

The Only Complete Guide for Anyone Who Owns or is Planning to Buy a Tape Recorder

1966 annual buying guide

tape recording

\$1.00

33 Things to Do With a Tape Recorder * * * * *

How to Buy the Right Tape Recorder * * * * *

**"POP
SOUNDS"**
CONTEST

Prizes Worth
Over \$10,000
See Page 95

Select Recording Tape, Phones and Accessories * *

Build a Library of Music
on Tape * * * * * *Plus*
The Latest on Home Videotape
and Automobile Tape Players * *



We just developed a sound tape so sensitive that you can now cut recording speed by half, yet retain full fidelity. You can actually record twice the music per foot. Your budget will applaud.

Start savings with this new box. 

SCOTCH® Brand "Dynarange" Series Recording Tape is the name. And this one makes all music come clearer, particularly in the critical soprano range. Reason: This tape cuts background tape noise in half. With this result: You can now record at 3¾ ips all the finest fidelity that before now your tape recorder could only capture at 7½.

Your dealer has a demonstration tape that lets you hear the excellence of this new tape at slow speed. Costs a little more. But you need buy only half as much—and can save 25% or more in tape costs. Or, if you use this new tape at fast speed, you'll discover fidelity you didn't know your recorder had.

Other benefits of new "Dynarange" Tape: Exceedingly low rub-off keeps recorders clean. The "Superlife" coating extends wear-life 15 times over ordinary tapes. Lifetime Silicone lubrication assures smooth tape travel, protects against recording head wear and extends tape life. Comes in new sealed pack, so tape is untouched from factory to you. Reasons aplenty to see your dealer soon, hear a demonstration. And try a roll!

"SCOTCH" AND THE PLAID DESIGN ARE REG. TMS OF 3M CO., ST. PAUL, MINN. 55119 ©1965, 3M CO.



Magnetic Products Division 

**You don't have to park your
Norelco tape recorder
just because you're
parking your car.**



The new Norelco Carry-Corder® Car-Mount™ does more than just ride around playing music through your car radio. It not only plays your own favorite home-recorded tapes, but when you park and get out, it gets out with you—to play and record anywhere.

The Norelco Carry-Corder Car-Mount plays and records in anything on wheels. And doesn't pick up static from your car's ignition system. Or drain electricity from the battery either. It has its very own power supply.

Which also means you can take it to a

party without having to *drive* it into someone's living room. It unplugs in a minute. It weighs only three pounds. And it has a shoulder strap for carrying it around. (If you have round shoulders, it will even fit into your coat pocket.)

You record or listen on handy snap-in cartridges that hold up to 60 minutes of *anything*: Bach. Beethoven. The Beatles. Even your wife's directions on how to get to her Uncle Manny's house. And if you stop by your Norelco Dealer's soon, he'll show you how to do hundreds of other fun things with a tape recorder, too.



North American Philips Company, Inc., High Fidelity Products Department, 100 East 42nd Street, New York, New York 10017

1966 Annual Buying Guide

Circle 51 on Reader's Service Card

As tracking forces have become lighter, and stylus assemblies more delicate, so has the danger of damage from manual handling increased. To eliminate this hazard, Garrard has built into the Lab 80 an ingenious tone arm cueing control. This feature protects your records as no other turntable can.

The Lab 80 integral cueing control works for you in three important ways:

1. To play a single record: Press the Manual tab. This starts the motor and activates the tone arm cueing control. The arm stays suspended a safe half inch over the record. Position the tone arm over the first (or any) groove. Now, press the cueing control and the stylus lowers gently into the groove.

2. To cue a record during manual or automatic play: Press the Manual tab. The arm rises and stays a half inch above the record. Move the arm to the band or groove desired, and press the cueing control. The stylus lowers slowly and accurately into the groove. With this feature, there is no necessity to lift the arm by hand causing accidental jarring or scraping of the stylus across the record.

3. To pause during manual or automatic play: When you want to interrupt the music, press the Manual tab. The arm rises directly over the record and stays there. The turntable continues to revolve. When you are ready to resume play, press the cueing control. The stylus lowers accurately and safely,

and the music continues from where it left off.

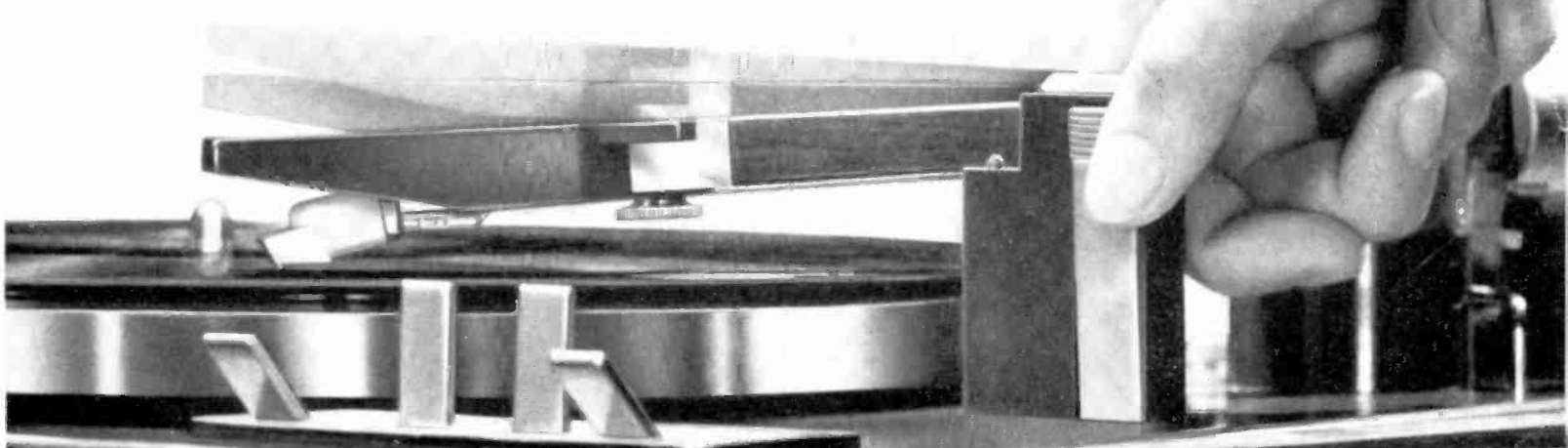
Regarding automatic play: The Lab 80 is a superb transcription turntable for single play. But, in addition, it includes an exceptionally gentle, built-in record changing device, enabling you to play a stack of eight records fully automatically.

**the perfect unit
for taping and
protecting your records**



**The
Garrard[®]
LAB 80
Automatic
Transcription Turntable
Fully automatic,
single play too...**

it performs on cue!



tape recording

1966 ANNUAL BUYING GUIDE

VOLUME 13 No. 2

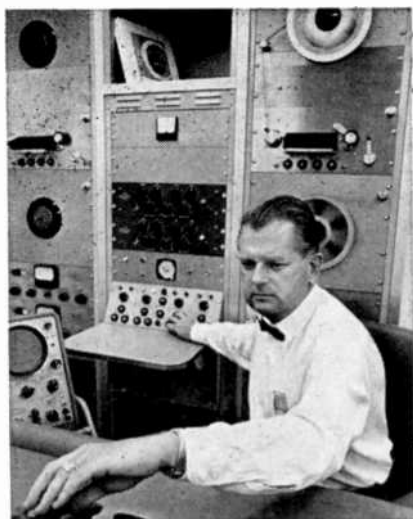
ARTICLES

Tape Times	6
33 Things You Can Do With A Tape Recorder	9
A Recommended Basic Library of Serious Music by <i>Erwin Bagley</i>	21
How to Buy a Tape Recorder by <i>Paul Edwards</i>	31
How to Buy a Tape Deck by <i>Frank Peters</i>	47
How to Buy a Battery Portable by <i>Lee Brooks</i>	57
How to Buy a Car Tape Player by <i>Richard Ekstract</i>	67
Should You Buy a Video Recorder? by <i>Ann Eisner</i>	71
Selecting the Proper Microphone by <i>Felix Prinz</i>	75
Which Accessories Do You Need? by <i>Renato De Groff</i>	87
A Guide to Stereo Headphones by <i>Robert Angus</i>	91
Pop Sounds by <i>Richard Ekstract</i>	95
How to Select the Right Recording Tape by <i>Robert Angus</i>	99

Tape Recording: Publisher: Richard Ekstract; Editor: Robert Angus; Music Editor: Erwin Bagley; Technical Editor: Peter Whitclam; Associate Editor: Ann Eisner; Design Consultant: Peter Palazzo

Tape Recording (title registered U.S. Pat. Off.) is published seven times a year by A-TR Publications, Inc., Richard E. Ekstract, President; Robert N. Angus, Secretary; Executive and editorial offices 156 E. 52nd St., New York, N.Y. Subscription rates: U.S. and Canada \$3.00 for one year, \$5 for two years, all other countries \$4.50 per year. Single copies 50 cents. Annual \$1.00. Entire contents copyrighted 1966 by A-TR Publications, Inc. Distributed by Eastern News Distributors, Inc., 255 Seventh Ave., N. Y. 1, N. Y.

Q. WHEN A FOREMOST RECORDING ENGINEER RECORDS PROFESSIONALLY, WHAT KIND OF TAPE DOES HE USE?



Q. WHEN HE RECORDS AT HOME, WHAT BRAND DOES HE CHOOSE . . . TO BE JUST AS SURE?



A. ULO VILMS GOES AMERICAN BRAND ALL THE WAY!

As chief audio engineer for the world's largest pre-recorded tape duplicators, he knows the best performing and most reliable tape is AMERICAN. He chooses AMERICAN at home on his 'busman's holiday' for the same reason. Mr. Vilms' recordings, whether for clients or for his family and friends will be just as brilliant, just as flawless when played years from now. Isn't that what tape recording is all about? Anything less is a waste of time and money.

Q. Why don't you go American?



AMERICAN
RECORDING TAPE

Greentree Electronics, 291 South La Cienega Blvd., Beverly Hills, Calif.

Circle 33 on Reader's Service Card

tape

TIMES



Here are the approximate playing time of almost 500 classical compositions. Times have been gleaned from actual performance records of the New York Philharmonic, the Metropolitan Opera, as well as recorded versions of the works. Because conductors vary in their interpretations of works, and because different groups play the same composition at different tempi, these times are only approximate. If you're planning to record one of the works listed here, off the air, we suggest you allow a leeway of approximately 10 per cent in either direction in selecting your tape. For example, if a composition is listed below at 30 minutes, one conductor may take 27 minutes to play it, another 33 minutes.

Our staff has been busy during the past several months compiling the figures below. We were unable this year to include every major work (including some very important ones), but we hope to add all the significant parts of the classical repertoire to the list next year.

Albinoni

Oboe Concerto Op. 9 No. 2	11:40
---------------------------	-------

Arnold

Guitar Concerto	22:35
Homage to the Queen	41:27

Bach, CPE

Concerto for Orchestra in D	15:49
Double Concerto for Harpsichord in E ^b	18:22
Sonata No. 1 for Flute	6:15
Sonata No. 2 for Flute	6:20

(Continued on page 69)

Tape Recording

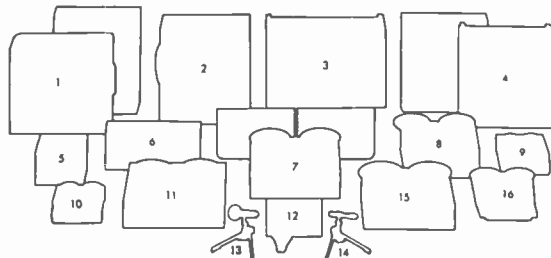
ALL THE BEST FROM SONY



The Most Complete Line of Tape Recording Equipment in the World!

1. Sterecorder 500-A — A complete 4-track stereo/mono tape system with unsurpassed studio quality. The full range, infinite baffle detachable speaker systems integrate into the recorder lid, and separate 15 feet for optimum stereo effect. Less than \$399.50. 2. Sony Sterecorder 777 — Professional, solid state 2- or 4-track stereo/mono tape recording system featuring remote control and the exclusive Sony Electro Bi-Lateral head system. World's finest tape recorder. \$695. 3. Sony Sterecorder 260 — Complete solid state 4-track stereo/mono system with built-in XL-2 Radial Sound speakers for total stereo-dimensional sound, with 10 watts of pure music power per channel. Less than \$249.50. 4. Sony ESP Reverse 660 — The world's first truly automatic tape reversing system. 3 motors, 4 heads, and featuring Sony XL-4 Quadradial Sound speaker system with 50 watts of music power per channel — surrounds you with a stereophonic curtain of music. Less than \$575. 5. Sony Voice Command Battery Portable 905-A — Starts at the sound of your voice. Less than \$159.50. 6. Sony Stereo Mixer MX 777 — For advanced recording techniques, this all-transistorized, battery-powered 6 channel stereo/mono mixer is the perfect accessory to complete the 777 professional system. Less than \$175. 7. Sony Sterecorder 200 — The most compact and lightweight quality 4-track tape recording system on the market today. Carrying case lid separates into 2 full range speaker systems. Unequaled for performance and price. Less than \$199.50. 8. Sony Portable Tape recorder 102 — Rugged 2 speed, dual track hi fidelity recorder with deluxe features and 7" reel capacity satisfies the most exacting recording requirements. Less than \$129.50. 9. Sony-

matic solid state 900 — The 5½ pound wonder with the big voice. Conveniently operates everywhere — on 4 flashlight batteries or AC with no adapter needed. 2 speed with stop-&-go mike, automatic volume control. Only \$67.50. 10. Sonymatic TapeMate 123 — Bantam-weight with over 2 hours recording time on small reel, 2 speeds, and automatic volume control. Body-storing mike, simplified Sonymatic operation. Ideal for sending "Talking Letters." \$39.95 for a single unit. \$79.50 for a pair. 11. Sony Stereo Tape Deck 350 — A 4-track, solid state, stereo playback tape system with 3 heads to give a component set-up the versatility and capabilities of stereo tape facilities. Vertical or horizontal installation. Complete with walnut finish cabinet; \$199.50. Portable model 350C: \$219.50. 12. Sony Professional Condenser Microphone C-37A — A high performance studio and theater microphone for both uni- and omni-directional use. \$295.00. 13. Sony Uni-Directional Professional Dynamic Microphone F-113 — Lightweight cardioid hand or stand held, for top quality performance in broadcast and recording use. Less than \$249.50. 14. Sony Omni-Directional Professional Microphone F-91 — A slim-tapered probe or stand held mike for public address and on-the-spot pick-up of wide-field sound coverage. Less than \$149.50. 15. Sony Solid State 250-A — The country's best selling stereo tape deck, adds the scope of stereo tape recording/playback to any sound system. 4-track, 2 speed, vertical or horizontal operation, walnut base. All for less than \$149.50. 16. Sonymatic 135 — Ideal family recorder with simplified Sonymatic one-two-three operation, automatic volume control, and full 5" reels. Has body-storing mike, vinyl carrying case. Less than \$69.50.



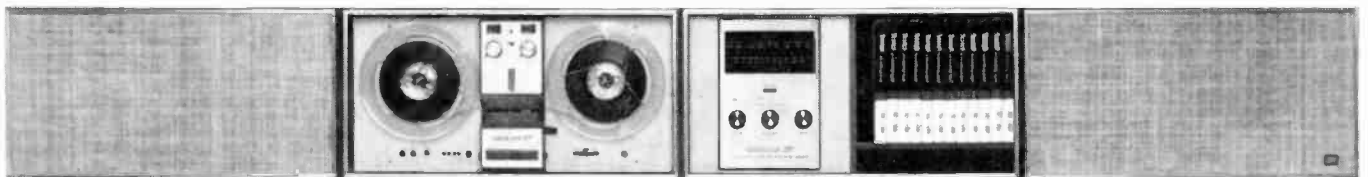
For literature or name of nearest franchised dealer, write to
Superscope, Inc., Sun Valley, California, Dept. 35



Circle 55 on Reader's Service Card



Let her call it beautiful furniture.
You call it a Wollensak tape recorder.



Don't let this slim-lined beauty fool you. Under its more than six feet of walnut skin lies a musical lion. The new Wollensak 5300 Stereo has both a solid-state stereo tape recorder and two matched speakers that will roar or purr at your command. And Control Central: the ultimate source of sound in a hand-span. Two VU meters, power-activated push buttons, 4 speed-4 track, unmatched potential for music creativity. Sectional design lets you hang it, stack it. AM-FM multiplex stereo tuner with storage compartment is optional. Now at finer stores everywhere. See the Wollensak Automatics, too — World's Only Self-Changing Tape Recorders.

THE NEW SLEEK LOOK IN SUPERB SOUND—WHAT YOU WANT IS A WOLLENSAK!

3M
COMPANY

33 Things You Can Do With a Tape Recorder

FAMILY ALBUMS IN SOUND

Just as most people keep a photographic snapshot record of the growth of a child, so the tape recorder owner should make a sound snapshot record. This could begin, with hospital permission, from the very first cry and most probably would conclude with a wedding ceremony.

Because tape recording is relatively new, less than 15 years old as far as general public use is concerned, people have not realized yet the tremendous memory value of sound. The principal reason for taking photographic snapshots is to remember how a person looked at the time. Just as there is physical growth which a camera can record so there is mental growth which only a tape recorder can capture. The two combined complete the picture. The sound reveals the personality.

We don't like to think about it but, barring accidents, the older folks will be the first to leave us. Their voices should be included in the collection.

SNAPSHOTS IN SOUND

It might be a fine idea to make a recording when you make a photo snapshot. Dinner table conversation, bedtime story time, night time prayers, even school lesson recitations make excellent family-type recordings. Strive for naturalness in all family recordings. For shy people, use the interview technique to draw them out. Tapes should be edited and a master reel kept of the best material.

TAPESPONDENCE

Imagine being able to talk to someone in South Africa, Australia, Germany or any one of a

This is only a small sample of the many things you can do with a tape recorder. You'll probably think of many more . . .

33 Things To Do...

number of overseas countries. With a tape recorder it can be done for pennies.

Your recorder becomes a door to the world when you undertake to tapespond with someone. This consists of exchanging recorded comments on small reels of tape using sound instead of the written word.

There are a number of international clubs devoted to fostering tapespondence between individuals. These clubs charge nominal dues for which the member receives club publications, can participate in club activities and also receives a directory of other members. (TAPE RECORDING offers this information to its readers each issue free of charge.)

The directory lists name, address, recorders owned and subjects of prime interest. The usual procedure is to pick out the name of a person whose interests are similar to your own and drop him a postcard asking if he would like to tapespond with you. If the response is favorable you record a reel of tape and send it to him. Staunch friendships and even weddings have come about through exchanging tapes.

Families who are scattered, with children off in college or married, find the recorder and tape exchange an excellent means of maintaining close contact with a minimum of fuss. Retired grandparents living the width of the continent away from the grandchildren have recorded bedtime story tapes which are played when the youngsters are tucked into bed at night.

LEARNING A LANGUAGE

There is no better way to learn a foreign language than through the use of the tape recorder. This has been amply demonstrated for the language labs now found across the nation in modern schools are composed of batteries of tape recorders, enough so that each student can have his own.

The biggest advantage in the use of tape for language learning is that it offers you the opportunity to hear yourself. This is of critical importance for it enables you to compare your pronunciation with that of the native speaker and to make immediate correction of any errors. This enables you to learn rapidly and correctly.

In conjunction with a short wave radio, the recorder may also be used to make foreign language tapes for studying the spoken word. Language records may also be copied on tape. The advantage in this is that the recorder may be started and stopped, or rewound, when studying a particular sequence, a feat which is impossible with a record player.

Those recorders which will play one track while recording on a second track offer the best opportunity for language study since the lesson material can be placed on one track and the student responses on the other. When both are played together immediate comparison is obtained.

SOUND FOR SLIDES AND MOVIES

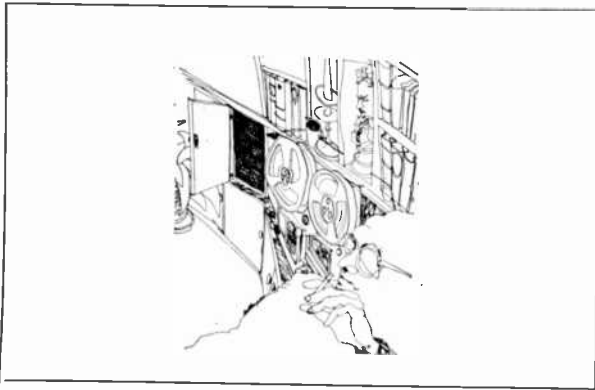
Your home screen need no longer be a "silent screen" if you own a tape recorder. Sound for both home movies and slide shows can be put on tape to be played with the showing of the film or slides.

In fact, many companies make synchronizing devices which operate automatic projectors from signals on the tape. This makes a completely automatic slide show and you can join your own audience if you wish.

The narration covering the slides should first be written out after the slides have been put in the desired sequence. The tape is then voiced, music and sound effects added, etc. and then the whole show is run through to check for timing and spacing.

Tape recorders can be used to capture the sound for movies when the picture is shot but lip synch without special equipment is very unlikely. The sound may later be dubbed to magnetically striped film if you have a magnetic sound projector.

If not, the recorder may still be used. Check points should be established between the beginning or ending of scenes in the film and the music or narration on the tape. By varying the speed of the projector so that the check points always meet, fairly good synchronization can be achieved. This system works quite well when simple music and narration make up the sound.



TIMING OPERATIONS

Anyone who has ever developed a color film, or accomplished any process requiring a large number of steps which must be done in sequence will doubly appreciate the value of a recorder.

By making a tape containing the necessary step by step instructions with the voiced instructions spaced the proper time apart on the tape, such processes become easy to follow. The time between steps may be filled with music to make the interval pass more pleasantly.

RECIPES ON TAPE

Recipes which are complicated may be placed on tape and, instead of trying to hold a cookbook open with hand full of flour or other ingredients, the voice from the recorder tells you the next quantity and step in the process. As with the processing tapes, the intervals may be filled with music.

Since most recorders are accurate to within seconds on a long run of tape, they can be used to time almost anything.

The tapes are home-made and are easy to make. Simply read each step from the instructions or recipe allowing the proper time interval to elapse between them. Music may be fed on the tapes from a record player or radio, stopping the music to voice the instructions. This avoids making splices later. If the timing is critical the tape should be checked by running it through the recorder and checking it with a clock or watch.

IMPROVING YOUR DICTION

Any tape recorder is a merciless critic. It can only play back what has entered the microphone, without fear or favor.

Thousands of people have been registered surprise and many times, dismay upon hearing themselves as others hear them. Those seeking to im-

prove their diction and vocabulary have made a recorder their constant companion and, in most cases, the improvement has been marked.

Bad speech habits do not seem to become apparent until we actually hear them from tape. Then the nasal tones, slurring or plain bad grammar show up with great clarity.

PRACTICING SPEECHES

Practice for speeches to be given to groups is best done with a recorder. By hearing the speech beforehand, you can tell where it must be tightened up, where something humorous would add to the interest, where more drive or emphasis should be placed. The final result is always a better presentation and more compliments from the audience. If you put yourself to sleep with a recording of your speech you can be doubly sure a real audience will suffer the same way.

If the speech must be memorized, such as ritual material for lodge meetings or ceremonies, etc., the tape recorder becomes a most patient teacher willing to repeat again and again without complaint.

LISTENING TO MUSIC

More than half of all recorders purchased are used for the recording or playing of music in the home. In this respect the recorder is superior for tape has more "hi-fi" than records. In addition, tape retains its "hi-fi" characteristics indefinitely while records gradually deteriorate through repeated playings.

Recorded stereo tapes brought the first stereo music into the home. There are now thousands of different titles from which to choose.

TAPE RECORDS

In addition to the purchase of tapes for playing on your recorder you may also tape from records when they are new and play the tapes instead of

33 Things To Do...

the discs. In this way the top quality apparent on a good disc on its first playing will be maintained.

By means of tape you can make up musical reels that suit your own tastes. Music suitable for background use in the home, music for dancing, music for just listening may each be put on a separate reel by splicing the tunes together.

MUSIC PRACTICE

The tape recorder is an invaluable aid to learning how to play any musical instrument. Being able to replay the music at any time and over and over again it becomes possible to spot very small errors—or big ones, and correct them.

By recording the lesson material when the teacher is present, it is possible to have the benefit of the teacher's examples between lessons.

By keeping a progress tape, that is by taping practice pieces as they are perfected, a record of the accomplishment of the pupil can be kept. This tape can be recorded over a period of months, or even years, and should be kept for this purpose alone. In-between and practice recordings should be done on another tape or tapes.

As each new piece is added to the progress tape, the recording should start on the blank tape after the last piece recorded. This will save making splices. If you don't mind the splices (and they are easy to make and will hold indefinitely) then you can make the recording for the progress tape on any reel and splice it on to the end of the tape.

When making the recordings the microphone should be pointed toward the source of the sound *i.e.*, the bell of a trumpet, the sounding board of a piano, the strings of an instrument, etc.

SOUND EFFECTS

Back in the golden days of radio broadcasting the sound effects man was very much in demand. On him depended many of the illusions that lent reality to the broadcast.

Fires, crashes, marching troops, slamming doors or the noises of the jungle all had to be produced at the drop of a hat. He had to be a real inventor many times to find something that sounded like the real thing to the microphone.

Making a library of sound effects for use in little theater work, or in recording your own plays, or just for fun can be a fascinating pastime.

There are many effects which can be secured directly from the objects themselves, such as a phone bell, glass breaking, the whirr of a vacuum cleaner. There are others which must be created, like the sound of a building crashing, or the tramp of marching feet.

Real-life sounds can be recorded by using a self-powered portable or a recorder mounted in an automobile with inverter power. Created sounds can easily be recorded at home.

The sounds may be kept on small three inch reels, indexed so that you can quickly find one when needed.

WEDDINGS

One of the highlights of life is the wedding ceremony, either our own or the shared experience when one of our children is wed.

The purchase of a recorder is worth this alone for a tape of the wedding ceremony becomes precious as the years pass by.

In making wedding recordings the project should first be cleared with the church in which the ceremony will be held. Permission granted, the next step is to determine where the recording equipment may be set up without being conspicuous. The microphone should be placed as close as possible to the point where the vows will be said. The recorder may be placed in an anteroom off to one side if such is available. Mike extension cords should not run over 25 feet or some loss in quality will be experienced.

The recording volume control should be adjusted to keep the level at the proper point to balance the voices and the organ or the soloist. Since the actual ceremony seldom takes more than 20 minutes, a single track on a seven inch reel should be enough at the 7½ inch per second speed and will be more than enough at the 3¾

Perfectionist's guide to record playing equipment

You can do all this with both the DUAL 1009 and the DUAL 1019

1. Track flawlessly with any cartridge at its lightest recommended tracking force . . . even as low as ½ gram.
2. Play all standard speed records — 16, 33, 45 and 78 rpm.
3. Vary pitch of any record with 6% Pitch-Control.
4. Achieve perfect tonearm balance with elastically damped counter-balance that offers both rapid and fine-thread adjust.
5. Dial stylus force with precision of continuously variable adjust from 0-grams up, plus the convenience of direct reading gram-scale.
6. Start automatically with either single play or changer spindle . . . and start manually at any position on either rotating or motionless record.
7. Remove records from changer spindle or the platter without having to remove the spindle itself.
8. Change turntable speed and record size selector at any time during cycling or play.
9. Install in just 12¾" x 11½" area with only 6½" clearance above for changer spindle.
10. Mount, secure and demount from base or motorboard . . . all from above.
11. Even restrain the tonearm during cycling without concern for possible malfunction or damage.

... And to all this, the new DUAL 1019 adds

1. Direct-dial, continuously variable anti-skating compensation for any tracking force from 0-grams up.
2. Feather-touch "stick shift" Cue-Control for both manual and automatic start.
3. Single play spindle that rotates with your records exactly as with manual turntables.
4. Cartridge holder adjustable for optimum stylus overhang.
5. "Pause" position on rest post for placing tonearm with out shutting motor off.

Equipment reviews in every leading audio publication—and by consumer testing organizations—have placed Dual Auto/Professional Turntables in a class by themselves as the equal of the finest manual turntables. And these findings have been confirmed repeatedly by experienced audiophiles, many of whom have actually traded in their far more costly manual equipment for a Dual.

This unprecedented approval has been earned by Dual's precision design and engineering, relentless quality control, quiet operation and matchless performance . . . notably, flawless tracking as low as ½ gram.

For all these reasons, the only choice today for the perfectionist rests with either the world-renowned DUAL 1009, or the even more advanced DUAL 1019. Just some of the design and operating features of both models are presented here, to help you decide which one best meets your own requirements. If you had been considering anything but a Dual, we suggest you bring this guide with you to your authorized United Audio dealer. There you will find the comparison ever more enlightening.



DUAL 1019
Auto/Professional Turntable
... newest, most sophisticated
record-playing instrument
in the world today. \$129.50

DUAL 1009
Auto/Professional Turntable
... closed the gap between
the manual and the
automatic turntable. \$99.50

united
audio **Dual**

535 MADISON AVE. NEW YORK, N. Y. 10022

33 Things To Do...

speed. Long play tape, which will run 45 minutes on the track at the higher speed will provide a margin of safety. Just make sure you don't get caught with the tape running out in the middle of the ceremony. Tape copies may be given as a wedding present.

STAGE PRODUCTIONS

One of the biggest problems in little theater work is the production of off stage sounds at precisely the right moment and from precisely the right point.

With a tape recorder the problem is completely solved. All sound effects are taped and spliced in sequence with leader tape between each segment. On the leader tape may be written the act and scene number and the cue.

Behind the scenes, separate loudspeakers are mounted as necessary and these are connected to the recorder by plugging the one to be used into the external speaker jack. A more elaborate method would be to make a switch box to feed any speaker by merely throwing a switch.

During the performance, the operator of the recorder follows a script of the play with all the sound effects plainly marked. As a cue comes up, he plugs in the appropriate speaker, left, right or middle and presses the play button. The sound is then heard by the audience.

Most of the sound effects, such as telephone bells, door slams, etc. can be recorded around the home. More elaborate effects, such as thunder storms or jungle noises can be dubbed to the tape from commercially available sound effects records. The recorder can also be used to provide music between the scenes and at intermission.

PARTY GAMES

The recorder can be the life of any party you let it attend.

One of the favorite tricks is to hide the microphone and record the guests without their knowledge. This can be dangerous and, if you plan to do this, *be sure you play the tape back to yourself*

before springing it on the party. Friendships have been broken over a lot less.

Better yet is to use the recorder for such things as recording a zany script, with each of the guests taking part. Also, by recording many household sounds close up, by recording well known speakers from the radio or TV, or well known bands, you can make quiz games which are quite entertaining.

Another thing that brings lots of laughs is to interview each guest separately in another room. The trick is to put a question on the tape such as "What do you think of the new bridge?" The recorder is then stopped. When the person comes in you ask for something entirely different than that which is on the tape such as "Describe that old rickety bridge over the creek." You record their answer to this. Of course, on playback, the question is followed by the off-beat reply. This can become quite hilarious. The recorder can also provide music for dancing and background music for the eating time.

ON THE MOVE AFLOAT AND ASHORE

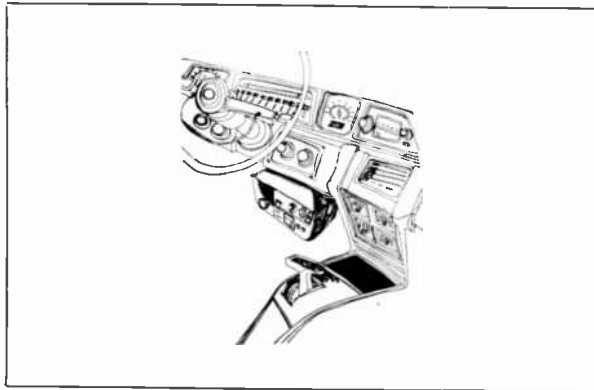
Because a recorder is unaffected by external motion it remains as the best instrument for providing music or other entertainment on boats, planes and automobiles.

Some portable recorders can be plugged into the cigarette lighter outlet for power, others require the installation of an inverter to convert the vehicles' battery power to 110 volts AC.

STUDY IN YOUR CAR

Thousands of medical doctors, for instance, subscribe to Medical Digest which consists of a weekly reel of tape containing the latest in medical research. This they can play while making their house calls and thus make use of otherwise unproductive time.

With a recorder in the car, you can also study while going back and forth to work if the material has been put on tape.



STEREO MUSIC IN YOUR CAR

Tape cartridge players will provide you with music of your choice without commercials or other interruptions.

RADIO AND TV RECORDINGS

With the recorder connected to a radio or TV set you have an ear to the world. History, comedy, music, news, sports are all yours at the push of a button.

Going to be away when a favorite show takes place—have someone at home record it for you. Home team heading for the pennant?—record the important games. A spaceship being launched?—your recorder will preserve all the sounds.

Recording from radio or TV is easily done. Most recorders come with an accessory cord one end of which is attached to the loudspeaker terminals. The other end of the cord is plugged into the radio phono input on the recorder. Simply follow the directions in the instruction book that comes with the recorder.

Better yet, if you plan to do any extensive recording from radio or TV is to have your serviceman install a jack on the set. Then all you need do is to plug into it and into the recorder, without fuss or bother.

One of the best takeoff points is at the volume control of the set rather than the loudspeaker. This connection should be made by a serviceman unless you're electronically inclined. Shielded wire should be used and a jack mounted in a convenient spot on the set.

In a pinch recording may be done by placing the mike in front of the loudspeaker but this is not as good as making an internal connection on the set for room noise will be picked up too.

CREATIVE RECORDING

Like the camera, or brush and paints, in the hands of the artist, the recorder can be used creatively to make pictures—in sound.

What is summer like in sound? Or winter, or spring and fall? How about a sound picture of your home with the barking of the dog, the whirr

of the oil burner, the voices of the people, the sounds of the door that squeaks and the hundred and one other things that all add up to your house—in sound.

Advanced users of tape recorders can create "tape recorder music" by altering tones, slowing or speeding the tape, using echo effects. Tape recorders have even appeared as solists with a symphony orchestra playing their own kind of weird music.

Creative recording is challenging. It requires thinking—and doing, it requires imagination and, many times, perseverance.

Just as an author rewrites his manuscript several times before it is published, so the creative recordist will have to review and alter his tapes before he is satisfied with the result.

Creative tapes may contain narration, sound effects, voices and music, all interwoven to create the effect or paint the aural picture so that it is vivid in the mind of the listener.

Pop sounds is another example of creative recording. See page

VACATION RECORDING

With the advent of self-powered portable recorders which can be carried like a camera, the recorder now can be taken anywhere.

Even if a home-type machine is used, together with an inverter power supply, it is still possible to make recordings of the high spots of your vacation trip.

If you are going on a cruise, the problem is simple for the cruise boats have power outlets just as homes and hotels do.

Since it is possible to wreck a recorder by plugging it into a DC outlet, it will be necessary for you to check the current sources available where you are going. The steamship line or tourist agency should be able to tell you. If not, the Department of Commerce, Washington 25, D. C. puts out a booklet "Electric Current Abroad" which gives the voltage and frequency of the current in various countries.

Travel tapes, combined with slides or movies of the trip make the show complete and much more real than either of them alone.

33 Things To Do...

Be sure to record more than you know you'll need while you're on the trip then edit the tapes down to make a good sound-picture story of the trip.

BUSINESS USES

Tape recorders have wide application in business ranging from such obvious uses as dictation to inventory taking and field reports.

A tape recorder installed in a car enables salesmen to make immediate notes on each call and he can even dictate reports as he drives from one call to the next.

A recorder present at conferences affords a means of sending the actual meeting to branch offices and field men. This saves hours of transcription time and a great deal of expense.

Taking inventory with a tape recorder shortens the process, cuts down on shut-down time and is more accurate. The person making the inventory simply records each item on tape and the tapes are later transcribed to the inventory sheets and priced by a secretary.

