AUDIOSPHERE series.

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HIGH FIDELITY RECORDED
TAPES

AUDIOSPHERE,
INC.

Livingston, New Jersey



Recorded tape duplication faster than making disc records. The new Ampex method has broken the production bottleneck. The above Ampex machines are in the Moss Recording Studios, Omaha.

features if possible. But music on discs has been enjoyed for years on phonographs with no facility for recording, so there is no reason why tape playback machines should not find a large market among music lovers who have no desire to make their own recordings. Such instruments would also certainly do much to eliminate the fear of accidental erasure always present in machines with recording heads.

Since writing the above lines, I have learned that Bell Sound Systems, veteran manufacturers of excellent, low cost, high-fidelity amplifiers and tape recorders, have produced an inexpensive (\$29.95) tape playback unit that weighs only three pounds and measures 10 x 10 inches across the top. The unit is driven from any 78 R.P.M. phonograph turntable and will fit most hi-fi record changers. The device will plug into the magnetic cartridge in-pu of any hi-fidelity amplifier. It is available in either of two speeds, 7.5 or 3.75 inches per second. It is dual track and a reel of pre-recorded tape comes with the unit. It is news like this that causes recording companies to pause for due consideration before rejecting an entry into the tape record field.



The Bell tape playback unit which will run from any 78 rpm record player. It will take dual track tape. Its output may be fed into any hi-fi amplifier.

Later in the column I will have pre-release news on the catalogue offerings of the first major company to enter the tape field but, right now let's take a look at the tapes on hand.

WEBCOR (WEBSTER-CHICAGO CORPORATION)

7.5 IPS, dual track. Seven inch reels \$12.00, five inch reels \$8.00.

As is the case with all of the companies to date, the initial offerings under the Webcor label are excellent.

Certainly these are the most attractively, and practically, packaged tapes received so far. The red, yellow, and black box makes an attractive display, both in the store and on the library shelf at home. One end, as well as the top, of the box is catalogued, so that one can easily select the desired reel without pulling it from the shelf. The reel is also labeled so that there is little chance of misplacing it in the wrong box. Also, the box lid is hinged for easy access which would seem to me to be an innovation that might well be copied by all companies.

JOHN HALLORAN CHOIR

2911-1 5 inch reel
Now Let Every Tongue Adore Thee—Bach
Little Boy Blue—Nevin
Cindy—Folk Song
Alleluia—Thompson
Skip To My Lou—Folk Song
Lord's Prayer—Malotte
Come To The Fair—Martin
Mountain High, Valley Low—Scott
The Sleigh—Kountz
Witness—Spiritual

An omnibus recording of a well-disciplined choir, that should command the attention of choral directors and singers throughout the country. The choir is an A capella group that contains a high degree of virtuosity, displayed to best advantage

in the lighter numbers.

Several of the interpretations are so outstanding as to deserve special consideration. Particularly the Bach, the Thompson, the Malotte, and the Scott. The latter's composition, "Mountain High, Valley Low," has a peculiarly haunting quality about it, difficult to describe. If a comparison can be found perhaps it would be "Greensleeves." Malotte's famous score for The Lord's Prayer is here presented better than I have ever heard it.

The recording introduces no noise of its own, is in excellent balance between voices and has a wide dynamic range. In all, a fine beginning for Webcor Tape Records.

LEONARD SORKIN STRINGS

- 2922-2 5 inch reel
- Surrey With The Fringe—Rodgers
- Someday I'll Find You—Coward
- Adios—Madriguera
- Midnight Bells—Heuberger-Kreisler
- Fascinating Rhythm—Gershwin
- Dancing In The Dark—Schwartz
- What Is This Thing Called Love—Porter
- Is Their Someone Lovelier Than You—Schwartz
- Blue Moon—Rodgers

A sophisticated string treatment of these all-time hit tunes. This is typical of the highly arranged string approach, currently in vogue and dispensed by Messrs. Melaschrino, Mantovani, Weston, et al.

Sorkin holds his own in the face of the stiff competition, however, with a maximum of sweeping strings, pizzicato strings and harp arpeggios. A commercial success and well recorded.

AUDIOSPHERE

- 7.5 or 3.75 IPS, binaural or monaural-single track. Priced at \$10.00 a reel
- Reel #704
- Debussy—Afternoon Of A Faun
- Schumann—Manfred Overture
- Glinka—Kamarinskaja
- Florence May Festival Orchestra, conducted by Vittorio Gui

Another of the fine recordings made in Florence, Italy at the Teatro Communale, under the conditions described in the last issue of TAPE RECORDING.

In the first of the three selections on this tape, Debussy's flute-voiced faun attempts to recall events of the previous afternoon. Was he visited by naiads, or was he not? Well, what difference? The day is too beautiful, the sun too warm, to attempt to recall what happened yesterday.

The miniature tone poem, based upon Mallarmé's impressionistic poem, has a sensitive score which is here sensitively interpreted by the conductor. The rich orchestral color becomes almost supernatural in spots as a result of being recorded on tape. There are absolutely no distractions, such as are found on a disc surface or even in a live audience, and for *this* music there should be no distractions.

The Schumann overture was written as a preface to a musical play set to Byron's poetic masterpiece, "Manfred." It remains a part of the standard orchestral repertoire, although the greater work has been performed rarely in recent years, being rather ponderous for modern taste.

Taken alone, the Schumann piece is an admirable work but following, as it does

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"... it fits in nicely, both into the budget and into the system, and does a very fine job."



Crestwood Model 303
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Beethoven "Emperor" Concerto, Horowitz; Reiner, RCA Victor Symph. Orch.

Brahms Concerto No. 2, Rubinstein; Boston Symph. Orch., Munch

Aurora's Wedding (*Tchaikovsky*), Stokowski and his Symphony Orchestra

Tchaikovsky Symphony No. 5, Stokowski and his Symphony Orchestra

Brahms Symphony No. 1, Toscanini and NBC Symphony Orchestra

Dvořák "New World" Symphony, Toscanini and NBC Symphony Orchestra

Victory at Sea (*Rodgers*), Members of NBC Symphony Orchestra, Bennett conducting

Don Quixote (*R. Strauss*), Boston Symph. Orch., Munch, cond., Piatigorsky; Cellist; Burgin, Violinist; de Pasquale, Violist

Bluebird—\$12.95 each

Swan Lake (*Tchaikovsky*), Irving, Philharmonia Orch.

Grieg Concerto in A Minor, Mendelssohn Concerto No. 1, Ania Dorfmann; Leinsdorf, cond. Robin Hood Dell Orchestra of Philadelphia

Rhapsody in Blue (*Gershwin*), Grand Canyon Suite (Excerpts) (*Grofé*), Byron Janis; Winterhalter Orch.

Franck Symphony in D Minor, Leinsdorf, Robin Hood Dell Orchestra of Philadelphia

Popular—\$10.95 each

Inside Sauter—Finegan; Four Horsemen, How About You? 11 others

Music From Hollywood: Theme Music from Great Motion Pictures "High Noon," Song from "Moulin Rouge"; 8 others. Al Goodman's Orch.

Music for Relaxation: Stardust, Moonlight Serenade; 8 others. The Melachrino Strings

Music for Dining: Diane, Too Young; 7 others. The Melachrino Strings

Red Seal \$14.95

For Stereophonic equipment only.

Also Sprach Zarathustra, Reiner, Chic. Symph. Orch.

on this reel, the Debussy, it sounds shallow by comparison. It seems to me that it would have been better had Audiosphere seen fit to couple the first selection with Ravel, De Falla, or even Respighi, rather than with the romantic Schumann. Barring that, they might have saved the dessert for last.

Reproduction-wise the overture is presented in a lush manner, and Gui's conducting is superb.

Closing out the reel is a pleasant little bagatelle which serves its purpose very well.

Reel #705

Rossini—William Tell Overture

Brahms—Academic Festival Overture

Massenet—Under The Lindentrees

Florence May Festival Orchestra Conducted by Vittorio Gui

Here is an excellent, one-reel miniature concert. From opening to close, there isn't one moment not completely satisfying.

Taken individually, the most interesting work is the Brahms' overture. While the Rossini is an overture to an opera, the "Academic Festival Overture" is an overture to nothing, save perhaps the Third Symphony as there is much similarity in the approach to the two works.

Conductor and orchestra seem to enjoy their work immensely and so will you.

HACK SWAIN PRODUCTIONS

7.5 IPS, single track, 7 inch reels: \$9.85

7.5 IPS, dual track, 5 inch reels: \$6.85

3.75, single track only, 5 inch reels: \$6.85

A thousand apologies to this organization. In the last issue I stated that Hack Swain would dedicate his tapes for an *additional* fee. I was in error. Hack *will* dedicate tapes, at customer's request, not for a fee but, FOR FREE!

Anyone wanting this unique service performed need only ask his dealer, or contact Hack Swain Productions in Sarasota, Florida. Why don't you try it? It makes a most unusual gift idea.

Reel #111

Massenet—Meditation (from *Thais*)

Sibelius—Prayer (from *Finlandia*)

Mendelssohn—Nocturne

MacDowell—To A Wild Rose

Schubert—Serenade

Mendelssohn—On Wings Of Song

Wagner—Evening Star

Goddard—Berceuse

Schumann—Nocturne

There comes a time in very music-lover's evening, when he wants to leave the serious listening for awhile and attempt a brief revival of the dying art of conversation. But, not wishing to carry it to an extreme, he loves to have background music to keep the room volume-level at, or close to, 100 decibels.

This tape is designed for the job. A pleasant, evenly recorded, potpourri of better known themes from classical sources, it serves as excellent background music. Whether for dining, reading, or just plain, old relaxing, you will find it a thoroughly enjoyable half-hour.

As we mentioned in the last issue, RCA is the first major record company to issue pre-recorded tapes and their offerings are impressive. We'll have more on this next issue.

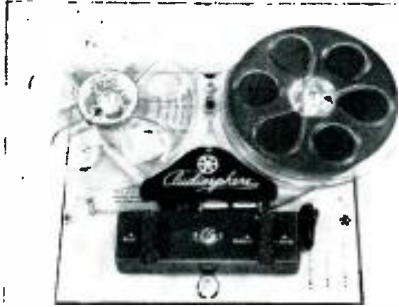
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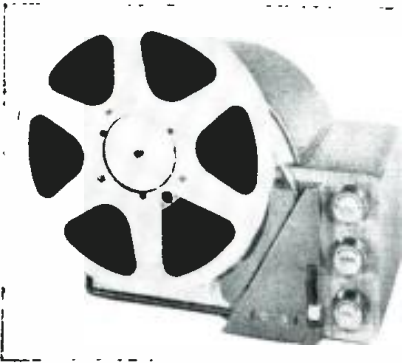
NEW PRODUCTS

VERSATILE TAPE PLAYER



Audiosphere, Inc., Livingston, N. J., has just released their "Hi-Fi" tape playback unit as a complementary addition to their line of pre-recorded tapes. It will play conventional tapes at either $3\frac{3}{4}$ or $7\frac{1}{2}$ inches per second, dual or single track and in addition, will play binaural tapes as well. A two-channel preamplifier is used for the binaural tape playback. The output from the preamps is .3 volts, which means the unit can be plugged into the crystal or tuner inputs of any conventional amplifier or amplifiers as well as the phono inputs of radios, tuners and many TV sets. The price is \$99.50. Further details from Audiosphere.

CAROUSEL RECORDER



The new Carousel recorder will be marketed by the Tapex Corporation, 1501 W. Congress Street, Chicago 7, Ill. and Monrovia, California. In conception the recorder is unique and features many new innovations. Both reels are on the same spindle and it will accommodate $10\frac{1}{2}$ inch reels. It has variable speeds between $3\frac{3}{4}$ and $7\frac{1}{2}$ ips, a 10 inch speaker, and an all-triode amplifier. It can be set for automatic operation and will play indefinitely until shut off. It automatically reverses and plays the second track at the end of the reel. The machine is light in weight, will fit with most home decors and has a separate carrying case. The machine can be reversed at will, while playing, by the touch of a finger. Tentative price is \$229.50.

SMALLEST RECORDER



Mohawk Business Machines Corp., 944 Halsey Street, Brooklyn 33, N. Y., will shortly announce the world's smallest portable tape recorder, the "Midgetape." Measuring only $8\frac{1}{2}$ " x $3\frac{3}{4}$ " x $1\frac{1}{8}$ ", it weighs but $2\frac{1}{2}$ pounds. It will operate from a small battery pack or from the regular AC lines. Motor batteries will last 25 hours and amplifier batteries for 60 hours. The $\frac{1}{4}$ -inch tape is contained in a cartridge which eliminates threading and will record for one hour on the two tracks at $1\frac{1}{8}$ " speed. It has an automatic volume control to eliminate guesswork when recording. It may also be used as a dictating machine. A separate playback unit will be available to allow the tapes to be transcribed. This has a foot pedal and earphones. The frequency response is 150-4,000 cps. Price is \$197.50. For full details write to Mohawk at the above address.

REVERE TR 1000



Attractively styled, this new recorder by the Revere Camera Co., Chicago 16, Ill., has two acoustically matched speakers. The case is unique in that it is perforated with 27,400 openings to give full 360° distribution to the sound. In the TR-1000 model, shown above, a radio is incorporated. It is a dual track, $3\frac{3}{4}$ ips speed and has such features as an index counter for rapid finding of selections, single knob control and two-level recording indicator. The price with radio is \$249.50. Without radio (Model TR-900) is \$199.50. Full Details from Revere.

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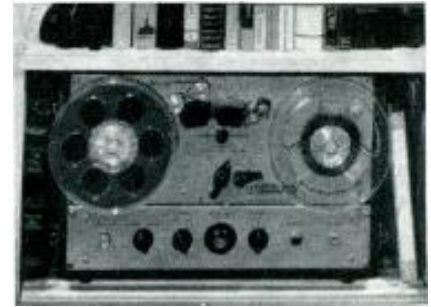
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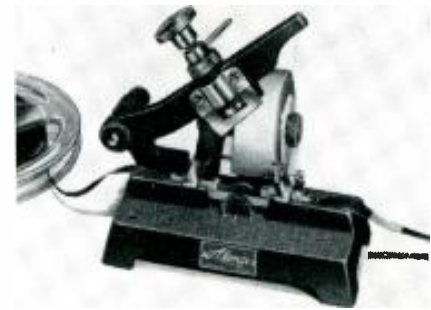
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MAGNECORD M-30



Magnecord, Inc., has entered the hi-fi consumer market with two portable record-playback machines. The M-30 is housed in a maroon leatherette portable case and has inputs for mike and phono or tuner, and a monitoring jack. Volume is indicated by a magic eye and the machine operates at either $3\frac{3}{4}$ or $7\frac{1}{2}$ ips. The output may be connected to any hi-fi system. The M-33 has its own speaker and the response characteristics are the same as the M-30. The speaker is a 5×7 delivering 3 watts. Half-track heads are standard, full track optional. Frequency response is 50 to over 10,000 at $7\frac{1}{2}$ ips, and 50 to 5,000 cps at $3\frac{3}{4}$ both plus or minus 2 db. For further information write Magnecord at 225 W. Ohio Street, Chicago 10, Ill.

NON-MAGNETIC SPLICER



Alonge Products, Inc., 163 W. 23rd Street, New York 11, N. Y., is manufacturing the Alonge Tape Splicer. It will make splices at 90 , $67\frac{1}{2}$ or 45° . Two pressure pads hold the tape for the cutting blade and after the tape is applied, two side blades cut the tape to exact width. The unit is non-magnetic and precision built. For price, write to the firm.

NEW TAPE CATALOG

A catalog of tape recordings for educational purposes is available from the Film Center, Division of Adult Education, University of Washington, Seattle, Washington, for 25 cents. It lists a good number of tapes under such subjects as Art, Music, Theater, Children's Programs, Literature, Social Studies, etc.

NEW TAPE

Technical Tape Corporation, 177th Street, Morris Heights 53, N. Y., is marketing "Encore" tape. Each reel is sealed in a Polyphane bag within the box and 5 inches of Tuck Splicing tape is included. Leader is already spliced to tape. It is available in all standard reel sizes. Write for full information.

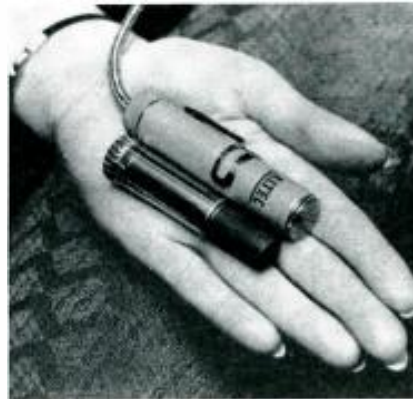
PENTRON MONOMATIC



The Pentron Corporation, 221 E. Cullerton Street, Chicago, Ill., has announced a new portable recorder. Speed change, forward, rewind play and record are all controlled by a single lever resembling an auto gear shift. It will play horizontally or vertically. The heads have removable pole pieces. A neon indicator is used for recording level and the recorder also has a mike input jack, radio input jack, auxiliary speaker jack and auxiliary amplifier jack. It is two speed, dual track. When the monomatic lever is in stop position, both reels are instantaneously braked. Loading is straight line. The speaker is a 4×6 oval.

Price is \$129.50. For full details write to Pentron at the address given above.

LIPSTIK MIKE



Altec Lansing Corp., announces its new "Lipstik" microphone, a condenser type, and the smallest mike on the market, measuring $3''$ in length and $\frac{3}{8}''$ in diameter. It can be used for broadcast, TV and public address and may be clipped to a manuscript, held in the hand or attached to the lapel or breast pocket. Perpendicular incidence is shown to be flat within 3 db between 15 and 15,000 cps. The output level is minus 48 dbm and can be operated into any impedance from 30 ohms up. The cable is smaller than standard mike cables and is covered with fiber-glass cloth. The microphone is made of stainless steel. For full details and price write to the firm at 161 Sixth Ave., New York 13, N. Y.

WEBCOR 2020



Manufactured by Webcor, 5610 Bloomington Ave., Chicago, Ill., this new Webcor 2020 recorder features push-button controls. It is dual track and will run at either $3\frac{3}{4}$ or $7\frac{1}{2}$ ips. It has fast forward and rewind. The microphone is a high impedance crystal type. Neon recording level lamps give volume level. The unit has a 5×7 oval PM speaker. Price and details from Webcor.

RCA CONSOLE



RCA, Camden, N. J., announces a speaker cabinet measuring 29" high, 21" wide and 16" deep that contains an RCA-designed "accordian" extended range speaker. The recorder fits into the top of the cabinet under the hinged lid. The cabinet will sell for \$69.95 through RCA dealers.

AUDIO TAPE ON MYLAR BASE

Audio Devices, 444 Madison Ave., New York 22, N. Y., has announced the availability of its Audiotape on a Mylar base. The tape is virtually unbreakable under normal recording conditions and it may be used in extreme temperatures, from 50 below to 150 above 0°C . The one mil thickness Mylar when wound on a 7 inch reel will total 1,800 feet instead of the usual 1,200 of regular tape. This provides half again as much playing time. 3,600 feet can be wound on a $10\frac{1}{2}$ inch reel, and 7,500 feet on a 14 inch reel. Write Audio Devices for free bulletin #210.

FM BOOSTER



Electro-Voice, Buchanan, Michigan, announces the Automatic FM Booster, Model 3005-FM. It is specially designed to take advantage of all features of FM. It makes a good signal completely impervious to noise and makes weak signals usable in difficult city locations and outlying low-signal areas. The signal increase is over 10 times (20 db) throughout the entire FM spectrum, from 88 to 108 mc. It automatically adds gain to any channel selected on the receiver and there are no additional controls. An integral thermal relay turns the booster on and off when the receiver is turned on or off. Price is \$27.00. Write for free bulletin 202 for full details and specifications.

RESISTIVE NETWORKS



Cinema Engineering Company, Division Aerovox, 1100 Chestnut Street, Burbank, Cal., has announced its hermetically sealed resistive networks available in resistances of $1/10$ ohm to 15 megohms. Customer engineering service is available for specific applications. Write for full details.



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TAPES TO THE EDITOR

When sending tapes to the editor please use the 3" reel and indicate the speed at which it was recorded and whether it is dual or single track. We will listen to your tape, make notes from it for use in this column and then reply on your tape. Please keep tapes reasonably brief.

If you do not own a recorder a letter will be acceptable. Address tapes or letters to: The Editor, Film and TAPE RECORDING, Severna Park, Md.

To the Editor:

No doubt many Tape Worms (those who record on tape as a hobby) have experienced squeal difficulties in using magnetic tape. This tape squeal, according to Don G. Mehsikomer of the Magnetic Products Division of 3 M's is caused by two things: excessively high temperature and humidity conditions in the room where the tape was played and the other where the machine itself runs rather hot. The second factor usually occurs where the motor is directly under the drive mechanism and directly behind the recording head.

He also points out that a recent development known as dry lubrication, which is available on all standard constructions, now has eliminated the squealing problem. If an older machine squeals keep the room temperature at about 70° F. and the humidity in the 30-50% range.

I am passing this information on hoping that some of the other Tape Worms will write of their experiences with squeal and what they did to overcome this condition.—Richard Kenney, Stamford, Conn.

To the Editor:

I have quite a tape collection, built up over a period of three years, perhaps 50 7" reels recorded at 3¾ dual. I have three years of the Ronald Coleman show "Halls of Ivy" and some science fiction programs. I spend about two hours a week making recordings, mostly from the radio and I would like to contact those who might have "Halls of Ivy" programs that I have missed, or science fiction broadcasts. I would like to exchange tapes with them.—Milton Ferguson, 10745 La Grange, Los Angeles 25, Cal.

To the Editor:

I have received the first copy of my subscription to your magazine and have enjoyed it very much. I use a Masco tape recorder and a Grommes 50PG amplifier which I use in conjunction with a Webcor diskchanger for making tapes.

Sometime in the future, I would appreciate an article in your magazine on how to build a mixer and fader so the music could be modulated for commentary background.—H. A. Thornhill, Merced, Cal.

Reader Thornhill and others will be glad to know the requested electronic mixer article is underway and will appear in a future issue. Ed.

To the Editor:

I wish to congratulate you on the fine job you are doing. Your magazine seems to be just what we "Tape Worms" needed. I am a linguist and use my recorder predominately for phonetic laboratory work, most of it

in Oriental and Polynesian languages and dialects. I assure you it is a tool of high value in this line of work.

May I add some suggestions for future issues? 1—Technical information on dubbing from disc to tape. 2—How to assemble a high-quality tape recording unit for use with an existing hi-fi amplifier—and how to do it at a reasonable price. 3—How to rig up devices for playing a tape loop of any size for endless repetition; which is something all language teachers should be interested in for obvious reasons—the machine being more patient than we ever could be.—Reinhold H. Kieslich, Hilo, Hawaii.

To the Editor:

Sometimes I find your magazine a little too technical and I think it would be a big help to us beginners if you could include a glossary of terms in one of your issues. Is there a good book available on tape recording which is written for the beginner?—Ralph Bisschoff, Holgate, Ohio.

About the only book on recording is the one "Magnetic Recording" by S. J. Begun. This is not a beginners book but is more for the person who already knows something of recording. However, anyone can understand it with a bit of study. Several new books are due to make their appearance, probably this year and doubtless some of them will be for the beginner. Your idea of a glossary is a good one—look for it in a future issue. Ed.

To the Editor:

I wonder if you could put me in touch with Bible students who love to study the Bible. This is my interest and I do not belong to any particular denomination. Also I am very much interested in general Semantics.—Dwight E. Oberg, 2542 Beacon Ave., Seattle, Wash.

We would suggest to Mr. Oberg that he join one of the tape clubs. Among their members are doubtless many Bible students. Anyone interested can contact Mr. Oberg at the address above.

Half-track versus Full-track

In these columns in the April issue we stated that the frequency response of a full track recording was greater than that of a half track. This was an error and if we have misled anyone on the point we are sorry. We meant to say that if you double the speed you double the frequency response. Theoretically the width of the track has no bearing on it. There is, however, a definite decrease in output, on the order of 3 to 6 db. when half track is used.

QUESTIONS & ANSWERS

Questions for this department may be sent on tape or by means of a postcard or letter. Please address your queries to, "Questions and Answers," Film and TAPE RECORDING, Severna Park, Maryland. The most interesting and widely applicable questions will be used in this department and all inquiries will receive a tape or letter reply.

Q—Very often when rewinding, the tape on the full reel slides for a second or so until it tightens up, in much the same manner as if you were to grasp the end of a full reel of tape and pull it. I know this is a certain way to produce cinch marks and scratches on motion picture film therefore I wondered if this action would have a similar effect on recorded tape and if, in time, my recordings would sound like "scratchy" disc recordings.—R. deS., Long Island, N. Y.

A—The scratches you mention will do no harm to your recordings. The "image" of the music or voice on the recording tape is a magnetic one and unless the magnetic coating is very badly damaged, you will not be able to note any difference. The fine scratches produced by a reel pulling tight you need not be concerned about in the least.

Q—I have noticed in some articles the recommendation is made to record from the radio by taking the audio signal from the voice coil of the speaker. Isn't it a serious impedance mismatch to take the 4 to 8 ohm output (usual voice-coil impedance) and feed it into the high-impedance input usually found on home recorders? Most inputs are designed for high-impedance microphones or crystal pick-up outputs to feed either directly to a grid or to the grid through a coupling capacitor.

Many manufacturers recommend that the signal be taken from the grid of the first audio stage, a high impedance source. When the signal is taken from the voice coil under these conditions is its quality as good?—S. P. D., Bridgeport, Conn.

A—Although the grid input stage is not extremely critical to impedance mismatch if the lead is short, it would be our suggestion to put a 4 ohm resistor across the input to the recorder when making a pick-up from the voice coil. The method you mention is, of course, the best.

Q—Would you please make a suggestion as to how I can remedy a "motorboating" condition in my tape recorder. I like the recorder very much but like all electrical and mechanical gadgets, troubles crop up now and then. No one seems to be able to find the cause of the present trouble. We put in new filter condensers, had new tubes injected, probed the whole outfit for loose joints and we just can't find the trouble. It will only take about three-fourths of the volume control then we start out over the lake motorboating and the magic eye just about jumps out of its socket. About the only clue I can give you is that it is worse when hot; I can't get it to act up when cold. It also responds to short jars or thumps

with the hand against the case, as if it has a loose connection somewhere. I have had it to radio repair men and all of us together can't find the trouble.—W. W. H., Wrightsville, Pa.

A—"Motorboating" is a function of the resistance/capacitance combinations where the time constant discharge rate is inadequate. Look for a defective high-resistance resistor—that is, one which has exceeded greatly its rated resistance. Also check for a leaking grid condenser which is causing the grid of the tube to run at a positive bias. This must be tested with a vacuum tube voltmeter while the outfit is in operation. The resistors may be tested cold but obviously as it heats up its resistance will rise still further.

Any part of the amplifier, except the output stage can be the offender. Even that stage can be at fault in some circuits, particularly if the power supply is insufficient to take care of peak loads.

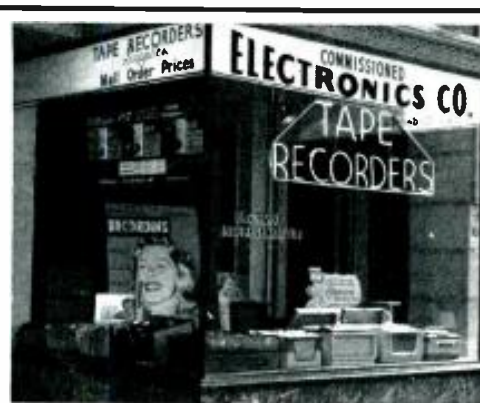
Failure of the cathode bypass condenser can also cause the difficulty although I presume the service man looked at that first.

Q—Do you know of any pre-recorded tapes coming from the class room that could be rented or a copy of such tapes secured in speech correction, English? Is there such a Central State Library, even in Missouri or other states?—W. S. G., St. Louis, Mo.

A—There are a number of universities that make tapes available for classroom use. They usually dub a master tape to tape sent in by the teacher for a small fee. World Tape Pals (see club page) has started a school program interchange and is anxious to have all teachers who use recorders cooperate in the exchange. The program will encompass all kinds of subject matter and they have set up a "Tape Bank" to further the project. We suggest you write to them.

Q—I have a problem. I recorded a woman's voice on edge A of a tape. On edge B I recorded my voice rather heavy. On the playback I find my voice is O. K. but on edge A the woman's voice was lost and my voice scrambled. I don't understand it. Can you help me?—H. L. O., Norwalk, Cal.

A—If you are getting cross-talk between channels there is something out of alignment on your recorder and we would suggest you check the heads. Your voice sounded scrambled because track B is recorded in the opposite direction to track A. You seem to be hearing part of track B when you play track A. This would indicate that there is an overlap due to mis-alignment.



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THE short chunky cab driver who drove the Russell T. Lund family from the Waldorf-Astoria to the Queen Mary's pier on a hot July day is clearly destined for a small measure of immortality. That is, if they can ever find out who he is.

As he cut across Manhattan's west side at a headlong 10 miles per hour the cabbie gave out with terse, idiomatic bits of information and warnings to the Europe-bound family.

"Plenny soap and nylon. Watch out for those characters gonna give ya a fast shuffle with the francs. Blue and blind they'll steal ya. Also ya got too much luggage . . ."

As he went on Russell Lund, a tall, friendly, heavyset Minneapolitan who is a partner in a chain of specialty food stores in the Twin Cities, smiled slowly, looked at Mrs. Lund, his son Russell, Jr., and his niece Jannie, both nineteen. They grinned back and Lund flipped a switch on a box he was holding, somewhat smaller than a portable typewriter.

Unaware that his trenchant, gravelly words were being recorded for posterity on a new kind of silent and eminently portable sound recorder, the cabbie rambled on for several feet of tape. When he deposited the Lunds at the pier he had become the first voice of several dozen the Lunds were to record on a two-month European trip. As far as is known—and if you have contrary footnotes to heckle this text please submit affidavits—his was the first voice recorded on the first portable sound recorder taken by an American family to Europe for purely amateur recordings.

Before they went abroad in the summer of 1952 the Lunds purchased a Magnemite recorder built by the Amplifier

Corporation of America, one of the pioneers in constructing completely self-contained portable recorders. Today several firms, including Magnemite, are making small, spring- or battery-powered, sound recorders to sell for anywhere between \$150 and \$400. Probably dozens of American families will be traveling abroad this summer with their new recorders and old cameras but the Lunds probably deserve some kind of minor historical niche for being the first. Surely they rank at least in the bracket of our cultural history occupied by the first, unknown American who took a portable, simple camera—a Kodak—to Europe in 1888 to record the more obvious sights of the Grand Tour.

For years globe-trotting sound hunters have made recordings by lugging cumbersome equipment to Tangyanika and Cochin China, usually for movie sound tracks, but the Lunds did it as casually as if they were shooting snaps for the family album, which they also did, as a matter of fact.

They carried their portable recorder wherever they went in Europe. About half the dimensions of an ordinary portable typewriter case—and carried the same way—their instrument weighs about ten pounds and was unobtrusively connected to a small lapel microphone which picked up just about everything from the ring of church chimes in Delft to the asthmatic roars of taxis circling the Arch de Triomphe.

Informal people, the Lunds don't let the consciousness of being trail-blazers on the cultural front bear heavily on them. As a matter of fact for Lund at least cultural innovations come easily. In 1923 he was probably one of the very first Americans to travel abroad with a cumbersome Pathé movie camera to take his own home movies and in 1937 he became the first to successfully market already popped popcorn through grocery stores.

In their comfortable colonial home in Edina, a pleasant Minneapolis suburb, the Lunds have played a two-hour edited version of their fourteen hours of European recorded tapes for most of their friends who don't seem to tire of hearing them.

On the edited version the New York cabbie is followed by the steward aboard ship with his reverberating, "All ashore" mingling with the whistles and horns aboard ship and the final departure gong sounding and echoing down the ship's corridors. Russell Lund who had three cameras with him didn't bother with the traditional shots of the peregrinating schools of porpoises or the fuzzy distant shot of another ship two miles away.

Instead into its magnetic memory went the voice of their waiter reading the elaborate menu in his odd Birmingham French and Lund's reaction at seeing the White Cliffs. Russell, Jr., a University of Minnesota sophomore, found the recorder a wonderful device for introducing himself to strange and attractive girls aboard ship. "Excuse me, may I record your lovely voice" may yet turn out to be the neatest opening gambit of all in the electronic age's battle of the sexes.

Recorder Went to Europe

story of the Russell Lund's, the first vacationists to make a European trip

by *Murry Teigh Bloom*

In Europe the Lunds soon fell into a comfortable routine with their recorder. In the morning Russell Lund would flip the switch—winding the machine first, of course—and commence:

"This is the — day of our European tour and we're feeling fine. Today we're going to see —." At this point his son and Jannie would chime in with what they planned to do if they weren't going along with the tour group the Russells were traveling with.

At the start of the day's tour the recording would pick up the guide's opening lines in the background. At the same time Lund would come into the tape, with a husky, almost reverential whisper used only by White House announcers twenty seconds before the President comes on the air:

"We are now at the Coliseum. Our guide is Julius Caesar . . . an art student and no relation . . ." Or "We are now in a glass factory in Venice"; or "We are now rocking along on a motor launch headed for the Blue Grotto"; or "We are now in Florence on a Sunday afternoon in our room at the Grand Hotel and junior has some sharp comments he wants to make about the food . . ."

Before they left for Europe the Lunds wondered if European guides would take to the recorder. As soon as they learned that they were talking for posterity, the guides put new verve into their rote-like spiels describing various tourist spots. The walking Baedekers now spoke with fresh vibrancy even if they employed the old familiar adjectives.

At Stratford-on-Avon their guide caught the spirit of the

recorder with admirable aplomb. In describing Shakespeare's marriage to the tourists and the recorder his dead pan cultured baritone dropped to a dramatic conspiratorial level when he suggested that there were a number of people who believed that William Shakespeare and Ann Hathaway were married at the point of a shotgun.

Luigi, their Venetian gondolier, quickly saw in the recorder a golden opportunity. A recorder obviously meant Hollywood and Hollywood meant big executives looking for talent—who else would bother to record Luigi's fine baritone? Nothing the Lunds could say—and their linguistic accomplishments in Italian were almost as meager as Luigi's operatic gifts—dissuaded Luigi from running through several cracked arias. He insisted that the Lunds take his address and let him know when he was to come to Hollywood.

In Sorrento the Lunds discovered that not all Italians were as eager to have their talents immortalized on tape. Lund was recording a troupe of singers and dancers in the courtyard of a little restaurant in Sorrento when the troupe manager somehow divined exactly what the American was doing. He dashed in front of Lund, windmilling his hands and shouting, "Copyright," "Copyright" interlarded with a series of expletives that somehow didn't need translation.

In the face of this informal albeit determined cease and desist order, Lund desisted. It was no moment for legal argument, even if Lund knew the law, which he didn't. Someone else will have to strike the first blow to establish the freedom to record for non-commercial purposes. Inci-

Facing page: Mrs. Lund, niece Jannie and Russell, Jr., pose for the traditional shipboard shot as the boat leaves New York harbor. Mrs. Lund holds the Magnemite with which the trip was recorded. Right: to Luigi, the gondolier the presence of the recorder could mean but one thing—Hollywood. He sang and sang and insisted the Lunds take his name and address so they could notify him when to start for America and stardom.