Talking, point-of-sale displays, such as talking refrigerators or automobiles help sell more products and again, the sound comes from tape which is actuated by a floor mat switch or electric eye.

Of course, tape is at the heart of the computers which are now keeping the books of many banks, business firms and government agencies. Tape also is used to guide machine tools that turn out intricate parts. You can easily find many uses for a recorder in your business.

PUPPET SHOWS

Anyone who has put on a puppet show knows the real meaning of being busy. Not only must the puppets be manipulated and kept track of but the lines must be memorized and spoken as well—and often in several different voices.

How much easier it is to put all the vocal parts on tape and let the recorder do the work. The script for the show can be recorded and any sound effects desired can be added to give extra punch to the presentation.

The puppeteer then needs only a cue sheet to follow as a double-check as to which puppet should be doing what and when.

VENTRILOQUISM

By mounting a small speaker in a dummy, anyone can become an accomplished ventriloquist. The wires from the dummy should be run to a plug on the end of a short cord. The chair should have a jack mounted on it into which the plug fits and from the jack concealed wires are run to the external speaker outlet of the recorder.

You will have to memorize the script but the part spoken by the dummy is on tape. The recorder is started and you take your seat and plug in the connection without being noticed by the audience. Leave enough blank tape to give you time. The dummy then speaks and from there you can carry on the conversation. You can even drink a glass of water while the dummy sings!

EXTRA INCOME

There are a number of ways in which your recorder can be a source of extra income.

Recording the voices of children whose parents do not have a recorder is one way. The candid microphone technique works well here and the tape, after editing can be sold to the parents or discs can be cut from it and the records sold in an album.

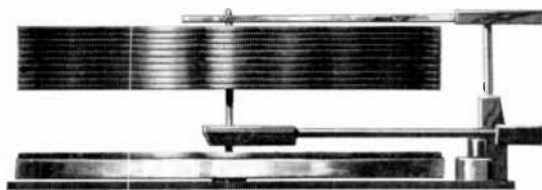
Recording weddings is another source of extra money. If you tie in with a local photographer to record the sound while he makes the pictures you can secure many leads. A top notch sample of your work will help make sales.

You can also take inventories for stores or other establishments or do conference recording and transcribing. Many top-notch secretaries are now confined to the home because of small children tated on tape by those who do not need the services of a full-time secretary.

Renting tape recorders and tapes to those who do not own a recorder also is a means of extra dollars.

You can produce a radio show on tape for one of your local broadcast stations. You can round up the sponsors yourself and sell the produced tape to the station or, if you have a good idea for a show, the radio station may be able to sell it. Local interviews are easy to do and to sell.

Plays 4 Hours Automatically



Concord 994 with Automatic Reverse-A-Track® Records 12 Hours Automatically! Plays Continuously!



Music Quality and Economy of Tape — Convenience of an Automatic Record Changer

Until Concord developed the completely automatic 994 tape recorder, a record changer was the most convenient way of enjoying high-fidelity music. Now, the Concord 994 fully automatic tape recorder *combines* the convenience of automatic continuous play with the superior and lasting sound quality of tape plus the economy of recording your own music from FM or records!

YOU CAN LISTEN WITHOUT INTERRUPTION to symphonies and operas, no matter how long they are. The 994 can even be programmed in advance to repeat the work, as many times as you like.

YOUR FAVORITE TAPE WILL SOUND AS GOOD 10 years from now as it does the first time you play it. With magnetic tape, there's no deterioration of original sound quality. You can tape your valuable records, put them safely away, and still enjoy the music with original fidelity, year after year.

YOU CAN RECORD AN ENTIRE OPERA IN STEREO for less than \$2 from FM or records! The savings you make in source material alone could eventually pay for your 994!

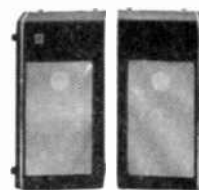
UNLIMITED SOURCE MATERIAL, including plays, documentaries, and television spectaculars, is yours to record.

The 994 Is a Precision Automatic Stereo Tape Recorder

Concord introduced the concept of automatic tape recorders to the world with the feature-packed 994. You can program it to play or record one side of a tape from beginning to end and stop automatically. Or play back to the beginning and stop. Or play continuously.

PUSHBUTTON CONTROLS. All transport functions are right at your fingertips. You can even change tape direction at any time by pushing a button!

**SUPERB
SOUND
QUALITY.**



The Split lid of the 994 houses a pair of true two-way speaker systems, each with its own woofer, tweeter, and crossover network.

TWO DYNAMIC RECORDING MICROPHONES of professional quality included.



OTHER FEATURES: 3 speeds, dual VU meters, 4 heads, solid-state preamps, separate tone controls, instant cueing, digital tape counter.

PRICED UNDER \$400! This advanced, fully-automatic tape recorder can be offered at this price because of volume production by the world's largest manufacturer of audio and video tape recorders. Quality and rugged reliability are so outstanding that the 994 is backed by a complete, full-year parts guarantee.

GET A DEMONSTRATION NOW! Your Concord dealer's waiting to demonstrate to you what fully automatic tape recording can do for you. Or, for complete information, write Dept. TR-1

For Connoisseurs of Sound

CONCORD 994

CONCORD ELECTRONICS CORP. 1935 ARMACOST AVENUE • LOS ANGELES, CALIFORNIA 90025



THE SIGNATURE OF QUALITY. Tape Recorders | Industrial Sound Equipment | Dictation Systems | Communications Devices | Closed-Circuit Television

Circle 39 on Reader's Service Card

1966 Annual Buying Guide

33 Things To Do...

CHURCH

Because a recorder is so versatile, every church should have one. It can be used in choir practice, to play back the singing and spot places that need improvement. It can be used as a dictation instrument by the minister or priest in preparing his sermons and can later be used to record the sermon (and the entire service) which the church secretary can then type up for the record.

The tapes made can then be taken out to shut-in members so that they may hear and profit by the service. The tapes and machine may be moved from one shut-in member to the next in sort of a round-robin.

In the Sunday school, with its many classrooms, the tapes can furnish the music for singing. These can be recorded by a pianist or organist thus effectively spreading the talents of one individual over a large number of classes.

The recorder can furnish music for social events and even power loudspeakers in the steeple from a chime tape on Sundays.

Bible stories can be read or dramatized on tape for use in the classes and the recorder used to give the "audio" of audio-visual presentations.

These are only the highlights. There are many, many more uses.

LOCAL HISTORY AND GENEALOGY

In every community there are a number of "Old timers" who can remember back to the days when community was little more than a gleam in a developer's eye. There are also many old folks who were intimately connected with important historic events of a national nature.

Making tapes of the reminiscences of these folks will provide a lasting record of the old days of which they are the last connecting link.

Similarly, family old-timers have many tales to tell of the antics of ancestors and they can trace the family back should you be interested in genealogy.

By getting the historical facts on tape you not only have a factual record in actual voices but can use the tapes later should you desire to

transcribe the material to written form. Some local radio stations might be interested in these interviews for regional interest shows.

ENTERTAINING CHILDREN

In any home where there are young children, the recorder can save hours and hours of parents' time and provide entertainment for the kiddies as well.

Take the matter of reading from a picture book, for instance. What you do is read the books on tape, giving instructions on the tape as to when to turn the page, where to look for some particular feature, etc.

On a rainy day when the youngster is restless and you are busy, simply plug in a pair of headphones in the external speaker outlet, slip them over the child's ears and hand him the picture book. The tape, in your voice, will keep him interested. You don't have to use headphones, of course, but they do help to concentrate the child's attention by cutting down on other sounds—and they also spare your hearing yourself talk for an hour or so.

Children of reading age can be amused by letting them read the funnies or comic books on tape, acting out the parts. Put the recorder on slow speed to get the most mileage from the tape. Most children are perfectly capable of operating a recorder after a bit of instruction.

You can also go modern by recording sound effects for them representing jet planes taking off, rockets being launched, etc. to which they can apply their imaginations.

Needless to say, the use of the recorder is no substitute for you, it's just a blessing when you're busy.

STUDENT'S BEST FRIEND

From kindergarten to college the recorder is one of the most versatile study aids that has ever been developed.

Through its use in reading, speaking and similar subjects, pupils have made remarkable advances in their grades.

In learning material by rote, such as multiplica-



tion tables, poems and similar material, the recorder serves as a teacher which never loses patience.

Even in advanced studies the making of an aural outline is an excellent practice. As the lesson material is studied from a book, the recorder is kept handy. Each salient point is spoken on the tape. A separate tape is kept of each subject. These are added to lesson by lesson.

When exam time rolls around, the tape is played back and there is a complete outline of the course. By listening to this all of the important points will be heard.

For learning a multiplication table the tape is made by saying "two times two is—" "three times two is—" etc., the student responding to the blanks. The student should make his own tapes thus reinforcing his learning.

Quizzes on the lesson material may also be placed on tape. The question should be followed by the correct answer. The question is played, the tape stopped, the answer given and then the tape started to check the correctness of the answer.

RECORDING FOR THE BLIND

One of the most worthwhile uses to which a recorder can be put is in making recordings for the blind. Some of the tape correspondence clubs foster this activity for their blind members and one organization *Best Selling Books for the Blind* furnishes blind folks with the latest books on tape at nominal charge.

While the Library of Congress has hundreds of books for the blind on disc records, these, for the most part are standard works, they cannot supply topical material.

Greatly appreciated by the blind are tapes of current magazines of all descriptions that fit in with their interest.

It has been found that reading for the blind is slightly different from just reading aloud and recording it. Their minds are very active and are able to absorb information rapidly hence the reading speed should be kept up and not permitted to lag.

Naturally it should be as expressive as possible. Those who have done reading for the blind at a

local workshop for the blind will be able to help you get started. The slow tape speed is adequate and the larger reels cut down on the number of times the tape must be threaded through the recorder.

SAVING VANISHING SOUNDS

If recorders had been available 25 years ago and you had said to someone "I am going to record a train because someday they will no longer be heard" that person probably would have thought you were a candidate for the looney bin. Trains disappear? Impossible!

Yet, today, the steam train is hard to find, and so are a lot of other sounds of yesteryear. The clop, clop of the horse pulling a wagon, the clang of the trolley car bell, the steam calliope that led every circus parade. The chants of the stake drivers putting up the circus tent (now it's done by a truck).

Many, many of the common sounds of today will likewise disappear and probably much sooner than we think. The telephone dial sound is a common one yet already the labs have developed a push button system which makes no sound. Even the telephone bell itself may be on the way out to be replaced with something more pleasant and more effective.

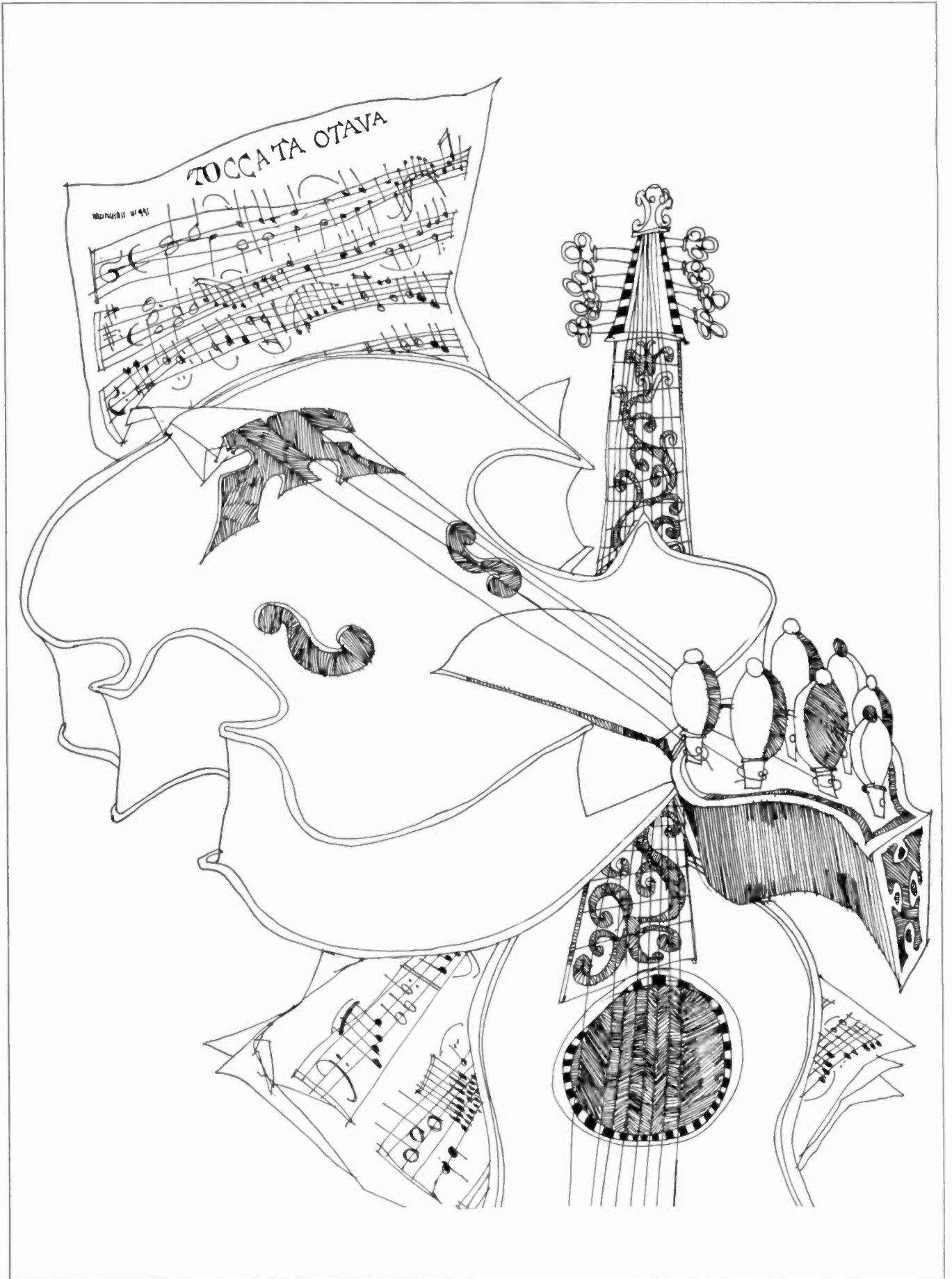
The collection of sounds which are on the verge of disappearing is of the first order of importance. . . . and will provide the most challenge.

To be a sound hunter you will need a high quality battery operated portable recorder, or you can use your regular recorder with an inverter in your car to supply the current and a long mike cable so you can get close to the source of the sounds.

VIDEOTAPE RECORDING

With the new home videotape recorders you can record both pictures and sound on tape in perfect synchronization. What's more, videotapes can be erased and reused as often as you like.

You can record directly from your television set and build a library of movies on tape or comedy shows or plays or ball games or anything you like. You can record the family on tape and have better results than with home movie film.



A Recommended
**Basic Library
of Serious Music**

by Erwin Bagley

Although no two people will agree on what constitutes a basic library of classical music on tape, here is a listing compiled by our reviewers and editors. In our judgement, it provides an excellent check list against which to compare your library, and includes some interesting pointers for new directions in which you might wish to expand. Not all of the choices were unanimous, and not all of each reviewer's favorites have been included. But we believe it can help you create a library of lasting music. Because most music lovers prefer to specialize in a given type of music—opera, or chamber music, for example, they may not be aware of some of the most appealing music in other categories.

The next few pages list the principal categories of serious music—operas, symphonies, concertos, string quartets and so on—divided into three groups. In the first column appear those works we believe are indispensable to any well-rounded collection. In the second are works which are desirable but not absolutely essential. For the listener who's interested in exploring new directions in music, the third column includes some suggestions worthy of further study.

In most cases where the music is available on tape, we have recommended a prerecorded tape version of it—individual choices (where there was a choice of performer or recording) being made by our reviewers after extensive back-and-forth debate. In those cases where there is no recording of a work on prerecorded tape, or where all available recordings are considered inferior by our reviewers, no listing of artist or tape label will follow the selection. In these cases, we recommend you consult your FM program guide to find out when these works will be broadcast in your community, and tape them off the air.

The rapid expansion of the prerecorded tape catalogue during the past year is a trend we expect to continue during 1966. The addition of new recordings each month may change the choice of performance available to you when you decide to make your purchase. Thus we suggest you consult an up-to-date catalogue of prerecorded tapes before making purchases.

The rapid expansion of the prerecorded tape catalogue during the past year is a trend we expect to continue during 1966.

Essential	Desirable additions	Off the Beaten Track
Opera		
<p>Beethoven—Fidelio (Westminster)</p> <p>Bizet—Carmen (Angel) —Pearl Fishers (Angel)</p> <p>Donizetti—Lucia (London)</p> <p>Gluck—Orfeo (Angel)</p> <p>Gounod—Faust</p> <p>Leoncavallo—Pagliacci (London)</p> <p>Mascagni—Cavalleria Rusticana (London)</p> <p>Mozart—Marriage of Figaro (London) —Don Giovanni (London) —Magic Flute (DGG)</p> <p>Mussorgsky—Boris Godunov (Angel)</p> <p>Offenbach—Tales of Hoffmann</p> <p>Puccini—La Boheme (RCA) —Madama Butterfly (RCA) —Tosca (London)</p> <p>Rossini—Barber of Seville (London)</p> <p>Verdi—Aida (RCA Victor) —Rigoletto (London) —La Traviata (RCA Victor) —Il Trovatore (RCA Victor)</p> <p>Wagner—Die Meistersinger (RCA Victor) —Tristan und Isolde (London) —Die Walkure (RCA Victor)</p>	<p>Bellini—Norma (RCA Victor) I Puritani (London)</p> <p>Borodin—Prince Igor</p> <p>Donizetti— Don Pasquale (London) Elisir d'Amore (London)</p> <p>Mozart—Cosi fan tutte (Angel)</p> <p>Orff—Carmina Burana (Columbia)</p> <p>Puccini— Gianni Schicchi (London) Turandot (RCA Victor)</p> <p>Smetana—Bartered Bride</p> <p>Strauss— Der Rosenkavalier (Angel) Salome (London)</p> <p>Verdi— Falstaff (RCA Victor) Forza del Destino (London) Otello (RCA Victor)</p> <p>Wagner— Parsifal (Philips) Flying Dutchman (RCA Victor)</p>	<p>Berg—Wozzeck</p> <p>Berlioz—Beatrice et Benedict (Oiseau Lyre)</p> <p>Debussy—Pelleas et Melisande (London)</p> <p>Giordano—Andrea Chenier (Angel)</p> <p>Handel—Acis et Galathea —Alcina (London) —Sosarme</p> <p>Mascagni—L'Amico Fritz</p> <p>Montemezzi—L'Amore dei Tre Re</p> <p>Puccini—Manon Lescaut (London)</p> <p>Purcell—Dido and Aeneas (Vanguard)</p> <p>Ravel—L'Heure Espagnole</p> <p>Rossini—L'Italiana in Algeri (London)</p> <p>Strauss—Ariadne auf Naxos —Elektra</p> <p>Tchaikovsky—Eugen Onegin —Pique Dame</p>
Choral		
<p>Bach—Cantata No. 140 (None-such) —Mass in B minor (London) —St. Matthew Passion (London)</p> <p>Beethoven—Missa Solemnis (Columbia)</p> <p>Berlioz—L'Enfance du Christ (Oiseau-Lyre) —Requiem (RCA Victor)</p> <p>Brahms—German Requiem (Deutsche Grammophon)</p> <p>Charpentier—Assumpta est Maria</p> <p>Handel—Messiah (London)</p> <p>Haydn—The Creation</p>	<p>Bach—Cantata No. 4 Cantata No. 80 Easter Oratorio St. John Passion</p> <p>Beethoven—Missa Solemnis (Columbia)</p> <p>Debussy—Martyre de Saint-Sebastien</p> <p>Dvorak— Stabat Mater</p> <p>Gabrieli—Canzoni (Vanguard)</p> <p>Handel—Israel in Egypt Judas Maccabaeus</p> <p>Haydn— The Seasons Lord Nelson Mass (London) Mass in time of war</p> <p>Mendelssohn—Elijah</p>	<p>Bach—Cantata No. 1 —Cantata No. 82 (Music Guild) —Magnificat in D (Vanguard) —Arias</p> <p>Beethoven—Christ on the Mount of Olives (Westminster)</p> <p>Cherubini—Requiem</p> <p>Gregorian Chant</p> <p>Handel—Dettingen Te Deum</p> <p>Janacek—Slavonic Mass (DGG)</p> <p>Stravinsky—Oedipus Rex</p> <p>Victoria—Missa Pro Defunctis</p> <p>Vivaldi—Gloria (Westminster) —Juditha Triumphans</p> <p>The Play of Daniel (Decca)</p>

Essential	Desirable additions	Off the Beaten Track
<p>Mozart—Requiem (Westminster) Palestrina—Missa Papae Marcelli (DGG) Prokofiev—Alexander Nevsky (Columbia) Purcell—Come Ye Sons of Art (Vanguard) —Indian Queen (Music Guild) Rossini—Stabat Mater Verdi—Requiem (Columbia)</p>	<p>Mozart—Vesperae Solemnes de Confessore (RCA Victor) Poulenc—Gloria in G (Angel)</p>	<p>Madrigal Masterpieces (Vanguard)</p>
Vocal Music		
<p>Canteloube—Songs of the Auvergne (Vanguard) Loewe—Ballads Mahler—Kindertotenlieder (Deutsche Grammophon) Mozart—Songs Mussorgsky—Songs and Dances of Death Schubert—Songs—Souzay (Philips) —Die Winterreise —Die schoene Muelerin Schumann—Dichterliebe Strauss—Songs</p>	<p>Berlioz—Nuits d'Ete (London) Debussy—Chansons de Bilitis Mahler—Lied von der Erde (RCA Victor) Mozart—Exsultate, Jubilate (Westminster) Villa-Lobos—Bachianas Brasileiras No. 5 Weill—Songs (London) Wolf—Italienisches Liederbuch Songs</p>	<p>Britten—Serenade for Tenor (London) Falla—Songs Hindemith—Marienleben Italian Songs Schoenberg—Pierre Lunaire Spanish Songs (Angel)</p>
Operettas and Light Music		
<p>Gershwin—Porgy and Bess (Columbia) Gilbert & Sullivan—Mikado (London) Patience (London) Pinafore (London) Princess Ida (London) Kern—Show Boat (Columbia) Lehar—Merry Widow (Angel) Loesser—Guys and Dolls (Decca) Offenbach—Orpheus in Hades Porter—Kiss Me Kate Rodgers—Oklahoma! (Decca) —South Pacific (Richmond) Strauss—Fledermaus (London) —Gypsy Baron</p>	<p>Berustein—West Side Story (Columbia) Gilbert & Sullivan—Iolanthe (London) Pirates of Penzance (London) Ruddigore (London) Yeomen of the Guard (London) Lane—Finian's Rainbow (RCA Victor) Lerner & Loewe—My Fair Lady (Columbia) Loesser—Guys & Dolls (Decca) Rodgers & Hammerstein—Carousel (Capitol) King & I (Columbia) Romberg—Student Prince (Columbia) Desert Song (RCA Victor)</p>	
Symphonies		
<p>Beethoven— No. 3—Krips (Everest) No. 5—Szell (Epic) No. 7—Krips (Everest)</p>	<p>Beethoven— No. 1—Krips (Everest) No. 2—Krips (Everest) No. 4—Krips (Everest)</p>	<p>Bizet—Symphony in C.—Irving (Kapp) Bruckner—No. 4—Klemperer (Angel)</p>

Essential

Desirable additions

Off the Beaten Track

Symphonies Contd

No. 9—Ansermet (London)
 Berlioz—Symphonie Fantastique—Munch (RCA Victor)
 Brahms—
 No. 1—Leinsdorf (RCA Victor)
 No. 2—Bernstein (Columbia)
 No. 3—Steinberg (Command)
 Dvorak—No. 4—Szell (Epic)
 —No. 5—Toscanini (RCA Victor)
 Franck—Symphony—Monteux (RCA Victor)
 Haydn—
 No. 94—Beecham (Capitol)
 No. 100—Woldike (Vanguard)
 No. 101—Woldike (Vanguard)
 No. 103—Von Karajan (London)
 No. 104—Von Karajan (RCA Victor)
 Mahler—No. 1—Boult (Everest)
 —No. 4—Reiner (RCA Victor)
 Mendelssohn—No. 3—Maag (London)
 —No. 4—Maazel (DGG)
 Mozart—
 D (K. 385)—Jochum (Philips)
 C (K. 425)—Jochum (Philips)
 D (K. 504)—Walter (Columbia)
 E flat (K. 543)—Kertesz (London)
 G minor (K. 550)—Von Karajan (RCA Victor)
 C (K. 551)—Szell (Epic)
 Rachmaninoff—No. 2—Steinberg (Command)
 Schubert—
 Unfinished—Steinberg (Command)
 No. 9—Walter (Columbia)
 Schumann—
 No. 1—Szell (Epic)
 No. 2—Kubelik (DGG)
 No. 3—Bernstein (Columbia)
 No. 4—Kubelik (DGG)
 Tchaikovsky—
 No. 4—Bernstein (Columbia)
 No. 5—Sargent (Everest)
 No. 6—Dorati (Mercury)

No. 8—Krips (Everest)
 Boyce—Nos. 1-8—Janigro (Vanguard)
 Dvorak—
 No. 1
 No. 2—Kubelik (London)
 Haydn—
 No. 45—Jones (Nonesuch)
 No. 88
 Mozart—
 No. 25
 No. 33—Kertesz (London)
 Prokofieff—Classical—Ansermet (London)
 Schubert—
 No. 1
 No. 3—Steinberg (Command)
 No. 5—Walter (Columbia)
 Shostakovich—No. 5—Bernstein (Columbia)
 Sibelius—No. 4—Ansermet (London)
 Vaughan-Williams—
 No. 9—Boult (Everest)

Copland—No. 3—Copland (Everest)
 D'Indy—French Mountain Symphony.
 Hindemith—Mathis der Maler
 Ives—No. 2—Hanson (Mercury)
 Liszt—Faust Symphony
 Mahler—No. 8—Abravanel (Vanguard)
 Prokofieff—No. 5—Szell (Epic)
 Saint-Saens—No. 3—Pretre (Angel)
 Schubert—No. 4 (London)
 Shostakovich—No. 1—Stokowski (United Artists)
 Stravinsky—Symphony in Three Movements—Goosens (Everest)
 —Symphony for Wind Instruments—Ansermet (London)



Essential

Desirable additions

Off the Beaten Track

Orchestral Miscellaneous

Bach—Brandenburg Concertos—Casals (Columbia)
 Beethoven—Leonore No. 3—Dorati (Mercury)
 Bizet—L'Arlesienne Suites—Ormandy (Columbia)
 Brahms—Haydn Variations—Walter (Columbia)
 Copland—Appalachian Spring—Bernstein (Columbia)
 Billy the Kid—Abravanel (Westminster)
 Rodeo—Abravanel (Westminster)
 Debussy—Afternoon of a Faun—Ansermet (London)
 Dukas—Sorcerer's Apprentice—Ansermet (London)
 Falla—Nights in the Gardens of Spain—Argenta (London)
 Handel—Concerti Grossi, Op. 6 (DGG Archive)—Water Music—Prohaska (Vanguard)
 Liszt—Les Preludes—Bernstein (Columbia)
 Mendelssohn—Midsummer Night's Dream—Leinsdorf (RCA Victor)
 Mozart—Eine kleine Nachtmusik (Concertape)
 Prokofiev—Lt. Kije—Rossi (Vanguard)
 Ravel—Daphnis and Chloe—Munch (RCA Victor)
 Rimsky-Korsakoff—Scheherazade—Stokowski (London)
 Sibelius—Swan of Tuonela—Gould (RCA Victor)
 Smetana—Die Moldau—Szell (Epic)
 Strauss—Death and Transfiguration—Von Karajan (London)
 Don Juan—Reiner (RCA Victor)
 Till Eulenspiegel—Von Karajan (London)
 Stravinsky—Firebird—Ansermet (London)
 Petrouchka—Stravinsky (Columbia)
 Tchaikovsky—Nutcracker—Dorati (Mercury)

Bach—Four Suites—Munchinger (London)
 Bartok—Concerto for Orchestra—Haitink (Epic)
 Beethoven—Choral Fantasia (Columbia)
 Overtures—Munchinger (London)
 Bizet—Fair Maid of Perth—Ansermet (London)
 Borodin—In the Steppes of Central Asia—Pretre (Angel)
 Polovtsian Dances—Pretre (Angel)
 Brahms—Serenade No. 2
 Britten—Young Person's Guide to the Orchestra—Fiedler (RCA Victor)
 Corelli—Concerti Grossi, Op. 6
 Debussy—La Mer—Reiner
 Nocturnes—Ansermet (London)
 Elgar—Enigma Variations—Barbirolli (Angel)
 Falla—El Amor Brujo—Reiner (RCA Victor)
 Three-Cornered Hat—Jorda (Everest)
 Gershwin—American in Paris—Steinberg (Everest)
 Cuban Overture—Hanson (Mercury)
 Grieg—Peer Gynt Suites (Audio Spectrum)
 Grofe—Grand Canyon Suite—Gould (RCA Victor)
 Handel—Royal Fireworks Music—Mackerras (Vanguard)
 Holst—The planets—Stokowski (Capitol)
 Khachaturian—Gayne—Fistoulari (Everest)
 Masquerade Suite—Kondrashin (RCA Victor)
 Kodaly—Hary Janos Suite—Ormandy (Columbia)
 Mussorgsky—Pictures at an Exhibition—Sargent (Everest)
 Offenbach—Gaité Parisienne—Graz (Encore)
 Prokofiev—Peter & The Wolf—Rossi (Vanguard)
 Romeo & Juliet—Ansermet (London)

Bartok—Music for Strings, Percussion and Celeste—Ansermet (London)
 Debussy—Iberia—Rosenthal (Westminster)
 Honegger—Pacific 231—Ansermet (London)
 Stravinsky—Histoire du Soldat—Markevitch (Philips)
 Thomson—Louisiana Story
 Varese—Ionization
 Vaughan Williams—Fantasia on a theme by Tallis—Boult (Westminster)



Essential

Desirable additions

Off the Beaten Track

Orchestral Miscellaneous

Romeo and Juliet—Munch
(RCA Victor)
Sleeping Beauty—Ansermet
(London)
Swan Lake—Ansermet
(London)
Wagner—Siegfried Idyll.



Ravel—Rapsodie Espagnole
—Dervaux (Command)
Bolero—Dervaux
(Command)
Respighi—Pines, Fountains of
Rome—Toscanini
(RCA Victor)
Saint-Saens—Carnival of the
Animals—Fied-
ler (RCA Victor)
Sibelius—Finlandia—Gould
(RCA Victor)
Strauss—Don Quixote—Szell
(Epic)
Stravinsky—Le Sacre du
Printemps—Stra-
vinsky (Colum-
bia)
Tchaikovsky—Overture 1812
—Alwyn (Lon-
don)
Thompson—
The Plow That Broke the
Plains—Stokowski (Van-
guard)
Vaughan Williams—
English Folk Song Suite—
Boult (Westminster)
Vivaldi—
Concerti Grossi, Op. 8 Nos.
1-4 (Vanguard)



Concertos

Bach—Harpsichord Concertos
Nos. 1, 2—Munchinger
(London)

Beethoven—
Piano Concerto No. 3—
Serkin (Columbia)
Piano Concerto No. 4—
Cliburn (RCA Victor)
Piano Concerto No. 5—
Backhaus (London)
Violin Concerto—Milstein
(Angel)

Brahms—
Piano Concerto No. 1—
Katchen (London)
Piano Concerto No. 2—
Cliburn (RCA Victor)
Bruch—Violin Concerto in G
minor—Heifetz (RCA)
Chausson—Poeme—Friedmann
(RCA Victor)

Chopin—
Piano Concerto No. 1—
Rubinstein (RCA Victor)
Piano Concerto No. 2—
Vassaly (DGG)

Bach—Violin Concertos Nos. 1
and 2—I Musici (Epic)

Beethoven—
Piano Concerto No. 1—
Richter (RCA Victor)
Piano Concerto No. 2—
Katchen (London)
Boccherini—Cello Concerto
Dvorak—Cello Concerto—
Starker (Mercury)
Handel—Organ Concertos—
Richter (London)
Haydn—Cello Concerto—
Rostropovich (Lon-
don)
Liszt—Piano Concerto No. 2
—Richter (Philips)
MacDowell—Piano Concerto
No. 2—Cliburn
(RCA Victor)

Mozart—
Piano Concerto in B flat
(K. 450)
Piano Concerto in G (K. 453)
Violin Concerto in D (K.
218)—Heifetz (RCA
Victor)

Bach—Concertos for Two
Harpsichords

Bloch—Schelomo—Rose
(Columbia)
Hindemith—Der Schwanen-
dreher
Mozart—Sinfonia Concertante
(K. 364)—Oistrakhs
(London)
Poulenc—Concerto for Organ
—Durafle (Angel)
Ravel—Piano Concertos.
Shostakovich—Piano Concerto

Boccherini—Four Quartets
Haydn—Op. 33 (complete)
Hindemith—Quartet No. 3—
Fine Arts)
(Concertapes)

Essential

Desirable additions

- Franck—Symphonic Variations
—Katin (Everest)
- Gershwin—
Concerto in F—Wild (RCA Victor)
- Rhapsody in Blue—Wild (RCA Victor)
- Grieg—Piano Concerto—Pennario (Capitol)
- Handel—
Violin Concertos—Menuhin (Angel)
- Horn Concertos—Staglian (Kapp)
- Wind Concerto No. 2—
Mackerras (Vanguard)
- Liszt—Piano Concerto No. 1—
Richter (Philips)
- Piano Concerto No. 1—
Serkin (Columbia)
- Violin Concerto—Heifetz (RCA Victor)
- Mozart—
Piano Concerto in D minor (K. 466)—Haskil (Mercury)
- Piano Concerto in C minor (K. 491)—Haskil (Mercury)
- Paganni—Violin Concerto No. 1
- Rachmaninoff—Piano Concerto No. 2—
Katin (Richmond)
- Schumann—Piano Concerto—
Cliburn (RCA Victor)
- Tchaikovsky—
Piano Concerto No. 1—
Cliburn (RCA Victor)
- Violin Concerto—Morini
- Telemann—
Trumpet Concerto in D—
Voisin (Kapp)
- Oboe Concerto—Koch (DGG Archive)
- Vivaldi—
2 Violin Concertos—
Oistrakh (Columbia)
- 2 Trumpet Concertos in C (Westminster)

- Violin Concerto in A (K. 219)
- Horn Concertos Nos. 1-4—
Brain (Angel)
- Prokofieff—Violin Concerto No. 1—Szigeti (Mercury)
- Rachmaninoff—
Piano Concerto No. 3—
Cliburn (RCA Victor)
- Rhapsody—Pennario (Capitol)
- Saint-Saens—Piano Concerto No. 2

String Quartets

- | | |
|--|--|
| <p>Beethoven—Op. 18 (complete)
—Op. 59, 74, 95
—Last Five Quartets</p> <p>Brahms—Quartets (complete)</p> <p>Haydn—Op. 50 (complete)
—Op. 76 (complete)
—Op. 77 (complete)</p> <p>Mendelssohn—Op. 13
—Op. 44, No. 3</p> | <p>Bartok—Quartets—Fine Arts (Concertapes)</p> <p>Boccherini—Four Quartets</p> <p>Borodin—Quartet in D.</p> <p>Debussy—Quartet—Juilliard (RCA Victor)</p> <p>Dvorak—American Quartet</p> <p>Haydn—Op. 17 (complete)</p> <p>Mozart—Nos. 1-4</p> |
|--|--|



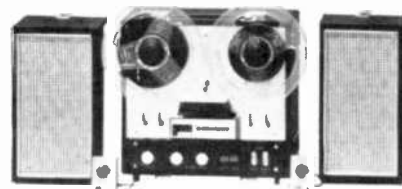
**ONLY
OKI**

gives you such quality sound and weighs so little—at so quiet a price.