For the tape, Mr. Lund has the waiter read the menu. Note how he has clipped the lapel mike to a table knife for easier holding. The Lunds have found that the taped sound record of their trip carries them back in memory much better than pictures and that their friends share the experience with them.

dentally, the only two places the recorder was not permitted were St. Peters in Rome and the casino at Monte Carlo.

Lund had another awkward moment at the Palace of Versailles. Lund paid the usual fee to take in a camera but while he was recording the guide's talk he noticed that two girl attendants were watching him suspiciously. They became excited and started jabbering away at him in what turned out to be, literally, pointed French. In his best soothing English Lund tried to calm them down. Finally one of the French girls—about 5'2"—tried to grab the recorder from Lund who stands 6'3". In desperation Lund deserted English and blurted, "Appelez les gendarmes." One of the girls

started for the gendarmes, the other watcher her progress and Lund quickly lost himself in the flux of tourists. Possibly, the Versailles girls had taken the recorder for a time-bomb devised by a desperate sans-culotte from revolutionary America.

Although the Lunds felt fairly certain they would be called for tips to record native speech and song they never once had the bite put on them. As a matter of fact on at least one occasion the recorder probably saved them a fair amount of money. In Italy Lund took the recorder into a bank and recorded his haggle with the teller about the lire-dollar exchange rate. As soon as the teller learned that every word



Mrs. Lund was interested in the political and economic reactions of the people and the tape provided first hand evidence. It was played to a number of woman's groups to which she belongs. This young lady was a refugee from Germany and told on tape the tale of her harrowing experiences. She is shown listening to a playback of her own voice.

of his was being recorded he gave Lund a sharp, searching look and gave him a more favorable rate of exchange.

Although the Lunds are no great shakes as linguists the portable recorder is, fortunately, one of the very few mechanical devices that comes with its own inbuilt self-explainer for puzzled foreigners. A puzzled, "Qu'est-ce que c'est?" would bring an earphone to the ear and the questioner would hear his question as he asked it.

Lund who happily admits to being "gadget minded" zealously collected background sounds—footsteps on the cobblestones in front of Buckingham Palace, the boat whistles in Amsterdam—with the zeal of professional Hollywood cameramen who collect unusual cloud shots for future use.

Mrs. Lund was more purposeful. As one of the active women Republicans in Minnesota she was particularly anxious to get recordings of Europeans on Soviet Russia, the Marshall Plan, the effectiveness of the Voice of America and the possibility of war. She also managed to get a trenchant, moving account from some East German refugees who told how they escaped from the Communist zone to freedom in the West. These recordings she edited down to a one-hour tape which she has played before various women's groups she belongs to.

("The political situation in Italy is much better than before . . . the Communist party is losing strength here . . . de Gasperi is a very good man . . . but the food is more expensive now . . . Some of us French people are very afraid of Russia and the others are very afraid of Germany . . . Believe me, your Marshall Plan saved Europe . . .")

Not long ago Mrs. Lund decided to run through the fourteen hours of original tape recordings they made in Europe. She had several evenings of ironing to do in preparation for a dinner party and she listened to the tapes while ironing.

"It carries you right back to Europe, as if you're on your hotel balcony and hearing all those sounds again for the first time," she said.

After the dinner their guests sat listening to the tapes without showing any of the usual signs of restlessness evinced often during home movie showings of trips.

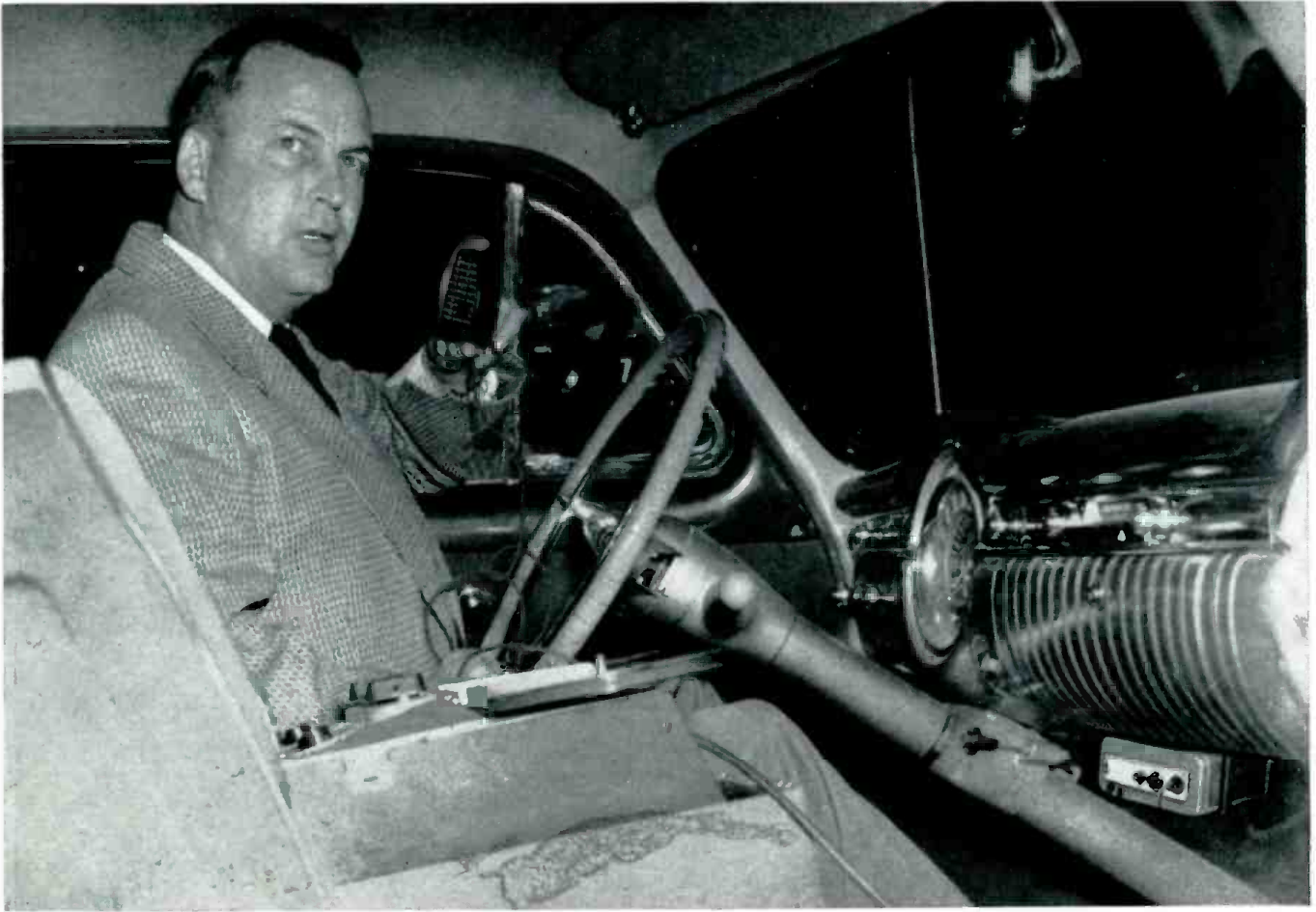
"When you come back from Europe today with 1,000 feet of film why it's just like coming back from the next state," Russell Lund says. "Nearly all of our friends have been there and have seen the sights themselves. The same thing is probably true of the color slides. But with sound you're bringing back something that just hasn't been brought back before. Why, we've had letters and long-distance calls from people who read an item about us in the newspaper column and wanted to get a recorder like ours for a trip they're planning.

"With a recorder you don't have to worry about experimenting or wasting shots, as you would with, say color movies. Why we came back with 14 hours of recordings and it only cost us about \$35.

"Another thing," Lund went on, "I think that recording has it all over pictures as far as bringing back memories is concerned. Somehow to really recall the trip you need the songs, the taxi horns honking, the street sounds, the youngsters noisily playing in the Tuilleries, the guides talking various dialects of various kinds of English, the cheers of the crowd when Prince Charlie appears at the palace window. With the recordings you actually "feel" the experiences again which you can't do too well with any other medium, even motion pictures. And I've been an amateur movie maker since 1923. I guess you just can't beat snapshots in sound."



Top: Mr. Lund uses the Magnemite to record a group of Swiss singers. While he was making the recording, the sound of an Alpine horn came through the windows and was picked up by the recorder, adding an unexpected and charming note. Below: Mrs. Lund interviews one of the famous "Beefeaters," the guards of the Tower of London. The Lunds found that people were quite willing to have their voices recorded and the presence of the recorder had a good effect on the professional guides who put on their very best spiels, knowing the words were being preserved for posterity.



Use Your Recorder in Your Car

... here's how a simple power conversion unit can change your car into a rolling office or a sound recording room for your vacation trip.

by

Robert Latimer

THE professional writer, the vacationist, the business man, and the salesman all can benefit by converting their cars into a rolling studio or office.

For the writer, it means turning driving time into productive time, for the vacationist it offers the chance to make a sound album of the trip, record involved directions on the spot, the fun as you ride along. The businessman, like the writer can use the recorder to make reports to be transcribed at the office and the salesman can make his reports on the spot while facts are fresh in his mind and, by mailing in the reel of tape, avoid the tedious writing of reports in longhand.

The secret is merely equipping the automobile with an electrical power conversion unit called an "inverter." These small units convert the storage battery current into 110 volts AC, the same as your household electricity. In addition to running recorders, they're also handy when you want to shave, need extra light for a tire change, charge speedlight batteries and a hundred and one other uses.

As I am a professional writer my chief interest has been in the quantity and quality of the work I can turn out. Since 1952 I have turned the nuisance of driving from point to point into productive time. For the past 15 years I have averaged an output of 60,000 words per week, for the most part factual articles for the nation's business magazines. Lately I have also written a number of stories for men's magazines, adventure publications and other consumer types. In both cases, lengthy interviews with the subject of each article are required, with a commensurate amount of travel. This means using an automobile and the usual delays in traffic.

Since 1952 I have found that dictating to a recorder as I drive is so free from interruptions and other factors that the eventual manuscript is actually better than copy written in my office.

The system is simple. I use a Pentron Multi-Speed tape recorder which sits on a plywood wedge which serves to keep it level. The recorder is placed in the middle of the front

seat and a strap around the machine is anchored to the seat frame to prevent it from accidentally plunging off the seat on a sudden stop. The mike is simply suspended from the sun visor where it will not block vision. When my wife is driving, on more extended trips, I ride as passenger with my notes in my lap and the microphone in my hand.

The dictated material is mailed in tape-reel form to New York where my two typists, both full time employees, utilize a similar Pentron recorder equipped with a foot switch for starting and stopping.

My power system is an ATR Model 12-RSD inverter which fits under the dash. The supply cords pass through the firewall of my Olds 88. One cord is grounded on the engine block and the other attached to the positive pole of the battery by means of a clamp pin and hole drilled through the lead battery post. The car has a 12 volt battery which puts more "muscle" into the electrical system and it stands up well under the extra load of hours of dictation. Six volt units are available for cars with that voltage battery.

A switch on the inverter provides 110 volt current for operating the recorder while a four position knob varies the output from low to high as required, for dictating when the engine is off or when in transit. My unit puts out a smooth power supply of 100 watts or better which is more than adequate to keep the recorder turning with the power at the lowest output setting.

There are a number of other advantages to me as a professional writer of having the recorder in the car. After I have interviewed a lumber yard operator, for example, on his plans for financing low cost homes I can write the story immediately while all the facts are fresh in my mind. I simply get in the car and do the story before starting the engine and rolling on to the next interview scheduled for that day.

Then there are descriptive articles in which the tape recorder and the inverter can do away with note taking altogether. A national jewelry publication asked me to do a series on effective, clever window displays. It is a simple matter to sit in the car, parked in front of the window and dictate its description, ready to be typed and transmitted to the editor.

The "question and answer" type of story is a snap with a recorder. I simply ask the subject to step out to my car where I can ask my questions and record his answers on the spot. Because this method works so well, I have installed a 50 foot mike cable which means I can take the mike right into the store or office if I can park close enough.

My inverter-equipped "rolling office" has allowed me to get the jump on important news stories, such as the Greenlease kidnap-murder case. I was in St. Louis, a few blocks away from the 11th District police station, when Lt. Louis Shoulders and Patrolman Elmer Dolan brought in killer Carl Austin Hall and later, his paramour Bonnie Heady. When the news flash came in, I was fortunate enough to get a parking place right in front of the station, and to describe the events as rapidly as they occurred. I put in a 24-hour vigil at the station, alternately dictating reels of tapes and dashing inside the station to get the developments as they arrived. In between I wired news magazines, detective-story publications and a top man's magazine, getting an assignment from each. To save delay, I air expressed each reel of tape to the editor concerned, which eliminated long hours of typing, allowing the editor to calculate the amount of space to be filled and make changes as these two murderous fiends switched their stories and confessed. In some instances.



Facing page: Robert Latimer at the wheel of his Oldsmobile 88 in which he has installed an inverter. The recorder is on the seat beside him. The inverter is an ATR unit and the recorder a Multi-speed Pentron. Top, this page: when a jewelry magazine requested a series of articles on novel store windows, Mr. Latimer found the recorder in the car to be a God-send. All he needed to do was park outside the store and record a description on the spot. The reels of tape were sent back to his New York office, transcribed and delivered to the editor. Center: with the use of a 50-foot microphone cable he is able to take the mike right into the store or office to conduct interviews on the spot. This makes the "question and answer" type of story a snap as all he needs do is ask the questions and the person being interviewed supplies the answers. Below: two full-time secretaries transcribe the tapes and shoot the articles to the magazines. The recorder is equipped with a foot switch for quick starts and stops.



The author was in Waco, Texas, when the twister hit last year. Eight died in the wreckage of this cafe when tons of brick crashed in on the diners. Latimer's car was untouched and he recorded his stories.



This pitiful heap of rubbish was the five-story R. T. Dennis Company, furniture dealers. More than twenty-four persons died here. The author supplied 115 articles on tornado damage to magazines.

taking up varied aspects of the case, I interviewed the appropriate officers, and started immediately for the St. Louis airport, dictating the reel to be mailed there as I drove.

Perhaps the most important application of the inverter-recorder combination to on-the-spot reporting was the devastating tornado which laid Waco, Texas, flat in seven minutes last May. Through sheer coincidence, my wife and I were at dinner in a downtown restaurant when the giant wind roared into the downtown district, killing 114 persons and laying waste 144 square blocks of business buildings, hotels, stores and theatres. The flying rubble missed my car, fortunately, and kept the recorder and my press cameras available for use. In the following 48 hours I dictated 115 articles on tornado damage, for the many trade magazines whose subscribers had sustained major damage or death, plus longer general articles for three consumer publications. During most of this time the car sat where it had been parked, while rescue teams cleared away brick and stone piled five feet deep in the middle of the street. I kept the engine running for hours at a time to provide power for the inverter, and in this way I carried out an on-the-spot reporting job which is probably the high point of my experience. Once again, shipping the spool of recorder tape, rather than waiting for it to be transcribed, eliminated waste time and delays in getting the material into print.

Installing an inverter in your car can be accomplished in an hour or less, and you can do it yourself or have a local mechanic do it for you.

The first decision to make is where to put it. The usual spots are under the dash or in the rear trunk compartment, in which case a remote control unit is clamped to the dash to turn the inverter on and off.

To mount the unit under the dash, two 9/32" holes must be drilled in the lip of the dash. These are to take the 1/4" bolts which hold the special mounting brackets made to fit the unit. Lined with sponge rubber, they absorb road shock and prevent possible damage or loosening of the vibrator.

The front brackets are easily attached but because cars

vary in design, a rear support bracket which attaches to the firewall and to the rear brackets must be made locally to fit. The cables are run through a hole in the firewall. For safety's sake, make sure the wires are enclosed by rubber grommets at the point they go through the wall, just as the other wiring is.

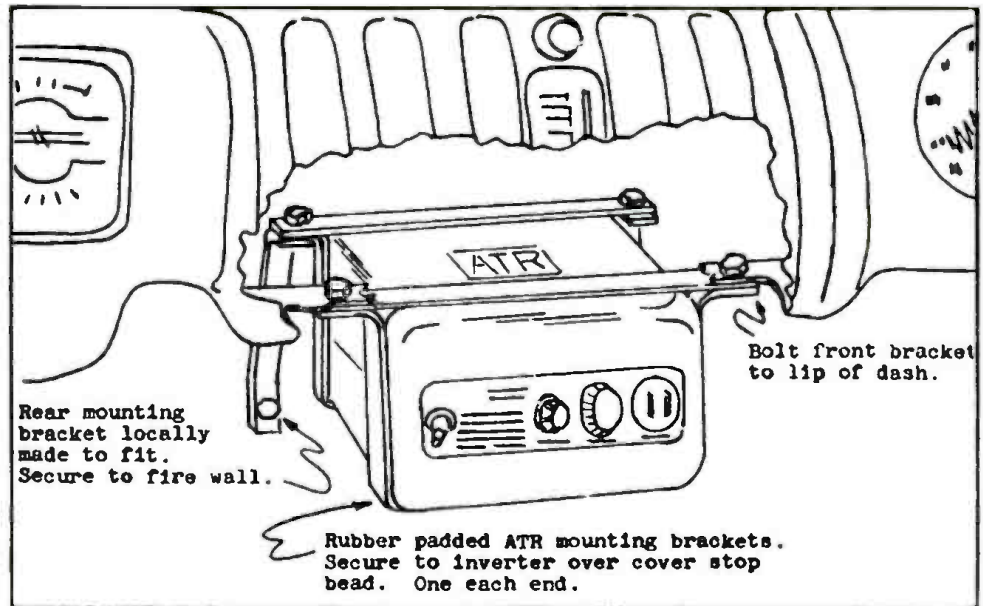
For temporary installations, the battery clips furnished on the ends of the battery cables may be clamped to the proper battery terminals. For permanent installations, the battery clips should be removed and the lugs fastened directly to the battery terminal clamp. This may be done by putting it on the existing clamping bolt or drilling and tapping a screw thread of proper size in the terminal itself. The ground lead may be attached to the engine block. Make sure that all connections are tight and not likely to loosen under the vibration encountered when the car is running.

If you plan to mount the inverter in the trunk compartment, check first to see where your gas tank is. We had mentally picked a fine spot to mount the unit only to discover that the Plymouth gas tank practically covers the entire underside of the trunk compartment. Had we not thought to check this point first we would have "struck gas" as soon as the drill bit in. Instead we managed to find a spot at the rear where the fender curved down that permitted proper bolting down of the brackets and was, in fact, a better spot than the first one we had thought of.

The unit should be kept level and on its feet for proper operation. If your trunk compartment lacks a good level spot that is out of the way, the inverter can be mounted on a small plank and the plank mounted in the car so that it is level.

With trunk mounting, extra length cables are necessary and these may be obtained as an accessory. The remote control unit is plugged into the inverter power outlet and the two control leads attached to the proper terminals for operation. This delivers the 110 volts of power directly to your dash and the unit is unobtrusive and not in the way . . . a point if friend wife objects to the under-the-dash

The drawing at right shows how the inverter may be mounted under the dash of a car. Special brackets lined with rubber are used to fasten the inverter in position. The mounting does not deface the car as only two small holes need be drilled in the lip of the dash. As the distance between the dash and the firewall varies in different makes of cars a rear bracket made of strap iron must be made locally to fit. The inverter may also be mounted in the trunk and a very small remote control unit mounted on the dash.



Rear mounting bracket locally made to fit. Secure to fire wall.

Bolt front bracket to lip of dash.

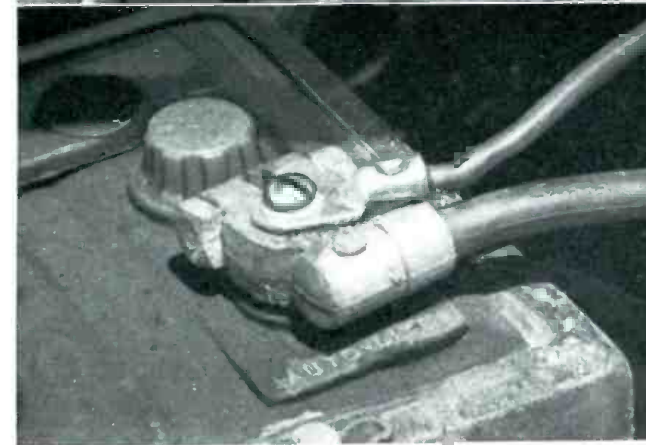
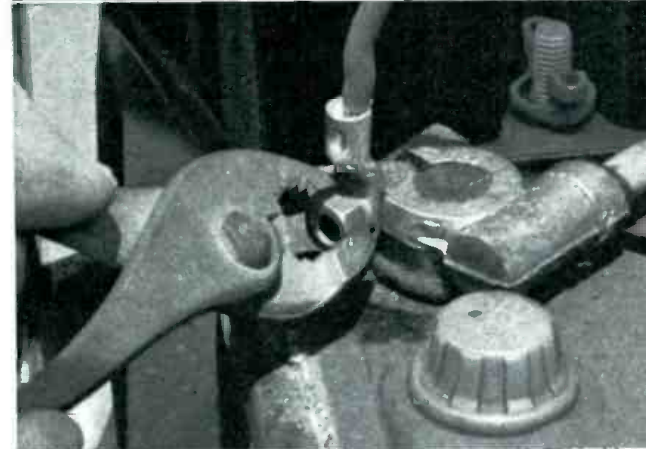
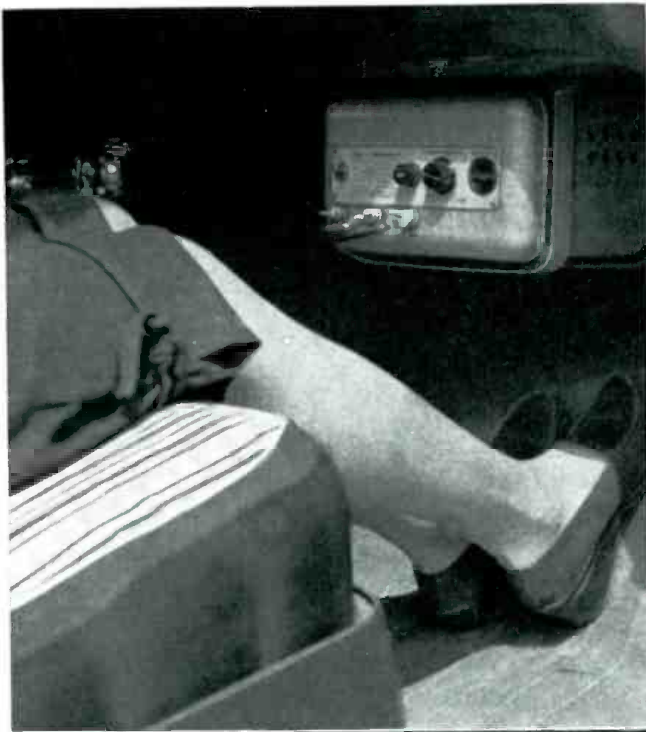
Rubber padded ATR mounting brackets. Secure to inverter over cover stop bead. One each end.

mounting.

The inverter itself is small, but heavy, the unit used with most recorders is $8\frac{3}{8} \times 5\frac{1}{4}$ inches on the face and measures 9 inches in depth. The weight is 19 pounds. The heavy duty models are slightly larger and heavier. When mounted under the dash in most cars there is no interference with the leg room.

Right: if the inverter is mounted in the trunk compartment this small remote control unit is mounted on the dash. Below: an inverter mounted on a small wooden platform to keep it level. The platform is bolted to the car to prevent shifting. Wires go to the battery and remote control unit.





Top: The inverter may be mounted on the right side of the dash if it cannot be center mounted because of the car radio, etc. As can be seen in the illustration, its mounting does not affect the leg room at all. Center: for permanent mounting, the battery clips which are attached to the cables should be removed. The lug on the end of the cords can then be placed on the battery-clamp bolt and the bolt tightened. Lower: if the above described method cannot be used a hole can be drilled and tapped in the battery post or cable clamp and the lug attached with a 1/4 inch machine screw. Right: For temporary installation, the battery clips furnished with the inverter may be used to make the connection. The "ground" lead may be attached

The remote control unit has a safety switch to prevent tampering or accidentally turning on the inverter if the switch should be brushed against when entering or leaving the car. It also has a pilot light that glows red when the unit is on.

The wires from the remote control unit to the inverter in the trunk can be run under the car, through holes made for the purpose in the floor or can be carried under the back seat, under the floor mat and up to the remote control unit. Either way is satisfactory. In our own case, we used the under-the-floor-mat method with fine results.

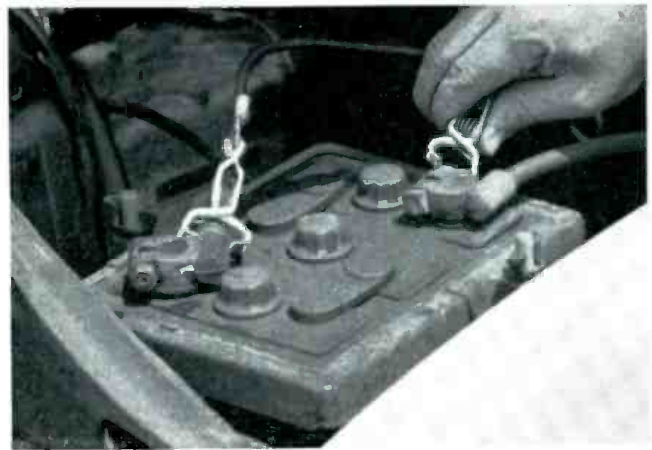
The inverter should always be used in conformity with the manufacturer's directions or the points of the vibrator may be severely damaged. An inverter bought for use with a tape recorder should not be used to run such things as neon sign transformers, motors and relays, all of which have a low power factor. Special models are available for such loads.

The operation of small motors (up to 1/10 h.p.) can be done by correcting the power factor by connecting a 2 to 4 mfd. condenser with a working voltage of 200 to 400 volts directly across the AC terminals of the small motor or other low power fact load. Full directions regarding this are packed with each inverter.

The inverters carry a fuse to protect them from overload and from the battery they draw about as much current as is used to operate the car headlights. The voltage control regulator should be set to the lowest satisfactory position to avoid excessive AC voltage being applied to the load being operated from it. To lengthen the life of the inverter it is the best procedure to turn on the inverter first, then turn on the recorder or other load.

While the inverters will find their greatest use in automobiles they may be used in any vehicle that has a battery power supply. Those who own motorboats will be able to take taped music for use on the boat and the inverters can also be used in planes or busses. Those who belong to Civil Defense organizations will find them useful for supplying light should disaster strike; in fact, they should be a welcome addition to any emergency vehicle.

But to the tape recorder owner, they offer a means of converting a standard recorder to a traveling recorder, of saving time for the businessman and writer and providing fun for the vacationist.



to the engine block instead of the battery. Be sure to attach the "ground" lead to the proper battery terminal.

Tape Club News

PHILA. GROUP NATION'S FIRST TAPE CLUB

WANT TO FORM LOCAL CLUBS

Bob Hitchcox, 6266 Wolington Road, Birmingham, Michigan, would like to hear from people living in the Detroit area which includes Birmingham, Bloomfield Hills, Crambrook, Royal Oak, Betkley and others with the view to starting a local club.

Mr. Hitchcox suggests that the club could indulge in tape swaps, hold special recording sessions, discussions and the like.

Send a letter or postcard to him at the above address or call Mayfair 6-3383.

Milton Ferguson, 10745 La Grange, Los Angeles, California, is interested in hearing from L. A. residents who would like to form a local club. Contact him by letter or postcard.

SHARES RECORDER

Art Rubin of the International Tape Worm Club is making free recordings for transmission to soldiers overseas. The only charge is for the postage.

Rubin, whose address is 546 Oceanpoint Avenue, Cedarhurst, Long Island, N. Y., got the idea after "graduating from being a ham radio operator."

A WORTHWHILE "MARSHALL" PLAN



Rochelle and Melvin Marshall

Friendship and good will follow understanding and too few of us understand those whose ways of life might be different from our own.

Voicespondence is the ideal medium for promoting understanding and good will. Ida and Jack Marshall and their children, Rochelle and Melvin, all active members of the Voicespondents Club are doing their share to promote understanding.

Their specialty is singing Jewish and Hebrew folk songs for their tape friends and explaining the meaning and origin of different Hebrew customs and traditions. They are strictly amateurs when it comes to singing but their earnestness, sincerity and friendliness make up for any lack of professional ability.

The Marshalls are first generation Americans and as further evidence of their good will they recently entertained a Swedish colonel in their home, the result of a letter they wrote to the UN asking for the privilege of having as their guest anyone from any country who might enjoy seeing first hand how an American family lives.



Photo by Lillian Rosen

Shown above are members of the American Recordist Society, the first local tape club to be formed in the United States. They are already recording a science-fiction drama as a group project and plan to build and maintain a tape library for the benefit of members.

30 MILES OF TAPE IN WTP BANK

Thirty miles of tape is now available to teachers and students for international classroom tape exchanges according to Alan Boyles, tape bank trustee for World Tapes for Education.

The tape is available upon request to teacher and student members of the organization. An explanation of the use and destination of the tape is required as is sufficient postage from Lubbock, Texas. The tape remains the property of the WTP Tape Bank.

Information is being compiled as to the kinds of tape exchanges desired by teachers and all teacher members of World Tape Pals should write to R. W. Morton, c/o World Tape Pals and give him the information. Teachers who are not members are welcome to join.

VOICESPONDENCE NEAR 700 MEMBERS

The Voicespondence Club has completed its first year of existence since its reorganization under its new name. It was formerly known as the Webster-Chicago Wireresponse Club under the secretaryship of John Schirmer.

The club was reorganized last year and is now an independent organization. John Schirmer is serving as Secretary and Melva and Charles Owen, of Noel, Va., serve as Associates and share the work.

The new club started operation officially last July with 169 members and has grown steadily until it now has almost 700 persons listed in its directory.

Those who wish to join Voicespondents can do so by sending a letter to the secretary—address below.

ROSTER OF CLUBS

A letter or postcard addressed to the club of your choice will bring you full details regarding membership, dues, etc. A self addressed stamped envelope will be appreciated by the secretaries.

TAPE RESPONDENTS INTERNATIONAL
Fred Goetz, Secretary

P. O. Box 1404T, San Francisco, Cal.

THE VOICESPONDENCE CLUB

John M. Schirmer, Secretary
1614 N. Mango Ave., Chicago 39, Ill.

WORLD TAPE PALS

Harry Matthews, Secretary
P. O. Box 9211, Dallas, Texas

GLOBAL RECORDING FRIENDS

Alfred L. Sferra D.D.S., Secretary
125 Hamilton Street, Bound Brook, N. J.

RECORD-O-CLUB

c/o Accessory Office Service
Dolores Franco, Sponsor
111 W. 23rd St., New York 11, N. Y.

SCHEDULES REGULAR MEETINGS, SPEAKERS AND DEMONSTRATIONS

The American Recordist Society, 1727 Vine Street, Philadelphia 3, Pa., is the first operating local tape club to be formed in the nation.

The club, which meets in the Light-house for the Blind, 1126 W. Lehigh Avenue, is looking for members from the Philadelphia area. Anyone interested in recording, whether or not they own a recorder, is eligible to join.

The club is putting out a club publication which, with the next issue will bear the name of "Flux."

One of the objectives of this amateur, non-profit organization is to promote the use of tape recording and to get more people interested in the subject. To that end they have already given tape recording demonstrations to several organizations in the city.

They also plan to have social events for the membership and already have underway the recording of a science-fiction drama. The meetings are planned so members can meet, face to face and discuss their problems, get advice, hear guest speakers and generally "talk shop."

The group will not enter the field of the "correspondence" tape clubs, but plan to cooperate with all of them in getting additional members and spreading the good word.

Plans are also underway to form a tape library from which members can borrow tapes. The club will be able to accomplish things beyond the scope of the lone recordist. Many musicians are already members and are practicing together. These members did not know each other before they joined the club and their efforts will be taped by the club and added to the library.

Another activity planned by the club is a series of tours to radio stations, recording studios, etc., which will prove both interesting and beneficial to members. Dues are nominal and mostly used to defray the expenses of the club bulletin.

Readers living in the Philadelphia area who wish to join the American Recordist Society should contact Mr. Saul S. Zalman, Coordinator, 1727 Vine Street, Philadelphia 3, Pa.

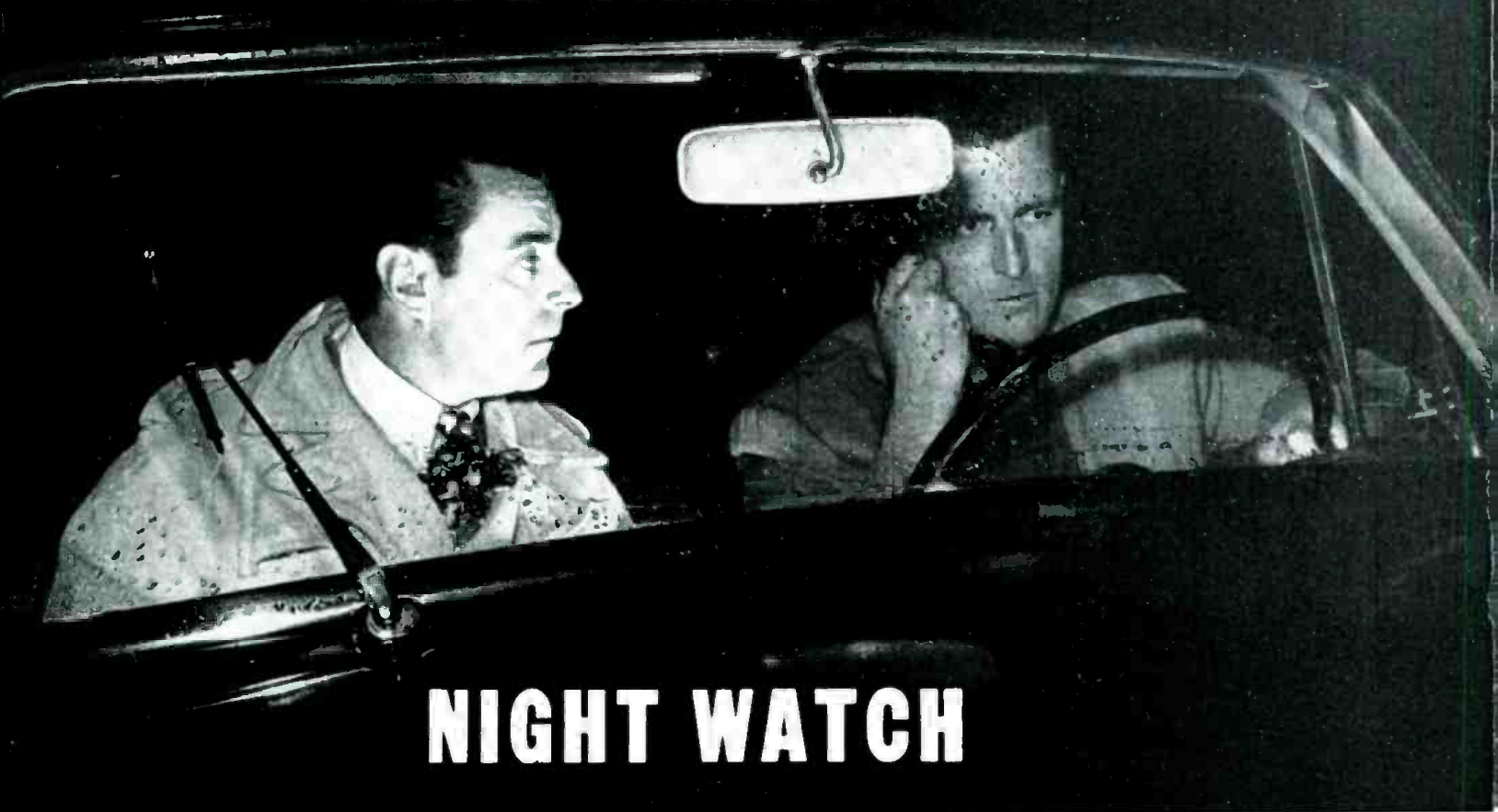
Other officers of the club are: Irvin Carlitz, Vice President, James J. Logue, Recording Secretary and Treasurer. Max Kaplan is Musical Director, James J. Louge doubles as Technical Aide Director and Harold Lynch, Jr., is Dramatic Director.