Only OKI 300 sounds so magnificent, and costs so little. It's a compact concert hall, lighter than 16 lbs., spectacular solid-state 4 track stereo. And it dresses up any room it's in. Hear it today — the matchless sound of OKI 300. Only \$219.95*. 1 year warranty.** See and hear it at your OKI dealer.



**ONLY
OKI 300**



*Manufacturer's suggested list price.
**1 year parts, 6 mos. labor.



Chancellor Electronics, Inc.
457 Chancellor Avenue, Newark, New Jersey 07112
Circle 52 on Reader's Service Card

Essential

Desirable additions

Off the Beaten Track

String Quartets Contd.

Mozart—Quartets 14, 19
—Quartets 20-22

Schubert—

Quartet "Death and the
Maiden"—Fine Arts
(Concertapes)

Quartets (Complete)

Schumann—

Quartets in F and A
Quartet in A Minor

Ravel—Quartet—Juilliard
(RCA Victor)

Smetana—Quartet in E minor.

Other Chamber Music

Beethoven—Archduke Trio
—Ghost Trio

Brahms—

Clarinet Quintet—Fine Arts
(Concertapes)

Piano Quintet—Juilliard
(Epic)

Mendelssohn—

Octet—Fine Arts
(Concertapes)

Mozart—

Clarinet Quintet—Fine Arts
(Concertapes)

Divertimento No. 2 in D
(K. 131)—Szell (Epic)

Serenade No. 10—Fennell
(Mercury)

Serenade No. 11

Serenade No. 12

Schubert—

Octet—Fine Arts
(Concertapes)

"Trout" Quintet—Fine Arts
(Concertapes)

Trio in B flat (Heifetz)
(RCA Victor)

Beethoven—

Quintet for Piano and Winds
—Glazer (Concertapes)

Serenade in D

Brahms—Horn Trio

Piano Trio in B

Dvorak—Quintet in E flat

Quintet in G

Haydn—Trios 1-3

Mozart—Two Piano Quartets

Ravel—Trio

Schoenberg—Verklaerte Nacht

Stravinsky—Duo Concertant
—Szigeti (Mercury)

Bloch—Piano Quintet

Boccherini—Guitar Quintet

Chausson—Concert for Piano,
Violin and String
Quartet

Debussy—Sonata for Flute,
Viola and Harp

Hindemith—Kleine Kammer-
musik—NY Woodwind
Quintet (Concertapes)

Hummel—Septet

Janacek—Concertino

Nielsen—Wind Quintet

Piston—Piano Quintet

Riegger—Wind Quintet



Violin Sonatas

Bach—Six Unaccompanied
No. 1

Beethoven—Sonatas (com-

Bartok—Unaccompanied
Sonata

Ives—Sonatas Nos. 1 & 3

Essential	Desirable additions	Off the Beaten Track
<p>plete) Oistrakh, (Philips) Mozart—E minor (K. 304) B flat (K. 454) Schubert—Sonata (Duo) in A. Schumann—Sonata in A minor</p>		
Cello Sonatas		
<p>Bach—Suites Nos. 2 and 3 Beethoven—Sonatas (complete) Schubert—Arpeggione</p>	Chopin—Opus 65	
Piano Sonatas		
<p>Beethoven— Pathetique—Horowitz (Columbia) Moonlight—Rubenstein (RCA Victor) Appassionata—Rubinstein (RCA Victor) Chopin—B minor—Vasary (DGG) Liszt—B minor—Gilels (RCA Victor) Mozart—Sonatas (complete) Schubert—B flat</p>	<p>Beethoven— Op. 106 Op. 109—Backhaus (London) Op. 110 Op. 111—Backhaus (London) Brahms—F minor Grieg—E minor Liszt—Dante Sonata Ravel—Sonatine. Schubert—Op. 78 and 120 C minor</p>	<p>Barber—Sonata Bloch—Sonata Clementi—Sonatas Copland—Sonata MacDowell—Sonatas (Tragica and Eroica) Schumann—F minor</p>
Miscellaneous Keyboard Works		
<p>Bach— Organ Music—Biggs (Columbia) Well—Tempered Clavier Brahms— Piano Music (excerpts) Chopin— Polonaises—Rubinstein (RCA Victor) Scherzos Debussy—Preludes, Book I Preludes, Book II Children's Corner. Liszt—Hungarian Rhapsodies (complete) Mozart—Rondo in A minor— Rubinstein (RCA Victor) Scarlatti—Sonata collections— Horowitz (Colum- bia) Schubert—Four-hand Piano Music Schumann— Carnaval—Rubinstein (RCA Victor) Kinderscenen—Horowitz (Columbia)</p>	<p>Bach—Partitas Beethoven—Bagatelles Franck—Prelude, Chorale and Fugue—Hambro (Command) Grieg—Lyric Pieces. Handel—Harpsichord Suites Mendelssohn—Variations Serieuses. Rachmaninoff—24 Preludes. Piano Music Schumann—Novelletes</p>	<p>Albeniz—Iberia Chabrier—Trois Valses Ro- mantiques Falla—Piano Music Grieg—Ballade Ives—Concord Sonata Mendelssohn—Songs Without Words (com- plete) Rachmaninoff—Suites Nos. 1 and 2 Stravinsky—Concerto for Two Solo Pianos</p>



How to Buy a Tape Recorder

by Paul Edwards

If this is your first time to buy a tape recorder, there are several things you should consider before you start: how much money you have to spend, how hi and the fi you want, and what you want the recorder to do. Are you interested only in the quality of music playback? Would you like a recorder that reverses itself automatically at the end of a reel of tape and shuts itself off when it's finished playing? Are you more interested in using your recorder for dictating or learning a language? Or, like most prospective recorder purchasers, are you considering the possibility of all of these?

Here are a few of the more important features you should consider:

SPEEDS: Most of today's recorders offer more than one speed. How many do you need, and which one are they? A few of the more expensive machines have a tape speed of 15 inches per second (ips). Originally, this was intended for professional high fidelity recording, and most recording studios still use it for master tapes. However, such a fast tape speed consumes voracious quantities of tape, which makes it impractical for most normal uses. Today's standard home high fidelity speed is 7½ ips, which introduces a measure of tape economy and provides fidelity nearly as good as the faster speed. Most prerecorded tapes are made at this speed. An intermediate speed, 3¾ ips, was introduced some years ago for non-high fidelity music recording (such as transfers of 78 rpm records, or broadcasts from AM radio), and for talk. Prerecorded tapings of Shakespeare and Broadway plays are supplied at this speed, as well as prerecorded pop music tapes. With the introduction of low noise recording tape last year, some industry observers see 3¾ ips as the standard tape speed of the future. It offers twice the recording capacity per reel of 7½ ips. For dictating, and for general fooling around, a tape speed of 1⅞ provides a maximum of recording time per reel of tape plus acceptable fidelity for speech.

MOTORS: Most popularly-priced recorders use a single motor to drive the tape transport. A series of belts and linkages control feed and take-up reels and help to reduce wow and flutter caused by the motor. Two types of motor are in common use—the hysteresis synchronous and the four or six-pole shaded. Each has its adherents, although the latter is usually used on less expensive units. Hysteresis motors aren't affected by momentary drops or jumps in voltage (such as those found on most power lines today), while less expensive motors may be affected by significant variations in the power supply. Some more expensive models use two or three motors, chiefly to provide smoother tape flow and ultra-high speed rewind and fast forward.

HEADS: Recorders must be prepared to erase existing recordings, to record new material and to play back material once it's recorded. Professional recorders use three heads to do this job, while many popularly-priced machines are able to do it with two—a separate erase head and combination record-playback head. This combination results in significant savings in the price of the recorder with a minimum loss of fidelity. The third head, however, enables the user to monitor a program as it's being recorded on the tape, and can be used for special effects such as adding echo to a recording. Machines which feature automatic reverse sometimes have as many as six heads (three of each type).

AUTOMATIC REVERSE: One of the more expensive of the features available on recorders, automatic reverse means that you can start a reel of tape feeding from left to right. When the tape has finished playing in that direction, it reverses itself automatically and continues playing until it is rewound completely on the original reel. Some machines offer this feature for playback only while a few record in reverse as well. A few

(Continued on page 45)

American Geloso
Model G-258
 13½ x 8½ x 6 inches
 \$199.95

Monophonic three-speed (¾, 1⅞, 15/16 i.p.s.) portable with 5-inch reel capacity, level meter, tape counter. A.C. house current operation. Frequency response 50 to 12,000 c.p.s. Signal-to-noise ratio 50 db. Wow and flutter .2 per cent. Price includes microphone.

Model 4-10
 12¾ x 5 x 11 inches
 \$269.95



Three-speed (¾, 1⅞, 15/16 i.p.s.) monophonic transistorized portable with 5-inch reel capacity, VU meter, a.c. operation. Frequency response 4 to 12,000 c.p.s. at ¾ i.p.s. Signal-to-noise ratio 50 db. Wow and flutter .2 per cent. Comes with remote control mike.

Ampex
Model 2070
 18⅝ x 13 x 7 inches
 \$529



Four-track stereo portable with preamplifiers and power amplifiers plus built-in speakers as well as outlets for external speakers. Features automatic reversing in playback, three speeds (1⅞, ¾ and 7½ i.p.s.), dual capstan drive, twin neon light level indicators, three heads, hysteresis motor, slide projector actuator, automatic threading, automatic tape lifters, and digital counter. Frequency response, 30 to 18,000 c.p.s., two decibel variance, at 7½ i.p.s. Signal-to-noise ratio 52 db at 7½ i.p.s. Wow and flutter, 0.08 per cent at 7½ i.p.s. Price includes one microphone.

Ampex
Model 2075
 18⅝ x 13 x 7 inches
 \$559

Same as Model 2070 but in walnut cabinet.

Arvin: Write for more information to: Arvin Industries, Inc., 1531 Thirteenth St., Columbus, Ind.

Belcor
Model 305
 9 x 14 x 12½ inches
 \$179.95



Four-track stereo unit, two microphones, swing-out speakers, digital counter, twin VU meters, pilot light, record interlock, mono-stereo switch, separate tone and volume controls for each channel. Two tape speeds.

Califone
Model 3200
 16¼ x 13¾ x 7½ inches
 \$269.95



Stereo portable unit with two six inch side speakers. Vertical or horizontal operation, digital counter. VU meter, pause-edit control, automatic shutoff. Tape speeds ¾, 7½ i.p.s. with optional 15 i.p.s. Power output 10 watts per channel. Frequency response to 18,000 c.p.s. Sound-with-sound capability.

Channel Master
Model 6465
 12⅝ x 10 x 5⅞ inches
 \$119.95



Solid state AC-operated portable with 7-inch reel capacity, two tracks, monophonic, running speeds ¾ and 7½ i.p.s. Features include digital counter, automatic level control, tone control, VU meter. Priced with microphone.

Channel Master
Model 6470
 14½ x 13 x 10¾ inches
 \$239.95



Solid state stereo recorder with sound-with-sound, twin VU meters, automatic shutoff, digital counter, four-pole heavy duty motor, seven inch reel capacity, four inch extended range speakers contained in removable lids, various inputs and outputs. Power output three watts per channel. Tape speeds ¾, 7½ i.p.s. Frequency response 50 to 15,000 c.p.s. at 7½ i.p.s. Signal-to-noise ratio 47 db. Wow and flutter less than 0.3%.

Channel Master
Model 6547
 12 x 9½ x 5½ inches
 \$99.95



Transistorized two-speed electric unit running at ¾ and 7½ i.p.s. Two-track monophonic, automatic level control, 4 x 6-inch speaker, tone control, VU meter, public address capability, with dynamic mike. Signal-noise ratio better than 40 db.

Channel Master
Model 6548
 13⅝ x 14⅝ x 7⅞ inches
 \$159.95



Automatic level controlled two-track monophonic electric portable with 4 x 6-inch speaker, three speeds (1⅞, ¾, 7½ i.p.s.) digital counter, monitor control, tone control, push button operation, magic eye level indicator, automatic tape lifters. Signal-noise ratio better than 40 db. Response 50 to 12,000 c.p.s. at 7½ i.p.s. Wow and flutter 0.25%. With dynamic microphone.

Channel Master
Model 6471
 8 x 9 x 4 inches
 \$44.95

Two-speed (1⅞, ¾ i.p.s.) electrically-operated portable using ¾-inch reels, 2½-inch speaker, two-track monophonic system, level indicator. Complete with dynamic mike.

Cipher

Model II

15¼ x 13¼ x 6 inches
\$109.95



Solid state mono recorder with dynamic microphone, VU meter, digital counter, front-firing speaker, tone control, record interlock, lock pause control, up-right or horizontal operation. Tape speeds 3¾, 7½ i.p.s. 100 to 10,000 c.p.s. frequency response at 7½ i.p.s. and 40 db signal-to-noise ratio.

Cipher

Model 21

6½ x 13⅞ x 13 inches
\$139.95



Automatic solid state unit with push-button controls, 6 x 4 inch speaker, safety lock switch, tape footage counter, monitoring earphone, dynamic mike, facilities for direct recording. Tape speeds 1⅞, 3¾, 7½ i.p.s.

Cipher

Model VIB

16 x 16 x 11 inches
\$239.95



Two-speed (3¾, 7½ i.p.s.) four-track stereo portable with detachable wing speaker systems, pause control, two VU meters, vertical or horizontal operation, automatic tape lifters, automatic shutoff, digital counter, public address facility, various jacks on panel. Frequency response 60 to 14,000 c.p.s. at top speed. Wow and flutter less than 0.2%. Signal-to-noise ratio better than 45 db. Includes two dynamic mikes.

Cipher

Model 77

20 x 16½ x 8 inches
\$299.95



Four-track solid-state stereo unit with detachable speaker wings, VU meter for each channel, volume and tone controls, automatic shutoff, lock pause control, rocker-type on-off switch, monitoring and public address facilities, vertical or horizontal operation. Tape speeds 1⅞, 3¾, 7½ i.p.s. Two dynamic microphones. Frequency response 35 to 15,000 c.p.s. at 7½ i.p.s. Signal-to-noise ratio 5 db. Wow and flutter less than 0.25%.

Cipher

Model 98

20 x 16½ x 8½ inches
\$350



Four-track stereo recorder with detachable speaker wings, three heads, no pressure pads, mixing facilities, public address capability, automatic shutoff, separate playback and record volume controls per channel, VU meters, tone controls, earphone outlets, lock pause control, rocker-type power switch, digital counter, transistor circuitry, two microphones. Tape speeds 1⅞, 3¾, 7½ i.p.s. Vertical and horizontal operation. Frequency response 35 to 15,000 c.p.s. at 7½ i.p.s. Signal-to-noise ratio 52 db. Wow and flutter less than 0.2%.

Concertone

Model 803

19¼ x 14¼ x 8⅝ inches
\$399.95



Four-track portable transistorized stereo, bi-directional portable recorder, six heads, three motors, monitor speaker/amplifier, VU meters, digital counter, add sound, add echo. Plays and records in either direction at 3¾ and 7½ i.p.s. automatically, via Reverse-O-Matic. Frequency response 30 to 18,000 c.p.s. at 7½ i.p.s. Wow and flutter less than .2% rms at 7½ i.p.s. Signal-to-noise ratio 50 db. Comes with two dynamic mikes.

Model 810

Same as Model 803 but with Norton 40-watt amplifier. Same size as Model 803.

\$499.95

Concord

Model 102

5½ x 12½ x 11 inches
\$79.95



Transistorized monophonic portable two-speed (7½, 3¾ i.p.s.) a.c.-operated recorder with 7-inch reel capacity, record level indicator, earphone monitoring, 10 x 2½" oval speaker, complete with earphone and crystal microphone. Frequency response 50 to 10,000 c.p.s. at 7½ i.p.s. Wow and flutter 0.3 per cent at same speed.

Concord

Model 120

14 x 6½ x 11 inches
\$99.95



Transistorized monophonic a.c.-operated three-speed (1⅞, 3¾, 7½ i.p.s.) portable with 4 x 6½-inch oval speaker, tape counter, level indicator, and monitoring jack. Frequency response 50 to 12,000 c.p.s. at 7½ i.p.s. Includes dynamic microphone.

Concord

Model 220

12 x 13 x 7½ inches
\$149.95



Transistorized monophonic three speed (1⅞, 3¾, 7½ i.p.s.) a.c.-operated portable with 6 x 4-inch speaker, electronic eye level indicator, digital counter, push button controls, cue and edit button, tone control, 7-inch reel capacity. Frequency response 40 to 15,000 c.p.s. at 7½ i.p.s. Comes with dynamic microphone.

Concord

Model 444

9⅝ x 13⅝ x 14 inches
\$199.95



Stereo unit with push-button operation, sound-on-sound facility, solid state circuitry, instant cue button, digital counter, automatic pressure roller disengagement, master tone control, 10-watt amplification, two speakers, two mikes. Tape speeds 1⅞, 3¾, 7½ i.p.s. Frequency response 50 to 15,000 c.p.s. ± two db at 7½ i.p.s. Wow and flutter less than 0.2% RMS. Signal-to-noise ratio 40 db per channel. Weighs 30 pounds.

Concord**Model 555**11½ x 13¾ x 14 inches
\$249.95

Push-button unit with two microphones, sound-on-sound, solid state circuitry, two VU meters, automatic tape equalization shifting, digital counter, automatic shutoff, 10-watt power output. Separate extension speakers. Tape speeds 7½, 3¾, 1⅞ i.p.s. Frequency response 40 to 16,000 c.p.s. ± two db at 7½ i.p.s. Wow and flutter less than 0.2% RMS at 7½ i.p.s. Signal-to-noise ratio 5 db per channel. Weighs 3½ pounds.

Craig**Model TR 525**5¼ x 11¾ x 9 inches
\$69.95

Two-speed (1⅞, 3¾ i.p.s.) a.c.-operated monophonic table model using 5-inch reels, dynamic microphone, volume control, level indicator, equalization control. Frequency response at 3¾ i.p.s. 150 to 7,000 c.p.s., three decibel variance. Signal-to-noise ratio greater than 40 db. Wow and flutter 0.2 per cent at 3¾ i.p.s.

Concord**Model 884**15½ x 11½ x 17 inches
\$399.95

Transistorized three speed (1⅞, 3¾, 7½ i.p.s.) self contained four-track stereo portable with built-in speakers, A/B monitoring, sound-on-sound, three heads, push button operation, tone control, two VU meters, headphone jack, automatic shutoff. Frequency response 30 to 20,000 c.p.s. at 7½ i.p.s. Signal-to-noise ratio 60 db. Wow and flutter 0.15 per cent at 7½ i.p.s.

Craig**Model TR910**13 x 17 x 7 inches
\$179.95

Portable four-track solid-state stereo unit running at 3¾ and 7½ i.p.s. using 7-inch reels, and operating on a.c. current. Features include digital counter, sound-on-sound, VU meter, 4 x 6-inch speakers, supplied with dynamic mikes. Frequency response 50 to 15,000 c.p.s., plus-or-minus 3 db at 7½ i.p.s.

Concord**Model 994**15½ x 11½ x 17 inches
\$449.95

Three-speed (1⅞, 3¾, 7½ i.p.s.) four-track stereo portable with detachable wing speaker systems each with two speakers, push-button operation, automatic continuous record and playback, automatic threading, automatic programming, automatic reverse, automatic stop, sound-on-sound, two VU meters, 15 watts output, monitoring feature, public address facility, digital counter, tone controls. Frequency response 40 to 16,000 c.p.s. at 7½ i.p.s., plus-or-minus two decibels. Signal-to-noise ratio better than 55 db. Wow and flutter less than 0.15 per cent rms. Comes with two dynamic mikes.

Crowncorder**Model STR 55**

\$149.50

Battery-AC current-operated portable using 5-inch reels, stereo four tracks, detachable side wing speakers, record meters, separate tone and volume control.

Crowncorder**Model CTR3050**

\$54.50

Same as CTR 3000 battery unit but with built-in AC current operation ability.

Concord**Model R1100**16¾ x 14¾ x 7½ inches
\$495

Transistorized self-contained four-track stereo recorder with separate speaker systems, automatic reversing in playback, four heads, three motors, dual movement level meter, optional remote control, A/B source tape monitoring, built-in echo, sound-on-sound, push button controls, automatic shutoff, automatic tape lifters, index counter, 17 transistors, 6 diodes, one tube, instant stop. Runs at 3¾ and 7½ i.p.s. Signal-to-noise ratio better than 60 db, wow and flutter less than .12% rms at 7½ i.p.s. Frequency response 30 to 16,000 at 7½ i.p.s., plus-or-minus 2 db. Optional mikes.

Crowncorder**Model CTR5850**

\$94.50

Same as Model CTR5800 but with built-in AC current operation ability.

Delmonico**Model PTR55A**13½ x 13¾ x 10⅞ inches
\$169.95

Portable four-track stereo unit with calibrated VU meters, digital counter, four inputs and two outputs, four-watt (sine wave) power output. Tape speeds 7½, 3¾ i.p.s. Two 4 x 6 inch speakers swing-out. Weighs 37½ pounds. Vertical or horizontal operation.

Dynaco

Model Beocord 2000
18 x 14 x 10 inches
\$525

Three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) solid-state, three head four-track stereo portable with: monitor speakers in detachable lids, hysteresis synchronous motor, three stereo mixing inputs, no-pressure-pad tension system, built-in splicing aid, 8-watt amplifiers, headphone jack on panel, VU meters, automatic shutoff, cueing, sound-on-sound, echo facilities, monitoring facilities, pause control, tape counter, plug-in circuit modules. Frequency response 40 to 16,000 c.p.s. at top speed, plus-or-minus two decibels. Wow and flutter 0.075% RMS. Signal-to-noise ratio better than 55 db.

Eico

Model RP100
\$450

Two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track stereo tape deck, three heads, three motors, two level meters, push-button operation, sound-on-sound, monitoring, automatic shutoff. Frequency response at top speed 30 to 15,000 c.p.s., two decibel variance. Wow and flutter under 0.15% RMS at 7 $\frac{1}{2}$ i.p.s.

Model RP100K
\$299.95

Same, in semi-kit form, with transport assembled.

Emerson

Model MM517
8 $\frac{1}{2}$ x 12 $\frac{5}{16}$ x 21 inches
\$129.95

Solid-state half-track monophonic table model, vertical or horizontal operation, 15/16, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. speeds, public address facilities, digital counter, tone control, two 4 x 8" speakers, VU meter. Response 50 to 15,000 c.p.s. at top speed. Signal-noise ratio better than 45 db. Tape speed accuracy plus-minus 2% at top speed. With mike.

Emerson

Model SS544
16 $\frac{3}{16}$ x 10 $\frac{1}{16}$ x 16 $\frac{7}{8}$ inches
\$229.95



Stereo unit with solid state circuitry, separate tone and volume controls for each channel, dual five-watt amps. Simultrack function, illuminated VU meters, digital counter, automatic shutoff, public address capability, two dynamic microphones, two built-in 5 x 7 inch speakers. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$, 15 i.p.s. Frequency response 50 to 18,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db.

Emerson

Model SS533
8 $\frac{1}{2}$ x 12 $\frac{15}{16}$ x 21 inches
\$179.95

Four-track solid-state stereo table model in plastic case, two 4 x 8" speakers, 15/16, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. speeds, public address capability, sound-with-sound, vertical or horizontal operation, automatic shutoff, VU meter, digital counter. Response 50 to 18,000 c.p.s. at top speed. Speed accuracy 2% at 7 $\frac{1}{2}$ i.p.s. Signal-noise ratio better than 45 db. With microphone.

Emerson

Model MM513
8 $\frac{3}{8}$ x 12 $\frac{5}{16}$ x 14 $\frac{7}{16}$ inches
\$79.95



Two track monophonic four-speed (15/16, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) table model in plastic cabinet, vertical or horizontal operation, neon level indicator. Tape speed accuracy plus-minus 2% at 7 $\frac{1}{2}$ and 3 $\frac{3}{4}$ i.p.s. Mike included.

Emerson

Model MM514
8 $\frac{3}{8}$ x 12 $\frac{5}{16}$ x 14 $\frac{7}{16}$ inches
\$89.95



Essentially same as Model MM 513 but solid-state circuitry. Response 50 to 12,000 c.p.s. at top speed. Signal-noise ratio better than 45 db. Uses four-inch speaker. Supplied with microphone.

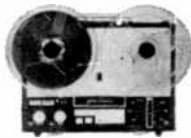
GemSonic

Model 801
12 x 8 $\frac{1}{2}$ x 7 inches
\$99.95



Four-track solid state portable mono unit with quarter-track stereo head for use as stereo playback deck. Features tone control and volume control, VU meter, digital counter, four outputs and inputs, 3 x 5 inch speaker, dynamic microphone. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Vertical or horizontal operation. Frequency response 5 to 12,000 c.p.s. \pm three db at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db. Wow and flutter less than 0.15% at 7 $\frac{1}{2}$ i.p.s. Weighs 13 $\frac{1}{2}$ pounds.

GemSonic 802
12 x 8½ x 7 inches
\$189.95



Stereo unit with solid state circuitry, sound-on-sound, sound-with-sound, two VU meters, digital counter, automatic shut-off, separate tone and volume controls per channel, pilot light, safety interlock, sound monitoring. Six-watt power output. 3 x 5 inch speakers. Tape speeds 1⅞, 3¾, 7½ i.p.s. Frequency response 50 to 15,000 c.p.s. at 7½ i.p.s. Signal-to-noise ratio 50 db. Two dynamic mikes. Weighs 16 pounds.

Golden Shield
Model 4004
\$149.95

Monophonic three-speed (1⅞, 3¾, 7½ i.p.s.) unit with 4 x 6-inch speaker, magic eye level meter, automatic tape lifters, digital counter, push-button operation, pause button, public address capability, storage compartment, automatic leveling control.

Grundig
Model TK200
14 x 11 3/5 x 7 inches
\$69.95

Two-speed (3¾, 7½ i.p.s.) two-track monophonic electric portable-table model featuring built-in speaker, level indicator, digital counter, tone control, 7-inch reel capacity.

Grundig
Model TK400 Automatic
14 x 11 3/5 x 7 inches
\$99.95

Four-track, two-speed (3¾, 7½ i.p.s.) monophonic electric portable-table model unit with built-in speaker, automatic level adjustment, 7-inch reel capacity, tape counter.

Korting
Model TR4000
18 x 13 x 8 inches
\$399.95



Three-speed (7½, 3¾, 1⅞ i.p.s.) transistorized self-contained portable with built-in speakers, heads, separate bass and treble controls, two level meters, remote pause control, variable echo or reverberation effects, electronic switching. Frequency response 30 to 20,000 c.p.s. at top speed, plus-or-minus 3 db. Signal-to-noise ratio 45 db. Wow and flutter 0.1%. Includes two mikes. Optional drive unit to permit duplication of tapes being played on machine.

Korting
Model TR3000
20¾ x 13 x 7½ inches
\$299.95



Four-track stereo portable with built-in speakers, two speeds (3¾, 7½ i.p.s.), pause lever, push button operation, speaker on-off switch for monitoring or public address, digital counter, tone switch, magic eye level indicator, sound over sound, tape cleaner. Response 30 to 20,000 c.p.s. at top speed, 3 db variance. Signal-to-noise ratio better than 45 db. Wow and flutter better than 0.2%. Includes two mikes.

Masterwork
Model 790
\$79.95

AC-operated solid state portable monophonic unit with 7-inch reel capacity. Two speeds, tape counter, level meter, tone control, external speaker jacks, pilot light, 3 x 9-inch speaker, wood case chrome trim. With dynamic microphone and earphone.

Masterwork
Model M800
\$99.95

AC-operated solid state monophonic portable, three speeds, tape counter, level indicator, 3 x 6-inch speaker, pilot light, in wood case. With dynamic microphone. Seven-inch reel capacity.

Masterwork
Model 810
\$275



Stereo unit with solid state circuitry, four-pole motor, footage counter, two level meters, separate tone and volume controls, two dynamic mikes. Automatic stop, push-button switching, pause lever, detachable wings with two speakers each, upright operation. Tape speeds 1⅞, 3¾, 7½ i.p.s.

Norelco
Model 95
14¼ x 10 x 5 inches
\$79.50



Table-top portable operating at 3¾ i.p.s. using five-inch reels. Two-track mono record and playback, automatic level control, pause control, 4-inch speaker, push buttons, tone control. Response 80 to 12,000 c.p.s. Wow and flutter 0.2%. Signal-to-noise ratio 45 db. Comes with dynamic mike.

Norelco
15¾ x 13¾ x 6¾ inches
Model 201
\$149.50



Four-track monophonic play and record, stereo-playback (via external system) portable with 4 x 6-inch speaker. Runs at 3¾ and 7½ i.p.s. Push button controls, mixing facilities, pause control, tone control, public address capability, magic eye level indicator, digital counter. Response 60 to 16,000 c.p.s. plus-minus 3 db at top speed. Wow and flutter 0.14% RMS. Signal-to-noise ratio 40 db.

Norelco
Model 401
 18 $\frac{1}{4}$ x 15 x 10 inches
 \$299.50



Four-speed (15/16, 1 $\frac{1}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track stereo portable with built-in speakers, solid state, mixing facilities, dual VU meter, digital counter, multiplay facilities, pause control, tone control, automatic tape stop, public address capability. Response at 7 $\frac{1}{2}$ 50 to 18,000 c.p.s. Wow and flutter less than 0.14%. Signal-to-noise ratio better than 40 db. Dual microphone supplied.

Oki
Model 555
 11 $\frac{7}{8}$ x 13 $\frac{3}{4}$ x 12 $\frac{1}{2}$ inches
 \$369.95



Four-track stereo a.c. portable with detachable speaker systems, two VU meters, sound-on-sound, sound-with-sound, digital counter, automatic shutoff, inter-lock pause control, public address switch, tone controls, vertical-horizontal operation. Runs at 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Response 20 to 22,000 c.p.s. at top speed. Signal-noise ratio better than 50 db. Wow and flutter less than 0.12% rms. Price includes two mikes.

Oki
Model 111
 11 $\frac{7}{8}$ x 12 $\frac{5}{8}$ x 6 inches
 \$129.95



Two-track mono a.c. portable with five-inch speaker, digital counter, record level meter, volume and tone controls, push button operation, pause control, and running speeds of 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.2% at 7 $\frac{1}{2}$ i.p.s. Frequency response 60 to 13,000 c.p.s. Signal-noise ratio better than 40 db. Price includes mike.

OKI
Model 888
 13 x 6 x 11 $\frac{3}{4}$ inches
 \$419

All-transistor unit. Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. No microphones. Frequency response 40 to 18,000 c.p.s. \pm two db at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.1% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db. Six-watt per channel power output, peak.

Panasonic
Model RQ555
 11 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 9 $\frac{1}{2}$ inches
 \$79.95

Electric monophonic two-track portable using 5-inch reels and operating at 1 $\frac{1}{8}$ and 3 $\frac{3}{4}$ i.p.s. Features include VU meter, 3 x 6-inch speaker, tone control, public address capability. Response 70 to 7,000 c.p.s. at top speed. Dynamic mike included.

Oki
Model 222
 11 $\frac{7}{8}$ x 12 $\frac{5}{8}$ x 7 inches
 \$179.95



Four-track monophonic a.c. portable running at 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Features digital counter, VU meter, push button operation, sound-on-sound, inter-lock pause control, five-inch speaker, vertical or horizontal operation. Response 50 to 15,000 c.p.s. at top speed. Wow and flutter less than 0.2% at 7 $\frac{1}{2}$ i.p.s. Signal-noise ratio better than 50 db. Mike included.

Panasonic
Model RQ705
 13 $\frac{1}{4}$ x 6 $\frac{1}{4}$ x 13 inches
 \$129.95

Two-track monophonic AC-operated with 6 x 4-inch speaker, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. speeds, VU meter, push button operation, digital counter, tone control, monitor switch, cue lever, complete with dynamic microphone. Response at 7 $\frac{1}{2}$ i.p.s. 70 to 15,000 c.p.s. Wow and flutter below 0.2% at top speed.

OKI
Model 300
 12 x 8 $\frac{1}{4}$ x 11 $\frac{1}{2}$
 \$189.90



Four-track stereo portable with detachable speaker systems, dynamic microphone, sound-on-sound and sound-with-sound capabilities, vertical or horizontal operation, solid state circuitry, automatic shutoff, pause control, safety interlock, digital counter, two VU meters, separate tone and volume controls, various inputs and outputs. Frequency response 40 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db. Wow and flutter less than 0.2% at 7 $\frac{1}{2}$ i.p.s. Five-watt power output at peak.

Panasonic
Model RS755
 13 $\frac{3}{4}$ x 16 $\frac{1}{2}$ 8 inches
 \$199.95



Solid-state four-track stereo vertical styled unit with built-in 4 x 6-inch speakers, sound-on-sound, trans-a-track, separate tone and volume controls for each channel. Runs at 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Vertical or horizontal operation. Digital counter, two VU meters, automatic shutoff. Complete with two dynamic mikes. Optional matched speaker systems available. Response 6 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s.

Oki
Model 333
 11 $\frac{7}{8}$ x 13 $\frac{3}{4}$ x 12 $\frac{1}{2}$ inches
 \$299.95



Four-track solid-state a.c. stereo portable with detachable speaker wings, digital counter, two VU meters, sound-on-sound, sound-with-sound, tone and volume controls, vertical or horizontal operation. Runs at 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Response 50 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-noise ratio better than 47 db. Wow and flutter less than 0.12% rms. Includes two mikes.

Panasonic
Model RS770
 16 9/16 x 19 3/16 x
 11 13/16 inches
 \$279.95



Solid state four-track stereo recorder with two microphones, detachable speaker systems (each containing 4 x 6 inch woofer and a tweeter), vertical or horizontal operation, VU meters, automatic shutoff, sound-on-sound, Pan-A-Trak for music or language study, pause lever, separate volume and tone control. Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Frequency response 60 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.25% (RMS) at 7 $\frac{1}{2}$ i.p.s.

RCA
Model YGB11
 7 $\frac{3}{8}$ x 16 x 11 $\frac{3}{16}$ inches
 \$99.95

Solid state monophonic tape cartridge portable with 4-inch oval speaker, two speeds (1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s.), VU meter, storage space, automatic tape and amplifier shutoff. Preamplifier response 50 to 15,000 c.p.s. With mike.

RCA
Model YGB29
 7 $\frac{3}{8}$ x 17 $\frac{1}{2}$ x 11 $\frac{3}{16}$ inches
 \$129.95

Solid state monophonic tape cartridge portable with 6-inch oval speaker, two speeds (1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s.), microphone remote control switch, public address switch, digital counter, tone control, automatic tape and amplifier shutoff, VU meter, storage space. Preamplifier response 50 to 15,000 c.p.s. With microphone.

RCA
Model YGG45
 15 x 25 $\frac{5}{8}$ x 9 $\frac{1}{2}$ inches
 \$239.95

Four-track stereo unit similar to model YGD43 but reel-to-reel. Seven inch reel. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.

RCA
Model YGH31
 8 $\frac{3}{4}$ x 18 x 14 inches
 \$139.95



Two-track, three speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) portable with 6-inch oval speaker, pause switch, push button operation, public address switch, digital counter, storage space. Preamplifier response 15 to 15,000 c.p.s. With microphone.

RCA
Model YGD43
 15 $\frac{1}{2}$ x 27 $\frac{7}{8}$ x 9 $\frac{3}{4}$ inches
 \$215



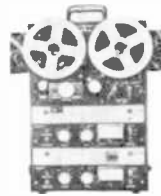
Four-track portable stereo cartridge recorder with solid state circuitry, detachable speaker wings (each containing a nine inch oval and 3 $\frac{1}{2}$ inch tweeter speaker), tilt-down deck, two ceramic microphones, public address facilities, level meter, headphone jack, digital counter, automatic shutoff, stereo balance control, tone controls. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s.