The group reports that many have joined who know nothing of recording and they are more than welcome. So if you live in the Philadelphia area (Camden, Chester, Delaware County, Glenside) drop a card to Mr. Zalman.

TAPE RESPONDENTS NEW DIRECTORY ISSUED

Tape Respondents International has just issued its latest membership directory complete with tips on making tape contacts and a complete subject index. In the latter we noted #162—Women. That should be good for miles and miles of tape. The Directory goes to all members.

TAPE TAKES THE



NIGHT WATCH

... the exciting sounds brought to you on CBS Night Watch are taped on the spot by Don Reed using a specially built portable recorder

by Shep Shepherd

THAT'S the car all right. Same license number. There's an armed desperado in that house who held up and robbed a market an hour ago. He has got to be taken. Several police officers are conferring quietly in the shadows.

"Now two of them are going back to cover the rear of the house. Two more are taking the exits on the north side. One man is staying by the bandit car in case the suspect makes it that far. Now Sergeant Perkins and another officer are approaching the front door. It's just after midnight but the lights are on in the house. Now the officers are knocking on the door, not loud and demanding, but gently, like a neighbor would knock. There'll be action aplenty any minute now."

Radio listeners heard that beginning of the description of the capture and interrogation of a man suspected (and later convicted) of armed robbery. The program was packed with suspense as the listeners heard the suspect open the door, the sounds of a scuffle and the snap of handcuffs closing on wrists. They heard the subsequent questioning of the

suspect and, later, the voices of the victims as they picked the man from a police line-up, then finally, they listened in on his confession.

The radio audience was tuned in on CBS's "Night Watch," a program presenting the "for real" activities of a city crime beat. There are no actors, no script, no background music. Every sound heard on "Night Watch" is picked up by a sensitive microphone in the hands of good-looking Don Reed as he accompanies Detective Sergeant Ron Perkins on his regular police beat in Culver City, California.

Reed's microphone, concealed in the business end of a flashlight, is connected to a portable tape recorder slung over his shoulder. The recorder, which weighs 14 pounds, is capable of recording sounds ranging from a foot fall to a shotgun blast. It is contained inside a canvas covering tightly zippered and LOCKED. Only two men know what is inside that canvas skin.

There is quite a story behind Don Reed's "top secret"

Left: Out into the night go Don Reed and Sgt. Ron Perkins. With Don Reed goes a specially built portable recorder to catch the sounds for his show "Night Watch," broadcast over the CBS radio network coast to coast. A second recorder in the police car records all police radio calls leaving the other machine clean for a full 15 minutes away from the car. Right: A code 502 (drunk driver) is given a sobriety test on the scene. In this case the subject passed muster and was given a traffic violation ticket. Below right: Don Reed holds the microphone to catch accident victim's halting words as Sgt. Ron Perkins (left) seeks information. The next call may be a homicide or armed robbery.

Below, left: these recorders pick up the sounds from the hidden microphones in the interrogation room. Reed is not in view during this time.



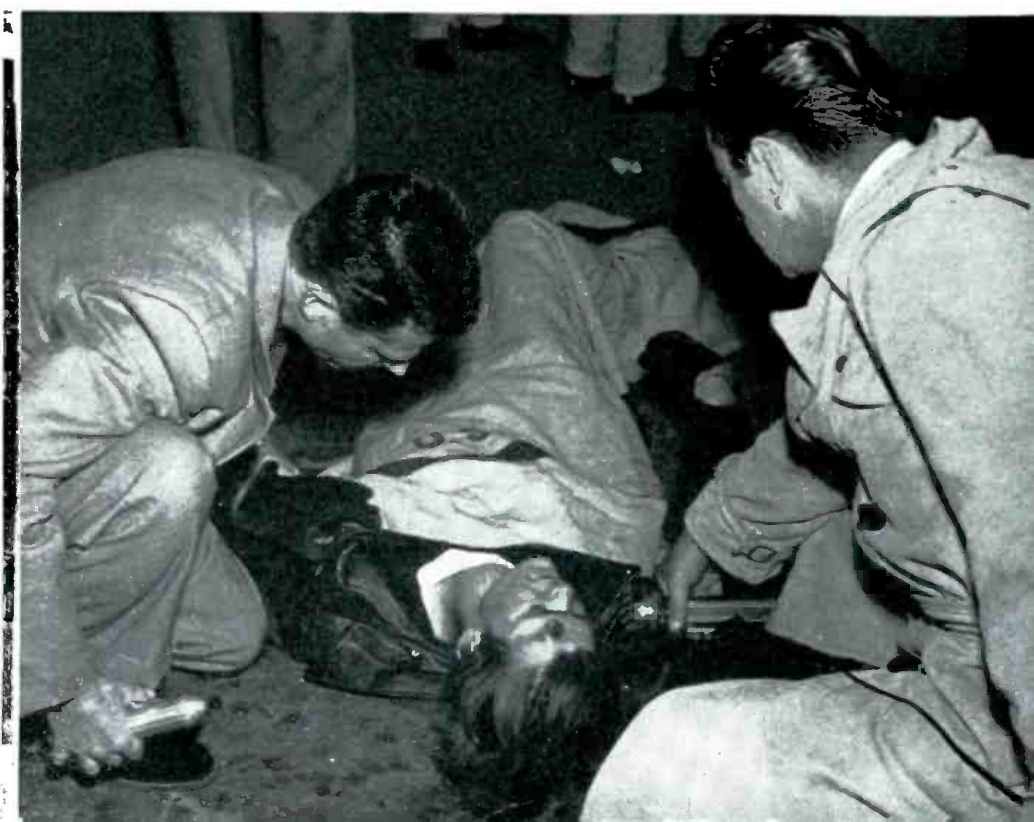
recorder and the birth of "Night Watch." It all started on a handball court something over a year ago.

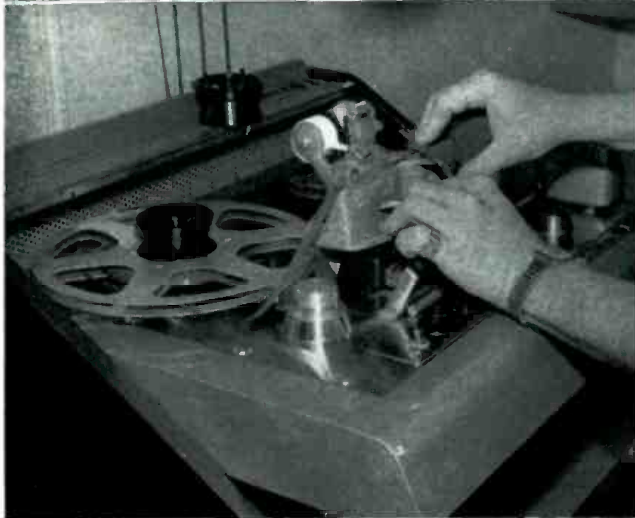
Reed, a native Californian, had had his hopes of a professional baseball career canceled out by a broken back and a shot up stomach when his heavy bomber ran into a flock of enemy fighters over San Geovania, Italy in 1944.

Back in Hollywood after his war service Don got into radio work with moderate success. He kept up his interest in athletics by playing tournament handball. It was on the handball court that he first met and became friends with Detective Sergeant Perkins of the Culver City police department.

Over coffee one day following a strenuous match Perkins described a crime case he had handled the night before. "I wish I had that on tape," said Don, "It would make a wonderful radio show." Together they interested Police Chief Bill Hildebrande in the idea. During the next year they spent an untold number of off-duty hours and many nights in the patrol car perfecting a portable recorder that could handle the kaleidoscope of night sounds encountered in routine police work.

There were a discouraging number of bugs to work out. Don found that his recorder would have to be able to register myriad sounds from whispering voices to wailing sirens,





Top: Reed and show director Tracy listen to playback before editing begins. Tape must be condensed to 12 minutes air time. Profanity and remarks in bad taste are removed first. Center: a Soundcraft splicer is used on the Ampex 350 for editing, a job that requires hours of note making and playbacks. Below, left to right: Reed, Lt. Bob Conlin, Chief Bill Hildebrande and Sgt. Perkins censor a tape before it is okayed for release. Chief holds phone connected to the operator in the recording room in the event playbacks of certain parts are wanted. While the show lasts but 12 minutes on the air, Don Reed says it takes him about 80 hours of work to put one together. Reed must take his chances on making a sound pickup and frequently lands in the thick of the fray.

that he would have to record police calls over the sound of a siren one moment and capture footfalls or labored breathing the next. His equipment had to be light enough to be easily carried even while running, yet capable of recording long periods without frequent tape changes.

When he finally had a recorder that met all the requirements he found he had spent in excess of \$800 cash, including the cost of original machine, and countless hours of experiment and labor.

Don refuses all requests for information on his equipment, except that he records sometimes at 7½, sometimes at 15 inches per second, and that he can record 15 minutes without changing tape.

By the time "Night Watch" had made its third airing Don had letters from such places as Flannagin's Boy's Town, the University of California, the Canadian Broadcasting System and any number of teachers, reporters and writers complimenting the program and requesting information about his recording apparatus. All such requests have been refused. "It has taken more than a year of time, to say nothing of the money involved," says Don, "to perfect equipment with which I can bring such realism to the air. Let's just say it's my 'trade secret.'" A point well taken.

The problems were not all related to equipment. When Sergeant Ronnie Perkins in car 56, or the officers in any of the other cars for that matter, roll on a call they are concerned with the police business at hand. Don has to take "potluck." If he can keep up, be in the right place at the right time, yet stay out of the way, then he gets a story—maybe. There is no staging, no acting, no re-takes. It's on the tape word for word, act for act, exactly as it happens to people involved with the law.

Don has had to learn when to run and duck. Though he has been slugged and shot at, he stays on top of hold-ups, knife fights, husband-and-wife battles or burglaries.

Getting the program on tape in the field is but half the job. Back at the CBS studio there is the problem of reducing perhaps an hour and a half of tape to twelve minutes of air time. In addition to extraneous matter all profanity and slurring references must come out. "Drunken women are the worst offenders when it comes to swearing," says Don. "In a full year of recording in the field there have been only three cuss words uttered by police officers on duty," he continues, "and this in spite of the fact that they know any slips can later be edited out of the tape."

The editing is no easy job. First all the tapes relating to one case are spliced together, then played back repeatedly on an Ampex 350 while Don and director Sterling Tracy make notes. A Soundcraft splicer is then attached to the Ampex and the actual editing begins. When the tape is finally trimmed into rough shape the voice of the announcer is added where needed and a message from Culver City police chief Bill Hildebrande is taped on to close the show.

With these various steps accomplished the show is ready for re-taping. This is necessary because of the wide volume range in normal sounds, including voices of emotionally disturbed people. An angry man may shout his words while a frightened woman speaks scarcely above a whisper. The announcer at the studio may speak much louder than the chief recording his message at city hall. Even the tones of the two recorders and microphones Don uses in the field vary considerably. Also Don may find himself several yards from the scene of action one minute and virtually in the middle of it the next.

All this must be smoothed out before the show hits the speakers of the nation's radios. It is accomplished by playback from one Ampex to fresh tape on another as an engineer handles volume control.

When the final tape is ready for broadcasting there is still the matter of censoring and of legal clearance. Every possible safeguard is used to conceal identities except in cases of felonies where conviction follows. Only the police officers involved are named. Other names, addresses and even time of occurrence are altered to protect the people involved in minor difficulties, but voices, words and attending sounds are real.

Don obtains releases on the spot whenever possible. Sometimes it is necessary to wait until later when the subject's emotional stress has lessened. To date no one has refused to sign a release, though frequently it is necessary to explain that the purpose of the program is to help other people to avoid conflict with the law, and to show them how they may help others. Once they understand the tremendous educational values of inherent in the program they sign without hesitation. Some tapes are held to await the outcome of court trials in felonies cases. This angle has presented another unexpected problem. Don frequently finds himself the recipient of a subpoena to appear as a witness in court. "It's just one more headache," he says, "to add to the 70 to 80 hours of work between recording and broadcasting."

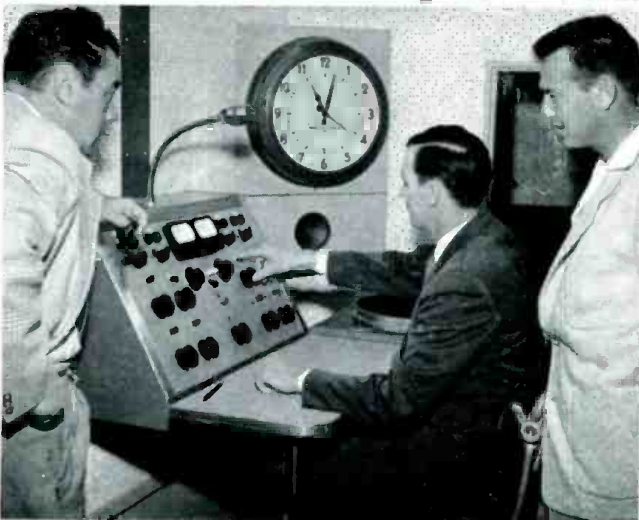
When broadcasting time arrives there are two, not one, finished tapes taken to the studio. These are placed on two Ampex 400s situated side by side. One is timed to run a split second behind the other. Thus the engineer can keep the show moving without a stutter in case of a tape break.

"Night Watch" had produced some unexpected results. First was the unprecedented mail response from serious minded people. Few of the letters are of the usual giddy fan-mail type wanting to know, for instance, if Sgt. Ronnie Perkins is handsome (which, incidentally, he is; 6 feet 3 inches, 190 pounds) or if he is married (which he isn't). The letters come from editors, preachers, lawyers, other networks, teachers, professors and other such personages. There have been more requests from editors, writers and photographers interested in the human interest drama of "Night Watch" after only three broadcasts than is usually received by radio programs in five years.

The listening public have become more conscious of the law enforcing problems in their communities and the fine work accomplished by their police officers, especially in crime prevention. "Night Watch" has shown that police are as concerned with crime prevention as with its detection and the people have learned too, the value of cooperation and of the many ways it is best accomplished.

There is nothing in radio quite like "Night Watch" for raw and unwritten drama, and there is no other recorder in existence quite like the one Don Reed uses to bring realism to the airwaves.

Top: old tapes are wiped clean for re-use on a bulk eraser. The alternating magnetic force breaks up the sound patterns on the tape and leaves it clean for the next recording. Center: at show time two finished tapes are placed on side-by-side Ampex 400 machines, one timed a split second behind the other. This is a safety precaution for the engineer can keep the show moving in case of a tape break. Lower: engineer Bill Bruder (seated) shows how he puts "Night Watch" on the air as Reed and Tracy stand by. Not until the last word has been broadcast do they draw a free breath. Then the worry and work starts on the next show.



Listen to "Night Watch," CBS Radio Network Stations, Fridays 9:30-10:00 P.M., Eastern Daylight Time

NEW PRODUCT REPORT

STAFKSTED



TDC STEREOTONE

... features 10" speaker, three motors, push button operation, program indicator.

IN our opinion, the TDC Stereotone Model 130 tape recorder is one of the better medium-priced recorders. It is suitable for home, business or semi-professional use and has incorporated many features long wanted by tape recordists.

Electronically, the tube complement is very well selected, particularly the push-pull audio output stage which uses 6AQ5's. The location and workability of the normal and overload indicators makes for good recording control. Although this type of recording indicator is found on most present day machines, it is very easy to see, even in a brightly lighted room.

The fairly high level, low distortion audio output into the 10" round speaker provides sufficient volume for an audience of from 50 to 75 persons in a good auditorium.

The frequency response characteristics of the particular machine which we tested (an unselected stock model) were very good, providing at the 7½ inch per second speed a response in excess of the "AA" program require-

Product: TDC Stereotone Recorder Model 130

Price: \$229.50

Manufacturer: Three Dimension Company, a division of Bell & Howell, 3512 Kostner Ave, Chicago 41, Ill.

ments. The machine had less than 3db variation in the range from 70 to 8000 cycles based on the output at 1000 cycles. At 10,000 cycles it was only 3½ db down.

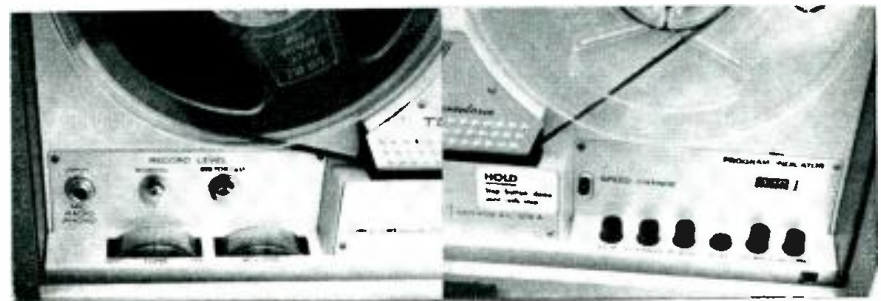
The signal to noise ratio was much better than the required 20 dbm.

Although no specifications are given for the 3¾ inch per second speed, tests indicated that the recorder performed in excess of "A" program requirements with less than 3 dbm variation from 100 to 5000 cycles. Again, at this speed, the signal to noise ratio was greater than the required 20 dbm down.

Mechanically, the provision of three separate motors for the transport, take-up and forward/rewind simplifies and makes for one of the best and most convenient push-button control systems we have yet experienced.

The buttons are all racked together on the right side of the recorder and are easily operated. A safety catch prevents the accidental pushing of the record button.

The provision of a motor cut-off



The left side of the recorder has the illuminated tone and volume controls, the input and the neon light recording level indicators.

To the right of the recording-playback head are found the push-button operated controls, speed change lever and program indicator.

switch to stop the tape transport so that the recorder may be used as a public address system, without running tape, is an innovation that many users will find especially useful, especially in the church and school field. This feature is found in few other machines and then the use of it is sometimes rather complicated.

We particularly liked the idea of holding the tape clear of the heads on fast forward or rewind. This results in less wear even though the speed in fast forward or rewind is 1200 feet in approximately 90 seconds.

Another feature which makes the machine convenient to operate is the program indicator. The change of speeds is simple and positive and is accomplished by moving the speed change lever to the desired position.

The craftsmanship of the recorder is good. All parts fit well together and the gray crackle finish of the exterior coupled with the off-white of the face make it very attractive in appearance. Push-buttons and controls are in red and the volume and tone controls are illuminated.

Adequate ventilation is assured because when the back of the machine, containing the 10 inch speaker is raised, as shown in the illustration, free access is given to all parts to the air. The only disadvantage to this is that it exposes the "innards" to the curious.

For carrying, the front of the recorder is protected by a black, roll-away cover, much like a roll-top desk.

This is lowered when access to the controls is needed. It rolls up in the bottom of the cabinet. The recorder will play with the front or back open or shut.

The 10 inch PM speaker is mounted on the back panel which is held in position by two arms. It is one of the largest speakers to be found in a home-type recorder. The shape of the recorder makes it very convenient to carry. However, the fact that two of the motors and a transformer are mounted rather high in the case makes it prone to tip over when carried in the car. We found this out the hard way and thereafter, instead of carrying it in the trunk, we placed it between the front and back seats and had no further difficulty. In ordinary use, there is no danger of it tipping, even with the speaker door in the "up" position.

This recorder is the only one in the medium priced field that uses vertical placement of the reels, which may be left in position when the case is closed.

The machine will accommodate a 7 inch reel. We encountered some slight difficulty in putting the tape end on the take-up reel because our fingers are so big, as the reel is in a recessed part of the recorder face. After a few threadings, we gained the knack of doing it and thereafter had no trouble.

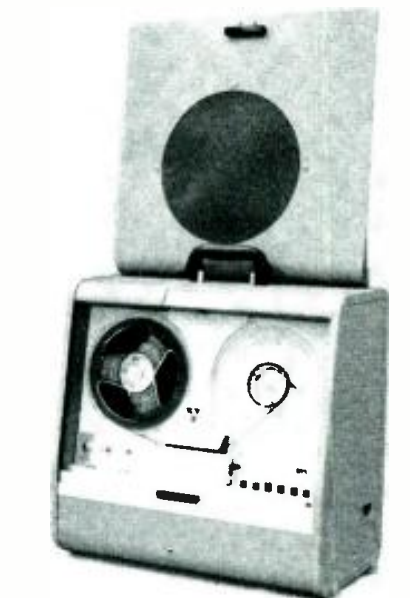
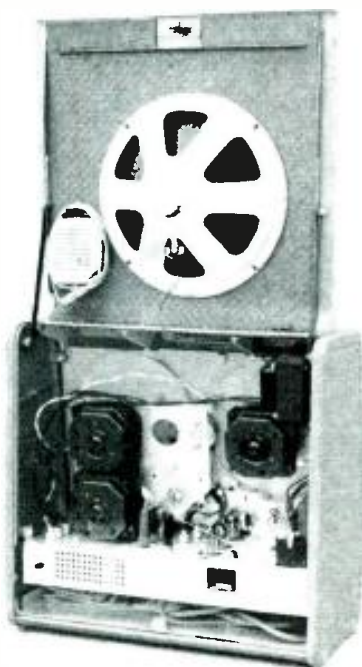
Tape threading is very simple, merely placing the tape in the slot as it goes from one reel to the other.

There is a note on the face of the recorder, which may be removed. It states that the stop button must be held down until the reels have stopped. Believe it—it means what it says. If the stop button is released prematurely the reels may run free and spill tape. The stop button controls an electrical brake to the drive motors, a really very effective and clever arrangement but, as mentioned above, when once applied, the braking action must be continued to a full stop.

There is one input on the face of the machine for phono-radio or mike and a crystal microphone is furnished with the machine. The mike is held on a small bracket on the speaker panel as shown.

A connection for an external speaker is provided on the chassis. The line cord and tapes are carried in the space between the bottom of the amplifier and the base of the case. The line cord plugs in on the side of the machine.

We believe this recorder is definitely worth your consideration if you are planning to purchase a machine.



Top: the recorder shown closed, both front and back. The front drops down like a roll top desk. The shape of the recorder makes it very convenient for carrying. The lower illustrations show how the back panel, carrying the ten-inch speaker is swung up into playing position. It may also be operated with the case closed. Phonograph type locking arms hold the speaker in position. The microphone attaches to a small bracket.



With a portable recorder you are independent of the electric lines and can record whatever you wish. Sound hunting, zoo noises, modern music, candid recording are all yours with a portable.

by
George Adamson

HITCH YOUR MIKE TO A PORTABLE

WITH the introduction of the self-powered portable recorder, tape recording threatens to overtake photography as the national pastime hobby.

The portable, self-powered tape recorder was originally developed for special professional applications such as on-the-spot broadcast coverage of such diverse events as disasters, celebrity and man-on-the-street interviews. The portable recorder, since its introduction in 1950, has proved to be an invaluable tool for every broadcast station. However, its potentialities lie far beyond those as originally envisioned by the manufacturers.

With a self-powered portable tape recorder there is no bothersome search for an electrical outlet, nor is there any distance limitation imposed by twenty-five feet of cord. With a portable recorder you are free to capture the excited screams of the kiddies on a roller coaster ride, the music of the carousel, or record a jungle expedition in Peru. In short, the portable recorder can be taken anywhere you would take a camera. The portable is light and easy to operate.

Several portables make possible candid recording. The new Mohawk Midgetape, soon to be announced, can be carried in a shoulder holster, using either a lapel, tie-clasp or wrist watch microphone. The Cub-Corder is housed inconspicuously in a brief case and is operated by a microphone with a remote control switch.

There are a variety of self-powered portable recorders now on the market, all of which have been engineered to obtain clear, sparkling sound. In general, most portables are frankly not high fidelity instruments, being intended primarily for speech work. There are, however, several on the

market that record the full audio spectrum. All present day portables maintain good signal-to-noise ratios. The wow and flutter content is sufficiently low to enable recording music with good results. The average portable compares favorably with many home-type recorders. One Magemite model, produced by Amplifier Corporation of America, offers even stereophonic recording.

Recorders such as the Warren, Club-Corder, Midgetape, Minitape, and the Flyweight Magnemite employ rechargeable storage batteries for driving the tape. One Magnemite portable uses a simple phonograph motor, governor-controlled to maintain constant speed, which runs a good thirty minutes without attention. It is re-energized by a cranking arm. The electronic parts work for 50 hours from easily replaceable flashlight batteries, plus one small "B" battery.

Because of conservation of space, all portables, except the Warren, do not have a sufficiently powerful playback amplifier to operate a loud-speaker. Therefore, the recorded tapes cannot be played out loud but do, however, play beautifully through earphones. The Cub-Corder can be monitored by listening through the microphone when in play position. When back from location, the recorded tapes must be played back through another machine, or by feeding the monitor level into an existing amplifier and speaker.

However, the Cub-Corder can be immediately played back through a radio loud-speaker with no connecting wires, thanks to a miniature transmitter. By dialing the radio to the correct frequency in the broadcast band, the recorded tapes can be heard, loud and clear. This is an old trick used by wireless record players several years ago.

Because all portable recorders were originally designed



for radio broadcast work, the lack of a self-contained loud-speaker was relatively immaterial. But unfortunately, most home users are unlikely to be able to afford an investment in two recorders, one standard and the other portable. The Warren, however, combines all functions: record, playback through its own loud-speaker, erase and rewind.

Neither the Cub-Corder, Stancil-Hoffman Corporation's Minitape, or the Magnemite have a motor-rewind feature. The tape must be rolled back by hand, rewound on a standard machine, or can also be rewound by interchanging the reels, using the fast forward position.

While the whole magnetic recording field is growing in a topsy-turvy manner at an astounding leap-frog pace, great potential lies in the direction of the self-powered portable. A wide selection of self-powered portables is now available. Still other machines are on the drawing boards, and substantial improvements are inevitable within the next several years. Generally, a self-powered portable should be considered only after the hobbyist has first cut his eye-tooth on a conventional machine.

Eventually, self-powered portables will offer all features every tape recording hobbyist now wants combined in one machine but today's portable is well designed and cleverly engineered to produce, in most cases, superlative recording results. The self-powered recorder offers an effective recording tool and a pass key to whole new worlds of recording delights.

With the advent of the portable recorder, a new cult of music devotees has sprung up. Intent on "taping it while it's hot," a group of sheepish but determined individuals

Facing page: recording a lion's roar is safe if you use a portable boom stand. Above: sound hunters place their mike between the ties at the station to catch the chug of the train. Upper right: William L. Dawson of Tuskegee Institute tapes African music played on the Ballanji and Bolonji in Sierra Leone. Center: when the mike must be some distance from the recorder use a low impedance mike and a line matching transformer shown here. Right: for recording forest sounds the mike may be suspended on a cord tied to a tree branch.



invade nightly local night clubs and concert halls, carrying with them portable recorders. Whether "Doc" Evans, pianist Earl "Fatha" Hines, or the celebrated Trio di Trieste is holding forth, the music is "taped" hot, complete with audience participation in contrast with the antiseptic sterility of the recording studio.

Still less conventional are the bird fanciers who scale rock precipices, shinny up trees and creep on hands and knees through underbrush to record the call of a new warbler. Then there is the gentleman who hopefully scans the skies, looking for storm clouds, then roams the countryside to collect thunderclaps.

Folklore fanciers armed with a portable tape recorder find that there are folk songs everywhere, waiting to be collected. Whether in the Tennessee mountain country, the flat plains of the Southwest, in Germany or India, there is a fast disappearing treasure of folklore to be recorded on a portable recorder for posterity.

Many music lovers, thanks to the portable tape recorder, are just beginning to learn how to enjoy their vacations. In the past the seaside and the mountains have been places of exile and musical starvation. While it is true there are in existence portable phonographs, they do not provide a satisfactory answer because dew, damp and sand will hasten the deterioration of good LP records even faster than needle scratch—now a portable recorder offers the ideal solution. All spring an enticing music menu can be taped in anticipation of the summer vacation. By using a battery-operated portable such as the Warren, complete with its own speaker, hours and hours of good music listening can be enjoyed while basking in the sun and sand at the beach during the day and in the cabin at night.

A group of sound hunters, working with portable tape recorders, are scouring Europe and America in search of common, everyday sounds with which they are fashioning the music of tomorrow. Almost any sounds are fair game, from the assorted and sundry chugs and whistles of locomotives in a railroad station to the whizz of traffic on New York's Fifth Avenue. Even the flight of a lowly bee or the rhythmical beat of a heart are recorded.

Not content with the sounds as originally recorded, they are played at various speeds, fast forward and reverse, at varying volume levels, pitches and octaves. The sounds are then combined and blended into symphonies with an eerie, dream-like effect.

The new method of producing music was named "Musique Concerte" by its original Parisian supporters. According to Pierre Schaeffer, the young recording engineer and amateur musician who started it all, "'Musique Concerte' is a new way of making music which allows the composer to work from the start with his actual sound materials directly, as a painter works with pigments and canvas; a sculptor with clay or stone."

From the first public concert of "Musique Concerte" given in 1949 at the Sorbonne in Paris, the movement took rapid root in Switzerland, Germany, Belgium, Holland and is now invading the United States. A tape recorder in the "Musique Concerte" tradition was a soloist with the Louisville Orchestra recently. Jim Faccett has been treating his listeners at intermission time on the CBS Sunday afternoon Philharmonic broadcast to experimental "music."

Various sound hunting clubs are being formed throughout Europe. All that is required is a portable tape recorder, some splicing tape, a pair of scissors and a basic, rudimen-

tary appreciation of music. When the sound hunting clubs convene, rather than have a recorder on a vacant stage, the groups prefer to stagger the chairs around the recorder. Those sound hunters who offer their "symphonic" selections complete with stereophonic sound find even more receptive audience.

Still other tape recording fans, rather than straining for surrealistic effects, prefer a "slice of life." The natural sounds of everyday people doing everyday things provide, when edited down, an exciting documentary of present day living. Stirred by the same basic motives that impel the candid camera fan to "snap" life about him, the tape recording hobbyist roams the streets and countryside of America with a candid microphone.

Recording with a portable recorder requires essentially the same technique as when using standard equipment. Generally, it is almost an impossibility to make an unacceptable recording. However, experience and practice will produce substantial improvements. Microphone placement technique must be acquired with practice. Using a concealed microphone in candid recording presents a constant challenge in microphone placement.

Hobbyists specializing in candid recording own a wide selection and variety of special microphones. Microphones are available, camouflaged in such unlikely objects as lapel ornaments, wrist watches, tie clasps. Depending upon the special situation at hand, the type of concealed microphone best suited can be selected.

Riding gain control while working with a portable recorder is sometimes difficult. When intent on capturing moving sounds or voices on a moment's notice, there is generally little time for anything except concern over microphone placement. The new "High Output" magnetic tape produced by Minnesota Mining and Manufacturing Company is particularly valuable for its application in portable recording. Its increase in output with no increase in noise means that the tape is especially sensitive to weak sounds and is much less likely to overload and distort when subjected to unexpected and sudden loud sounds. "High Output" tape provides an extra margin of safety, freeing the operator from the necessity of making volume level adjustments when recording.

Time permitting, it is generally desirable to use of pair of earphones to monitor the tape while recording. Earphones are, of course, an essential when playing back the tape while still in the field. Several microphones have a playback feature, thus eliminating the need for carrying along earphones. However, earphones are useful during recording and do not take up much valuable space.

Another handy "extra" for the portable recorder owner is a lightweight microphone stand. Frequently, it will be necessary to support the microphone when recording a group of people, for example. A more practical expedient for nature lovers can be found by carrying a roll of cellophane tape for attaching the microphone to a tree branch or pole.

When on location, spare batteries are a "must." It is also wise to carry a 110 volt battery charger for use when electric current is available or install a converter in your car. The Cub-Corder is provided with an adapter which fits into the car lighter of an automobile, permitting the batteries to recharge without removing them from the recorder.

Several portables do not include an erase feature, necessitating keeping a bulk eraser on hand, although it is seldom necessary to carry them on routine field trips.

PORTABLE RECORDER ROUND UP

FLYWEIGHT MAGNEMITE



The Amplifier Corp. of America, 398 Broadway, New York 13, N. Y., manufactures this 8 lb. weather-tight tape recorder. Drive is by fly-ball governed electric motor, battery driven. Will operate 4 hours on dry batteries, amplifier batteries last 100 hours. Available in three tape speeds, 15/16, 1 7/8 and 3 3/4 ips., all dual track. Frequency response is 300-2,500, 100-3,000 and 50-5,000 cps. respectively. In addition, Magnemite offers a spring wound recorder operating up to 30 minutes on one winding. The 15 ips. model has a response of 50-15,000 cycles. The "Stereo-Magnemite" is a stereophonic recorder using two channels. Recordings may be fed into any dual-channel amplifier for playback. Stereophonic headphones permit stereo monitoring. Single channel recording and playback or two-channel stereo recordings may be "non-stereo" played on any half-track recorder.

MOHAWK MIDGETAPE



Mohawk Business Machines, 944 Halsey Street, Brooklyn 33, N. Y., will shortly market the "Midgetape" a portable tape recorder that measures only 3 3/4" wide x 1 7/8" deep by 8 1/2" long and weighs under 2 1/2 lbs. The recordings will be made on magnetic tape contained in a cartridge at 1 7/8" ips. which will provide 1 hour of recording time on the two tracks. The cartridge can be changed instantly as no threading is required. Frequency response is 150-4,000 cps. with 5% maximum distortion and less than 1/2 of 1% flutter. Motor batteries will last for 25 hours, amplifier batteries for 60 hours. Motor battery pack is separate. Recorder will also operate from AC power lines and be played back through a loudspeaker instead of earphones. This is the smallest tape recorder manufactured. Accessories such as lapel mikes, wrist watch mikes, holster, etc. will be available.