ReVox
 \$500



Stereo recorder, features push-button operation, electrical switching. Has built-in mixing facilities, automatic shutoff and solenoid operated brakes. Operates vertically or horizontally. Each reel has individual Pabst hysteresis-synchronous motor. Takes 10 $\frac{1}{2}$ inch reels. Tape speeds are 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s.

Roberts
Model 720
 20 x 14 x 9 inches
 \$339.95



Vertical-styled four-track three-speed self-contained portable running at 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s., with 15 i.p.s. speed optional. Sound-with-sound, built-in speakers, automatic stop, pause control, two heads, headphone jacks, two VU meters. Frequency response 40 to 15,000 c.p.s., plus-or-minus 2 db at 7 $\frac{1}{2}$ i.p.s. Wow and flutter 0.12%. Signal-to-noise ratio 50 db. With two microphones.

Roberts
Model 400
 \$699.95



Similar to Model 400X except only the amps are solid state. No Cross Field head system.

Roberts
Model 400X
 \$799.95

Unit with Cross Field head system, automatic reverse, automatic select play, three heads, three motors, solid-state circuitry, with removable modules, push-button solenoid controls, echo effect, remote control play optional, 10 $\frac{1}{2}$ inch reel adaptability, sound-on-sound, sound-with-sound, sound-over-sound channel transfer sound, hysteresis synchronous capstan drive, electrical speed change, digital counter. Power output 68 watts.

Roberts
Model 770
 20 $\frac{1}{2}$ x 13 $\frac{3}{4}$ x 11 inches
 \$449.95



Vertical-styled four-track three-speed self-contained portable running at 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. optional. Sound-with-sound, hysteresis synchronous motor, Cross Field head for wider response, two VU meters, four-digit counter, mute-monitor switch, public address capability, separate tone and equalization controls for each channel, automatic shutoff switch, pause-edit control, two 5 x 7-inch speakers. Frequency response 40 to 22,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., two decibel variance. Wow and flutter 0.12%. Signal-to-noise ratio 50 db. Includes two microphones.

Roberts
Model 1600
 15 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8 $\frac{1}{2}$ inches
 \$169.95

Two-track monophonic self-contained portable, three speeds (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), 4 x 6-inch speaker, VU meter, digital counter, pause lever. Frequency response 50 to 15,000 c.p.s., four decibel variance at top speed. Signal-to-noise ratio 45 db. Wow and flutter 0.2%. Includes dynamic mike.

Roberts**Model 1630**

13 $\frac{1}{4}$ x 7 $\frac{1}{2}$ x 13 $\frac{3}{4}$ inches
\$229.95



Three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) (15 i.p.s. optional) self-contained portable with automatic shutoff, edit/pause lever, VU meter, stereo phone jack, separate tone controls for each channel, horizontal or vertical operation. Frequency response at 7 $\frac{1}{2}$ i.p.s. 40 to 18,000 c.p.s., plus-or-minus three decibels. Wow and flutter 0.2%. Signal-to-noise ratio 45 db.

Roberts**Model 1620**

13 $\frac{1}{4}$ x 13 $\frac{1}{4}$ x 9 $\frac{1}{16}$ inches
\$199.95



Two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) (15 i.p.s. optional) self-contained portable with built-in side-firing speakers, four-track stereo, edit/pause lever, VU meter, digital counter, automatic shutoff, stereo phone jack. Response 50 to 15,000 c.p.s., three decibel reference, at 7 $\frac{1}{2}$ i.p.s. Wow and flutter 0.2%. Signal-to-noise ratio 42 db. With two dynamic microphones.

Roberts**Model 1651**

16 $\frac{1}{4}$ x 13 $\frac{3}{4}$ x 7 $\frac{1}{2}$ inches
\$329.95

Self-contained four-track stereo portable with detachable wing speakers, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) with 15 i.p.s. optional, two VU meters, automatic stop, edit guide, pause control, two heads, sound-with-sound. Frequency response 30 to 18,000 c.p.s. three decibel variance, at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db. Wow and flutter 0.2%.

Roberts**Model 1650**

\$299.95



Same as Model 1651 but with built-in speakers.

Model 1670

30 x 14 $\frac{1}{4}$ x 7 inches
\$359.95

Same as Model 1650 but with elongated main housing with speakers built into side sections, front firing.

Roberts**Model 5000**

\$699.95



Solid state upright recorder with push-button operation, Cross Field head, four digit counter, two VU meters, hysteresis synchronous direct drive capstan, three inside-out motors, sound-on-sound facility. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s., 7 $\frac{1}{2}$ i.p.s. and optional 15 i.p.s. Uses 10 $\frac{1}{2}$ -inch reels. Two built-in speakers, four heads, equalized preamp outputs. Power output 68 watts. Frequency response to 20,000 c.p.s.

Ross**Model 1000**

\$100 approx.



Portable mono with solid state circuitry, record level meter, automatic shutoff, push-button operation, built-in speaker, digital counter, built-in reel and accessory compartment. Seven-inch reel. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.

Sharp**Model RD501**

11 $\frac{1}{4}$ x 9 $\frac{3}{4}$ x 5 $\frac{1}{16}$ inches
\$79.95

Push-button-operated AC current portable with 5-inch reel capacity, level meter, solid state circuit, two speeds (3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.) 7 x 3-inch speaker. Response 70 to 10,000 c.p.s. at top speed. Wow and flutter 0.35%. With mike.

Sharp**Model RD701**

13 x 12 x 6 inches
\$99.95

Three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) AC-operated portable, 7-inch reels, 4 x 7 $\frac{1}{2}$ -inch speaker, tone control, public address ability, tape counter, VU level meter. Response 6 to 10,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.25%. Signal-to-noise ratio better than 40 db.

WRITE FOR ADDITIONAL INFORMATION

Intercontinental Seaway Products Co., 5400 E. 96th St., Cleveland, Ohio.

Sharp**Model RD702**

\$189.95



Four-track stereo unit with solid state amp, push-button operation, sound-with-sound, two dynamic mikes, 2 $\frac{1}{2}$ x 4 inch speakers, twin VU meters, four digit counter, monitor switch, individual tone and volume controls, stop button, automatic shutoff, various inputs and outputs. Power output eight watts peak. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Frequency response 60 to 14,000 c.p.s. \pm 3 db at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.25% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db.

Sony**Model 105**

14 $\frac{3}{4}$ x 13 $\frac{1}{4}$ x 7 $\frac{1}{4}$ inches
\$139.50

Solid state four-track monophonic portable, self-contained with built-in speaker, automatic volume control, retracting pinch roller, three speeds (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), public address feature, language and music training facilities for student-teacher track comparison, tone control, automatic shutoff, pause control, VU meter and digital counter. Frequency response 50 to 12,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 48 db or better. Wow and flutter 0.12%. Price includes microphone.

Sony**Model 123**

8 $\frac{1}{8}$ x 8 $\frac{1}{8}$ x 4 $\frac{1}{8}$ inches
\$39.95

Two-speed (3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.) AC-operated monophonic two-track portable, 3 $\frac{1}{4}$ -inch reels, automatic level control, built-in speaker. Frequency response 80 to 8,000 c.p.s.

Sony**Model 135**

9 $\frac{1}{2}$ x 11 x 5 $\frac{1}{2}$ inches
\$69.50

Monophonic portable, two-track, five-inch reel capacity, automatic volume level control, two speeds (3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.) automatic tape lifter, monitor output, AC operation. Frequency response 90 to 9,500 c.p.s. at top speed. Wow and flutter less than 0.3%. Signal-to-noise ratio over 40 db. Includes microphone.

Sony**Model 200**

15 x 16 x 9 inches
\$199.50

Self-contained four-track stereo portable with detachable wing speaker systems, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), two VU meters, sound-on-sound, automatic tape lifter, pause control, digital counter. Frequency response 50 to 14,000 c.p.s. at top speed. Wow and flutter less than 0.19%. Signal-to-noise ratio better than 45 db. Includes two dynamic mikes.

Sony**Model 260**

21 $\frac{3}{8}$ x 15 $\frac{1}{2}$ x 7 $\frac{3}{4}$ inches
\$249.50

Two speed (7 $\frac{1}{2}$, 3 $\frac{3}{4}$ i.p.s.) solid state four-track stereo unit, self-contained, using two 4 x 8-inch speakers, 10-watts-per-channel power, two VU meters, vertical or horizontal operation, separate tone controls, automatic shutoff switch, automatic tape lifters, pause control, tape counter. Frequency response 50 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., three decibel variance. Signal-to-noise ratio better than 50 db. Wow and flutter less than 0.19%. Two dynamic microphones included.

Sony**Model 530**

15 $\frac{3}{4}$ x 19 $\frac{3}{4}$ x 10 inches
\$399.50

Solid state four-track stereo self-contained unit with detachable wing speakers plus built-in woofers in main housing. Three speeds (7 $\frac{1}{2}$, 3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.), retractable pinch roller, sound-on-sound and microphone and line mixing, separate tone controls, two VU meters, automatic shutoff switch, pause control and digital counter, automatic tape lifters, vertical or horizontal operation. Frequency response 40 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db or more. Wow and flutter 0.1%. Price includes two dynamic mikes.

Sony**Model 660**

17 x 17 x 10 $\frac{3}{4}$ inches
\$575



Automatic tape reversing solid state four-track stereo self-contained portable with detachable speaker wings, plus woofers in main housing. Three motors, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), push button operation, two VU meters, sound-on-sound and microphone and line mixing, automatic shutoff, pause control, digital counter, stereo headphone jack, separate bass and treble controls. Frequency response 30 to 18,000 c. p. s. at top speed, two decibel reference. Wow and flutter less than 0.06%. Signal-to-noise ratio 50 db or better. Comes with two mikes.

Symphonic**Model R200**

15 $\frac{3}{4}$ x 8 x 15 inches
\$119.95



Four-track solid state mono unit can play four-track stereo tapes monophonically. Features digital counter, VU meter, separate tone and volume controls, record monitor/public address switches, four inch speaker, external speaker jack, dynamic mike. Tape speeds of 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Frequency response 50 to 15,000 c.p.s. \pm 3 db at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db. Three-watt power output.

Symphonic**Model R600**

15 x 15 $\frac{3}{4}$ x 9 inches
\$169.95



Stereo unit with solid state chassis, two VU meters, digital counter, separate tone and volume controls per channel, sound-with-sound, monitor and PA switches, two oval eight inch speakers, external speaker jacks, switched mike or radio/phonograph inputs per channel. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Six-watt power output. Frequency response 50 to 15,000 c.p.s. \pm three db at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db. Wow and flutter .25% RMS at 7 $\frac{1}{2}$ i.p.s. Two dy-

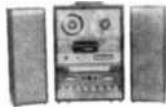
Symphonic**Model R800**

19 x 14 x 9 inches
\$249.95



Stereo unit with two dynamic microphones, solid state amp, digital counter, muted wind/rewind in stereo, sound-with-sound, stereo headset output jacks, stereo preamp output jacks, manually-switched equalization, two VU meters, two oval eight inch speakers. Vertical or horizontal operation. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Power output 12 watts. Frequency response 50 to 15,000 c.p.s. \pm 3 db. Wow and flutter .2% RMS at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db.

Symphonic
Model R1000
 17 x 23 $\frac{3}{4}$ x 12 $\frac{3}{4}$ inches
 \$449.95



Portable stereo unit with sound-on-sound, sound-with-sound, two dynamic microphones, solid state amp, three motors, push-button solenoid operation, electro-dynamic braking system, four digit counter, three heads, automatic shutoff, self-aligning pinch roller, no-pressure pads, two VU meters, separate bass and treble controls, facilities for track transfer and mixing, two detachable speaker wings (each containing two speakers). Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Power output 20 watts per channel. Vertical operation. Frequency response 35 to 20,000 c.p.s. \pm two db. Signal-to-noise ratio 55 db. Wow and flutter 0.15% at 7 $\frac{1}{2}$ i.p.s.

Tandberg
Model 74B
 16 x 12 x 6 $\frac{1}{2}$ inches
 \$449.50

Three speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) self-contained four-track stereo tape recorder in teakwood cabinet with two 4 x 7 inch speakers, two heads, automatic tape stop, four-digit counter, dual electric eye indicators, sound-on-sound, and monitoring. Frequency response 40 to 16,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., plus-or-minus 2 db. Wow and flutter better than .15 per cent at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio at least 53 db. Includes carrying case. Optional microphones at \$15 each.

Model 74B-SP

Same as above, but with two bookshelf speaker systems, each containing a 10 x 6-inch coaxial speaker.

\$597.50

Tandberg
Model Series 8
 15 x 11 $\frac{5}{8}$ x 6 $\frac{3}{4}$ inches
 Various prices

Two-speed (3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.) mono record-playback table models with built-in 4 x 7-inch speaker with two or four track heads. Four-digit counter, trident mode lever, volume control, public address facility, electronic eye level meter. Response 20 to 13,000 c.p.s. at top speed, plus-or-minus 2 db. Signal-to-noise ratio 50 db. Wow and flutter better than 0.2%. Base is teakwood.

Model 823

\$227.50

Half-track heads.

Model 843

\$245

Quarter-track heads.

Model 823F

\$315

Same as Model 823 but with built-in solenoids and foot pedal for remote control.

Model 843F

\$330

Same as Model 843 but with built-in solenoids and foot pedal for remote control.

Tandberg
Model 923
 \$273.50

Three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) two-track monophonic table model with 4 x 7-inch speaker, trident transport control, four-number digital counter, pause control, electronic eye indicator, in teak case. Frequency response 30 to 16,000 c.p.s. plus-or-minus 2 db, 7 $\frac{1}{2}$ i.p.s. Wow and flutter 0.15% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio at least 55 db.

Model 923F

\$367.50

Same as Model 923 but with built-in solenoids and foot pedal for remote control.

Telefunken
Model 201
 6 $\frac{1}{2}$ x 12 x 15 inches
 \$169.95



Mono version of model 203 has four tracks, built-in 4 x 5 inch speaker. Tape speed 3 $\frac{3}{4}$ i.p.s. No microphone.

Telefunken
Model 203
 6 $\frac{1}{2}$ x 12 x 15 inches
 \$219.95



Transistorized unit with four-track stereo playback in conjunction with auxiliary amp and speaker, two preamps for recording and playback, one amp with 4 x 5 inch speaker for monitoring, pause control, push-button operation, automatic stop via switching foil. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s. Frequency response 40 to 15,000 at 3 $\frac{3}{4}$ i.p.s. Wow and flutter 0.15% at 3 $\frac{3}{4}$ i.p.s. Signal-to-noise ratio 46 db. No microphone.

Telefunken
Model 200
 15 x 6 $\frac{1}{2}$ x 12 inches
 \$149.95

Two-track monophonic electric portable table model with 3 x 5-inch speaker, operating at 3 $\frac{3}{4}$ i.p.s., pause control push-button operation, VU meter, tone control, solid state circuitry.

Uher
Model 6000
 13 $\frac{3}{4}$ x 13 $\frac{3}{4}$ x 7 inches
 \$160



Two-track, two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) monophonic portable 4 x 6-inch speaker, push button controls, automatic level control, VU meter, automatic stop, digital counter, pause control, tone control. Response 40 to 18,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Wow and flutter 0.2%.

Uher
Model 8000E
 14 x 13 x 7 inches
 \$420



Four-track stereo portable with two 4 x 6-inch speakers, push button controls, four speeds (15/16, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), digital counter, two level meters, pause control, tone control, full monitoring, slide projector control, track transfer. Response 50 to 20,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., 3 db variance. Wow and flutter 0.15%.

Viking

Model 880
Stereo Compact Series
14½ x 20½ x 8½ inches



Same basic characteristics as Model 88 Stereo Compact but in portable self-contained form, with speakers and transistorized amplifiers.

Model 880 RMQ

\$425

Quarter-track record and play.

Model 880 ERQ

\$433

Half-track record, and half or quarter-track play.

Same as Model 754 except without tuner section.

V-M Corp.

Model 744
11⅞ x 14¾ x 22 inches
\$319.95



V-M Corp.

Model 725
7⅞ x 13¼ x 10¾ inches
\$89.95



Two-track monophonic self-contained three-speed (1⅞, 3¼, 7½ i.p.s.) unit with 4 x 6-inch speaker, push buttons, pause control, headphone monitoring, tone control. Response 50 to 15,000 c.p.s. Signal-to-noise about 42 db. Wow and flutter less than 0.4%. Includes mike.

V-M Corp.

Model 754
14¾ x 27¼ x 11⅝ inches
\$419.95



Self-contained four-track stereo unit swing-out detachable speaker systems, three speeds (1⅞, 3¼, 7½ i.p.s.) and AM/FM stereo tuner. Includes "Add-A-Track", push button controls, headphone jack, digital counter, two VU meters, slide projector synchronizer socket, pause control, automatic shutoff, reel stays. Frequency response 50 to 15,000 c.p.s. Signal-to-noise ratio 46 db. Wow and flutter less than 0.25%. Includes two microphones.

V-M Corp.

Model 726
\$109.95



Same as 725 but four-track monophonic record and play with "Add-A-Track" feature for language, speech study, etc.

Webcor

Model 2500
13 x 10 x 7¾ inches
\$89.95



Two-speed (3¼, 7½ i.p.s.) two track monophonic portable with four-inch speaker, storage compartment. Frequency response 300 to 7,000 c.p.s. Wow and flutter less than 0.5%. Signal-to-noise ratio 45 db. With microphone.

V-M Corp.

Model 733
7½ x 13 x 14½ inches
\$169.95



Self-contained four-track monophonic portable with 5 x 7-inch speaker, three speeds (1⅞, 3¼, 7½ i.p.s.), digital counter, pause control, headphone jack on panel, bar-level-type tube, separate bass and treble controls. Response 50 to 15,000 c.p.s. Signal-to-noise ratio 46 db. Wow and flutter less than 0.25% at 7½ i.p.s. Includes microphone.

Webcor

Model 2502
13¼ x 14½ x 7 inches
\$109.95



Two-speed (3¼, 7½ i.p.s.) two-track monophonic portable with 3 x 5" speaker, digital counter, record indicator light, tone control. Response 15 to 12,000 c.p.s. Signal-to-noise ratio 45 db. Wow and flutter less than 0.4%. With microphone.

V-M

Model 739
15½ x 15 5/16 x 10 5/8 inches
\$209.95



Stereo unit with two microphones, swing-out detachable speaker systems, (each containing a 4 x 6 inch speaker), sound-with-sound, slide projector synchronizer output, dual record level meters, digital counter, pause button, push-button operation. Tape speeds 1⅞, 3¼, 7½ i.p.s. Frequency response 50 to 15,000 c.p.s. Signal-to-noise ratio 46 db. Wow and flutter less than 0.25% at 7½ i.p.s. Weighs 28 pounds.

Webcor

Model 2503
13½ x 14 x 8 inches
\$169.95



Three-speed (1⅞, 3¼, 7½ i.p.s.), four-track monophonic portable with two five-inch speakers, VU meter, tape counter, storage compartments, monitor/tone control, public address capability. Response 100 to 15,000 c.p.s. Wow and flutter less than 0.4%. Signal-to-noise ratio 45 db. With microphone.

Webcor

Model 2520
16¾ x 9 15/16 x 13 7/8 inches
\$209.95



Two-speed (3¼, 7½ i.p.s.) four-track stereo portable with two 5-inch speakers, digital counter, edit key, individual tone and volume controls for each channel, eye tube level indicator. Wow and flutter less than 0.4%. Response 100 to 15,000 c.p.s. Signal-to-noise ratio 45 db. With two microphones.

Webcor**Model 2522**17 x 22 x 8 $\frac{3}{4}$ inches
\$269.95

Three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track stereo portable with four speakers, public address facilities, digital counter, edit key, individual volume and tone controls for each channel, two VU meters. Response 100 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 45 db. Wow and flutter less than 0.4%. With two microphones.

Webcor**Model 2650**15 $\frac{1}{8}$ x 18 $\frac{3}{4}$ x 23 $\frac{1}{8}$ inches
\$549.95

Four-track, three-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) 84-pound recorder with detachable speaker systems, computer-type reels, sound-with-sound, echo effects, "Synchro-track," public address capability, two VU meters, push button controls, digital counter, tilt-out amplifier control panel, with two microphones. No performance specifications given.

Westinghouse**Model 26RSI**13 $\frac{1}{2}$ x 21 $\frac{1}{4}$ x 9 inches
\$229.95

Two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track portable with two 4 x 8" speakers, recording level meter, vertical operation, sound-on-sound, volume and tone controls for each channel, digital counter. Performance specifications not available. Includes two microphones.

Westinghouse**Model 31R1**5 $\frac{3}{4}$ x 16 x 11 $\frac{1}{4}$ inches
\$89.95

Eight transistor mono unit, two tracks, AC operated table model with two 3 x 5 inch speakers, volume control, push-button operation, recording level meter, magnetic microphone, tape footage markers. Seven inch reel. Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.

Wollensak**Model 1220**17 $\frac{1}{2}$ x 14 x 8 inches
\$129

Monophonic two or four-track portable with 5 $\frac{1}{2}$ x 7 $\frac{1}{2}$ -inch speaker, VU meter, tab controls, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) automatic shutoff, vertical or horizontal operation, digital counter, tone control, automatic tape lifters, monitor facility, built-in reel locks. With microphone.

Wollensak**Model 1280**17 $\frac{1}{2}$ x 14 x 7 $\frac{1}{2}$ inches
\$199

Four-track stereo portable with detachable wing speakers, two speeds (7 $\frac{1}{2}$, 3 $\frac{3}{4}$ i.p.s.), two VU meters, tab controls, digital counter. Frequency response 50 to 17,000 c.p.s. plus-or-minus 3 db at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio better than 45 db. Wow and flutter less than 0.3%. Two microphones included.

Wollensak**Model 1288**16 $\frac{1}{4}$ x 13 x 7 $\frac{1}{2}$ inches
\$259.95

Self-contained four-track stereo wood-housed portable with detachable wing speakers, push button operation, three-watts per channel output. Runs at 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s. Dual VU meters, separate volume and tone controls for each channel, automatic shutoff, automatic tape lifters, self-adjusting brake system. With two mikes. Frequency response 50 to 17,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., three decibel variance. Wow and flutter less than 0.3% all speeds. Signal-to-noise ratio greater than 45 db.

Wollensak**Model 1500**6 $\frac{1}{2}$ x 10 $\frac{1}{4}$ x 11 $\frac{3}{4}$ inches
\$179

Self-contained monophonic portable with push button controls, built-in 5-inch speaker, two speeds (7 $\frac{1}{2}$, 3 $\frac{3}{4}$ i.p.s.) volume and tone controls, level indicator, instant pause control, public address facility. Frequency response 40 to 15,000 c.p.s. plus-or-minus three db. Signal-to-noise ratio better than 48 db. Wow and flutter less than 0.3%. Ten watts output.

Wollensak**Model 1980**13 $\frac{3}{4}$ x 21 $\frac{1}{4}$ x 9 $\frac{5}{8}$ inches
\$339.95

Upright self-contained four-track stereo unit, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), dual meters, sound with sound, tab controls, balanced tone controls, public address facility, two built-in speakers, outputs for external speakers, automatic shutoff, automatic tape lifters. Frequency response 40 to 18,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., plus-or-minus 3 db. Signal-to-noise ratio greater than 48 db. Wow and flutter less than 0.3% all speeds. Output 11 watts per channel.

Wollensak**Model 5150**16 x 10 x 7 inches
\$149.95

Mono unit with microphone and protective cover, solid state, 4 x 6 inch speaker, self-contained reel locks, power-activated push buttons, tone and volume controls, VU meter, instant pause control, four digit counter, automatic shutoff, automatic tape lifters, automatic head demagnetization. Frequency response 40 to 17,000 c.p.s. at \pm three db at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.25% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 48 db at 7 $\frac{1}{2}$ i.p.s. Power output three watts EIA, five watts peak. Vertical or horizontal operation.

Wollensak**Model 5200**18 $\frac{7}{8}$ x 9 $\frac{1}{4}$ x 7 $\frac{5}{16}$ inches
\$179.95

Stereo preamp deck with similar features to model 5280 except for power output.

Wollensak
Model 5250
 16 x 10 x 7 inches
 \$189.95



Self-contained version of Model 5280 with dynamic microphone, side mounted speakers measuring 4 x 6 inches and other features similar to model 5280.

Wollensak
Model 5280
 19 $\frac{3}{4}$ x 10 $\frac{1}{4}$ x 10 inches
 \$219.95



Stereo slim-line wall and bookshelf unit with same deck as Model 5300. Includes matching swing-out speakers (each containing a six inch speaker). Features similar to Model 5300. Walnut finish. Dynamic microphone included.

Wollensak
Model 5300
 20 x 10 $\frac{5}{8}$ x 8 $\frac{3}{8}$ inches
 \$279.95

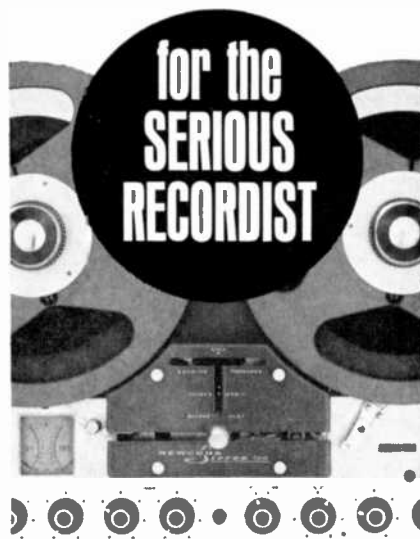
Features self-contained reel locks, individual tone and volume controls, two VU meters, instant pause control, four digit tape counter, automatic shutoff, self-adjusting brake system, automatic head demagnetization, monitoring facilities, stereo headphone jack, microphone. Vertical or horizontal operation. Tape speeds 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$, 15 i.p.s. Frequency response 40 to 17,000 c.p.s. \pm three db at 7 $\frac{1}{2}$ i.p.s. NARTB standard equalization. Wow and flutter less than 0.25% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 48 db at 7 $\frac{1}{2}$ i.p.s. Power output three watts EIA per channel, five watts peak per channel. Walnut finish.

Magnavox: Write for more information to: Magnavox Co., 270 Park Avenue, New York City
Transworld: Write for information to: Transworld, Inc., New Orleans, La., 70115

Victorian: Write for more information to: Victorian Electronics, Ltd., 100 East State St., Peoria, Ill.

Walkie Recordall brand: Write for information to: Miles Reproducer Co., Inc., 598 Broadway, New York 10012

Waters Conley (Phonola): Write for information to: Waters Conley Corp., Rochester, Minn.



NEWCOMB TX10

PORTABLE PROFESSIONAL
 STEREOGRAPHIC RECORDER

Think of the many advantages the professional features of the Newcomb TX10 will provide for your recording activities...

10 $\frac{1}{2}$ " REELS

give you long, editable recording time in one direction. To get the same time with smaller reels you are forced to use thinner tape or slower speed — both of which are undesirable when you want to make the best possible tape.

ADAPTABLE TO
**LONG LOW IMPEDANCE
 MIKE LINES WITH PLUG-IN
 MATCHING TRANSFORMERS,
 BROADCAST TYPE MIKE CONNECTORS**
 — features seldom found in a portable recorder and yet most important in obtaining professional results — permit you to use top quality microphones, to place them properly, and to operate the recorder a convenient distance from the subject.

SUPERIOR, SAFER TAPEHANDLING



A STUDIO IN A SUITCASE!

Here are a few of the studio features built into the TX10:

- 4-digit counter
- Choice of 2- or 4-track models
- Operates vertically or horizontally
- Mixing controls for both channels
- Differential braking on both reels
- Hysteresis synchronous motor
- Dynamically-balanced flywheel drive
- Three heads
- No pressure pads on heads
- Two illuminated vu meters arranged pointer-to-pointer
- Two speeds — 7 $\frac{1}{2}$ or 3 $\frac{3}{4}$ IPS standard, 15 or 7 $\frac{1}{2}$ IPS on special order
- Push-button speed change automatically provides speed-frequency correction
- 100 kc bias and erase oscillators with indicator lights
- Cybernetically engineered — the natural thing to do is the right thing to do — all tape movement controlled through a central joystick.
- \$750.00 less case — Carrying case, mounting hardware for rack or cabinet, portable 2-channel amplifier and reproducer systems are available.

For a complete description of the Newcomb TX10, write today —

NEWCOMB AUDIO PRODUCTS CO., Dept. TR-66
 6824 Lexington Ave., Hollywood, Calif. 90038

Circle 50 on Reader's Service Card

Tape Recording

(Continued from page 13)

machines are semi-automatic—i.e. the operator must switch manually to the second set of heads required.

AUTOMATIC SHUTOFF One of the less expensive of recorder features, this is a device which turns the tape transport off automatically when tape breaks or when reel of tape has finished playing. There are various types of mechanisms, some of which also shut off the recorder amplifiers.

AUTOMATIC THREADING If you're worried about being able to thread reels of tape, this feature may appeal to you. You simply drop the tape in a slot or loop it over a reel and press the start button. The recorder anchors the tape automatically and begins playing or recording.

SOUND ON SOUND AND SOUND WITH SOUND These devices make it possible to add sound to an existing recording (sound on sound) and to listen to one track while recording on a parallel track (sound with sound). They are of particular benefit to students of music or foreign languages, but they can be used to create multiple recordings and achieve a variety of comic effects.

PHOTO SYNCH If your hobbies include photography as well as tape, you may want this feature. It enables a recorder to provide background music and commentary for a slide show, changing the slides automatically by means of beep tones or foil tabs on the tape itself. In addition to those recorders with built-in photo synch units, there are a number of separate synchronizers on the market suitable for use with virtually any tape recorder.

VOLUME INDICATORS—The three most common types are a flashing neon bulb, a cat's eye (a green tube with converging vectors) and a needle type, known in the trade as a VU meter. The last kind is preferred by professionals because it provides a numbered scale which, if the meter is accurate, serves as a point of reference for future recording. A good neon tube or cat's eye can prove more reliable than an inaccurate meter for amateur recording purposes.

REMOTE CONTROL Some remote controls simply turn a re-

cord on or off. Others set and change volume level, start or stop the tape transport, even back up the tape. Examples are voice-actuation devices, foot pedals supplied with some machines for the convenience of typists, a start-stop switch on the microphone, and others. Price varies depending on type.

Once upon a time, there were relatively few machines whose job was to pull a strip of tape past two or three electromagnets at a rela-

tively even speed. The machine which produced the best sound and did the job most efficiently became the best-seller. So competitors began adding features—sound on sound, automatic reverse, stereo, and a host of others. Each of these features enables the recorder to do a particular job well—but each adds to the cost of the machine. The problem for the prospective purchaser is to determine which features he needs and which he can do without.

**NOW YOU CAN BUILD YOUR
TAPE COLLECTION AT**

DISC PRICES!

**CAPITOL and ANGEL
3³/₄ IPS TAPES**

are priced equivalent to Stereo Disc Records and afford you the opportunity to add to your tape collection more frequently.

**SEE YOUR DEALER
TODAY AND CHOOSE
FROM OVER**

125 RELEASES

**Of top Popular and Classical
Artists and Repertoire**

**For perfect recordings every time use
'Capitol Professional Length Recording Tape'**



Circle 37 on Reader's Service Card



How to Buy a Tape Deck

by Frank Peters

A tape deck, technically, is a tape transport mechanism (feed and takeup reels, motor or motors, belts, and metal plate) plus two or more tape heads. The original tape decks contained no loudspeakers and no amplification of any type. They were intended for playback of prerecorded tapes through a high fidelity component system. Today, there are dozens of decks on the market—some with no amplification, some with record amplifiers and some with both record and playback amplifiers. All the latter need to produce sound is a pair of high efficiency loudspeakers.

The main advantage of the tape deck in any price range is economy—an economy which can be realized most by the owner of a component system, although many of today's better stereo consoles and phonographs will accept the input from a tape recorder. If you have, say, \$300 to spend for a recorder and you already own a perfectly good pair of speakers and an amplifier (whether they be separate components or built into a cabinet), you may not want to duplicate these by buying them again in a complete tape recorder. Instead, you can spend all of the \$300 on a deck which might be found in a complete recorder costing up to \$500. Besides price, decks lend themselves to attractive built-in installations. Some of the smaller decks may be installed in a console on a pull-out drawer like a record changer, or mounted on a shelf in an attractively styled wood base. Interior decorators find the deck a much more versatile a piece of equipment than the complete recorder, which often winds up stored in the closet.

Decks have some disadvantages compared to complete recorders, too. Because they're dependent on external amplification and speakers, they're not as flexible as the cord portable which can be taken to parties, to the cottage during the summer, or back and forth from home to school. Most decks don't come with carrying case, making portability even more difficult.

Many tape decks have been lifted by their manufacturers right from complete recorder models in the line. Thus it's easy for the prospective purchaser to compare prices on the deck and the complete unit to see just how much duplication of amplifiers and speakers costs.

Here, then, are the tape decks available for 1966, together with the manufacturer's suggested retail price for each unit.

Interior decorators find the deck a much more versatile a piece of equipment than the complete recorder.

**Ampex
PRIO series**
19 x 14 x 6 inches

Two-speed full, half or quarter-track studio-type tape recorder in various configurations. Electro-dynamic clutch system, Four-position head assembly with separate erase, record and playback heads, extra position for optional four-track playback or special requirements. Plug-in equalizers for NAB, AME or CCIR curves, push-button controls, automatic shutoff switch, hysteresis synchronous motor, horizontal or vertical operation, A/B monitor switches and high-low speed equalization switches. Sound-on-sound with two-channel (PRIO-2 series) models, and with PRIO-4, four-track. Frequency response at 7½ i.p.s. 40 to 12,000 c.p.s. at a two decibel variance. Signal-to-noise ratio better than 55 db at 7½ and 15 i.p.s. Wow-and-flutter less than 0.15% at 7½ and 15 i.p.s. Illuminated 3-inch VU meters. PRIO-1 series is monophonic.

PRIO-1
\$1045

No. 96001-09 full track, 7½ and 15 i.p.s.
No. 96001-03 half track, 3¾ and 7½ i.p.s.
No. 96001-01 half track 7½ and 15 i.p.s.

PRIO-2
\$1245

No. 96000-03 two-channel, two track, 3¾ and 7½ i.p.s.
No. 96000-01 two-channel, two track 7½ and 15 i.p.s.

PRIO-4
\$1295

No. 4018004-01 four track, 3¾ and 7½ i.p.s.

**Ampex
Model 1150**
18½ x 13 x 7½ inches
\$399



Tape deck similar to model 850 with automatic threading, automatic tape reversing.

**Ampex
Model 1160**
19 x 13½ x 7½ inches
\$449



Portable deck similar to model 860 with one microphone, automatic threading, automatic tape reversing.

**Ampex
Model 1165**
19 x 13½ x 7½ inches
\$469

Table-top deck similar to model 865 with one microphone, automatic tape threading, automatic tape reversing. In walnut.

**Ampex
Model 850**
18½ x 13 x 7½ inches
\$269



Solid state stereo deck with preamps only. Speeds are 1⅞, 3¾, 7½ i.p.s. Dual capstan drive (no pressure pads), record level VU meters, interlocked tape controls, automatic shut-off, automatic tape-lifters, digital counter, safety record lock. 50 to 15,000 c.p.s. guaranteed minimum frequency response ±4 db. 46 db signal-to-noise ratio. Wow and flutter 0.15% (all at 7½ i.p.s.). One-year warranty.

**Ampex
Model 860**
19 x 13½ x 7½ inches
\$289



Portable deck with preamps and amps. Power output of 16 watts (four watts per channel guaranteed). No speakers. Features and frequency response similar to model 850. One year warranty.

**Ampex
Model 865**
19 x 13½ x 7½ inches
\$309



Table top deck with preamps and amps. Features and performance similar to model 850. Includes two microphones. One year warranty.

**Ampex
Model 890**
19 x 13½ x 7½ inches
\$399



Same deck and electronics as models 860 and 865. Includes fingertip reversing.

**Ampex
602-1 Series**
16½ x 13¾ x 8 inches

Vertical styled mono tape deck in various configurations. Three heads, vertical or horizontal operation, VU meter, separate record and playback preamplifiers, headphone jack, monitoring facility. Frequency response 40 to 15,000 c.p.s. plus-or-minus two decibels. Wow and flutter under 0.17 per cent. Signal-to-noise ratio over 57 db in full track, 55 db in half track. Speed 7½ i.p.s. Half-track head. Portable case.

Model 602-01**Model 602-17**Same, but $3\frac{3}{4}$ i.p.s.**Model 602-02**Same, Full track, $7\frac{1}{2}$ i.p.s.**\$625****Model 602-03**Same, but unmounted, $7\frac{1}{2}$ i.p.s.**Model 602-04**Same, Full track, $7\frac{1}{2}$ i.p.s., unmounted**Model 602-05**Same, Full track, $3\frac{3}{4}$ i.p.s., unmounted**\$575****Ampex
602-2 Series****23 x $13\frac{3}{4}$ x 8 inches****\$875****Model 6022-01****Model 6022-07**Same, but $3\frac{3}{4}$ i.p.s.**Model 6022-02**Same, $7\frac{1}{2}$ i.p.s., unmounted**\$795**

Vertical styled portable two track stereo tape deck in various configurations. Three heads, vertical or horizontal operation, VU meters, headphone jacks, monitoring facilities. Wow and flutter under 0.17 per cent. Frequency response 40 to 15,000 c.p.s., plus-or-minus two decibels. Signal-to-noise ratio over 55 db. Speed $7\frac{1}{2}$ i.p.s.

Ampex**Model 2050** **$18\frac{5}{8}$ x 13 x 7 inches****\$479**

Four-track stereo deck with pre-amplifiers, automatic reversing in playback, three speeds ($1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i.p.s.) dual capstan drive, twin neon level indicators, three heads, hysteresis motor, slide projector actuator, automatic threading, automatic tape lifters, automatic shutoff, digital counter. Frequency response 30 to 18,000 c.p.s. at $7\frac{1}{2}$ i.p.s., plus-or-minus 2 db. Signal-to-noise ratio 53 db at $7\frac{1}{2}$ i.p.s. Wow and flutter 0.08% at $7\frac{1}{2}$ i.p.s.

Brenell**Model Mark IV****15 x $11\frac{1}{2}$ x $3\frac{3}{4}$ i.P.S.****\$144.50****Model IVB**

Same as above, but with two-track stereo heads for record, erase and playback

\$182.87**Model Mark 5**Same as Mark IV, but with additional speed ($1\frac{7}{8}$ i.p.s.)**\$169.50****Model Mark 5B**Same as Mark IVB, but with additional speed ($1\frac{7}{8}$ i.p.s.)**\$199.50**

Three-speed ($3\frac{3}{4}$, $7\frac{1}{2}$, 15 i.p.s.) monophonic tape deck chassis less electronics. Requires pre-amp and amplifier. Features three motors, tuning eye level indicator, digital counter. Frequency response 50 to 15,000 c.p.s., plus or minus 3 db. Wow and flutter less than 0.2 per cent.

Califone**Model 3549** **$12\frac{1}{4}$ x $8\frac{3}{8}$ x $5\frac{1}{2}$ inches****\$69.95**

Stereo playback with digital counter, trident lever operating control. Tape speeds $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ i.p.s. Frequency response 75 to 14,000 c.p.s. RMS Wow and flutter better than 0.15% at $7\frac{1}{2}$ i.p.s.

Califone**Model 3550** **$13\frac{1}{2}$ x $9\frac{1}{2}$ x 14 inches****\$169.95**

Portable stereo unit with two microphones, tone controls, safety interlock, VU meter, two mike inputs, two radio-phonos inputs, outputs for external speakers or headphones, digital counter, two seven-inch speakers. Tape speeds $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ i.p.s. Wow and flutter better than .15% at $7\frac{1}{2}$ i.p.s. Weighs 25 pounds.

Cipher**Model Denon 800** **$19\frac{1}{2}$ x $16\frac{1}{2}$ x 9 inches****\$450**

Two-speed ($3\frac{3}{4}$, $7\frac{1}{2}$ i.p.s.) four-track stereo tape deck with three motors, no-pressure-pad tension system, sound-on-sound, echo effects, solenoid push button controls and breaks, instant reel size compensator, mixing facilities, horizontal or vertical operation, digital counter, automatic shutoff, optional remote control facilities, two VU meters, monitoring facilities. Response 30 to 15,000 c.p.s., plus-minus 2 db at $7\frac{1}{2}$ i.p.s. Wow and flutter less than 0.15%. Signal-to-noise ratio 52 db.

Concertone**Model 804** **$14\frac{9}{16}$ x 13 x $5\frac{7}{16}$ "****\$349.95**

Four-track stereo transistORIZED bi-directional deck, six heads, three motors, VU meters, digital counter, add sound, add echo. Plays and records in either direction, automatically via Reverse-O-Matic. Runs at $3\frac{3}{4}$ and $7\frac{1}{2}$ i.p.s. Frequency response 30 to 18,000 c.p.s. at $7\frac{1}{2}$ i.p.s. Flutter and wow less than 0.2% rms at $7\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db. Mikes optional.

Concord
Model R 1000
 16¾ x 14¾ x 7½ inches
 \$449.95

Transistorized four-track stereo deck with automatic reversing in playback, four heads, three motors, dual movement level meter, optional remote control, A/B source tape monitoring, built-in echo, sound-on-sound, push button operation, automatic shutoff, automatic tape lifters, index counter, instant stop, ¾ and 7½ i.p.s. speeds. Signal-to-noise ratio better than 60 db. Wow and flutter less than .15% rms at 7½ i.p.s. Frequency response 40 to 16,000 c.p.s. at 7½ i.p.s., plus or minus two decibels. Optional mikes.

SS722
\$995

Same, but records and plays two-track stereo. Two VU meters.

Crown
Model SS 822
 19 x 17½ inches
\$1,295



Two-track stereo tape deck with three motors, 10½-inch reel capacity, push button controls, automatic stop, plug-in head assembly, four types of monitoring, two VU meters, plug-in circuit modules. Operates at 15, 7½ and ¾ i.p.s. Frequency response at 7½ i.p.s. 30 to 20,000 c.p.s. two decibel variance. Signal-to-noise ratio 56 db. Wow and flutter, 0.09%, two decibel variance.

Concord
Model R 2000
 17 x 15¾ x 7 inches
\$795



Tube-type four-track stereo deck with automatic reversing in playback, four heads, three motors, dual movement level meter, remote push button control, automatic shutoff, push button operation, plug-in head assembly, ¾ i.p.s. and 7½ i.p.s. speeds, sound-on-sound, automatic tape lifters, A/B source tape monitoring, 11 tubes. Frequency response 30 to 16,000 c.p.s. at 7½ i.p.s., plus-or-minus two decibels. Wow and flutter less than .12% at 7½ i.p.s. Signal-to-noise ratio better than 60 decibels. Also available are two-track head assemblies.

Model SS 824
\$1,295

Same, but four-track stereo, operation at 7½, ¾ and 1⅞ i.p.s.

Crown
Model SX 724
 19 inch mounting
\$895

Solid-state professional type audio tape deck, four-track stereo, push-button solenoid control, 10½-inch reel capacity, A/B monitor switch, two VU meters, 7½ and ¾ i.p.s. speeds, automatic tape stop, headphone outputs on panel, sound-with-sound. Frequency response at 7½ i.p.s. 30 to 20,000 c.p.s., plus-or-minus two db. Signal-to-noise ratio 54 db. Wow and flutter 0.09%.

Crown
Model A 314
 19 x 12¼ x 7½ inches
\$495

Automatic self-reversing transport for playback only, three motors, two speeds (¾ and 7½ i.p.s.) Frequency response 30 to 15,000 c.p.s. at 7½ i.p.s. two decibel variance. For half-track mono operation. 10½-inch reel capacity.

Model SX 722
\$895

Same, but two-track stereo. WRITE FOR ADDITIONAL INFORMATION for various units in various configurations.

Model A 324
\$520

Same, but for quarter-track stereo playback.

Crown
Model SS702
 19 x 15¾ x 7½ inches
\$795



Half-track mono record-play tape deck, solid-state, three speeds (1⅞, ¾, 7½ i.p.s.), three heads, three motors, push-button solenoid control, automatic stop, 10-inch reels, five-inch VU meter, A/B monitoring, echo effect. Frequency response 50 to 25,000 c.p.s., two decibel variance at 7½ i.p.s. Signal-to-noise ratio 54 db. Wow and flutter 0.09%.

Dynaco
Model Beocord 2000
 18 x 14½ x 9 inches
\$498

Three-speed (1⅞, ¾, 7½ i.p.s.) solid-state, three-head four-track stereo deck, hysteresis synchronous motor, three stereo mixing inputs, pressure-padless system, built-in splicing aid, 8-watt amplifiers, headphone jack on panel, VU meters, automatic shutoff, cueing, sound-on-sound, echo facilities, monitoring facilities, pause control, tape counter, plug-in circuit modules. Frequency response 40 to 16,000 c.p.s. at 7½ i.p.s., plus-or-minus two decibels. Wow and flutter 0.075% RMS. Signal-to-noise ratio better than 50 db.

Model SS724
\$995

Same as above, but records and plays quarter-track stereo, two VU meters.

Ferrograph
Model 424
 18½ x 17½ x 9¾ inches
\$595

Two-speed (¾, 7½ i.p.s.) British-made stereo (four track) deck with automatic stop, monitoring facilities, VU meters, echo effects, sound-on-sound, tape position indicator, front panel connections, three motors. Wow and flutter 0.16%. Also available in other configurations as Models 5A/N and 5A/H.

Model SS724C
\$1,020

Same as SS724 but records and plays quarter track stereo and plays two-track stereo, two VU meters.

GemSonic

Model 803

11 $\frac{7}{8}$ x 8 $\frac{1}{2}$ x 6 inches

\$129.95



Stereo tape deck with solid state circuitry, twin VU meters, automatic shutoff, vertical and horizontal operation, digital counter. Same response characteristics and tape speeds as model 802. Weighs 12 pounds.

GemSonic

Model 804

12 x 8 $\frac{1}{2}$ x 7 inches

\$199.95

Stereo tape deck with three heads and hysteresis synchronous motor, solid state separate record, playback stereo pre-amp and recording oscillator, separate recording and playback volume controls for left and right channels, two monitor outputs. Twin VU meters, automatic shutoff, digital counter. Frequency response 40 to 17,000 c.p.s. \pm 2 db. Wow and flutter less than 0.15% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db.

Magnecord

1020

13 $\frac{3}{64}$ x 17 $\frac{9}{16}$ x 6 $\frac{5}{8}$ inches

\$570

Solid-state two speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track stereo tape deck (with optional walnut base at \$25), three heads, hysteresis synchronous drive motor, two split-capacitor reel drive motors, two VU meters, automatic shutoff, 8 $\frac{1}{4}$ -inch reel capacity, digital counter, dual headphone jacks. Flutter and wow .18 per cent at 7 $\frac{1}{2}$ i.p.s. Frequency response 15 to 18,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., two decibel variance. Signal-to-noise ratio 52 db at 7 $\frac{1}{2}$ i.p.s.

Magnecord

1022

19 x 15 $\frac{3}{4}$ x 12 inches

\$739

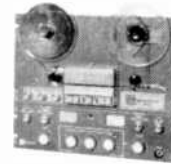
Two-track solid-state stereo deck, two speeds (7 $\frac{1}{2}$, 15 i.p.s.) with selectable two-track erase, two-track record, two-track play and quarter-track play heads. Hysteresis synchronous drive motor, two reel drive motors, two VU meters for record and playback levels, monitoring from tape on source, simultaneous record and playback, switchable equalization, earphone monitoring, push-button controls. Frequency response 30 to 16,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s., plus-or-minus 2 db. Signal-to-noise ratio 53 db, both speeds. Flutter and wow 0.17% at 7 $\frac{1}{2}$ i.p.s.

Magnecord

1021

19 x 15 $\frac{3}{4}$ x 12 inches

\$659



Monophonic solid-state tape deck with full-track erase, record and half-track play heads. Two speed (3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ i.p.s.) hysteresis synchronous motor, two separate reel drive motors, simultaneous record and playback, tape source monitoring, VU meter, remote start-stop, position for fourth head. Wow and flutter 0.2 per cent at 7 $\frac{1}{2}$ i.p.s. Frequency response 20 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. plus-or-minus two decibels. Signal-to-noise ratio 53 db at both speeds.

Magnecord

1024

19 x 15 $\frac{3}{4}$ x 12 inches

\$648

Solid-state two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) four-track stereo deck, two VU meters, push-button controls, hysteresis synchronous drive motors, optional position for fourth head, 8 $\frac{1}{4}$ -inch reel capacity, monitor source, automatic shutoff. Frequency response at 7 $\frac{1}{2}$ i.p.s. 15 to 18,000 c.p.s., two decibel variance. Wow and flutter 0.18 per cent at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 51 db at 7 $\frac{1}{2}$ i.p.s. Also available in 1 $\frac{7}{8}$, 3 $\frac{3}{4}$, and 7 $\frac{1}{2}$ -15 i.p.s. configurations.

Same, with fourth head (two-channel stereo play) installed \$673

Newcomb

Model TX10-2

12 $\frac{7}{8}$ x 16 $\frac{3}{4}$ x 9 $\frac{1}{2}$ inches

\$750



Two-speed (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) professional-size tape deck with 10 $\frac{1}{2}$ -inch reel capacity. Two-track stereo or mono, hysteresis motor, three heads, horizontal and vertical operation, four-number counter, separate controls for each channel, sound-on-sound, monitor before and after source, mixing controls, automatic shutoff, dual lighted VU meter, "joystick" transport control. Frequency response 30 to 18,000 c.p.s., 2 db reference at 7 $\frac{1}{2}$ i.p.s. Wow and flutter below 0.15%. Signal-to-noise ratio 55 db.

Newcomb

Model TX10-4

\$750

Same as Model TX10-2, but four-track stereo or mono operation.

Model TX10-215

\$825

Same as Model TX10-2 but with 7 $\frac{1}{2}$ and 15 i.p.s. speeds. Special order.

Model TX10-415

\$825

Same as Model TX10-4 but with 7 $\frac{1}{2}$ and 15 i.p.s. speeds. Special order.

OKI**Model 300D**

11 $\frac{7}{8}$ x 6 x 10 $\frac{5}{8}$ inches
\$139.90



Four-track stereo tape deck with solid state circuitry, automatic shutoff, safety lock, two VU meters, digital counter, tape lifters, vertical or horizontal operation, sound-on-sound, sound-with-sound capabilities instant pause control. Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. Frequency response 40 to 18,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db. Wow and flutter less than 0.2% at 7 $\frac{1}{2}$ i.p.s.

Panasonic**Model RS1000S**

21 x 16 x 9 inches
\$699.95



Stereo deck with two solid state recording amplifiers, two playback preamps, four laminated heads, three motors, automatic tape reverse, automatic shutoff, push-button operation, four-unit digital counter, VU meters, tape head or sound source monitoring, public address capacity, pause control, sound-on-sound. Tape speeds 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s. 25 to 20,000 c.p.s. frequency response at 7 $\frac{1}{2}$ i.p.s. Wow and flutter less than 0.15% at 7 $\frac{1}{2}$ i.p.s. Signal-to-noise ratio 50 db.

RCA**Model MGC 71**

6 $\frac{3}{8}$ x 13 $\frac{5}{8}$ x 11 $\frac{13}{16}$ inches
\$169.95

Solid state four-track stereo tape cartridge deck, two speeds (3 $\frac{3}{4}$, 1 $\frac{7}{8}$ i.p.s.), storage space, walnut base, tone controls, stereo headphone jack, sound-plus-sound, VU meter, digital counter, automatic shutoff. Preamp response 15 to 15,000 c.p.s. at fast speed. With two mikes.

RCA**Model MGG72**

7 $\frac{1}{2}$ x 13 $\frac{7}{16}$ x 14 $\frac{11}{16}$ inches
\$199.95

Solid state four-track stereo phonic tape deck, three speeds (1 $\frac{7}{8}$, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) pause switch, automatic shutoff, tone controls, VU meter, digital counter, stereo headphone jack, public address switch, sound-plus-sound. Preamp response 50 to 15,000 c.p.s. With two microphones.

Rheem-Califone**Model 3110**

16 $\frac{1}{4}$ x 13 $\frac{3}{4}$ x 7 $\frac{1}{2}$ inches
\$189.95

Four-track stereo deck, three speeds, digital counter, VU meter, two heads, built-in amplifier for direct speaker or headphone connection, automatic shutoff. Response 40 to 18,000 c.p.s.

Model 3170

16 $\frac{3}{4}$ x 14 x 9 inches
\$599.95



Push-button-operated four-track stereo deck with automatic reverse in playback mode only, digital counter, echo effect, sound-with-sound, sound-on-sound, three heads, three motors, two VU meters, automatic stop. Response to 19,000 c.p.s. Optional (\$49.95) 10 $\frac{1}{2}$ -inch reel adaptors. Optional (\$49.95) remote control.

Model 3160

\$499.95

Same as Model 3170 but without automatic reverse playback capability.

Model 3100

15 x 12 $\frac{1}{2}$ x 8 inches
\$249.95

Four-track stereo deck, two speeds, sound-with-sound, two VU meters, pause control, edit guide, automatic stop. Response 30 to 18,000 c.p.s.

Roberts**Model 1630W**

13 $\frac{1}{4}$ x 7 $\frac{1}{2}$ x 13 $\frac{3}{4}$ inches
\$249.95

Tape deck version of Model 1630 portable, in walnut housing, less speakers.

Sony**Model 250A**

14 $\frac{1}{4}$ x 11 $\frac{3}{8}$ x 6 $\frac{1}{2}$ inches
\$149.50

Four-track stereo and mono playback only deck, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.), solid-state circuitry, automatic shutoff, automatic tape lifter, pause control, digital counter. Frequency response 50 to 15,000 c.p.s. at top speed, three decibel variance. Signal-to-noise ratio better than 50 db. Wow and flutter less than 0.1%.

Sony**Model 350**

17 $\frac{7}{8}$ x 12 $\frac{5}{16}$ x 6 $\frac{1}{2}$ inches
\$199.50



Four-track stereo deck, solid state, two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) three heads, two VU meters, tape/source monitor switch, vertical or horizontal operation, pause control, digital counter, automatic shutoff switch, headset monitor jack. Frequency response 50 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s. two decibel reference. Signal-to-noise ratio better than 50 db. Wow and flutter less than 0.19%. Includes walnut grained base.

Model 350C

18 $\frac{7}{8}$ x 17 x 6 $\frac{9}{16}$ inches
\$219.50

Same as Model 350 but in portable gray and satin chrome carrying case.

Sony**Model 777**

15 $\frac{7}{8}$ x 5 $\frac{3}{4}$ x 5 $\frac{1}{2}$ inches
\$695



Solid state four-track stereo deck, three motors, push button relay controls, remote control (included in price), modular circuit boards, microphone and line mixing, tape and source monitoring, two VU meters, automatic tape lifters, "Trac-Stan" drive to reduce tape slippage, digital counter. Two speeds (3 $\frac{3}{4}$, 7 $\frac{1}{2}$ i.p.s.) Frequency response 30 to 16,000 c.p.s. at top speed, two decibel variance. Signal-to-noise ratio 50 db or better. Wow and flutter 0.09% RMS or better. Available with two-track heads. Optional mixer (Model MX777, \$175.50) provides for advanced recording techniques.

Stancil-Hoffman
Model R-70 Series
 8¾ x 19 x 11½ inches
 \$790 to \$1,075

Basic model tape deck available in single speeds ranging from 15/32 to 7½ i.p.s. and in six different head configurations, including 8-track on special order. Features include 8 ¾-inch reels, three motors, transistorized plug-in electronics, bias indicator lamp, electro-dynamic braking, four-digit counter, push-button operation, automatic tape lifters, monitoring facilities. Frequency response at 7½ i.p.s. 50 to 12,000 c.p.s., plus-minus 2 db. Wow and flutter at 15/32 less than 0.5% with decreasing amounts at higher speeds. Also available as playback decks only in six different models ranging from \$692.50 to \$790.

Tandberg
Model 64
 16 x 12 x 6½ inches
 \$498



Three speed (1⅞, 3¾, 7½ i.p.s.) four-track stereo tape deck in teak base, four-digit counter, three heads, stop-start pause button, level meters, sound-on-sound, echo effects, track adding, direct monitor, automatic tape stop, hysteresis motor. Frequency response 40 to 16,000 c.p.s. at 7½ i.p.s., two decibel variance. Wow and flutter better than .1 per cent at 7½ i.p.s. Signal-to-noise ratio at least 53 db.

Model 62
 Same as above but with half-track heads
 \$498

Tandberg
Model 65
 16 x 12 x 6 inches
 \$199.50

Three speed (1⅞, 3¾, 7½ i.p.s.) four-track stereo playback only tape deck designed for installation into hi-fi systems with own electronics. Includes playback head and provision for adding erase and record heads. Synchronous motor, four-digit counter. Frequency response 30 to 16,000 c.p.s. at 7½ i.p.s., plus-or-minus 2 db.

Tapesonic
Model 70ESF
 24½ x 19 x 7 inches
 \$565

Four-track professional-type stereo deck with 10½-inch reel capacity, three speeds (3¾, 7½, 15 i.p.s.) three heads, three motors, two 4½-inch VU meters, electro-dynamic braking, Channel mixing, automatic stop, automatic tape lifters, no pressure pads, digital counter, sound-on-sound facilities. Response at 7½ i.p.s. 30 to 20,000 c.p.s., plus-minus 2 db. Wow and flutter 0.12%. Signal-noise ratio 53 db.

Tapesonic
Model 70EHT
 20 x 19 x 7 inches
 (approx.)
 \$428.75

Similar in most respects to Model 70 ESF except monophonic two-track operation, using one VU meter.

Model 70EFT
 20 x 19 x 7 inches
 (approx.)
 \$488.50

Same as model 70EHT but full track operation, one VU meter.

Uher
Model 9000
 15 x 7 x 13 inches
 \$499.95



Stereo tape deck with equalization selection for CCR or NAR-TB standards, vernier adjustment of playback head for exact azimuth alignment, A/B switch for sound before and after recording, four digit counter, solid state circuitry, illuminated VU meters, tape lifters, automatic voice control, slide projector synchronization, removable tape head covers. Frequency response 20 to 20,000 c.p.s. ± two db at 7½ i.p.s. Wow and flutter 0.1% at 7½ i.p.s.

Viking
Model 87 Super Pro Series
 14 x 20½ x 10 inches

Portable tape deck in various head and amplifier configurations, two-speed operation (3¾, 7½ i.p.s.) Three-head models offer sound-on-sound and sound-with-sound recording. Digital counter, automatic shutoff, integrated rotary control. Professional-type VU meters used, front panel jacks for microphone and headphones. Flutter and wow less than 0.2% RMS at 7½ i.p.s.

Model 87ES
 \$382.35

Half-track stereo and mono record and playback, two heads.

Model 87ERQ
 \$407.15

Half-track record, stereo and mono; quarter and half-track play, stereo and mono, three heads.

Model 87 RMQ
 \$398.80

Quarter-track record, quarter and half-track playback, stereo and mono, three heads.

Model 87 ESM
 \$414

Half-track only record and playback, stereo and mono, three heads.

Viking
Model 88 RMQ
 13 x 13 x 6⁵/₈ inches
 \$339.95

"Stereo Compact" utilizing Model 87 deck mechanism, with dual-channel preamp system, two VU meters, normal-duplicate switch for recording directly from heads of another recorder, sound-on-sound, sound-with-sound, head shift. Frequency response 30 to 18,000 c.p.s., plus-or-minus 3 db at 7¹/₂ i.p.s. Signal-to-noise ratio, 55 db at 7¹/₂ i.p.s. Wow and flutter, less than 0.2% at 7¹/₂ i.p.s. Quarter-track record, stereo or mono, playback in quarter or half track, stereo or mono, three heads.

Model 88ERQ
 \$347.95

Same, but offers half-track erase, half-track recording, quarter-track playback heads. Records half-track mono or stereo, plays half-track or quarter track, mono or stereo.

Viking
Model Studio 96
 19 x 12¹/₄ inches
 Various prices

Professional tape transport with 10¹/₂-inch reel capacity, in variety of head and speed combinations. Offered in 15 and 7¹/₂ i.p.s.; 7¹/₂ and 3³/₄ i.p.s. and 3³/₄ and 1⁷/₈ i.p.s. combinations. Digital counter, reel size selector switch, cue control, three motor driven system, dynamic braking, automatic tape stop. Wow and flutter less than 0.1% at 7¹/₂ i.p.s. Comes as Models 96FTRM, 96RM, 96ESM, and 96RMQ at \$624.95, \$585.45, \$605.45 and \$598.95, respectively. Uses matching solid-state amplifiers, Models RP110-R2 or RP120-R2, priced at \$299 and \$399 respectively.

Viking
Model 220 Retro-Matic
 \$860

Quarter-track stereo deck, two speeds (3³/₄, 7¹/₂ i.p.s.), with two-directional playback, remote control ready, push buttons, 12-watt integrated amplifier, digital counter, full complement of inputs and outputs, three motors, solenoid differential brake, automatic shutoff, illuminated VU meters. Frequency response 20 to 25,000 c.p.s. at 7¹/₂ i.p.s., three decibel variance. Signal-to-noise ratio 55 db. Wow and flutter less than 0.2%.

Viking
Model 807
 6¹/₂ x 13¹/₂ x 15 inches
 \$124.95



Tape playback-only deck for mono or stereo quarter or half-track tapes via head shift lever. Two speeds (3³/₄, 7¹/₂ i.p.s.) "Edit-Eze" head cover allows operator to edit, cue and thread tape with ease. Automatic run-out switch, hyperbolic playback head without pressure pads, tape lifters. Wow and flutter less than 0.2% RMS at 7¹/₂ i.p.s.

Viking
Model 78 HQ
 13 x 9¹/₂ x 3³/₄ inches
 \$110.50

Two-speed tape deck. **Speeds:** 3³/₄, 7¹/₂ i.p.s. Capstan drive motor is 4-pole unit. Wow and flutter less than 0.2% RMS. Requires RP83 or RP83-3 amplifier or equivalent. Quarter-track stereo, play and record. Other models available with different head assemblies: 78P, 78R, 78Q, 78RQ, 78RM, 78S and 78ES, from \$85 to \$113.55. Portable case which accommodates deck and one or two RP83 amplifiers optional at \$34.

Viking
Model 87 Series
 13 x 9¹/₂ x 5¹/₂ inches

Two speed (3³/₄, 7¹/₂ i.p.s.) tape deck, digital counter, automatic shutoff switch. Wow and flutter 0.2% RMS at 7¹/₂ i.p.s. Requires amplifier (s).

Model 87P
 \$138

Playback only, half-track mono.

Model 87R
 \$144

Recording and playback, half-track mono.

Model 87RQ
 \$165.25

Recording half-track mono, playback half and quarter-track, stereo and mono.

Model 87Q
 \$141.05

Playback only, quarter and half-track.

Model 87ES
 \$157.85

Record and playback, half track stereo and mono.

Model 87ERQ
 \$178.65

Half-track record, stereo and mono, quarter and half-track playback, stereo and mono.

Model 87RMQ
 \$170.30

Quarter-track record, quarter and half-track play, stereo and mono.

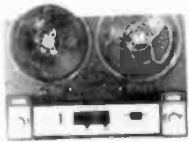
Model 87ESM
 \$185.50

Half-track only record and play, stereo and mono.

Wollensak

Model 1281

6 1/2 x 15 1/2 x 11 3/8 inches
\$169



Four-track stereo deck, two speeds (3 3/4, 7 1/2 i.p.s.), two VU meters, tab controls, digital counter. Full complement of inputs and outputs. Frequency response at 7 1/2 i.p.s. 50 to 17,000 c.p.s., three decibel variance. Signal-to-noise ratio better than 45 db. Wow and flutter less than 0.3 per cent.

Model 7100
\$399.95

Same, but with built-in speakers, 9-watts-per-channel output, two mikes.

Wollensak

Model 7000

7 x 14 1/2 x 14 1/4 inches
\$339.95



Automatic cartridge deck operating at 1 7/8 i.p.s. Holds up to 20 cartridges for 15 hours of steady play, index counter, full complement of inputs and outputs. Wow and flutter less than 0.3%. Signal-to-noise ratio greater than 48 db. Frequency response 40 to 15,000 c.p.s. Price includes two mikes.

Model 7200
\$459.95

Same, but housed in teak base with matching separated speaker systems. Player measures 16 x 15 1/2 x 8 1/2 inches. Speakers measure 19 x 10 3/4 x 5 3/4 inches. Nine-watts-per-channel output.

New For '66

LTW-13 • LIBERTY-DOLTON-IMPERIAL "LUXURY LISTENING", a 3 full hour, 3 3/4 ips stereo program. 62 full tunes; 15 artists. \$14.95.

14.95 STEREO

HI FI TAPES

R-1030 • ARTHUR LYMAN'S GREATEST HITS • Taboo; Love For Sale; Jungle Drums; Black Orchid; Afro Blue; Bwana A; Yellow Bird; Cotton Fields; Blue Hawaii; Midnight Sun; Hawaii Tattoo; Pele.

7.95 STEREO

R-1031 • LYMAN '66, ARTHUR LYMAN • Lemon Tree; Taste Of Honey; Fiddler On The Roof; Dear Heart; Only Yesterday; Medley From Mary Poppins; Kon Tiki; The Cat; The Boy From Laupahoehoe; Waimea Cowboy; Ports Of Paradise.

7.95 STEREO

ELEKTRA

EKTP7294 • THE PAUL BUTTERFIELD BLUES BAND.

7.95 STEREO

EKTP-7306 • THE BAROQUE BEATLES BOOK, Baroque Ensemble of the Mersyde Kammermusik-gissilschaft.

7.95 STEREO

LIBERTY

LST-7324 • THE WONDERFUL WORLD OF JULIE LONDON • I'm Coming Back To You; So-T Summer Breeze; Can't Get Used To Losing You; A Taste Of Honey; Little Things Mean A Lot; In The Still Of The Night; Love For Sale; When Snow Flakes Fall In The Summer; How Can I Make Him Love Me; Say Wonderful Things; Guilty Heart; I Love You And Don't You Forget It.

7.95 STEREO

LST-7350 • SI ZENTNER PLAYS THE BIG BIG BAND HITS • Opus #1; Boogie Woogie; Yes Indeed; I'm Getting Sentimental Over You; American Patrol; Jersey Bounce; Begin The Beguine; One O'Clock Jump; Take The "A" Train; Woodchopper's Ball; Sentimental Journey; Goody Goody.

7.95 STEREO

LST-7378 • LATIN VILLAGE • MARTIN DENNY • Angelito; On Green Dolphin Street; Corcovado; Without You; Ho-Ba-La-La; Something Latin; Manha De Carnaval; Latin Village; The Girl From Ipanema; Malaguena; Sugar Cane; Flying Down To Rio.

7.95 STEREO

LST-7391 • BEATLE BAL-LADS • THE JOHNNY MANN SINGERS • Do You Want To Know A Secret; All My Loving; Things We Said Today; She Loves You; Ringo's Theme (This Eoy); P. S. I Love You; From Me To you; And I Love Her; I'm Happy Just To Dance With You; If I Fell; Love Me Do; I'll Be Back.

7.95 STEREO

LST-7395 • THE ROY OR-BISON SONGBOOK • THE SUNSET STRINGS • Running Scared; Crying; Oh, Pretty Woman; It's Over; Leah; Only The Lonely; Blue Bayou; Falling; Dream Baby; I'm Hurtin'; Candy Man; Blue Angel.

7.95 STEREO

LST-7408 • THIS DIAMOND RING • GARY LEWIS • The Best Man; The Night Has A Thousand Eyes; Go To Him; Sweet Little Rock And Roller; The Birds And The Bees; Keep Searchin'; Love Potion Number Nine; Needles And Pins; Forget Him; All Day And All Of The Night; Dream Lover; This Diamond Ring.

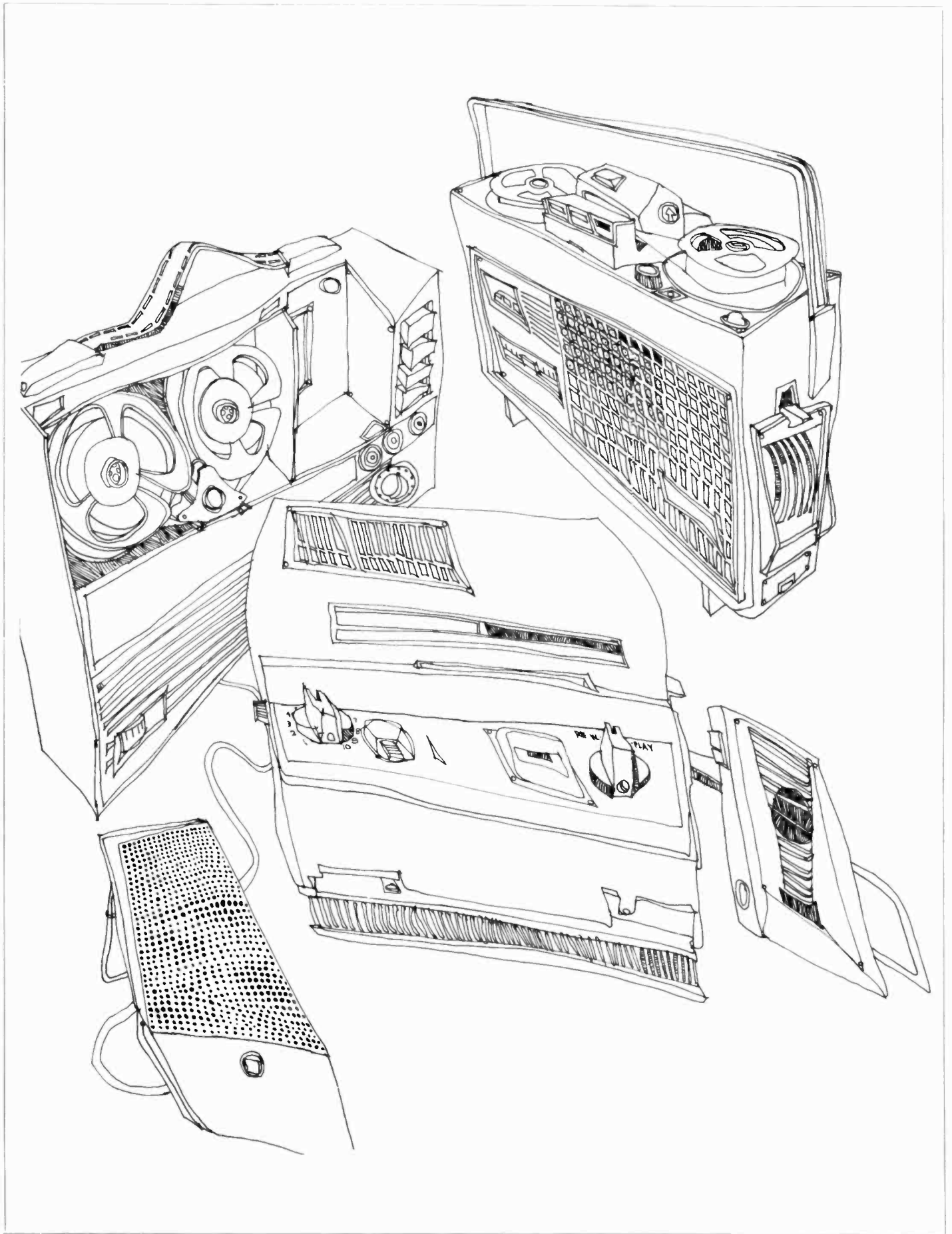
7.95 STEREO

FOR COMPLETE CATALOG WRITE:

MUSIC Tapes INC.