WARREN PORTABLE



The "Warren 777" made by the J. C. Warren Corporation, 21 Hanse Ave., Freeport, N. Y., is the first complete portable recorder. It contains its own loudspeaker, requiring no headphone or auxiliary speaker. It will operate for 8 hours on rechargeable storage batteries or, if available, on AC. It also has a rewind feature. The recorder will accommodate a 5 inch reel, giving two full hours of recording at 1 7/8 ips. dual track. Attractively styled, it has retractable legs which fit snugly on the bottom of the unit and snap open or shut. Frequency response is 200-5,000 cycles, flutter and wow 1/2 of 1%. A lapel microphone is furnished with the recorder. Resembling a modern portable radio, it weighs 22 pounds. The carrying handle folds flat against the top. Three bar-knobs on the face of the recorder control the recording, playback, etc.

BELL CUB CORDER



The "Cub-Corder" is made by Bell Sound Systems, 555 Marion Road, Columbus 5, Ohio. Weighing 13 pounds, it accommodates a 5 inch reel. Available in dual or single track with tape speeds of 1 7/8, 3 3/4 and 7 1/2 inches per second with less than 1% wow and flutter. Its frequency response is 200-6,000 cps at the 7 1/2 inch speed. Unique features include a microphone that has a monitor playback level, a miniature transmitter for playback through any radio without connections to the set and an adaptor which permits recharging the batteries using a car cigarette lighter. The recorder is battery operated and inconspicuously housed in a briefcase-type carrier. It was formerly produced by Ectro, Inc. but has been purchased by Bell and will be marketed along with their regular recorder line. On and off control is on the microphone.

STANCIL-HOFFMAN MINITAPE



The "Minitape," Model M5A, a battery operated portable recorder is made by the Stancil-Hoffman Corp., 921 Highland Avenue, Hollywood, Cal. A single on-off switch provides all operating controls with optimum recording level set at the factory. Dual speed is provided, both 7 1/2 and 15 ips. (3 3/4 is optional on special order). The recorder is single track giving 15 minutes playing time at 7 1/2 ips. on a five inch reel. Rechargeable batteries have life in excess of 2 hours. Response is 100-5,000 cps. Distortion less than 3% with less than .5% wow and flutter. Weighing 13 pounds, a small leatherette case of shoe-box size houses amplifier, motor drive, erase head and batteries. A miniature amplifier plugs into the removable erase head socket to furnish earphone monitor level. A battery charger is also available as an accessory.

THE REPORTER



The "Reporter" is a 12 pound portable made by Boosey and Hawkes, Ltd., Sonorous Works, Middlesex, England. It is spring driven with power for the amplifier furnished by dry batteries. It has only one control: Off—Playback—Record. It takes a 5 inch reel at 7 1/2 inches per second giving a recording time of 15 minutes. Spring drive lasts for 7 minutes.

Broadcast Equipment Specialties Co., 135-01 Liberty Avenue, Richmond Hill, L. I., N. Y., offers the Travis "Tapak" a 17 pound portable. Single track, it takes a 5 inch reel, 15 minutes playing time at 7 1/2 ips. Frequency range is 100-6,000 cps. The spring-motor is wound with a handle crank that serves also as a carrying handle when not in use. A matching loud speaker unit is available as an accessory.



CBS Radio photo

Here Gene Autry, Pat Buttram and Johnny Bond have different working positions on the mike but their voices carry the same perspective.

How to Record Dramatic Skits

... there can be many a slip twix't the script
and the tape. Here's how to avoid some mistakes.

by

L. L. Farkas

WHILE actors on the stage or on television use position, gestures, and movements to compliment their spoken lines in conveying an illusion of reality to their audience, actors working with tape must create the same illusion of reality without the help of visual effects. Now this may sound like quite an order, but it can be accomplished easily by the use of microphone technique.

What is this technique? Briefly it means making intelligent use of the recording medium, keeping in mind both its limitations and its scope. It is not a rare skill conferred

upon a favored few, but a certain proficiency which anyone may acquire with only a small amount of patience and study.

Of course microphone technique applies to all sorts of sounds transmitted through a microphone, from the spoken word to instrumental renditions; but, since only the recorded dramatic skit is being considered at this time, the discussion shall be limited to the technique employed for dramatic presentation.

The first step in using this technique is to determine the

position, relative to the microphone, which will best fit your type of voice. This is important and yet many performers disregard this point entirely. As in singing (see April issue) they are under the impression that once they find a comfortable position in front of the microphone, the sound will take care of itself. Unfortunately it is not as simple as that. There are many types of microphones, each with different characteristics, and there are also different types of voices. If you just step up to a microphone without worrying about your position, you may be too close, in which case your voice will distort when recorded; or you may be too far away, or too far to one side, so that you will sound as though you were actually speaking from the cellar.

The quickest way to determine your best working position is to turn on your recorder then, standing approximately two feet from the face of the microphone, begin to speak in a normal tone. I am assuming here that you have a stand microphone; if not, you will have to hold the unit at the level of your lips. I strongly recommend that you get a stand for your mike. They are inexpensive and will be a big help in many ways.

Take a position a few inches closer to the microphone and continue to speak in a normal tone. Repeat this procedure, each time speaking from a closer position and noting the distance between your lips and the microphone, until you are about four inches away from the unit. By playing back the recording, you will discover one position from which your voice will either sound bassy or the harsh syllables, such as "b" or "p" will make popping sounds. This is the critical spot. Moving back two or three inches from this spot should now give you your working position, that is, the place from which your voice can be picked up to best advantage over the particular microphone you are using and also in the location where it is set up.

Knowledge of the microphone characteristics, while not absolutely necessary in making recordings, will very often save you time in locating your working position. For instance, it is always helpful to know where the working face of the microphone is located—the direction in which it will pick up sound, and also whether the microphone can pick up your voice from one or two sides, or from all directions. You should also have an idea of the beam-width or angle through which sound will be heard over the microphone so that you can stay within the beam. For example, the ribbon type microphone has a pick-up beam of approximately forty-five degrees for each of its two opposite sides; the dynamic microphone has a single pick-up angle of about a hundred degrees; the cardioid microphone has a still wider beam; while the crystal microphone, with its face in a horizontal position, can pick up sound from any direction. By thus knowing these various traits, you can eliminate part of the guesswork both in finding your own position, but also in placing other persons so that they too can be heard correctly over the microphone.

In the actual trial process to determine the correct working distance, you will often notice that performers with high-pitched voices can work closer to the microphone than those with deep or bass voices. The reason for this is that the lower tones, when picked up at close range, have a tendency to overload the radio tubes of the recorder and perhaps even the pick-up element of the microphone. The recorded tones sound muffled and unnatural or in some cases hollow and distorted. The remedy of course is for the person to work slightly farther away from the microphone.

Once you have found the correct working distance for your type of voice, your speech on tape should have a close conversational quality. This is the "on mike" position which you should try to maintain as long as the part in the play you are presenting specifies ordinary speech, as in two persons talking. It is also important that you stand still while speaking, otherwise your voice might fade in and out, making your words difficult to understand and destroying the overall effect of the part.

If you wish to give the effect of a whisper, drop the volume of your voice, but at the same time move closer to the microphone to compensate for the resultant loss of intensity. This move will also help to retain the intelligibility or what is sometimes called the definition of your speech. But one word of caution: do not come in too close to the microphone or here again, pops and a bassy quality will mar your speech as well as blanket and scramble your diction. By checking the effect with the recorder, you can tell quickly when your voice begins to distort; then all you have to do is to step back an inch or so to eliminate the defect.

On the other hand, if the part calls for raising your voice, you should move away from the microphone or your tones will again distort. How far back should you go? Again this can be gauged by the recorder and corrected by trial and error until the right position is found for the effect. In moving, however, be sure that you do not jump back or the shouting will not only sound faked, but your voice will go out of focus, giving the impression that you have suddenly dropped into a hole and thus wrecking the illusion you were trying to create.

There are also other effects required in dramatic skits; among these we have that of distance. Now the simplest way to produce this illusion is by making the actor actually stand at a distance (say, from ten to twenty feet) from the microphone; but while this method will work to some extent, and will appear very realistic to either the performer or the audience, it often proves unsatisfactory on recordings because some of the voice intelligibility is lost. A better method is to stand from three to five feet from the microphone and project the voice forward. You do not really shout; you simply raise the pitch of your voice and, with slightly higher volume than normal, you direct it forward, as if you were shouting over a great distance. To be more explicit, you try to speak as you have heard a voice sound when it comes from a distance. In this way the words remain understandable and yet the desired effect is obtained.

When directions specify that you must speak from behind a door or wall, it will not be necessary to procure props or to run behind a wall. The same result can be obtained by speaking with your hand or script in front of your mouth, close to your lips. You should be from two to two and a half feet from the microphone for this effect.

One effect often needed is that of movement: you must create the illusion of a person speaking as he approaches some point and then as he goes away from it. There are two ways of obtaining this effect. In the first method you start about ten feet away from the microphone, directly in the center of the pick-up beam, and you walk slowly forward as you talk until you have reached an "on mike" position. This is called a "fade-in" and gives the impression of a person approaching the front of the stage. To create the impression of a person going away, that is, a "fade-out," you just back off slowly as you speak to your original position ten feet from the microphone. A simpler way of achiev-



CBS Radio photo

Guy Lombardo, the famous bandleader, is using an "on mike" position in this photograph. This makes for an intimate and personalized voice sound, well adapted to his type of presentation to home audiences.

ing the same results is by using the directional characteristics of the microphone. As you will discover whenever you move to the side of the pick-up beam, away from the "on mike" position, the amount of sound picked up by the microphone drops rapidly until, with a directional type of unit, you will reach the spot, either to the back or side of the microphone, where your voice will be only barely audible. This position is called the "dead side" of the microphone. Now starting from this "dead side" you can move back toward the face of the microphone for the fade-in effect, and reverse the procedure for the fade-out. The advantage of this latter method is that you do not have to move as far; in fact, sometimes you can obtain the effect simply by leaning toward the dead side of the microphone. An even quicker fade-out can be effected by dropping below the face of the microphone. This is sometime used in reproducing a scene in which a person is hurt suddenly and falls to the ground.

At this point it might be well to say a few words about the relation between the performer and the scene the audience is asked to imagine. This scene may be set by narration, sound effect, and music; but the actor must make it believable. If you are portraying a person speaking from the back of a galloping horse, you must make the listener actually feel that you are on that horse. This seems like senseless advice, but it is surprising how many recorded dramas depict madly galloping horses whose riders speak as quietly and

unaffectedly as though they were sitting leisurely sipping tea in a peaceful drawing room. Perhaps people can actually talk that way on horseback, but it certainly does not sound realistic on the recording. In such cases the simple dramatic rule of suiting the voice to the action must be used. You should speak with a halting rhythm, as you would actually if you were riding a horse. At the same time you should add some slight projection to your voice to give the illusion of talking over the intervening distance between you and your companion. This effect, in which you are not directly "on mike," but slightly away from the microphone and attempting to throw your voice over without actually raising its volume, is generally labeled an "off mike" effect.

Another important factor which enters into the recording of dramatic scenes is perspective relationship. This means that sounds and voices arising from a single source or position must also create the impression that they have the same relative positions on the recording. For instance, a person speaking from the inside of a moving car should create the illusion of being in that car and not twenty feet away from it. The actor and the sound should be either *both* "on mike" or "off mike." In other words, the listener is taken inside the car with the cast for the "on mike" position, or he can witness the action from the outside with the "off mike" approach. There are some permissible departures from this technique, as when a particular part must be strongly stressed, or a sound overemphasized to establish a mood or a specific effect; but generally, when an authentic impression must be created in the mind of the listener, related elements of the scenes must have the same sound perspective.

One quick way of checking perspective is to close your eyes while the recording is being played back and then try to visualize the relative positions of the various sounds and voices heard. Any deviation in perspective which dispels the illusion created by the scene will generally be quite obvious. If such a test is made prior to the final recording, corrections can be made in the positions of the sound effects or performers so that the recorded show will then have a good perspective balance.

All these different points about the relationship of actors to scenes and sounds are being stressed because making recordings of any dramatic presentation so that it is believable and also professional in quality definitely requires a certain amount of care. For that reason you should learn all the tricks of the trade that you can and also try to use them intelligently.

One more suggestion. Knowing and utilizing microphone technique, even to its fullest extent, still will not produce a realistic recording if your acting is poor. While I do not intend to discuss the art of acting at this time, I should like to repeat the best directions I have heard given to actors by one of the few good radio dramatic directors. He said:

"READ, *THINK*, and then speak."

READ your lines carefully; *THINK* about them, trying to put yourself into the character's place and imagine his feelings and emotions as well as his reactions: then, and only then, speak.

Continued in next issue

RECORDER VENTILATION IS IMPORTANT

By Karl A. Barleben

THE tape recorder, due to its electronic make-up generates considerable heat within the confines of its case. Amplifier tubes and motor all contribute and the longer the recorder runs the greater the heat generated.

For this reason, most tape recorders are provided with a vent or opening in the bottom of the case directly under a small blower-fan which is usually attached to the motor shaft. The fan pulls in fresh air through the vent to carry away the heat thus preventing over-heating.

Fairly deep rubber feet or pads are generally located at each corner of the base, not only to prevent slippage when the recorder is placed on a smooth surface and absorb vibration but to provide free access and circulation of air under the case so the blower fan can pick up cool air from below for distribution upward and within the case. The latter reason is obviously the most important and yet many recorder owners seem to ignore this vital point.

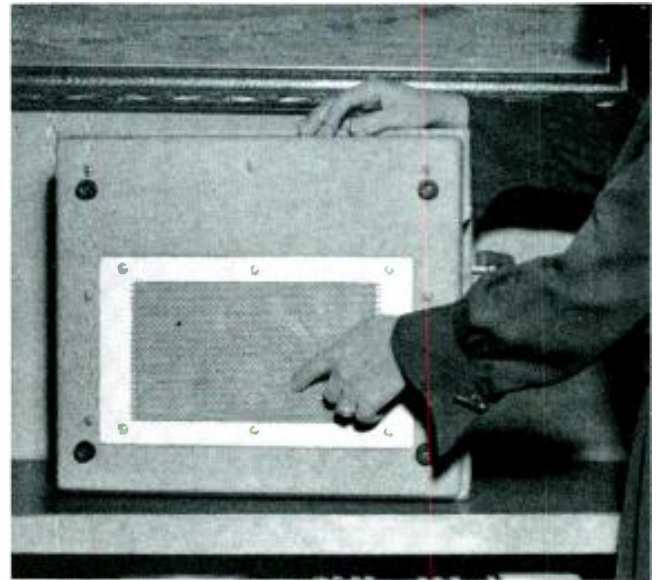
For example, the tape recorder may sometimes be set on a soft or deep carpet or on a bed. If out-of-doors, as on a picnic or lawn party, or when recording bird calls, it may be placed on the ground. Under such conditions it is easy to see how the rubber feet will sink down into the soft, yielding materials and completely cut off the air when the bottom of the case rests on the material.

A very easy method of overcoming this danger is to provide a set of four glass, rubber or plastic "cups" which are usually used beneath furniture legs in the home. One is placed under each of the recorder feet, increasing the separation between the base of the recorder and the object on which it rests by at least a half-inch, providing freer access for the flow of air to the fan.

The writer has these cups beneath his recorder at all times. They are made of plastic, 2¼ inches in diameter and have rough carpet material on the underside. They are available at most five-and-ten-cent stores and will not mar furniture. We prefer the plastic because they add the necessary distance, and can be shifted without danger of scratching.

The storage compartment of many recorders is also part of the ventilating system and should the recorder be used with the stored material in place, the air flow will be blocked and the temperature will rise.

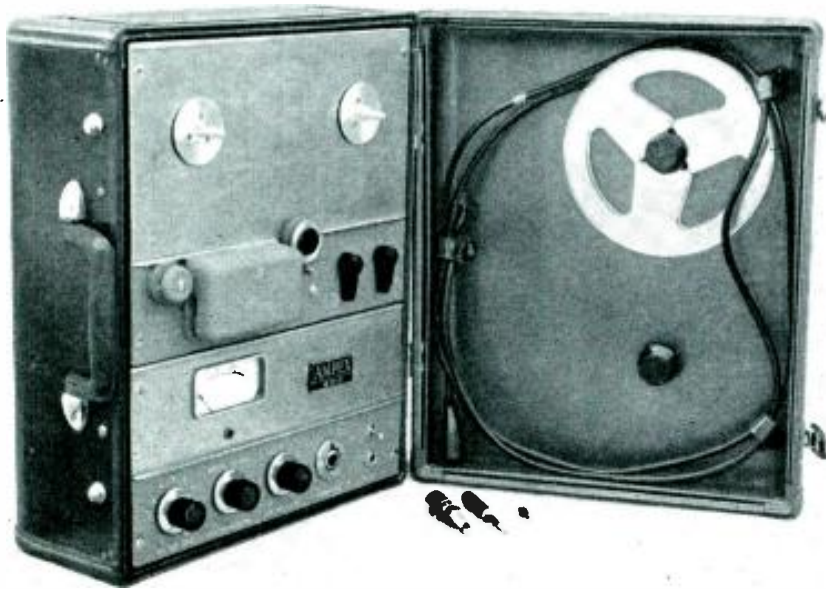
For best ventilating results, observe two rules: 1—make sure the recorder base is elevated above the support on which it rests so to permit cool air to reach the underside vent and be blown through the machine and, 2—empty the storage compartment when the recorder is in use if, on your recorder, it forms part of the ventilating system. If there are vents or a grill present in the compartment you can be sure that air is intended to flow through it.



The base of many recorders has a metal grill or similar air-intake. In this illustration, the grill of the Ampro tape recorder is shown. The grill, which is certainly out of sight when the recorder is in operation should not be out of mind. Cool air should be able to flow through it at all times. Center: the plastic cups with carpet material on their bases are worth their weight in platinum to recorder owners. The left view shows the carpeted underside and the right view the cup into which the rubber feet of the recorder fit. They may be obtained at most five-and-ten cent stores. Below: a recorder with the cups in place. The added height of the base above the table allows free circulation of air necessary to keep the recorder cool while in operation.