230 NORTH MICHIGAN AVE., CHICAGO, ILLINOIS 60601





How to Buy a Battery Portable

by Lee Brooks

Battery-operated portables are suddenly everywhere. Light, compact and generally inexpensive, they find their way into college classrooms where students can record whole lectures and listen to what the professor is saying at the same time; to parties in the backyard or on the beach where they provide music for dancing, eating or talking and into the hands of young businessmen on the go. They even slip surreptitiously into concerts where they record mementos of an important debut or the spontaneity of a jazz festival.

Today's portables weigh anywhere from 18 ounces to about 15 pounds. They are far more reliable than those of a few years ago. Easy to operate and amazingly versatile, some can even start and stop themselves at the sound of the voice. Others operate slide projectors. They use standard quarter-inch tape wound on reels varying in size from $2\frac{3}{8}$ inches to five inches or tape cartridges (plastic containers which eliminate the need for handling or threading).

There are 80 or so battery recorders that are now nationally available and an infinite number of models are offered by various department stores and discount chains under their own brand names. Most are manufactured in Japan, though a few of the high fidelity models come from Europe and there are domestic portables in every price range.

Prices, which start at about \$10 and go as high as \$1,049 for the Nagra IIIB are generally a good indication of what you will get in a machine. Interestingly, this does not refer to fidelity—but to features offered and reliability. Even some low-cost rim drive machines produce fidelity acceptable within the limitations of their uses.

Rim-drive recorders are usually priced under \$40. They are used for taping lectures, dictating notes or for just having fun at parties. With rim-drive machines, the tape reel turns at a relatively constant speed as the tape unwinds. However, because the length of the tape in each revolution shortens as it nears the hub, the tape speed itself varies.

Capstan-driven portables for amateur use cost from about \$40 up. In these machines, the tape is pinched against the capstan (a metal shaft extending from the recorder's motor) by a rubber wheel during record and playback. The shaft revolves and pulls the tape past the electromagnetic heads at a uniform speed. Because these

Today's portables are far more reliable than those of a few years ago.

units offer constant speed, tapes recorded on them can be played on other machines offering the same tape speed, a feature which is not offered by rim-drive models. High fidelity or professional models, which run from \$150 upwards, are all capstan-driven.

What to look for when in the market for a battery recorder? Check the following 10 points as well as the manufacturers' specifications. It's also a good idea to ask your dealer to demonstrate two or three competitive models before you buy.

SIZE AND WEIGHT. One thing to remember is that as size and weight increase usually fidelity does, too. Larger units are generally sturdier. The real question, however, is *how much do you want to carry around with you?* A compact two or three pound unit is a breeze to handle. A 15 pounder is another matter.

REMOTE CONTROL. This involves the use of a start-stop button on the microphone. Many of the models in the \$50 to \$100 range which don't have voice operation feature remote control microphones. Some also include remote volume controls. For typists, there are start-stop foot pedals available with a number of units.

SPEEDS. Standard are $3\frac{3}{4}$ ips which is good for music recording and listening but uses a lot of tape and $1\frac{7}{8}$ ips which gives more time per reel but compromises fidelity. The slower $15/16$ ips speed is suitable for recording lectures and meetings. For music recording and various professional uses, some machines offer $7\frac{1}{2}$ ips or even 15 ips. A few rim-drive models have a variable speed which can be set between one and four ips. The tapes usually cannot be played on machines other than those on which they were recorded. Keep in mind your principal purpose for buying a battery portable when you consider speeds.

STEREO. While almost all portables are two-track mono recorders, there are a few stereo portables available. Prices start at about \$150 and maximum reel size is five inches. Norelco may

offer a stereo version of its Carry-Corder at some future date.

REEL SIZE. The larger the reel the longer the uninterrupted recording time. A five inch reel can run as long as three hours at 1 7/8 ips while a three inch reel holds 45 minutes at the same speed. However, the machine using a large reel will probably be twice as big and maybe twice as heavy as the one using a smaller reel.

POWER. Most models operate on a variety of flashlight and flashlight-type batteries. A great number can be operated with an AC adaptor, usually available on an optional basis at a slight extra cost. Some also use rechargeable alkaline batteries or wet cells.

AUTOMATIC SHUTOFF. Accomplished either by a metal tab fixed to the tape or a spring which senses the release of tension, this device shuts off the machine whenever there is a break on the tape or when it finishes playing. Going further, Concord's 350 offers automatic reverse so that both sides of the tape can be played without changing reels.

VOICE OPERATION. An extraordinary feature which utilizes an electronic sensing device in

the microphone. This turns the recorder on when someone starts talking and shuts it off when the voice stops. Some of the newer models have a sensing device that can control volume, too.

CARTRIDGES. A cartridge eliminates the bother of threading reels. Generally cartridges are not interchangeable and they cannot be played on reel-to-reel recorders. However, the new Wollensak 4100 is interchangeable with the Norelco Carry-Corder and Craig, Channel-Master and Westinghouse have a model with a cartridge useable in all three. Some cartridge models are intended solely for dictation. A few are surprisingly good for music recording. These battery powered cartridge units are not interchangeable with four and eight track auto cartridge units.

SLIDE SYNCH. Some models can automatically change 35mm slides while providing background music and running commentary. If you're an accomplished amateur photographer, you'll probably want a unit with this feature.

Whatever portable you buy will be a natural for making "Pop Sounds." And if you've never taken a portable recorder on vacation we suggest you try it. You'll have more fun than you ever dreamed possible.

AIWA
Model TP 703
2 1/2 x 8 1/2 x 8 3/4 inches
\$46.95



Transistorized two-speed (1 7/8, 3 3/4 i.p.s.) battery-operated portable with VU meter, push-button operation, external playback facility, 6 transistors. Reel size 3 1/4 inches. Includes dynamic remote control mike, recording tape, reels, earphone, batteries. Weight 4 1/2 pounds.

American Geloso
Model TR-711
2 x 6 x 7 inches
\$199.95



Transistorized two-speed (3 3/4 and 1 7/8 i.p.s.) monophonic tape recorder with combination level and battery condition meter, 2 1/4-inch speaker, monitoring facilities. Operates on 6 penlight cells or house current via optional adaptor. Frequency response 100 to 6,000 c.p.s. Wow and flutter .5 per cent. Signal-to-noise ratio 20 db. Comes with remote control microphone, dual earphone and carrying case.

Aiwa
Model TP704
12 x 10 1/2 x 3 1/2 inches
\$99.95



Two-speed (1 7/8, 3 3/4 i.p.s.) battery and AC-current-operated portable, push button operation, 5-inch reels, 4-inch oval speaker, VU meter, with remote control microphone. Uses four D cells. Built-in circuitry for house current use.

Belsona
(See Hitachi)
Model TRQ 300
9 x 3 1/2 x 6 inches
\$99.95



Battery-operated portable with "Levelmatic" (automatic recording level controls) 4 x 3 3/4-inch speaker, 7 transistors, 3 diodes, 1 7/8, 3 3/4 i.p.s. speeds. Reel size 3 inches. Frequency response 150 to 4,000 c.p.s. at 1 7/8 i.p.s.; 150 to 7,000 c.p.s. at 3 3/4 i.p.s. Powered by four flashlight batteries or (via optional adaptor) AC current. Includes dynamic mike, earphone, batteries. Foot switch, telephone pick-up available. Weight 4 1/2 pounds.

Aiwa
Model TP707
8 x 5 3/4 x 2 1/4 inches
\$79.95



Seven transistor cartridge unit has remote control microphone. Powered by four C cells. (optional convertor for house current). Single speed is 1 7/8 i.p.s. 35 db signal-to-noise ratio, push-button controls, VU meter (also is battery indicator) fast forward, 2 1/2" speaker. Dual track cartridge runs 25 min. per side on 250-foot half-mil tape.

Belsona
Model TRQ510
11 7/8 x 9 7/8 x 3 1/2 inches
\$129.95



Seven-transistor, pushbutton unit with automatic recording level control, remote control dynamic microphone, five inch reels, digital counter, speaker monitor, recording level indicator, 4 x 2 3/9-inch speaker. Tape speeds 1 7/8, 3 3/4 i.p.s. 150 to 8,000 c.p.s. frequency response at 3 3/4 i.p.s. Powered by six D cells or house current. Weighs 7.7 pounds.

Butoba

Model MT5
 9¼ x 12 x 6 inches
 \$199.95

Two-speed (3¾, 17⁄8 i.p.s.) battery-operated (8 flashlight cells) a.c.-adaptable via optional converter portable, monophonic operation. Separate tone and volume controls, tape counter, two motors, "magic line" level device, built-in loudspeaker, 5-inch reel capacity. Frequency response at top speed 50 to 13,000 c.p.s. Signal-to-noise ratio 40 db. With microphone and carry strap.

Butoba

Model MT7
 12½ x 8½ x 3½ inches
 \$89.95

Transistorized battery-operated (four flashlight) two speed (17⁄8, 3¾ i.p.s.) monophonic unit with level indicator, push button controls, lock-pause, 3½ x 6-inch speaker, uses three-inch reels. Frequency response 100 to 12,000 c.p.s. at 3¾ i.p.s. Signal-to-noise ratio 40 db. Complete with dynamic microphone. Can operate on a.c. current via adaptor, optional.

Channel Master

Lodestar
 6½ x 3½ x 1¾ inches
 \$59.85

Cartridge recorder with single knob control, automatic stop, recording volume/tape speed/battery condition indicator, 5 transistors, a thermistor, a diode, 2-inch speaker. Cartridge runs 16 minutes per side. Powered by four penlite batteries. Includes clip-on mike. Weight 32 ounces.

Channel Master

Model 6464
 11¼ x 10 x 3½ inches
 \$119.95

Portable operating off 6 D cells or house current via built-in circuitry. Five-inch reel capacity, solid state, running speeds 3¾ and 17⁄8 i.p.s. Features push-button operation, automatic level control, tone control, VU meter and digital counter. Price includes mike.

Channel Master

Model 6549
 10½ x 8½ x 3 inches
 \$79.95

Portable, battery operated, capstan drive unit with remote control mike. Tape speeds 17⁄8, 3¾ i.p.s. Powered by six D cells or house current (via optional adaptor). Has 3¼ inch reels, 43/16 inch x 215/16 inch speaker.



Claricon: Write for information 300 S. St. Clair St., Pittsburgh, to: World Mark Electronics, Pa., 15206

Commodore

Model 101
 11¾ x 2¾ x 9¼ inches
 \$49.95

Two-speed (3¾, 7½ i.p.s.) battery-operated portable with fast forward and rewind, one-knob function control, camera body finish. Reel size 5 inches. Powered by four D cells or (via optional adaptor) AC current. Includes remote-type mike, earphone jack. Weight 9 pounds.

Concord

Model F-20
Sound Camera
 6¾ x 2¼ x 4½ inches
 \$24.95

Adjustable-speed battery-operated monophonic portable using 2¾-inch reels. Price includes remote control mike.

**Concord**

Sound Camera Model F85
 \$39.50

Transistorized portable with push-button operation, 5 transistors, 2 diodes. Powered by four C cells. Reel size 2¾-inches. Frequency response 50 to 8,000 c.p.s. 17⁄8 i.p.s. speed. Includes dynamic mike, reel, tape. Optional earphone, AC adaptor, patch cord, telephone pick-up. Weight 2 pounds.

**Concord**

Model F88
 7 x 5 x 3 inches
 \$79.95

Mono voice-operated automatic "Sound Camera" with voice-control microphone, flux-field head, record level and battery level indicator, extension speaker jack, connection to radio, TV or record player, solid state, capstan drive. Powered by four C cells or optional AC adaptor. Has a 2¾ inch reel. Weighs two pounds. Tape speed 17⁄8 i.p.s.

**Concord**

Model 320
 12 x 8¾ x 3¾ inches
 \$129.95

Nine-transistor mono unit with 3¾-inch speaker, VU meter, battery-condition indicator, automatic threading reel, tone control and four-pole motor, remote control mike. Dual power operation from six flashlight batteries or house current. Tape speeds 17⁄8, 3¾ i.p.s. Five-inch reel. 50 to 10,000 c.p.s. frequency response. Optional voice-operated VM10 mike at \$29.95.



Concord**Model 350**11½ x 11 x 4 inches
\$199.95

Automatic reversing batter-operated portable tape recorder with automatic voice activation. Runs at 1⅞ and 3¾ i.p.s., 5-inch reels, 3 x 6-inch speaker, recording level and battery condition meter, 9 transistors, digital counter, can operate on house current via optional adapter, or 6 D cells. Includes dynamic remote control mike.

Craig**Model TR 403**2¾ x 7½ x 6⅞ inches
\$134.95

Transistorized two-speed (1⅞, 3¾ i.p.s.) portable with 2¼-inch speaker, one-lever operation, VU meter, battery condition indicator, time index, 6 transistors. Powered by 10 Eveready 1015 batteries or house current (via optional adaptor). Reel size 3 inches. Includes leather carrying case, mike, earphone, patch cord, splicing kit.

Craig**Model TR 505**5 x 12 x 10½ inches
\$159.95

Transistorized two-speed (1⅞, 3¾ i.p.s.) portable with DC governor-controlled motor, 3-inch speaker, fast forward, instant stop-pause levers, tone control, VU meter, radio-phono input, 6 transistors. Powered by six D cells or built-in AC power supply. Reel size 5 inches. Includes batteries, AC cord, mike, earphone, tape, reel. Telephone pick-up, foot switch available. Weight 10 pounds.

Craig**Model TR212**8 x 9¾ x 3⅛ inches
\$39.95

Portable monophonic battery-operated unit using 3¼-inch reels, and running at 1⅞ and 3¾ i.p.s. Automatic volume control for recording, 2⅝ x 4-inch speaker, AC bias recording, uses 6 C cells and can also operate on house current via optional adaptor. Comes with remote control dynamic microphone.

Craig**Model TR404**2 x 5 x 3½ inches
\$29.95

Variable-speed battery-operated (4 penlight) portable using mid-get reels, 2½-inch speaker, complete with remote control mike, earphone and leather case.

Craig**Model TR 408**5½ x 3⅞ x 2⅛ inches
\$44.95

Variable speed battery-operated monophonic portable using mid-get reels, 2½-inch speaker, complete with remote control mike, earphone, carrying case, four penlite batteries, and four reels of tape.

Craig**Model TR 490**6½ x 3¾ x 1⅜ inches
\$79.95

Cartridge-type battery-operated variable-speed unit with built-in microphone, 2¼-inch speaker, VU meter, automatic end-of-tape cutoff, complete with four penlite batteries, tape cartridge, leather case, earphone and remote control mike.

Craig**Model TR 520**11½ x 9½ x 4½ inches
\$59.95

Battery-operated (4 D cells), a.c.-adaptable monophonic unit using 5-inch reels. Two speeds (1⅞, 3¾ i.p.s.), safety lock, VU meter-battery indicator, volume control, 2¾ x 4-inch speaker, complete with remote control mike, earphone and batteries. Frequency response 200 to 7,000 c.p.s. at 3¾ i.p.s. Signal-to-noise ratio 35 db or better at 1,000 c.p.s.

Crowncorder**Model CTR3000**

\$44.50

Two-speed (3¾, 1⅞ i.p.s.) battery-operated (four D cells) monophonic portable, 3¼-inch reels, complete with remote control mike, and earphone. Response 100 to 7,500 c.p.s.

Crowncorder**Model CTR5000**

\$69.95

Five-inch reel unit, tone control, push-button operated. Response 100 to 10,000 c.p.s. With remote control mike.

Crowncorder**Model CVA5001**11¼ x 4 3/16 x 8⅞ inches
\$84.95

Voice-activated, 10-transistor unit with microphone, record level meter, fast forward, front speaker. Tape speeds 1⅞, 3¾ i.p.s. Five-inch reel. Powered by batteries or house current via optional adaptor.

Crowncorder**Model CTR5800**

\$84.50

Two-speed portable, automatic level control, tone control, AC operation, push-button operation, AM radio built in. Response 10 to 10,000 c.p.s.

Crowncorder
Model CTR 5400
 4 3/16 x 11 1/4 x 8 7/8 inches
 \$69.95

Transistorized two-speed (1 7/8, 3 3/4 i.p.s.) portable with two power DC micro-motors, 6 transistors. Powered by flashlight cells or (via optional adaptor) AC current. Reel size up to 5 inches. Includes microphone.

Electra: Write for information to: Atlas-Rand Corp., Mt. Vernon, N.Y.

Electra-Candid: Write for information to: Electra International Co., 1367 N. Fair Oaks Ave., Pasadena, Cal.

Encore: Write for information to: Encore Electronics, Inc., 650 Mission St., San Francisco

Emerson
Model MM525
 8 3/4 x 3 11/16 x 16 7/8 inches
 \$59.95



Portable mono unit with volume and tone controls, VU meter, remote control speaker, four inch oval speaker. Powered by six D flashlight cells or house current via optional battery eliminator. Five-inch reel. Tape speeds 1 7/8, 3 3/4 i.p.s. Frequency response 100 to 6,000 c.p.s. at 3 3/4 i.p.s. Signal-to-noise ratio 30 db.

Fi-Cord
Model 202
 9 x 6 1/2 x 4 1/2 inches
 \$339.50



Two-speed (3 3/4, 7 1/2 i.p.s.) British-made portable with three-inch speaker, VU meter, built-in battery-tester, governor to assure correct tape speed, two inputs, two outputs, fast forward and rewind. Reel size 4 inches. Frequency response 50 to 12,000 c.p.s. at 7 1/2 i.p.s.; 50 to 8,000 c.p.s. at 3 3/4 i.p.s.; both ±3 db. Powered by seven Mercury cells or AC current (via optional transformer) or 12 volt auto battery. Microphones available at \$24 to \$189.

General Electric
Model M8000
 11 x 7 1/2 x 3 1/4 inches
 \$39.95



(Deluxe version available for \$49.95. Includes carry case, jack for optional foot switch & VU meter/battery checker.)

Capstan-drive portable with double-reel braking, neon level meter, remote control microphone, 4 x 2 inch speaker, earphone and pushbutton operation. Powered by D cells or house current via optional AC convertor. Tape speeds 1 7/8, 3 3/4 i.p.s. Weighs 4 1/2 pounds.

Golden Shield: Write for information to: Golden Shield Corp., 56 Harvester Ave., Batavia, N.Y.

Hitachi
Model TRQ 300M
 8 3/8 x 3 3/8 x 6 1/8 inches
 \$69.95

Transistor portable tape recorder running at 3 3/4 and 1 7/8 i.p.s. Uses four C cells, three-inch reels, automatic level control, 2 3/4 x 4-inch speaker. With remote microphone.

Hitachi
Model TRQ330
 10 1/4 x 8 3/8 x 2 5/8 inches
 \$49.95



Transistor portable, two speed (3 3/4, 1 7/8 i.p.s.), battery-operated (six C cells), 3-inch reel capacity, automatic recording level control, supplied with remote control mike.

Hitachi
Model TRQ510
 11 7/8 x 9 7/8 x 3 1/2 inches
 \$129.95

Seven-transistor, pushbutton unit with automatic recording level control, remote control dynamic microphone, five inch reels, digital counter, speaker monitor, recording level indicator, 4 x 2 3/9-inch speaker. Tape speeds 1 7/8, 3 3/4 i.p.s. 150 to 8,000 c.p.s. frequency response at 3 3/4 i.p.s. Powered by six D cells or house current. Weighs 7.7 pounds.

Honeytone: Write for information to: Associated Importers, 34 Dore Street, San Francisco

Juliette
Model 300
 8 1/2 x 9 x 2 1/2 inches
 \$49.95

Transistorized two-speed (1 7/8, 3 3/4 i.p.s.) portable with pushbutton controls, record/battery level indicator, various outlets, six transistors. Reel size 3 1/4 inches. Powered by four flashlight cells. Includes remote control mike and batteries.

Juliette
Model 700
 16 1/2 x 13 1/2 x 6 inches
 \$229.95

Three-speed (1 7/8, 3 3/4, 7 1/2 i.p.s.) four-track stereo portable with digital counter, trident function lever, fast forward and rewind, VU meter, tone controls and track selector. Matching pair of speakers fold into area same size as recorder itself. Additional speaker housed in main unit. Reel size 7 inches. Powered by rechargeable battery, AC or DC current. Includes two microphones, detachable speaker systems.

Lloyd's
Model TY 799A
 11½ x 9¼ x 3⅞ inches
 \$52.90

Battery-operated two-speed (3¼, 1⅞ i.p.s.) portable with push-button operation, 5 transistors. Powered by batteries or AC current (via optional adaptor/charger). Reel size 5 inches. Includes batteries, mike, earphone.

Lucor: Write for information to:
 Lucor Electronics Inc. 22-20 40th
 Avenue, Long Island City 1, N.Y.

Magnavox
Model ITR106
 7⅞ x 8¼ x 3⅞ inches
 \$59.90

Mono six-transistor portable with push-button controls, tone and volume controls, level meter, dynamic microphone with remote switch. Has a 3¼-inch reel. Powered by six C cells. Tape speeds 1⅞, 3¼ i.p.s.

Magnavox
Model LTR107
 11¼ x 10 x 3½ inches
 \$89.90

Mono seven-transistor portable with push-button operation, tone and volume controls, remote control dynamic microphone, earphone, accessory cable and repair tape. Has a 1¼ x 4⅞-inch speaker. Powered by six D cells or AC current. Five-inch reel. Tape speeds 1⅞, 3¼ i.p.s.

Martel
Model 301
 12 x 5¼ x 10¼ inches
 \$199.50

Four-speed (15/16, 1⅞, 3¼, 7½ i.p.s.) transistorized unit functions as portable or table model with 4 x 5-inch speaker, VU record/battery level meter, pause control, tone control, external speaker and amplifier outputs, assorted inputs, 11 transistors. Powered by six D cells. Reel size 5 inches. Frequency response 80 to 4,000 c.p.s. at 15/16 i.p.s.; 60 to 14,000 c.p.s. at 7½ i.p.s. Includes remote control mike. Weight 12½ pounds.

Mercury
Model TR 3300
 8½ x 9 x 4 inches
 \$59.95

Battery-operated portable with remote control on-off switch, level meter. Powered by four D cells. Reel size 3 inches. Includes mike, tape, reels, earphone. Weight 5¾ pounds.



Mercury
Model TR 3500
 12 x 9 x 4½ inches
 \$89.95

Two-speed (1⅞, 3¼ i.p.s.) battery-operated portable with twin motors. Powered by four D cells or AC current (via adaptor). Reel size 5 inches. Weight 8 pounds.

Mercury
Model TR3600
 12 x 9 x 4½ inches
 \$109.95

Battery-operated mono unit with tone control, remote control microphone, dust cover, earphone, five-inch reel. Tape speeds 3¼, 1⅞ i.p.s. Weighs eight pounds.

Midgetape: Write for information to: Mohawk Business Machines Corp., 944 Halsey St., Brooklyn 33

Midland
Model 12-210
 8½ x 7¾ x 2¼ inches
 \$39.95

Two-speed (3¼, 1⅞ i.p.s.) push-button portable operating on four C cells, or house current via adaptor (optional). Takes 3½-inch reels, uses 2 x 3" speaker and has recording level-battery condition meter. With remote control microphone and earphone.

WRITE FOR ADDITIONAL INFORMATION
 Midland International Corp.,
 1909 Vernon St., North Kansas
 City, Missouri 64116

Miniphon
Model 978H
 4 x 6 x 2 inches
 \$329.95

Battery-operated portable with push-button operation, two cartridge sizes, magazine load system. Tape speed 1⅞ i.p.s. Powered by batteries, rechargeable miniature "accumulator" auto battery or AC current (via adaptor). Frequency response 40 to 12,000 c.p.s. ± 3 db. Includes batteries, tape magazine, remote control mike, earphone. Weight 1 pound 2 ounces.

Miranda
Mirandette
 9⅝ x 8⅝ x 2⅝ inches
 inches
 \$169.65

Transistorized two-speed (1⅞, 3¼ i.p.s.) portable with 2¾ x 5-inch oval speaker, recessed controls, six transistors. Powered by four D cells or AC current (via built-in adaptor). Frequency response 200 to 6,000 c.p.s. Includes remote control dynamic mike, three inch reel of tape, blank reel, carrying strap, AC cord. Other accessories available. Weight 7¼ pounds.

Modernage
Model R600
 8½ x 8½ x 2⅝ inches
 \$49.95

Six-transistor battery operated (4 C cells) monophonic two-track portable with level meter, push button operation, two speeds (15/16, 1⅞ i.p.s.), 2½-inch speaker, complete with remote control microphone.

FOR ADDITIONAL MODEL INFORMATION
WRITE TO:
 CONSOLIDATED MERCHANDISING CORP., 520 W. 34 St.,
 New York City

Monacor: Write for more information to: Monarch Electronics International, Inc., North Hollywood, Cal.

Nagra
Model 111B
 8 $\frac{3}{4}$ x 12 $\frac{1}{2}$ x 4 $\frac{1}{4}$ inches
 \$1,049.00

Transistorized three-speed (15, 7 $\frac{1}{2}$, 3 $\frac{3}{4}$ i.p.s.) portable with fast forward and rewind, inputs and outputs for practically any recording use including one for synchronization with film, 30 transistors. Reel size up to 5 inches. Powered by 12 flashlight cells with aid of optional power packs or any type house current. Frequency response 30 to 15,000 c.p.s. at 15 i.p.s.; 40 to 15,000 c.p.s. at 7 $\frac{1}{2}$ i.p.s.; 70 to 9,000 c.p.s. at 3 $\frac{3}{4}$ i.p.s. Signal-to-noise ratio 62 db at 15 i.p.s. 60 db at 7 $\frac{1}{2}$ i.p.s., 50 db at 3 $\frac{3}{4}$ i.p.s. Imported direct from Switzerland. Weight 15 pounds.

Norelco
Carry-Corder
 7 $\frac{3}{4}$ x 4 $\frac{1}{2}$ x 2 $\frac{1}{4}$ inches
 \$99.50



Cartridge recorder with assorted inputs, 7 transistors, playback through self-contained amplifier or external hi-fi system or headphones. 300-foot cartridge with triple play tape runs 30 minutes per side. Frequency response 120 to 6,000 c.p.s. Wow and flutter 0.35%. Signal-to-noise ratio 45 db. 1 $\frac{7}{8}$ i.p.s. speed. Includes remote-type mike, carrying case with mike pouch, 4 cartridges, patch cord. Weight 3 pounds.

Norelco
Continental Model 101
 11 x 3 $\frac{3}{4}$ x 8 inches
 \$129.50

Battery-operated portable with push-button operation, tone control, output for headphones or hi-fi system, record/battery level indicator. Reel size 4 inches. Tape speed 1 $\frac{7}{8}$ i.p.s. Powered by flashlight batteries. Frequency response 80 to 8,000 c.p.s. Includes mike. Carry case, remote start-stop switch, AC adaptor, headset, telephone pick-up, foot control switch available. Weight 7 pounds.

Panasonic
Model RQ 101S
 8 x 8 $\frac{1}{8}$ x 3 inches
 \$59.95



Transistorized, two-speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s.) portable with record level indicator, AC bias system, one-knob control, 3 $\frac{1}{2}$ -inch speaker, 6 transistors. Powered by six D cells or optional AC adaptor. Reel size 3 inches. Audio output 700 MV. Includes dynamic mike, batteries, patch cord, tape, earphones. Weight 3 $\frac{1}{2}$ pounds

Panasonic
Model RQ102
 9 $\frac{5}{8}$ x 8 $\frac{1}{2}$ x 3 inches
 \$59.95



Electric and battery-operated portable using 3-inch reels, with speeds of 1 $\frac{7}{8}$ and 3 $\frac{3}{4}$ i.p.s., 3 $\frac{1}{2}$ -inch speaker. Optional automatic voice-control microphone. Uses 6 C cells. Response 100 to 7,000 c.p.s. Signal-noise ratio better than 40 db. With dynamic mike.

Panasonic
Model RQ105
 10 $\frac{1}{4}$ x 7 $\frac{3}{4}$ x 2 $\frac{1}{2}$ inches
 \$49.95

Six-transistor battery-operated (four C cells) push button portable running at 1 $\frac{7}{8}$ and 3 $\frac{3}{4}$ i.p.s., VU meter, 3 $\frac{1}{4}$ -inch speaker. Can use optional automatic voice-control microphone. Three-inch reels. Response at 3 $\frac{3}{4}$ i.p.s. 100 to 7,000 c.p.s. With dynamic mike.

Panasonic
Model RQ152
 13 $\frac{3}{4}$ x 16 $\frac{1}{2}$ x 8 inches
 \$99.95



Electric or battery-operated monophonic portable with 5-inch reel capacity, 1 $\frac{7}{8}$ and 3 $\frac{3}{4}$ i.p.s. speeds, 3 $\frac{1}{2}$ -inch speaker, digital counter, tone control, battery-condition/record level meter. Comes with dynamic mike. Can be operated with optional voice-control microphone. Response 100 to 7,000 c.p.s. at 3 $\frac{3}{4}$ i.p.s. Signal-noise ratio better than 40 db. Includes dynamic mike.

Panasonic
Model RQ-116
 7 $\frac{3}{4}$ x 7 $\frac{1}{4}$ x 2 $\frac{1}{2}$ inches
 \$129.95

Four-track, two speed (1 $\frac{7}{8}$, 3 $\frac{3}{4}$ i.p.s.) stereo portable. Powered by penlite batteries or, with optional adapter, AC current. Reel size 3 inches. Includes leather case and accessories. Telephone pick-up, speaker, foot switch available. Weight 4 $\frac{1}{8}$ pounds.

Phono-Trix
Model 88B
 1 $\frac{7}{8}$ x 4 $\frac{1}{2}$ x 7 $\frac{1}{2}$ inches
 \$99.50



Transistorized portable with automatic push-button operation, governor-controlled motor, 6 transistors. Speed 1 $\frac{7}{8}$ i.p.s. Reel size 2 $\frac{1}{2}$ inches. Powered by three C cells and three penlite batteries or (via adaptor) AC current or auto battery. Frequency response 100 to 6,000 c.p.s. Includes remote-control mike, amplifier-speaker, earphone, leather carrying case, telephone adaptor, tape and reels. Weight 2 $\frac{3}{4}$ pounds.

RCA
Model YGS11
 3 x 10 x 9 inches
 \$49.95



Portable mono unit with push-button operation, remote control microphone, record/battery level meter, 2½" speaker, optional house current operation. Three-inch reel. Tape speeds 1⅞, 3¾ i.p.s. Powered by four C cells.

RCA
Model YGS21
 3½ x 10⅞ x 8½ inches
 \$69.95



Portable mono recorder is all solid state. Features see-through window calibrated to show remaining tape on reel. Weighs four pounds. Has tone and volume controls.

Raleigh-Corder: Write for information to: Kayson's International, Ltd., 506 West Pico Blvd., Los Angeles 15, Cal.

Realtone
Model TR7585
 10 x 9¾ x 3 inches
 \$49.95



Push-button control unit with remote control operation, microphone, 2½ x 3½ inch speaker, VU meter (also battery level indicator). Powered by four small flashlight batteries. Tape speeds 1⅞, 3¾ i.p.s. Frequency response 150 to 6,000 c.p.s.

Ricoh
Commentator
 5 x 9 x 3 inches
 \$109.50

Transistorized, two-speed (1⅞, 3¾ i.p.s.) portable with 2 x 4-inch speaker, running time indicator built into lid, 7 transistors. Powered by six penlite cells, optional AC power supply or auto cigarette lighter adaptor. Reel size up to 3½ inches. Frequency response 150 to 6,000 c.p.s. at 3¾ i.p.s. Includes remote control mike, reel of tape, blank reel, leather case and accessory bag. Weight less than 5 pounds.

Roberts
Model 1510
 \$79.95



Battery-operated miniature tape recorder with push-button function controls, capstan drive, built-in microphone, VU meter and battery check. Cross Field head. Tape speeds 1⅞, 3¾ i.p.s. Has a 3¼-inch reel. Case included in price.

Roberts
Model 6000M
 4 x 9⅞ x 10 inches
 \$299.95



Battery-operated mono unit with solid state circuitry, Cross Field head, VU meters, push-button operation. Tape speeds 15/16, 1⅞, 3¾, 7½ i.p.s. Five-inch reel. Powered by four D cells or house current. Frequency response 40 to 20,000 at 7½ i.p.s. Weighs 11 pounds.

Roberts
Model 6000S
 4 x 9⅞ x 10 inches
 \$359.95



Battery-operated portable with two VU meters. Similar in key respects to Model 6000M. Powered by AC/DC or rechargeable battery. (Charger included.) Weighs 11 pounds.

Sony
Tapecoder Model 801A
 12½ x 10¼ x 3¼ inches
 \$250.00



Transistorized, two-speed (1⅞, 3¾ i.p.s.) portable with VU meter, digital counter, self-contained speaker, instant stop and variable back space level, push-button operation, 12 transistors. Powered by six D cells or with optional converter, AC current or auto battery. Reel size 5 inches. Frequency response 90 to 9,500 c.p.s. at 3¾ i.p.s. Remote-type mike included. Foot switch and telephone pick-up available. Weight 13 pounds.

Sony
Voice Command
Model 905
 8⅝ x 6½ x 6½ inches
 \$129.50



Two-speed (3¾, 1⅞ i.p.s.) portable with voice activated mechanism with transistorized computer-type electronic switching and automatic gain control, assorted inputs and outputs; contains detachable matching AC powered amplifier/speaker base. Frequency response 90 to 9,500 c.p.s. at 3¾ i.p.s. Reel size 3¼ inches. Weight without base 4½ pounds; with base 7⅞ pounds.

Sony
Model 900
 \$67.50
 8¾ x 8¾ x 3¾ inches

AC or battery-operated two-track monophonic portable, 3¼-inch reel capacity, automatic level control, automatic tape lifter, tone control, built-in speaker. Operates off four flashlight batteries or house circuit via built-in circuitry. Two speeds—3¾, 1⅞ i.p.s. Includes remote control mike. Optional "voice command" (voice-activating) microphone available at \$22. Frequency response 90 to 9,500 c.p.s. at 3¾ i.p.s. Wow and flutter 0.25%.

Sony
Model 800
 12¼ x 10½ x 4¼ inches
 \$199.50

AC or battery-operated two-track, three-speed (7½, 3¾, 1½ i.p.s.) portable with servo control motor, five-inch reel capacity, VU meter with selector switch, digital counter, push button controls, tone control, monitoring facility, automatic level control. Operates off AC via own circuitry or flashlight cells. Frequency response 50 to 12,000 c.p.s. at top speed. Wow and flutter less than 0.15%. Signal-to-noise ratio over 42 db. Includes remote control dynamic cardioid mike. Variable speed and pause control optional at \$9.95.

Standard
Model F21T
 6 x 6⅝ x 2⅞ inches
 \$44.95

Capstan drive unit with dynamic microphone, two inch reels, two heads, VU meter, volume control, flip-lever record/playback operation. Tape speed 1½ i.p.s.

Telefunken
Magnetophone Model 300
 3 x 10½ x 11½ inches
 \$169.95

Transistorized portable with pause button, speaker switch, record level and battery power indicator, 3 x 4-inch speaker, external speaker output, 10 transistors. Powered by D cells, special Telefunken rechargeable battery or (via special adaptor) house current or auto battery. Reel size up to 5 inches. Frequency response 40 to 14,000 c.p.s. 3¾ i.p.s. speed. Includes microphone. Weight 7½ pounds.

Telmar
Model 201
 \$99.95



Battery-operated mono unit with remote control, push-button operation, digital counter, VU meter/battery indicator. Five inch reel. Tape speeds 1½, 3¾ i.p.s. Vertical or horizontal operation. Weighs seven pounds.

Travler: Write for information to: Travler Radio Corp., 571 West Jackson, Chicago 6, Ill.

Uher
Model 5000
 6 x 10 x 12 inches
 \$300



Pushbutton-operated monophonic two-track portable, three speeds (15/16, 1 7/8, 3 3/4 i.p.s.) automatic level control, remote control microphone (included) provides backspacing, automatic stop, provision for slide projector synchronizer, 4 x 6-inch speaker, digital counter, 6-inch reel capacity. Response 40 to 16,000 c.p.s. at top speed. Wow and flutter about 0.2%. Signal-to-noise ratio better than 50 db.

Uher
Model 4000L
 11 x 8 x 3 inches
 \$320



Pushbutton-operated monophonic AC portable, capable of battery operation via adaptor. Five-inch reel capacity, four speeds (15/16, 1 7/8, 3 3/4, 7 1/2 i.p.s.), level meter, tone control, pause control. Response 40 to 22,000 c.p.s., plus-or-minus 3 db at top speed. Wow and flutter about 0.15%. Signal-to-noise ratio 50 db. Optional accessories include automatic voice activator, remote control, accumulator battery pack, AC power supply and charger. Comes with remote control mike.

V-M
Model 760
 10⅝ x 6 x 2¾ inches
 \$129.95



Mono unit with self-contained nickel cadmium power cell and recharger, microphone, three inch speaker, speeds 1 7/8, 3 3/4 i.p.s. Frequency response 200 to 6,000 c.p.s., battery meter/record level indicator, 3 1/4 inch reel. Tape speed is 3 3/4 i.p.s. Signal-to-noise ratio 40 db.

Westinghouse
Model 29R1
 3¾ x 6½ x 1⅝ inches
 \$69.95

Battery-operated cartridge recorder with variable speed adjustment control, battery voltage and record level indicator, selector control with stop, record, play and rewind positions, "push-to-talk" button mike. Powered by four AA penlite cells. Includes leather case, earphone, tape cartridge, microphone case. Cartridges (up to 35 minutes playing time) \$2.95 each. Weight less than 3 pounds.

Westinghouse
Model 32R1
 3 x 10⅝ x 9½ inches
 \$59.95

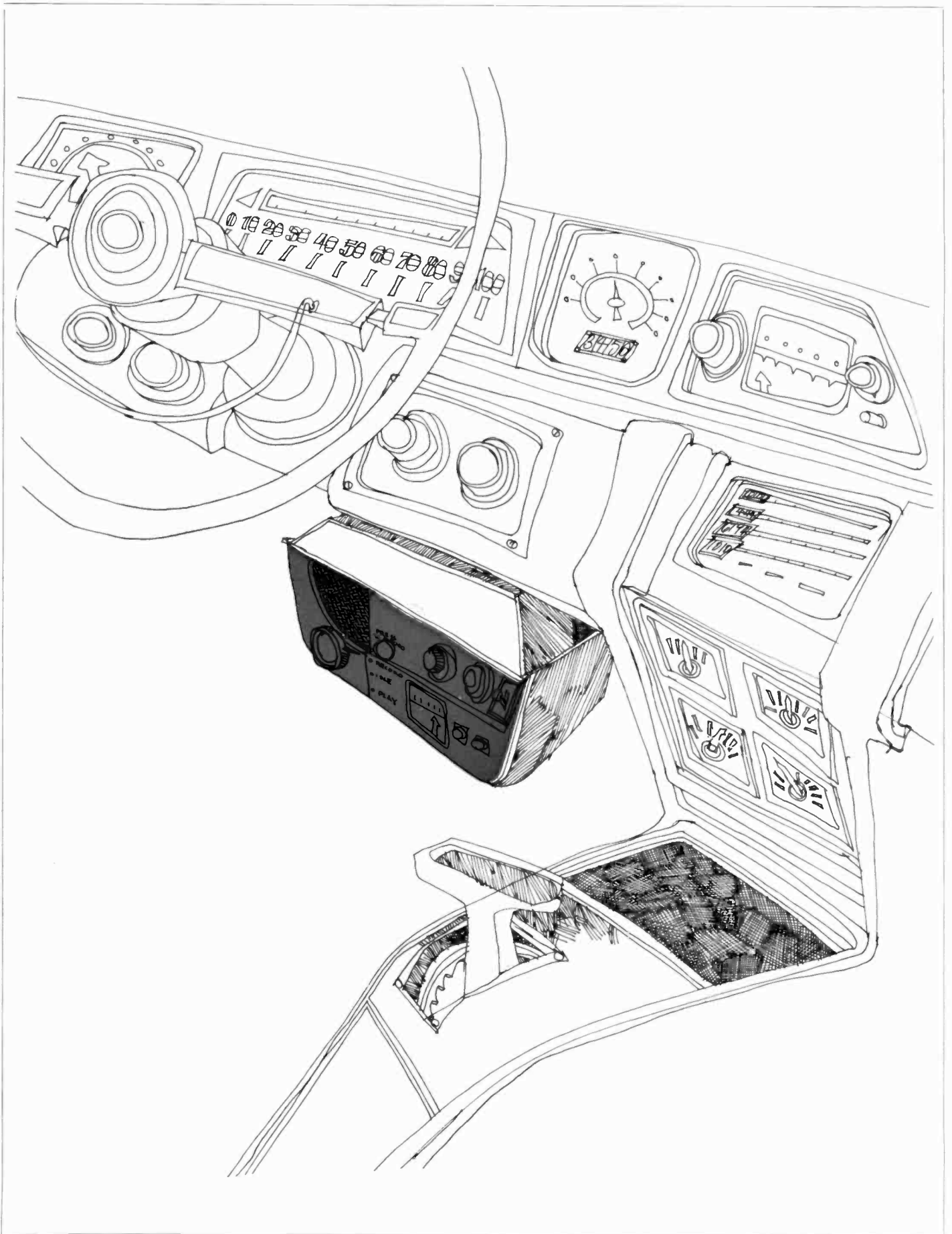


Portable mono tape recorder with push-button operation, VU meter, volume control, remote control microphone, built-in speaker. Powered by four D cells. Tape speeds 1 7/8, 3 3/4 i.p.s. Has 3 3/8 inch reel.

Wollensak
Model 4100
 7¾ x 4½ x 2¼ inches
 \$99.95



Cartridge-type monophonic portable, battery-operated. VU meter also acts as battery level indicator, 1 7/8 i.p.s. speed, two tracks, with remote control dynamic mike. Uses five C cells. Frequency response is 120 to 6,000 c.p.s. plus-minus 3 db. Signal-noise ratio 45 db. Wow and flutter 0.35 RMS. Uses same cartridge as Norelco Carrycorder.



How to Buy a Car Tape Player

By Richard Ekstract

The thought of tooling along the highway at 60 miles an hour listening to music of your choice—free from annoying commercials, interference and fading, and in true high fidelity—is a tempting one to many motorists. Accordingly, during the past year, in-car stereo has been offered as original equipment by at least one major auto supplier and as an accessory by a number of firms. Ford's initial success with car tapes may force other auto manufacturers to supply similar systems this year.

At the moment, there are five types of cartridge players being used in cars—Norelco's Carry-Corder, the Orrtronics cartridge, the so-called Fidelipac cartridge, the RCA cartridge and the Lear-Jet cartridge. The five are not yet compatible—that is, a cartridge of one type cannot be played on another kind of machine. Yet all are about the same size, and the cartridges themselves cost about the same for an album of music. Fidelipac and RCA are four-track cartridges, containing prerecorded tape similar to that used on most stereo reel-to-reel recorders. The RCA and Norelco cartridges contain tape wound on two tiny hubs inside a plastic shell. Since the tape is already threaded, all a motorist has to do is to slap it into place on the player deck and throw a switch.

The Fidelipac, Orrtronics and Lear cartridges each consist of an endless loop of tape, wound around a single hub. As with the RCA cartridge, there's no need for threading. Tape unwinds from the hub and rewinds again on the outside of the reel. The Orrtronics cartridge differs from the other two by giving the tape a twist in its path past the player playback heads so that it's in a horizontal rather than vertical position. Fidelipac features the same quarter-track stereo tapes, recorded at $3\frac{3}{4}$ ips, as used in the RCA cartridges. The Lear Jet unit, on the other hand, utilizes an eight-track system, in which eight tiny tracks are recorded on standard quarter-inch tape—at a tape speed of $3\frac{3}{4}$ ips. The Norelco system inscribes two monaural tracks on a tape $\frac{3}{16}$ " wide.

In TAPE RECORDING's opinion, no single system has exhibited a technical superiority over its competitors, so that the choice of system will be based on personal preference and your guess

At the moment, the Lear Jet system is being used by Ford, with Lear Jet planning to market its players to owners of other cars as an accessory item.

as to who's likely to win out in this struggle among manufacturers to become dominant in the field. The four-track systems have one advantage for tape hobbyists over eight-track—they permit hobbyists to make their own cartridges by using a conventional recorder (virtually none of the car players has a record head or electronics for recording). Several manufacturers, including veterans Craig, Muntz and Trans World are working on a unit which will accept four track Fidelipac or eight track Lear cartridges. Merlin claims to have one now.

We've noted the five major types of players. At the moment, the Lear Jet system is being used by Ford, with Lear Jet now marketing its players to owners of other cars as an accessory item. There is plenty of music available in addition to that supplied by RCA Victor. The RCA system, being used by Automatic Radio, depends exclusively on RCA Victor for music. On the other hand, no Victor music is available for Fidelipac or Orrtronics players; owners of these must turn to such companies as Mercury, Command, Westminster, Liberty, Dot, United Artists, MGM, Reprise, Warner Brothers and others. There are a number of companies using the Fidelipac cartridge, each supplying its own catalogue of prerecorded tapes. These tapes are interchangeable with Fidelipac players made by other manufacturers. Only Norelco of the current crop supplies no music with its players. Purchasers are expected to make their own from records or off the air, and are supplied with the tools to do so.

As the directory on the following page indicates, some players are sold with speakers, some without. The purchase price in some cases includes installation; in others you're expected to do it yourself.

CAR CARTRIDGE PLAYER GUIDE

<i>Manufacturer & Model</i>	<i>Price</i>	<i>Includes Install.</i>	<i>Includes Spkrs.</i>	<i>Tape Speed</i>	<i>Mono</i>	<i>Stereo</i>	<i>Tape Cartridge</i>
ARC Electronics	\$119.95	yes	yes	3¾		x	Fidelipac
Audio Spectrum	\$ 69.95	yes	yes	3¾	x		Fidelipac
Automatic Radio	\$109.00	no	yes	3¾		x	Fidelipac
Automatic Radio	\$129.50	no	yes	3¾		x	RCA
Auto Stereo MP 6	\$ 89.95	yes	no	3¾		x	Fidelipac
Auto Stereo MP 8	\$139.50	yes	yes	3¾		x	Fidelipac
Auto Stereo MC 8	\$159.50	yes	yes	3¾		x	Fidelipac
Borg Warner	\$ 69.95	yes	yes	3¾	x		Fidelipac
Borg Warner	\$119.95	yes	yes	3¾		x	Lear Jet
Craig Panorama C501	\$ 89.95	no	yes	3¾		x	Fidelipac
Craig Panorama C502	\$119.99	no	yes	3¾		x	Fidelipac
Craig Panorama C503	\$129.00	no	yes	3¾		x	Fidelipac
Jay Electronics	\$ 99.95	no	yes	3¾		x	Fidelipac
Kinematix	\$125.00	no	yes	3¾		x	Lear Jet
Lear Jet Corp.	\$119.00	yes	yes	3¾		x	Lear Jet
Lear Jet Corp.	\$179.95	yes	yes	3¾		x	Lear Jet
Martel Electronics ST 400 . . .	\$129.95 with radio	yes	yes	3¾		x	Fidelipac
Merlin	\$129.95	yes	yes	3¾		x	Combination: Fidelipac & Lear Jet
Metra Electronics MTP5	\$149.95	yes	no	3¾		x	Fidelipac
Metra Electronics MTPC	\$169.95	yes	no	3¾		x	Fidelipac
Midland	\$100.00	no	yes	3¾		x	Fidelipac
Muntz M70	\$ 69.95	yes	yes	3¾		x	Fidelipac
Muntz M80	\$ 79.95	yes	yes	3¾		x	Fidelipac
Muntz C90	\$ 89.95	yes	yes	3¾		x	Fidelipac
Muntz C100	\$ 99.95	yes	yes	3¾		x	Fidelipac
New-Tronics	\$128.50	no	yes	3¾		x	Fidelipac
Norelco Model 150 w/car mount	\$128.50	no	no	1⅞	x		Norelco
Orrtronics	\$ 79.95	yes	no	3¾	x		Orrtronics
Orrtronics	\$ 99.95	yes	yes	3¾		x	Orrtronics
Quality Audionics (Autophonic)	\$119.95	no	no	3¾		x	Fidelipac
SJB (Autosonic)	\$ 99.95	no	yes	3¾		x	Fidelipac
Telepro Industries	\$ 69.95	no	yes	3¾	x		Fidelipac
Telepro Industries	\$ 89.95	no	yes	3¾		x	Fidelipac
Trans-World Inc.	\$119.95	no	yes	3¾		x	Fidelipac
Viking of Minneapolis	\$149.95	yes	yes	3¾		x	Fidelipac
Viking of Minneapolis (stainless steel)	\$169.95	yes	yes	3¾		x	Fidelipac

(Continued from page 6)

Sonata No. 3 for Flute	7:00
Sonata No. 4 for Flute	6:35
Sonata No. 5 for Flute	7:10
Sonata No. 6 for Flute	7:25
Sinfonia in D	14:11
Sinfonia in B ^b	10:33

Bach, JC

Bach, JS

Brandenburg Concerto No. 3	10:00
Cantata No. 4	28:15
Cantata No. 6	21:30
Cantata No. 8	24:00
Cantata No. 34	19:40
Cantata No. 45	21:00
Cantata No. 57	25:30
Cantata No. 65	18:22
Cantata No. 76	35:30
Cantata No. 78	25:50
Cantata No. 80	29:48
Cantata No. 87	20:47
Cantata No. 140	21:00
Cantata No. 147	32:00
Cantata No. 170	23:48
Concerto in a for Flute & Violin	23:05
Concerto in d for Violin	16:08
Easter Oratorio	45:01
Magnificat	30:05
Mass in b	
Kyrie	22:47
Gloria	42:40
Credo	38:30
Sanctus	6:15
Hosanna and Benedictus	11:55
Agnus Dei and Dona	11:00
Nobis Pacem	
Partita No. 3	12:28
Partita No. 4	25:22
Sonata for Flute in a	11:21
Sonata for Flute in A	11:24
Sonata for Flute in b	18:11
Sonata in C for Flute	7:57
Sonata in E for Flute	10:40
Sonata in e for Flute	13:14
Sonata in E ^b for Flute	10:16
Sonata in g for Flute	11:24
Sonata in c for Violin	16:00
Sonata in e for Violin	9:00
Sonata in F for Violin	10:58
Sonata in G for Violin	8:00
Trio Sonata in C	10:08
Trio Sonata in d	10:35
Trio Sonata in G	8:07

Bach, WF

Sinfonia in d	10:13
---------------	-------

Beethoven

Choral Fantasia	17:40
Christ on the Mount of Olives	61:11
Concerto No. 1 for Piano	31:23
Concerto No. 2 for Piano	29:33
Concerto No. 3 for Piano	36:00
Concerto No. 4 for Piano	29:38
Jena Symphony	24:00

(Continued on page 85)



**NEW... Concertone 800 Series
with "3 PLUS 3" REVERSE-O-MATIC®**

New from Concertone—a full line of professional bi-directional stereo recorders, featuring totally automatic "3 Plus 3" Reverse-o-matic.®

Specifically engineered as a reverse recorder, your Concertone "3 Plus 3" Reverse-o-matic® is literally two recorders in one:

- Two separate three-head systems provide erase, record, play, and off-the-tape monitoring in both directions.
- Fool-proof reverse programming eliminates "intermission" delays during reversals. It reverses precisely where you want it . . . when you want it.
- Assures uncompromised stereo balance, levels and response, distortion, and signal-to-noise ratio in play and record modes in both directions automatically.

Your new Concertone 800 also has self-adjusting band brakes, dual compliance arms, record level pre-set, dimensional echo effect, sound-on-sound, and many other outstanding functional features.

Model 804 Professional Tape Deck—heart of the new line, available for less than \$400.

Model 803 completely self-contained Professional Portable—with stereo monitor amplifier and speaker system, less than \$470.

Model 815 Real Wood Designer Portable—with built-in powerful Norton Amplifier; including separate speaker system, less than \$700.

Model 814, The Audio Composium — a complete stereo home entertainment center, with AM/FM multiplex Norton receiver; professional type record changer; available in four distinctive cabinet styles, less than \$950.

Norton Amplifier—less than \$150.

For complete details on the new Concertone 800 series, write to:

C O N C E R T O N E
A Division of Astro-Science Corporation
9731 Factorial Way • South El Monte, California 91733





Should You Buy a Video Tape Recorder?

by Ann C. Eisner

1965 was the year in which the home videotape recorder was born. While videotape has been used widely in commercial television for the past several years, it wasn't until last year that technical advances and great price reductions made videotape feasible for home use.

HOW IT WORKS

Television pictures are actually made up of one continuous line of light that starts at the top left-hand corner of the picture tube and moves down, crossing the screen 525 times every 1/30th of a second. Since the speed is so high, the lines blend together to form one picture. These lines are made of dots, varying in voltage, which produce color shades from white to greys and black. Since the television picture is nothing more than a series of electrical charges it is possible to store these charges on magnetic tape—much the same as with sound. Thus the concept of videotape.

Because the speed at which the dots move is so high, a normal sound recorder cannot be used. To solve the problem, first the "brute force" method evolved. In this technique, a great deal of tape is moved at high speed past a stationary head. At present, because such a large quantity of tape is required for a short time-length of recorded material (an 11-inch reel of triple-play tape holds only 22 minutes of uninterrupted picture and sound) this method has proved largely unsatisfactory. There are, however, some manufacturers who are still producing "brute force" machines and others who are working to reduce speed and improve quality.

A second method for recording videotape is the rotary head technique. This involves the use of wider tape and a revolving head or heads. In low-priced helical scan units, the electrical charges are traced on the tape diagonally. Since the ratio between the speed of the revolving head and the tape passing through the machine produces a higher tape speed, this solves the problem of a large bulk of tape being needed to produce a picture. Helical scan units use tape varying from one-half inch to two inches. Tape speed averages between 7½ ips and 12 ips.

As of this writing there are two machines you can order for immediate delivery, three more with availability promised in the early part of this year. In addition, 3M-Revere has announced that its first model for the education market will

appear early in 1966. At present no specs are available other than that it will be a rotary head unit. The Japanese manufacturer Shiba will enter the market with its model VR-700, a helical scan unit retailing for about \$500. Included is a camera for about \$250 and a 12-inch monitor television, also at additional cost. Akai will soon present a "brute force" machine and the German manufacturer Grundig is about to enter the field. As a matter of fact, it is expected that eventually, all major television set manufacturers will be producing their own home videotape units.

Of the five machines you might consider today, all are helical scan units. The Norelco EL3400 is the highest priced at \$3950. Fully transistorized, it operates at nine ips, using one-inch videotape on a nine-inch reel. An eye-tube is used for setting picture and sound level and the unit is push-button operated with controls similar to the Norelco 401 audio tape recorder. The revolving head has a life expectancy of about 500 hours and costs about \$100 to replace. In order to convert a standard television set to videotape, the Norelco uses a coupling device which goes over one of the TV tubes, converting it into a receiver/reproducer for the deck. Expensive as it is, the end product is extremely good. Picture quality is about the same as the original TV picture and there are no synchronization difficulties. In our tests with the Norelco, (the only video recorder tested thus far) we achieved excellent results.

The least expensive of the helical scan recorders is the Sony 2010 which lists for \$995. The unit actually records only half (every other) of the 525 lines that skim across the television screen. Because of this Sony includes a monitor television set in the unit. The 2010 has two record/playback heads with life expectancies of about 1000 hours each, (replacements cost \$30), and uses half-inch videotape operating at a speed of 7½ ips. Tape is wound on seven-inch reels. Cost for one hour of recording time—\$40.

Ampex Corp. promises its first model for delivery in March, 1966. This unit carries a price tag of \$1495, uses one-inch videotape at a speed of 9.6 ips. Tape is wound on 9½-inch reels. Head life is more than 1000 hours (replacements cost about \$50). One hour of recording time runs \$65. Ampex expects to have six models

altogether on the market. Top of the line is the 6220 which, mounted with a 23-inch color television set in a console, has two tape speeds (4.8 and 9.6 ips).

Concord and Panasonic will have units available in early April, 1966. The units, both helical scan, should cost about \$1000. Both will also use half-inch videotape wound on eight-inch reels. Panasonic's unit will operate at a tape speed of 12 ips; Concord's prototype that we saw in Japan last year runs at 12 ips. Concord offers a camera included with the unit for about \$300 additional.



All of the recorders described produce good quality black and white pictures, though sound quality is not "high fidelity" in any of them. All of the units offer monaural recording, though stereo heads could be added to give a greater range of sound reproduction.

These are the units available now and with so many more to come in the near future, you may be asking what all the fuss is about. Controversial and exciting, videotape is undoubtedly one of the biggest things to hit home entertainment since television itself. With videotape units in the home it is possible to watch one television show and tape another. Some manufacturers include timing devices as accessories to their units so that you can even leave the house for dinner or a party and tape some show while you are out—with the machine turning itself on and off at the proper times. You can start videotape libraries of anything from old movies to TV spectaculars, favorite series, or even the Miss America contests. You can videotape yourself giving a speech or rehearsing a part in a play and practice every gesture until you are satisfied; for videotape, like sound tape, can be erased and used over and over. Home movies become home videotapes with instant reproduction on the television screen and no need for complicated lighting set-ups. One problem is editing. While it is possible to remove large sections of material with

only a small overlap, it is not possible to do any fine work.

As for color—some manufacturers call their videotape units color compatible. This means only that the machine will tape any program broadcast in color and play it back in black and white. Sony says it will have a color recorder this year.

What do people think of the advent of videotape in the home? CBS News Commentator Douglas Edwards feels that "home videotape recording libraries will be bigger one day than all tape and record collections. . ." Judith Crist, film critic for the New York Herald Tribune has said that "capturing the sight as well as the sound of news, special events and public affairs programs can be of vast educational value. One can not only see history in the making but preserve it." Robert Margulies, vice-president of the Ted Bates Advertising Agency feels that "Some day I am sure I will be able to walk into a store and buy the complete world series, the complete opera Carmen, certain types of feature motion pictures, cartoons for my children, cooking shows for my wife, etc."

Whatever you think, whatever you want from it, whatever it will be able to give you, one thing is certain: home videotape is here now and someday you're going to want to own a rig. Before you buy any unit, these are the points to consider: At some future date standards in tape width and speed will be established by the industry. This will be necessary before pre-recorded videotape can be available in sizeable quantities. Also, the unit you purchase now will probably be more expensive than one you might purchase two years hence. On the other hand, look at all the fun and history-making events that will be passing you by while you wait.

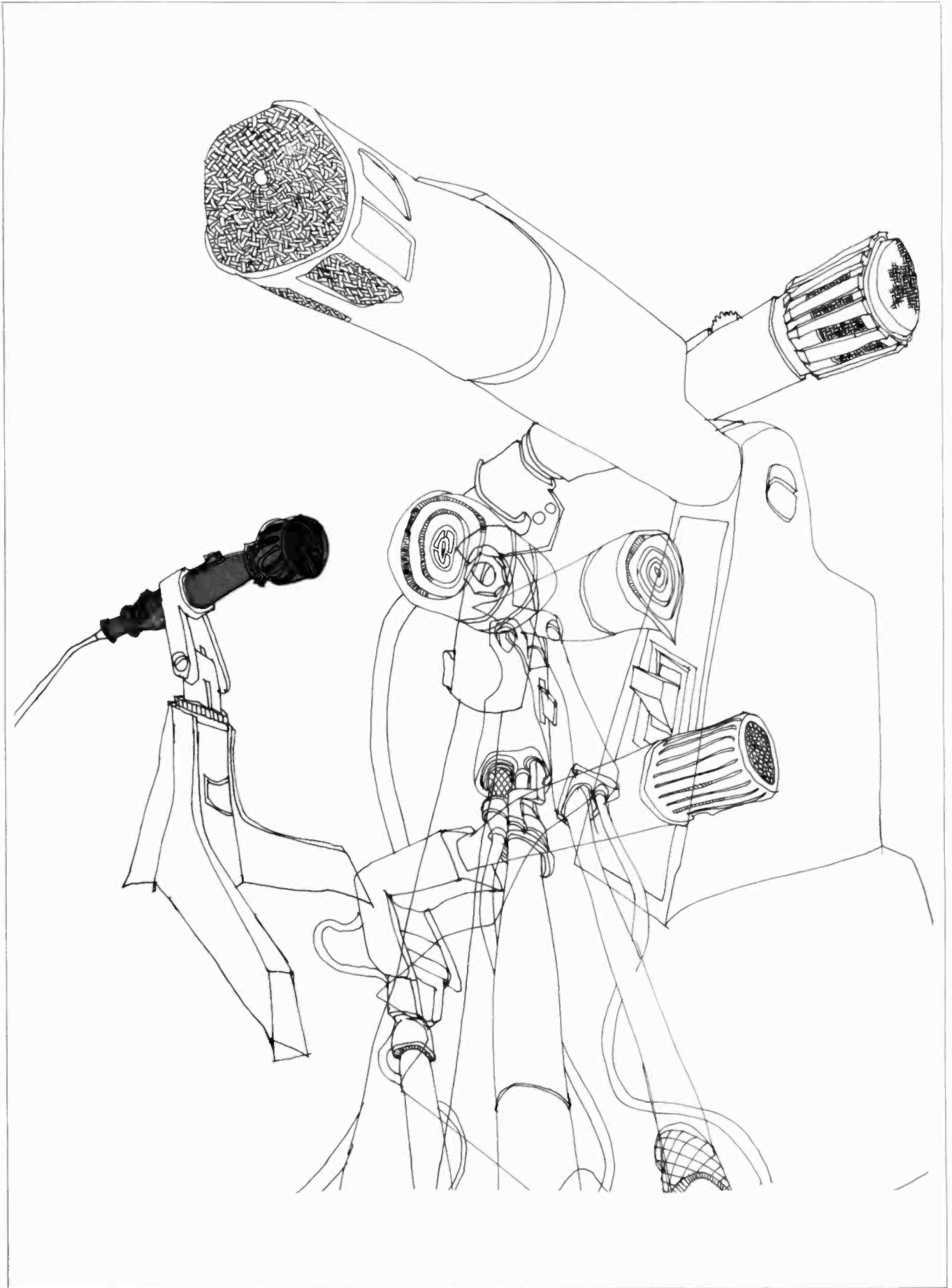


TAPE TIMING CHART

TAPE SPEEDS

Length in feet	15/16	1-7/8	3-3/4	7-1/2	15
150	32	16	8	4	2
225	48	24	12	6	3
250	52	26	13	7	3
300	64	32	16	8	4
350	1:16	38	19	10	5
375	1:24	42	21	10	5
450	1:36	48	24	12	6
500	1:44	52	26	13	7
600	2:08	64	32	16	8
625	2:13	67	33	16	8
850	3:00	1:30	45	22	11
900	3:12	1:36	48	24	12
1200	4:16	2:08	1:04	32	16
1250	4:24	2:12	1:06	33	16
1500	5:12	2:36	1:18	39	20
1700	6:00	3:00	1:30	45	22
1800	6:24	3:12	1:36	48	24
2000	6:56	3:28	1:44	52	26
2400	8:32	4:16	2:08	64	32
2500	8:48	4:24	2:12	1:06	33
3000	10:24	5:12	2:36	1:18	39
3600	12:48	6:24	3:12	1:36	48

Note: Times are for a single pass through the recorder and should be multiplied by 2 for half-track mono or quarter-track stereo; by 4 for quarter-track mono.



Selecting the Proper Microphone

by Felix Prinz

Microphones are classified in two ways—by the pickup pattern (the directions in which it's sensitive to sound) and by the transducer element (the device which converts sound waves into electrical energy). The three major pickup patterns are omnidirectional (equally sensitive to sound from any direction), cardioid (most sensitive to sounds directly in front of the microphone and relatively insensitive to sounds from the mike's rear) and figure-eight (sensitive to sounds from two sides of the mike, insensitive to sounds from the other two sides). Omnidirectional mikes usually are the ones supplied with new recorders, because of their versatility. They're the best choice for recording business conferences with a single mike, making letter tapes with a group, or recording sound effects when there is no background interference.

Cardioid mikes are designed for use when there's background noise you want to suppress or eliminate. They're great for recording on-the-street interviews, eliminating feedback from a public address system or recorder loudspeaker, recording vocal groups in a studio, dictating in a noisy room, recording music or drama during a performance, and similar uses. Figure eight mikes generally are intended for such studio uses as interviews (one participant on each side of the mike), instrumental duets, or reducing feedback in difficult situations. If you're planning to record music live, you may consider the use of two or more microphones—several cardioids close up, or a cardioid near the music source and an omnidirectional at the rear of the hall, to add presence to the recording.

The type of transducer used in the microphone helps to determine its price. The least expensive element is a crystal of rochelle salt which is connected mechanically to a vibrating diaphragm. The diaphragm vibrates as it's hit by sound waves. The linkage transmits this motion to the crystal, which generates a varying electrical current. Crystals are cheap and versatile, and capable of wide-range sound reproduction. But they're subject to changes in temperature and humidity, can be cracked if the mike is dropped, and are hard to pair for stereo since no two crystals are exactly alike. Some listeners also claim there's a "crystal sound", which is harsher, harder than that produced by dynamic microphones. Ceramic microphones use an element which in effect is a man-

made crystal. These elements are almost identical with crystals, yet have the advantage of uniformity which enables them to be paired for stereo. Dynamic microphones use some variety of electromagnet to produce sound. This may include a magnetized bar moving back and forth in an electrical field created by a coil, two bars linked together, or a fixed bar set inside a moving coil. Dynamics are highly uniform (within a given model), very rugged, quite versatile, produce good sound, and cost somewhat more than crystals or ceramics.

In addition to these, there are several other elements used in microphones which may be used with tape recorders. These include ribbon or velocity mikes (sound waves strike a corrugated thin metal ribbon within the mike), the first high fidelity microphones and somewhat more expensive than other dynamics; carbon mikes, which are inexpensive low-fi mikes intended primarily for voice recording.

You'll find that with the right microphone, your recorder will perform much better the next time you make a live recording. If you plan to do much live recording, you may even wish to assemble your own collection of mikes (prices may tend to dampen your enthusiasm if you get carried away). And if you plan to record stereophonically, you'll need at least one matched pair of good microphones.

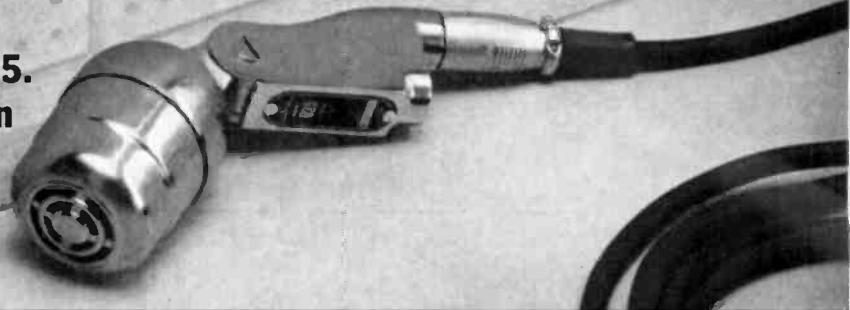
Another factor to consider when buying a microphone is impedance. Most home tape recorders have high impedance inputs for mikes (10,000 ohms and up). Thus, you may want to select from among the high impedance microphones listed. The trouble is that high impedance lines tend to lose signal strength and pick up hum the farther they're run. So if your microphone must be more than, say, 15 feet from your recorder, you may wish to consider a low impedance microphone instead (50 ohms or so). To convert low impedance microphones to high impedance use, you'll need a transformer. The transformer is located right at the recorder itself. Between it and the microphone, you can now string as long a cable as you like without fear of signal loss or interference.

Here, then, is a rundown of microphones particularly suited to use with your tape recorder:

Model	Price	Remarks
CRYSTAL OMNIDIRECTIONAL		
Astatic JT 30	\$ 16.95	30-10,000 cps, high impedance, with stand
Astatic 150	\$ 6.00	30-10,000 cps, high impedance, 5 ft. cable
Astatic 200	\$ 17.00	30-10,000 cps, high impedance, base included, 8 ft. cable
Astatic 332	\$ 14.00	30-15,000 cps, high impedance, 8 ft. cable
Electro-Voice 911	\$ 32.50	High impedance, 50-10,000 cps, on-off switch, 16 ft. cable
Electro-Voice 920	\$ 27.50	60-10,000 cps, head treated for wind and moisture protection, high impedance, 16 ft. cable
Electro-Voice 924	\$ 20.00	Lavalier supplied with neck cord, high impedance, 60-8,000 cps, 18 ft. cable
Electro-Voice 926	\$ 29.50	60-8,000 cps, high impedance, tilt-able head, 16 ft. cable
Shure 710S	\$ 13.70	60-9,000 cps, semi-directional, high impedance, 7 ft. cable, on-off switch
Shure 710A	\$ 11.75	Same as 710S less switch
Shure 715	\$ 7.80	50-10,000 cps, high impedance, 5 ft. cable
Turner 141-11	\$ 9.00	60-10,000 cps, high impedance, 6 ft. cable
Turner 708	\$ 12.25	60-10,000 cps, high impedance, 6 ft. cable
Turner 908	\$ 4.80	60-8,500 cps, high impedance cable

CERAMIC OMNIDIRECTIONAL		
American B213S	\$ 10.05	80-9,000 cps, high impedance, 5 ft. coiled cable, push-to-talk switch
Astatic 151	\$ 6.35	30-8,000 cps, high impedance, 5 ft. cable
Electro-Voice 712	\$ 7.50	70-7,000 cps, high impedance, 5 ft. cable, moisture-sealed
Electro-Voice 715	\$ 13.00	60-7,000 cps, high impedance 5 ft. cable, rugged
Electro-Voice 715S	\$ 15.00	60-7,000 cps, high impedance, 5 ft. cable, on-off switch
Electro-Voice 727	\$ 18.00	60-8,000 cps, high impedance, 5 ft. cable, with desk stand
Electro-Voice 727SR	\$ 20.00	60-8,000 cps, high impedance, 5 ft. cable, on-off switch
Shure 275S	\$ 14.69	40-12,000 cps, high impedance, switch, stand adapter, lavalier assembly included
Sonotone CM-10A	\$ 17.50	50-11,000 cps, high impedance, 7 ft. cable
Sonotone CMT 11A	\$ 37.30 pr.	80-9,000 cps, high impedance, matched for stereo use
Sonotone CM-30	\$ 14.70	60-7,000 cps, high impedance, coiled cable, push-to-talk switch

**This was the E-V Model 635.
It started a tradition
of excellence in
dynamic microphones.**



**This is the new
E-V Model 635A.
It's better
in every way!**



Model 635A Dynamic Microphone \$82.00 List. (Normal trade discounts apply.)

E-V How can a microphone as good as the E-V Model 635 be made obsolete? By making it better! It wasn't easy. After all, professional sound engineers have depended on the 635 since 1947.

During this time, the 635 earned a reputation for toughness and dependability that was unrivalled by other omnidirectional dynamics. And internal changes through the years have kept the 635 well in the forefront of microphone design.

But now the time has come for an all new 635: the Electro-Voice Model 635A. It's slimmer, for easier hand-held use. Lighter, too. With a slip-in mount (or accessory snap-on Model 311 mount) for maximum versatility on desk or floor stands. The new, stronger steel case re-

duces hum pickup, and offers a matte, satin chromium finish perfect for films or TV.