NEW PRODUCT REPORT

S T A F O K S T E D



AMPEX 600 RECORDER

. . . dual purpose, 15,000 cycle response at 7½ ips, vu meter, light weight, simple controls

THIS is a truly professional recorder made portable. Its weight, less than 28 pounds, makes a handy package to take on a bus, subway or plane with a minimum of inconvenience. The case dimensions are 8 x 14 x 16½ inches, about the size of an overnight bag.

The case is of Samsonite, a mar-proof covering of durable and smart appearance.

This portable model Ampex has all the quality features of the studio model at the 7½ inch per second speed. It is single track 7½ ips. It meets program requirements from 50 to 12,000 cps and has less than 4 dbm variation from the 1,000 cycle response to 15,000 cycles when recording techniques are properly done. The signal to noise ratio is exceptionally high and far in excess of the "AA" program requirements.

Mechanically, little need be said except that it is on a par with the studio-type Ampex machines. The tape transport, forward, rewind, record and playback, exert a minimum load on the tape regardless of careless or hasty operation.

Threading is simplicity itself, consisting mostly of putting the end of

the tape on the take-up reel as the open head guide and capstan drive are completely open and unhampered. A small but important point if you must change reels during a show.

That the machine has adequate power, balancing and speed control are indicated by less than ¼ of 1% wow and flutter and 30 minutes of recording and playback with a timing accuracy of plus or minus 3.6 seconds.

Rewinding a full 1,200 foot tape is accomplished in approximately 90 seconds and as mentioned before, immediate reversals in tape directions can be made without danger to the tape. There is only one precaution and that is to allow the tape to come to a complete stop before operating the play-record switch.

All tape movement are controlled by two levers, the record lever having a safety button to prevent accidental erasure of already recorded material. There are three separate heads for erase, record and playback.

Electronically the amplifiers are superb in response and capabilities for equalization, pre-emphasis and control necessary for the high fidelity conversion of pick-up to output at the tape

Product: Ampex 600 Recorder.

Price complete: \$545. Mechanism only, without case: \$498.

Manufacturer: Ampex Corp., 934 Charter St., Redwood City, Cal.

speed that is used by the recorder.

An excellent addition to the usual capabilities found in portable recorders is the ability to directly mix and control both microphone and line inputs thereby providing a much requested and needed function without additional external equipment. This capability may also be used to provide a home music system from a radio tuner or phonograph, mixing and combining, or as a PA preamplifier.

The radio tuner, phono input and mike connection may be left attached to the machine if installed in a permanent location and the output fed to a high quality power amplifier and speaker for fine reproduction.

Monitoring of either the input or the output is provided by simply plugging a set of earphones in the jack. The material being recorded may be heard either as it goes on the tape or it may be heard after it has been recorded, at the flick of the switch. This allows constant comparison between the incoming program material and the output as registered on the tape.

The provision of a lighted volume indicator of standard broadcast design is a good feature. This is calibrated in VU as well as modulation percentage and affords an excellent input control. It also serves as an output level



The recorder is contained in a first-quality Samsonite luggage-type case, sturdily constructed to protect the recorder mechanism.



The 600 may be used either vertically or horizontally. Reels are held in place by rubber knobs which grip the drive shafts.

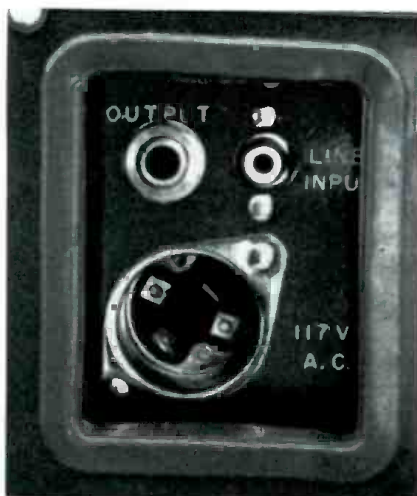
indicator and may be switched into either circuit.

The recorder is factory wired for a high impedance microphone but adequate preamplifier gain is provided for low impedance dynamics or velocity types when used with a matching transformer, such as is provided in kit form by Ampex and easily installed in the recorder case between the mike jack and the preamplifier input.

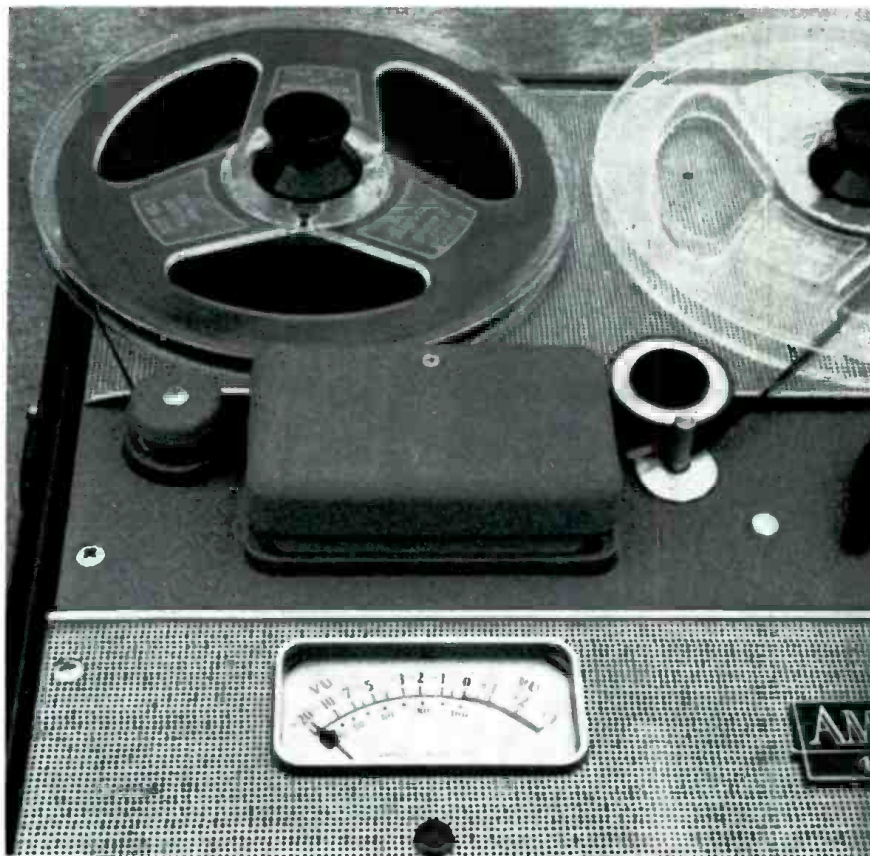
As with most professional equipment, no microphone is supplied and only the best mikes should be used with it in order to secure the results of which the recorder is capable.

Also, the recorder is not a playback machine in the usual sense as it has no power amplifier or speaker. These must be connected externally. It is meant to be a high quality recorder—and that's what it is.

In making a recording, a test run for



Inputs are located in a recessed well in the end of the case. The line cord and reels are carried in the detachable lid of the unit.



The tape feed is direct without pressure pads or loops. Three heads, erase, record and playback are under the housing. The tape speed is $7\frac{1}{2}$ ips and the machine has a VU meter for accurate recording level control. Bottom panel has mike and line recording level controls, monitor selector, microphone input jack, phone jack and the line switch.

level may be made without running tape. The VU meter will show the level of the incoming program and the mike record level or line level controls may be set before recording is begun. The meter should not swing past 0 for optimum results and it is better to keep it below this point on the most intense sound peaks.

As previously mentioned, the unit has no power amplifier to operate a loudspeaker. The maximum output level is about line level (4 VU) into a 10,000 ohm load. We have



All tape motion is controlled by these two levers. A safety button to prevent accidental erasure can be seen to the left of the levers.

heard, however, that Ampex will make available sometime in the future three complements to this unit. They will be: 1—a companion case containing a high-fidelity power amplifier and speaker system capable of reproducing signals equal to the quality of the recorder output. 2—A battery unit for operating the recorder away from power lines, providing high-fidelity recording irrespective of location. 3—An adaptor kit to provide mounting details for the standard 19 inch standard or channel type frames.

As with any high-quality equipment, the most can only be obtained from it if it is used intelligently and we would strongly urge users of the Ampex 600 to purchase the maintenance manual which sells for \$1.75. It will enable you to get the most and best from the equipment.

Each machine before it leaves the factory is rigidly tested to make sure that it meets specifications. Each is individually equalized and compensated to perform as it should.

If you are considering a recorder of this type, for broadcast or home use, we certainly suggest that you give it serious consideration.

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Another value-leader in the complete line that gives you better choice than ever in crystal microphones! Combines E-V quality features with handsome new slim design—for attractive and effective use in public address, home tape recording and communications. Frequency response is smooth, peak-free 70-8000 cps. High output level. Omnidirectional polar pattern. Can be used in upright or angle position. Hi-Z. Moisture-sealed crystal. Pressure cast case, finished in rich Satin Chromium. 5/8"-27 thread stand coupler. Size 1 1/16" x 6 3/4" including swivel mount. 18 ft. cable. Net wt. 11 oz. Model 926. List Price \$24.50

Ask your E-V Distributor or write for Condensed Catalog 119

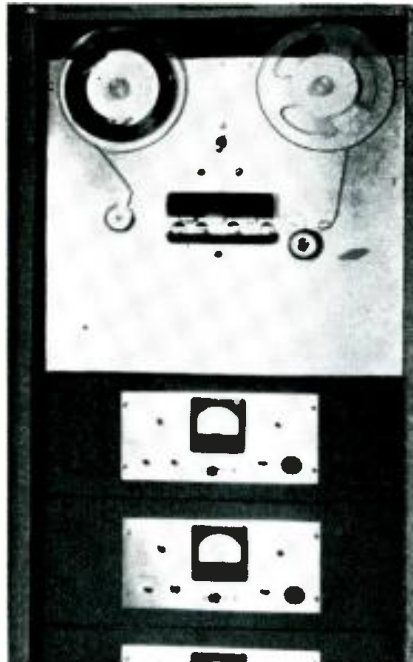
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OFF THE TAPE

ELECTRONIC ORCHESTRA



... six musicians

What you see above is part of the world's first Electronic Orchestra which was presented at the Electronic Parts show by the Pentron Corporation and University Loudspeakers.

The heart of the device is Pentron's new Dynachord recorder, shown at the top. Special heads were used on the machine and six tracks were recorded on 1/4 inch tape. One track was used for each instrument. Below the recorder can be seen part of the bank of six pre-amplifiers, one for each track on the tape. The output from these was fed into separate power amplifiers and thence to six University speakers positioned on a platform in the same position as would be the members of the orchestra.

The effect of this stereophonic recording bordered on the uncanny. Anyone who wanted "presence" had it by the basketfull.

Recording was done under the direction of Bill Putnam of Universal Recording Company, and the arranging and conducting was done by David Carroll, Musical Director of Mercury Records. Six directional mikes were used and the instruments were well spaced apart so that each would dominate its own track.

Extreme accuracy in tape feed and playback was necessary and was achieved on the recorder. With six channels on a 1/4 inch tape there is no room for slippage. The recording was done on High Output tape at 15 ips and has a frequency range of 50 to 15,000 cycles.

DIXIE AUDIO FESTIVAL

The Dixie Audio Festival will be held at the Henry Grady Hotel, Atlanta, Georgia on August 27, 28 and 29th inclusive.

The Show will be open to the public on the 28th and 29th. It is reserved for dealers and distributors on the 27th. Scott N. Morrill will be the guest speaker.

SHOP OR SWAP

Advertising in this section is open to both amateur and commercial ads. TAPE RECORDING does not guarantee any offer advertised in this column and all swaps, etc. are strictly between individuals.

RATES: Commercial ads, \$.30 per word. Individual ads, non-commercial, \$.05 a word.

Remittances in full should accompany copy. Ads will be inserted in next available issue. Please print or type your copy to avoid error. Address ads to: Swap or Shop, Tape Recording Magazine, Severna Park, Md.

FOR SALE: Bell & Howell 202 Magnetic Projector. Two-case model. 12" speaker. Brand new. \$650.00. Write William E. Griffing, 105 Park Avenue, East Orange, N. J.

TAPE Recorders, Tapes and Accessories. Nationally Advertised Brands, Unusual Values. Check with us before you Buy. Dressner, Box 66A, Peter Stuyvesant Station, New York 9, N. Y.

FOR SALE: Pre-recorded music on tape. Hack Swain, A-V, others. Send for free catalog. Swenson's, Box 391, Mankato, Minnesota.

YOUR special or valuable tapes recorded on discs—any size or speed disc. Mail reel or any part. Price list on request. Dressler, 84 Roosevelt Ave., Valley Stream, Long Island, N. Y.

FOR SALE: Several 1,250 ft. reels of Plastic Tape. Used, \$1.99 per reel; new, \$2.99 per reel. Also used paper tape, \$.75 per 1,250 ft. Please include sufficient postage. John Ahearn, Pond Hill Park, Wallingford, Conn.

WANTED: To copy recording of Oscar Award Show. State terms first letter. Howard Wood, 652A Natoma Street, San Francisco, Cal.

HI-FI COPIES of your tapes and discs made on AMPEX-FAIRCHILD equipment. Equal to the finest commercial recordings. Send for prices and information. Gordon Mercer RECORDING SERVICE, 974 Cheltenham Road, Santa Barbara, Cal.

TAPE FANS — Join World-wide club; swap tapes, make friends everywhere! Details free. P.O. Box 1404S, San Francisco.

FOR SALE: Concertone 1501, carrying case, and Accessories. Guaranteed. Reg. \$404.00, Spec. \$295.00. Camera Craft, 18 E. 42nd Street, New York, 17, N. Y.

FOR SALE: 50 empty 10 1/2" aluminum reels in excellent condition. Price \$1.50 per reel. Send check with order. Radio Station WWRL, 41-30 58th Street, Woodside 77, N. Y.

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SOUND RECORDING



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THE FINEST TAPE YOUR RECORDER CAN USE

Just as the reflection of a perfect mirror is faithful to the original image, in every detail, so too does IRISH Green Band RECORD, RETAIN and REPRODUCE the original sound with flawless fidelity.

This can be confirmed by tests. Instruments will reveal that IRISH Green Band offers lower noise level, uniform sensitivity, minimum amplitude variation, less distortion.

But instrument tests are only the landmarks

of good design and production. The final proof is in the hearing. Therefore, to know and appreciate the quality of IRISH Green Band Tape, it must be used, listened to, and compared with other tapes on the same recorder.

You will find that the only limitation to IRISH Green Band quality is the limitation of the tape recorder itself: it is the finest tape your recorder can use.

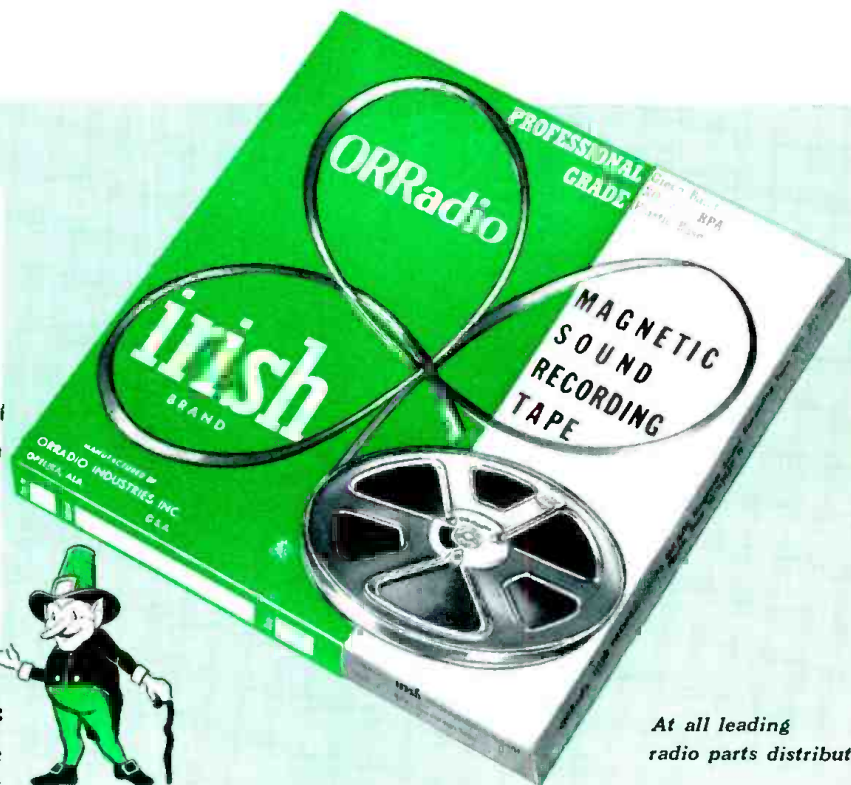


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We brought home the Grenadier Guards Band...

on "Scotch" Brand Magnetic Tape!



COLORFUL VACATION MEMORIES come to life again and again when we listen to the magnetic tape recordings we made on our portable tape recorder. The shrill fife of a British regiment or the deep throated roar of Niagara... "Scotch" Magnetic Tape captures every sound with complete fidelity—to help you keep summertime memories forever! And only "Scotch" Brand is silicon lubricated to prevent recorder head wear and increase tape life. That's why it's the favorite of professional recording engineers the world over. That's why it will be *your* favorite, too!

PORTABLE RECORDERS give high fidelity reproduction with "Scotch" Brand Magnetic Tape No. 120A. Extra sensitivity of this high output tape enables portable machines to produce better recordings, even at low tape speeds. Increased output of 120A tape handles wide dynamic range, almost eliminates necessity of riding gain control. You're free at all times to enjoy the sounds and sights of your trip!



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