The new 635A is totally new inside, too—and all for the best. A new four-stage filter keeps "pops" and wind noise out of the sound track, while guarding against dirt and moisture in the microphone, completely eliminating any need for external wind protection. Of course you still get high output (—55db) and smooth, crisp response. And you can still depend on the exclusive E-V Acoustalloy[®] diaphragm that is guaranteed against failure for life* (it's that tough)!

We expect to see plenty of the "old" 635's in daily use for years. But more and more, the new 635A will take over as the new standard. It's easy to find out

why: just ask your E-V Professional Microphone distributor for a free demonstration in your studio. Or write us today for complete data. We'll be proud to tell you how much better the new Model 635A really is!

*The E-V Professional Microphone Guarantee: All E-V professional microphones are guaranteed UNCONDITIONALLY against malfunction for two years from date of purchase. Within this period, Electro-Voice will repair or replace, at no charge, any microphone exhibiting any malfunction, regardless of cause, including accidental abuse. In addition, all E-V microphones are GUARANTEED FOR LIFE against defects in the original workmanship and materials.

ELECTRO-VOICE, INC., Dept. 161TR
637 Cecil St., Buchanan, Michigan 49107

Electro-Voice[®]
SETTING NEW STANDARDS IN SOUND

Model	Price	Remarks
Sonotone CM 40	\$ 10.40	40-8,000 cps, high impedance, swing-type stand, 7 ft. cable
Sonotone CM 1018	\$ 19.45	50-10,000 cps, low impedance
Sonotone CM 1050WR	\$ 19.45	50-10,000 cps, low impedance, intended for talk or music
Sonotone CM 1050SR	\$ 19.45	170-9,500 cps, low impedance, intended for speech
Turner 44C	\$ 21.00	60-10,000 cps, high impedance, 12 ft. cable, on-off switch
Turner 304C	\$ 9.90	60-10,000 cps, desk stand and adapter, lavalier clip and 12 ft. cable, high impedance
Turner 707	\$ 7.50	60-10,000 cps, 6 ft. cable, high impedance
Turner 907	\$ 4.80	60-8,500 cps, high impedance, polystyrene construction
DYNAMIC OMNIDIRECTIONAL		
Altec Lansing 681A	\$ 46.50	50-18,000 cps, choice of low or high impedance, 15 ft. cable, 7 $\frac{3}{8}$ " long
Altec Lansing 682A	\$ 54.00	45-20,000 cps, choice of impedances, 15 ft. cable, 7 $\frac{3}{8}$ " long
American D-4	\$ 18.60	60-12,000 cps, low or high impedance, 12 $\frac{1}{2}$ ft. cable
American D-11	\$ 21.60	80-10,000 cps, low or high impedance, 15 ft. cable
American D-12	\$ 35.70	60-12,000 cps, low or high impedance, includes lavalier and accessories
American D-20	\$ 20.00	80-12,000 cps, high impedance, includes desk stand, floor stand coupler and lavalier cord assembly
Astatic 335H	\$ 25.95	60-12,000 cps, high impedance, with lavalier
Astatic 788	\$ 79.50	60-13,000 cps, low or high impedance, 20 ft. cable, stand adapter, lavalier assembly included
Astatic 888	\$110.00	50-15,000 cps, low or high impedance, 20 ft. cable, stand adapter, lavalier assembly included
Astatic 988	\$150.00	40-17,000 cps, low impedance, 20 ft. cable, stand adapter, lavalier assembly included
Electro-Voice 623	\$ 55.95	60-12,000 cps, low or high impedance, tiltable chrome head, on-off switch, 16 ft. cable
Electro-Voice 624	\$ 42.50	100-7,000 cps, low or high impedance, acoustically treated for wind & moisture protection
Electro-Voice 630	\$ 51.00	60-11,000 cps, high impedance, on-off switch, tiltable chrome head, 16 ft. cable
Electro-Voice 635A	\$ 87.00	60-15,000 cps, low impedance, 18 ft. cable, for broadcast use
Electro-Voice 636	\$ 72.50	60-13,000 cps, low or high impedance, on-off switch, 16 ft. cable

Model	Price	Remarks
Electro-Voice 638	\$ 33.50	70-10,000 cps, low or high impedance, 16 ft. cable
Electro-Voice 641	\$ 35.00	70-10,000 cps, low or high impedance, on-off switch, 16 ft. cable
Electro-Voice 647A	\$ 82.50	70-10,000 cps, low or high impedance, 18 ft. cable, lavalier cord and assembly, 3 $\frac{3}{4}$ " long
Electro-Voice 649B	\$105.00	100-900 cps, low impedance, 30 ft. cable, lavalier assembly, 2 $\frac{1}{4}$ " long
Electro-Voice 654A	\$100.00	50-16,000 cps, low impedance, 18 ft. cable, 7" long
Electro-Voice 655C	\$200.00	40-20,000 cps, low impedance, 20 ft. cable, 10 $\frac{1}{2}$ " long
RCA 77DX	\$206.00	30-20,000 cps, low impedance, 30 ft. cable. Variable pickup pattern changed by selector switch.
RCA BK-1A	\$ 73.50	50-15,000 cps, low impedance, 30 ft. cable. Pickup pattern can be switched to semi-directional by putting mike in horizontal position. Swivel mounted in base.
RCA BK-6B	\$ 86.00	60-15,000 cps, low impedance, 30 ft. cable, 2 $\frac{1}{2}$ " long
RCA BK-12A	\$ 95.00	60-18,000 cps, low impedance, 30 ft. cable, 1 $\frac{1}{2}$ " long
RCA SK-30	\$ 30.00	60-12,000 cps, low or high impedance, 20 ft. cable, 4 $\frac{1}{2}$ " long
RCA SK-39A	\$ 23.40	60-10,000 cps, low impedance, 25 ft. cable
RCA SK-45B	\$ 45.00	70-12,000 cps, low or high impedance, 25 ft. cable
Shure 420	\$ 29.40	60-10,000 cps, dual impedance, 20 ft. cable, lavalier cord and clip
Shure 425	\$ 29.40	60-10,000 cps, dual impedance, 7 ft. cable
Shure 430	\$ 38.50	60-10,000 cps, dual impedance, 15 ft. cable, push-to-talk switch, swivel adapter
Shure 51	\$ 29.70	60-10,000 cps, triple impedance, 15 ft. cable
Shure 51S	\$ 30.90	60-10,000 cps, on-off switch, triple impedance, 15 ft. cable
Shure 540	\$ 48.50	60-13,000 cps, low and high impedance, 15 ft. cable
Shure 540S	\$ 49.95	60-13,000 cps, low and high impedance, on-off switch, 15 ft. cable, self-adjusting swivel
Shure 560	\$ 42.50	40-10,000 cps, low and high impedance, 18 ft. cable
Shure 561	\$ 32.50	40-10,000 cps, low and high impedance, 18 ft. cable
Shure 570	\$ 95.00	50-12,000 cps, low impedance, 30 ft. cable, 2 $\frac{1}{2}$ " long
Shure 570S	\$105.00	50-12,000 cps, low impedance, 30 ft. cable, on-off switch
Shure 571	\$ 95.00	50-10,000 cps, low impedance, 30 ft. cable
Shure 575S	\$ 14.40	40-15,000 cps, choice of low or high impedance, 7 ft. cable, lavalier cord & accessories, stand adapter

Model	Price	Remarks
Shure 576	\$175.00	40-20,000 cps, low & medium impedance, available in matched pairs for stereo
Shure 578	\$ 90.00	50-15,000 cps, optional on-off switch, low-medium impedance, 18 ft. cable, available in matched pairs for stereo
Sonotone DM 10-200	\$ 24.50	80-16,000 cps, high impedance
Sony F-32	\$ 27.50	Bass cut switch, other features
Sony F-91	\$149.50	Low-medium impedance, 40-20,000 cps, desk stand, case included
Sony F-96	\$ 17.50	High impedance lavalier
Turner 44D	\$ 27.00	85-15,000 cps, 12 ft. cable, low & high impedance
Turner 401	\$ 75.00	40-20,000 cps, 20 ft. cable, high or low impedance
Turner 402	\$ 78.00	40-20,000 cps, 20 ft. cable, on-off switch, high or low impedance
Turner 403	\$ 48.00	50-13,000 cps, 20 ft. cable, high or low impedance
Turner 404	\$ 51.00	50-13,000 cps, 20 ft. cable, high or low impedance, on-off switch
University 2000	\$ 44.75	50-14,000 cps, high or low impedance, with stand adapter
University 4000	\$ 93.25	50-20,000 cps, variable impedance, lavalier cord
University 4040	\$105.75	50-20,000 cps, variable impedance, swivel & stand adapter
University 4050	\$109.75	50-20,000 cps, variable impedance, swivel & stand adapter
University 4080	\$ 91.50	50-20,000 cps, low or medium impedance, neck cord

CRYSTAL CARдиоID

Astatic 150	\$ 5.00	30-10,000 cps, high impedance, 5 ft. cable
Electro-Voice 951	\$ 54.50	50-11,000 cps, on-off switch, high impedance, swivel base, 16 ft. cable
Shure 737A	\$ 27.60	60-10,000 cps, high impedance, 15 ft. cable

CERAMIC CARдиоID

Astatic 151	\$ 5.00	30-8,000 cps, high impedance, 5 ft. cable
Electro-Voice 717	\$ 19.10	100-7,000 cps, high impedance, coiled cord
Electro-Voice 729	\$ 24.50	60-8,000 cps, high impedance, on-off switch, 8½ ft. cable
Shure 245	\$ 35.00	50-7,000 cps, high impedance, 15 ft. cable, swivel adapter
Shure 245S	\$ 37.00	50-7,000 cps, high impedance, on-off switch, 15 ft. cable, swivel adapter

Let's Look Inside The Dynamic Microphone



THIS is no ordinary microphone. It's a University Dynamic. Its manner of working is no less complex than a modern day computer. Its system of elements is a carefully integrated electromechanical network in a critical acoustical area. Without showing it, it's really quite a bit more than it appears to be — you have to listen to know the results of its performance.

For example — you move toward a flurry of activity on a busy street corner and witness a man-on-the-street interview. To you and other observers the conversation is barely audible above the noise of people and traffic. But to radio listeners the conversation is clear and unaffected by the sounds of the city . . . They are remote . . . in the background where they belong. This is the distinct advantage of a microphone with a good directional pick-up pattern.



Model 8000 Directional (Cardioid) Shock Mounted



Model 8100 Directional (Cardioid) With Switch

To demonstrate another case in point — Imagine yourself an unseen observer in a conference room of a large organization. A tape recorder, fed by a single microphone in the center of the conference table, is in use to store all that is said. Many speak at once; some face away from the microphone; it appears that all that is said may never be recorded, but every word is captured on the magnetic tape for later review.

Both are University Dynamic Microphones, but they are different in design, to serve different applications. The first is a highly directional (cardioid) dynamic microphone, sensitive only to the areas of sound intended for radio transmission or recording . . . proportionally attenuating sounds emanating from adjacent unwanted areas. The second is a highly omni-directional dynamic microphone sensitive to sounds in all surrounding areas, specifically designed to pick up all sounds.

University makes only dynamic microphones, and they have the precision and reliability of modern day computers. Look at the inside to confirm this. The bullet shaped dome of the directional cardioid is a precise and significant component of the system. It smoothes the vital mid-range to provide a more dynamic, natural quality of sound. Filters, in a special configuration, soften sudden bursts of sound, minimize sibilants and protect the inner components from dust, dirt and the elements. A series of ducts further extends the performance of the microphone's transducer element providing gross and fine tuning (similar to the bass ducts of a speaker system) to sharpen the directional characteristics and reinforce the bass response.



Model 2000 Omni-Directional



Model 2050 Omni-Directional With Switch

what the nature of sound, University captures the live natural quality that makes the difference right from the start . . . better than other microphones costing \$10, \$15 or even \$20 more. And, the exclusive University warranty gives you five times as long to enjoy this "lively sound." Stop at a franchised University Dealer today and try for yourself. Get more info too! Write to Desk Y 619, UNIVERSITY SOUND, P. O. Box 1056, Oklahoma City, Oklahoma 73101 . . . we'll send you a FREE copy of "Microphones 66."



Attache' 6000 Miniature Directional (Cardioid) With Lever

Circle 58 on Reader's Service Card

Model	Price	Remarks
DYNAMIC CAROID		
Altec Lansing 683A	\$ 76.50	45-15,000 cps, low or high impedance, 15 ft. cable
American D 55	\$ 51.00	50-12,000 cps, low or high impedance, 7½" long
Astatic 77 series	\$ 72.50 up	30-15,000 cps, impedance selector switch, some models with on-off switch, front-to-back differential 18 db.
Electro-Voice 642	\$390.00	30-10,000 cps, low & medium impedance, 30 ft. cable, distributed front opening design. Must be used with suspension shock mount (\$50) or windscreen package (\$100).
Electro-Voice 644	\$110.00	Distributed front yields 20 db cancellation rear & sides. 40-10,000 cps, high or low impedance
Electro-Voice 664	\$ 85.00	40-15,000 cps, low & high impedance, 16 ft. cable
Electro-Voice 665	\$150.00	50-14,000 cps, 20 ft. cable, low impedance
Electro-Voice 666	\$255.00	30-16,000 cps, 20 ft. cable, low impedance, variable directivity
Electro-Voice 667A	\$345.00	40-12,000 cps, 20 ft. cable, low impedance
Electro-Voice 668	\$495.00	40-12,000 cps, 20 ft. cable, low impedance
Electro-Voice 676	\$100.00	40-15,000 cps, low or high impedance, switch controls low-frequency attenuation
Norelco D-12	\$ 99.00	40-15,000 cps, low impedance, front-to-back ratio 18 db.
Norelco D-19E	\$ 58.00	40-16,000 cps, low impedance
Norelco D-24B	\$150.00	30-16,000 cps, low impedance, bass roll-off switch
Norelco D-119ES	\$ 69.00	40-16,000 cps, low, medium or high impedance, on-off switch, 15 ft. cable, stand adapter
RCA BK-1A		See listing under dynamic omnidirectional
RCA BK-5B	\$146.50	30-20,000 cps, 30 ft. cable, low impedance
RCA 77-DX		See listing under dynamic omnidirectional
Shure 330	\$120.00	30-15,000 cps, 20 ft. cable, triple impedance
Shure 333	\$250.00	30-15,000 cps, triple impedance, 20 ft. cable
Shure 545	\$ 89.95	50-15,000 cps, triple impedance, 18 ft. cable, switch available as optional extra
Shure 546	\$132.30	50-15,000 cps, low & medium impedance, 20 ft. cable, shock-mounted, swivel mount
Shure 55S	\$ 83.00	50-15,000 cps, triple impedance, switch available as optional extra, 18 ft. cable

Model	Price	Remarks
Shure 556S	\$132.50	40-15,000 cps, triple impedance, shock mounted
Shure 580S	\$ 52.59	50-12,000 cps, low or high impedance, 15 ft. cable, available in matched pairs for stereo, on-off switch
Sony F 75	\$395.00	30-14,000 cps, low or high impedance, built-in transistor monitoring amp, earphones, two sound probes, switch for low-frequency attenuation
Sony F 87	\$ 22.50	High impedance, floor stand adapter
Sony F 113	\$249.50	30-16,000 cps, medium or high impedance, desk stand, windscreen & case
Turner 500	\$ 50.40	40-15,000 cps, high or low impedance, 20 ft. cable, on-off switch available. Matched pair available for stereo with windscreens
University 1000 series	\$119.00 up	30-16,000 cps, triple impedance, available with stand, shock mounting, on-off switch and other features
University 8000	\$ 58.25	70-15,000 cps, variable impedance, shock mounted, stand adapter
University 8100	\$ 63.25	70-15,000 cps, variable impedance, shock mounted, on-off switch & adapter
University Attache	\$ 66.25	50-15,000 cps, low impedance, neck cord supplied

FIGURE-EIGHT RIBBON MIKES

Dynaco 50	\$ 59.95	30-13,000 cps, high impedance, switch provides music, close talk and off positions
Dynaco 53	\$ 69.95	30-13,000 cps, internally-switched matching transformer for low or high impedance, switch for music, talk or off
Dynaco 200	\$150.00	Dual-ribbon stereo mike. Top section can be rotated 180 degrees with respect to lower section. 30-13,000 cps, medium impedance
Dynaco 100	\$ 89.95	30-13,000 cps, medium impedance, phasing and muting switch
Shure 300	\$150.00	40-15,000 cps, medium and high impedance, 20 ft. cable, 15-20 db difference between sides, front & rear, antibreath filter.
Shure 315	\$ 89.50	50-12,000 cps, 3-position impedance switch, 20 ft. cable, on-off switch available

Model	Price	Remarks
MISCELLANEOUS		
Kinematix IMP II	\$ 49.95	FM wireless microphone. Cigarette-pack size, transmits to any FM receiver up to 200 ft. 30-20,000 cps 50-15,000 cps. Built-in reverberation unit and transistorized amplifier. Available low or high impedance.
Norelco DX11	\$130.00	

88

stereo

COMPACT

SOUND AS GOOD



880

stereo

PORTABLE

AS THEY LOOK

The choice of music connoisseurs who demand the ultimate in full stereo fidelity. Though compact in size these Viking tape recorders set a standard of excellence for dramatic, life-like realism in recording quality. Compare feature for feature, size, quality, styling—and dollar for dollar you too will prefer a Viking tape recorder.

Choose an 88 Stereo Compact in the traditional cabinet with folding cover at left, or select the modern enclosure, center, to match your music system. For portability Viking recommends the 880 Stereo at right, complete with detachable speakers.



An 88 Stereo Compact costs less than \$340.00
Walnut cabinets extra.

880 Stereo portable recorder less than \$440.00
At better hi-fi dealers most everywhere.



(Continued from page 69)

Missa Solemnis	
Kyrie	9:25
Gloria	16:50
Credo	19:30
Sanctus	16:45
Agnus Dei	15:00
Namensfeier Overture	7:12
Wellington's Victory	16:26

Bellini

Concerto in E ^b for Oboe	6:37
-------------------------------------	------

Berlioz

Beatrice and Benedict Overture	7:07
Benvenuto Cellini Overture	10:21
Corsair Overture	7:55
Requiem	
Requiem and Kyrie	11:29
Dies Irae	12:25
Quid Sum Miser	3:25
Rex Tremendae	5:39
Quaerens Me	4:43
Lachrymosa	10:24
Offertorium	8:20
Hostias	3:20
Sanctus	11:09
Agnus Dei	11:45
Roman Carnival Overture	7:55
Romeo and Juliet	
Introduction and Prologue	19:38
Part Two	36:29
Part Three	34:43

Boccherini

Quintet for Guitar	23:52
Quintet for Oboe	9:23

Boismortier

Flute Concerto Op. 15 No. 1	7:40
Concerto for Flutes Op. 15 No. 2	7:24
Concerto for Flutes Op. 15 No. 3	7:29
Quintet in e	8:20
Sonata Op. 34 No. 1	9:10
Sonata Op. 34 No. 2	5:10
Sonata Op. 34 No. 3	8:35
Sonata Op. 34 No. 4	5:35
Sonata Op. 34 No. 5	8:35
Sonata Op. 34 No. 6	7:10
Suite No. 3 in E	10:45

Borodin

Nocturne for Strings	8:53
----------------------	------

Boyce

Symphony No. 1	5:26
Symphony No. 2	4:44
Symphony No. 3	5:02
Symphony No. 4	4:54
Symphony No. 5	7:14
Symphony No. 6	5:49
Symphony No. 7	6:52
Symphony No. 8	9:36

Brahms

Alto Rhapsody	12:25
Song of Destiny	15:10

Britten

Sinfonia da Requiem	18:34
---------------------	-------

Bruch

Concerto No. 1 for Violin	24:42
---------------------------	-------

Campra

Les Festes Venitiennes suite	16:55
L'Europe Galante Suite	10:03
Requiem	52:40

Charpentier

Concerto in Four Parts	11:03
Magnificat	19:46
Te Deum	27:30

Chopin

Concerto No. 1 for Piano	36:42
Sonata in b for Piano	23:20

Copland

Our Town	9:02
Outdoor Overture	9:06
Quiet City	9:25
Red Pony	24:29

Corelli

Sonata Op. 5 No. 8	11:34
--------------------	-------

Corrette

Concerto Op. 8 No. 3	5:52
Concerto Op. 8 No. 4	5:43
Concerto Op. 8 No. 6	5:16
Concerto Op. 26 No. 6	9:02
Concerto for Flute in e	7:12
Sonata for Violin and Harpsichord	10:01
Sonata for Cello and Harpsichord in D	8:49
Sonatile in E Flat	6:26

Couperin

Concert Royal No. 3	18:01
Concert Royal No. 6	10:58
Concert Royal No. 10	9:02

(Continued on page 93)

Get lucky with the IRISH



You don't have to be a genius to make professional-quality recordings. Just use IRISH!

You'll become a virtual tape "pro" overnight. Envious friends will say you're just lucky, but you'll know how smart it is to demand Irish Tape. Irish costs no more.

Send for free catalog describing complete Irish line—sizes, and technical specifications.



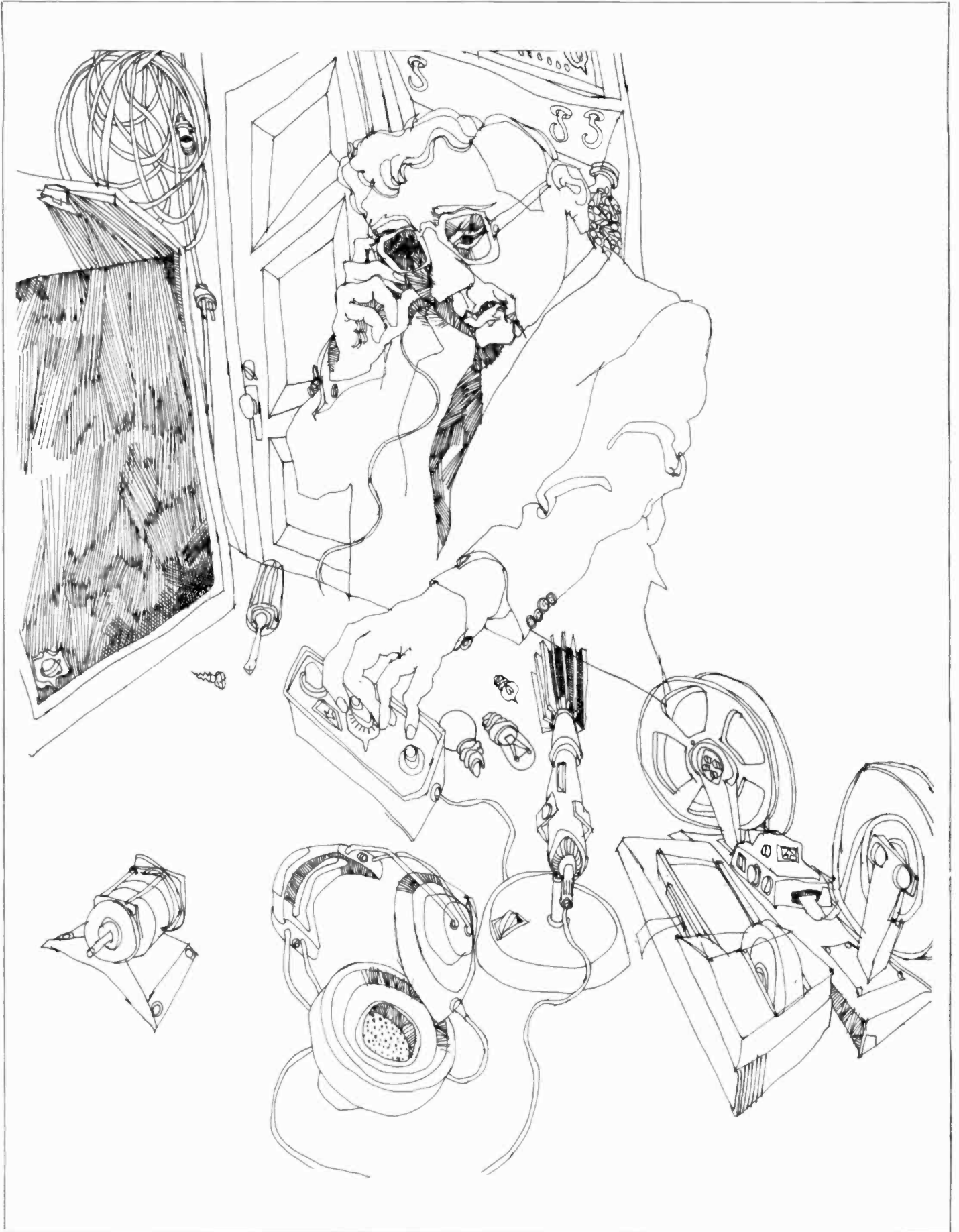
WITH ferro-sheen® PROCESS



IRISH MAGNETIC RECORDING TAPE

458 Broadway, New York, N.Y. 10013

Circle 45 on Reader's Service Card



Which Accessories Do You Need?

by Renato De Groff

There are dozens of tape accessories on the market today, ranging from the absolutely necessary (tape splicers, empty reels and so on) through the highly desirable (self-threading reels, tape indexers) to the specialized items like photo synchronizers and extra playback heads. The problem for the hobbyist on a budget is to separate the wheat from the chaff—to determine which accessories are an essential part of tape recording and which aren't.

First of all, you must be prepared to clean your tape recorder. If you don't, at regular intervals, it will provide inferior sound, and eventually you'll have a repair bill on your hands. To maintain it properly, you'll need a supply of tape head cleaner and cotton swabs to apply it, a camel's hair brush (such as those supplied for cleaning typewriters), and a tape head demagnetizer.

Your tapes must be maintained, marked and indexed. For them, you'll need a splicer, leader and splicing tape, extra reels and boxes plus press-on labels and a china marking pencil (to write directly on reels or boxes). A tab tape indexing system may also help you find specific selections in a hurry. If you do much tape recording, you'll soon need a bulk tape eraser—a gadget which cleans an entire reel of tape in a few minutes.

Tape Kits

American Recording Tape TAK-100

American Tape Kit \$17.95

1500-foot reel of tape, take-up reel, 350-foot "Mail-A-Tape" with self contained mailer, reel of pre-recorded tape, head cleaning kit, tape splicer, pre-cut Mylar splicing strips, reel of leader tape, booklet of Tape Tips.

Artronics AC1-100

Tape Accessory Kit \$19.95

Magnetic bulk tape eraser, head cleaner, brush, marking pencil, editing block, splicing tape and cutting blade.

Editall

KS-2 Editing Kit \$7.50

4 x 3/4 x 1 1/4-inch block, marking pencil, cutting blade, splicing tape. Other versions available.

Robins

TK-2 Tape Kare Kit \$1.90

Two ounce bottle tape head cleaner, tape jockey cloth.

Robins

TK-7 Tape Kare Chemical Kit \$3.50

Two ounce bottles of tape head cleaner, head and guide lubricant, non-slip for tape and phono drives, tape and phono drive oil, 50 "Swabbies."

Robins

TK-45R Stereo Tape Accessory Kit \$11.20

Stereo 4 Jr. tape splicer, splicing tape, reel holders, head cleaner, tape cleaning cloth, tape clips, reel labels, editing and splicing block.

Robins

TK-4STD Stereo Tape Accessory Kit \$13.50

Stereo 4 Standard tape splicer, splicing tape, tape threader, reel holders, head cleaner, tape cleaning cloth, tape clips, reel labels, editing and splicing block.

Robins

TK-8DLX Tape Accessory Kit \$16.75

Deluxe Stereo 4 tape splicer, splicing tape, tape threader, head and guide lubricant, head cleaner, tape cleaning cloth, reel holders, tape clips, reel labels, editing and splicing block.

Robins

TK-9 Tape Editing Workshop \$24.00

Two tape winders, deluxe Stereo 4 tape splicer, splicing tape, editing/timing scale. For reels up to seven inches.

Robins

TK-5 Strobe & Light Kit \$2.25

Five lengths of 25-inch non-magnetic leader tape with strobe markings to indicate relative speed of recorders at 15, 7 1/2, 3 3/4 i.p.s. Includes neon light and instructions.

Soundcraft Magna-See Kit Type PR \$12.00

Allows user to see magnetic track recorded on tape. Includes 1/2 pint Magna-See Solution, plastic bath, eye-piece magnifier, roll of pressure sensitive tape, 5 glass slides.

Soundcraft

Colored Leader Tape Kit MLK-1 \$3.95

4 Rolls Mylar Base Colored Leader, 1/4-inch x 150-feet each, in blue, gold, red, white. Rolls also available singly at \$1.10 each.

MLK-3 \$6.50

4 Rolls Mylar Base Colored Leader, 1/4-inch x 300-feet, in red, gold, blue, white. Rolls also available singly at \$1.80 each. Larger rolls also available.

Head Demagnetizers

(Reduces signal-to-noise ratio by removing magnetism which accumulates on recording heads.)

Audiotape \$10.00

Uses conventional ac outlet.

Audiotex

30-112 \$11.95

Built-in push-button switch, six ft. cord, soft plastic coating on tip prevents head damage.

Concertone

18 \$4.95

Pencil-type model.

Head Demagnetizers . . .

Microtran HD-40M

\$6.15
4 x 1¼-inches. Epoxy molded high impact.

Robins

HD-6
\$10.00
U.L. listed. 110 Volts, 60 cycles, AC.

Robins

HD-3
\$6.00
Non U.L. 110 Volts, 60 cycles, AC.

Tape Splicers

(Mend broken tapes, attach leader to recorded tape, edit out unwanted pieces of tape, join recordings.)

Robins

TS-8D
\$12.75
Cuts tape diagonally. Features "see-thru windows" indicating cut and trim positions, blade centering adjustment, replaceable cutter cartridge and blade, ½ x 100-inch roll of splicing tape, safety lock. Use with four-track stereo tapes.

Robins

TS-4S
\$9.50
For one & two track tapes. Features easy threading integral tape dispenser with ⅜ x 100-inch roll of splicing tape. Cuts diagonally.

Robins

TS-40
\$9.50
For one and multiple track tapes. Cuts diagonally. Uses ⅜-inch splicing tape. (Tape not included).

Robins

TS-6
\$5.00
Features adjustment for cutting tapes at 40° or 90°. Includes 25 pre-cut self-sticking splicing patches.

Robins

TS-5
\$3.00
Metal splicing block with tape guide & cutting groove, 25 pre-cut self-sticking splicing patches and cutting blade.

Bulk Tape Erasers

(Completely erase tape in quantity).

Amplifier Corp.

150A
"Magneraser Jr."
\$18.95
4¾ x 4⅝ x 2½-inches, 117 Volts, field intensity 750 gauss.

Amplifier Corp.

300A
"Magneraser Sr."
\$49.00
7 x 3¾-inches, 117 Volts, field intensity 800 gauss. Reels up to 10½-inches dia. ½-inch w.

Amplifier Corp.

200C
"Magneraser"
\$24.00
2 x 4-inches, 100-130 Volts, 50-60 c.p.s.

Amplifier Corp.

220C
"Magneraser"
\$24.00
2 x 4-inches, 200-260 Volts, 50-60 c.p.s.

Audiotex

30-114
\$33.00
Erases to -52 db. Reels to 10½-inches. With on-off push-button switch, six-foot cord.

Fanon-Masco

RA-33
\$19.95
4½-inches, 1175½ x 5½ x Volts, flux density 3500 gauss @ one cm.

Lafayette

99-1516
\$18.95
Erases three to six db below recorder erase head level, 6½ amps, 110-120 Volts, 60 cycle AC. With pilot light.

Robins

ME-66
\$19.95
Hand-held unit with momentary contact switch in handle, four amps at 110-120 Volts, 60 cycles AC. For ¼-inch tape. All reel sizes.

Robins

ME-55
\$16.66
Hand-held unit, four amps at 110-120 Volts, 60 cycles AC. Weighs two pounds.

Robins

ME-77
\$24.50
Erases two to four db below recorder head level, 110 Volts, 60 cycles AC. Reels up to seven-inches diameter, one quarter inch w. Non U.L.

Robins

ME-99
\$43.50
Erases three to six db below recorder head level, 110 Volts, 60 cycles AC. Reels up to 10½-inches diameter ½-inch w. U.L. listed.

Tape Heads

Nortronics

P-6
\$29.70
Converts Pentron mono and two-track stereo recorders to four-track stereo playback. Patch cord and jack set to connect to external stereo playback amplifier included.

Nortronics

P-7
\$15.00
Use with Pentron recorders. Includes four-track stereo erase head.

Nortronics

W-2
\$27.50
Use with Webcor Series 210, 2020, 2100, 2600 and 2700. Converts to four-track stereo playback only.

Nortronics

W-6
\$36.00
Use with Webcor 2800, 2900, 2000 series. Converts to stereo playback. Includes head-shifter to play back two-track and four-track tapes. Original mono recording and playback retained.

Nortronics

W-7
\$18.00
For Webcor 2800, 2900, 2000 Series. Four-track stereo erase head.

Nortronics

WR-40
\$32.50
Converts Wollensak and Revere mono recorders to four-track stereo playback. Additional tape head not included in kit needed for playback of second channel.

Nortronics

WR-35
\$25.50
Converts Wollensak and Revere stereo two-track recorders to four-track stereo playback.

Nortronics

WR-60
\$49.50
Converts Revere and Wollensak two-track recorders to four-track stereo; includes three-position head shifter for two-track stereo, four-track stereo and four-track mono operation; stereo recording with additional amplifier (not included).

Nortronics

WR-30
\$57.00
Converts Wollensak and Revere mono recorders to full-track record/play.

Nortronics

V-6
\$25.50
Converts V-M mono and two-track stereo recorders to four-track playback. Includes patch cord and jack set for connection to external stereo playback amplifier. For one & two track tapes. Fearroll of splicing tape. Cuts diagonally.

Nortronics

V-7
\$14.50
For V-M recorders. Four-track stereo erase head replaces mono erase head. Permits stereo erase during stereo recording when used with V-6. Includes synchronizing cable, isolation capacitor, and erase jack.

Nortronics

Record/Play Seeds
Series 1000
\$21.00
4-track stereo, hyperbolic face construction, no-mount type. In 3 models: #1000, high impedance for vacuum-tube circuits; #1001, medium impedance for vacuum-tube circuits or transistor circuits; #1002, low impedance for transistor circuits. All above models with rear mount \$22.50.

Nortronics

Record,
Record/Play Heads
Series 1200
\$28.20
4-track stereo, hyperbolic face construction, no-mount type. In 6 models: #1200, high impedance for vacuum-tube circuits;

#1201, medium impedance for vacuum or transistor circuits; #1202, low impedance for transistor circuits; #1203, low impedance for vacuum or tube-circuits; #1205, medium impedance for vacuum-tube circuits; #1207, medium-low impedance for transistor circuits. All above models with rear mount \$29.70.

Nortronics
Record/Play Heads
Series 1800
\$23.30

2-track stereo, hyperbolic face construction, no-mount type. In 3 models: #1800, high impedance for vacuum-tube circuits; #1801, medium impedance for vacuum-tube or transistor circuits; #1802, low impedance for transistor circuits.

Nortronics
Record/Play Heads
Series 2600
\$15.90

2-track mono, hyperbolic face construction, no-mount type. In 4 models: #2600, high impedance for vacuum-tube circuits; #2601, medium impedance for vacuum-tube or transistor circuits; #2602, low impedance for transistor circuits; #2603, special record only head for vacuum-tube or transistor circuits.

Nortronics
Record/Play Heads
Series 3000
\$8.40

2-track mono, hyperbolic face construction, no-mount type. In 2 models: #3000, high impedance for vacuum-tube circuits; #3001, medium impedance for vacuum-tube or transistor circuits. Above models with rear mount \$9.90.

Nortronics
Record/Play Heads
Series 3100
\$8.40

2-track mono, cylindrical metal face construction, center track, no-mount type. In 2 models: #3100, high impedance for vacuum-tube circuits; #3101, medium impedance for vacuum-tube or transistor circuits. Above models with rear mount \$9.90.

Nortronics
Record/Play Heads
Series 3200
\$15.90

2-track mono, hyperbolic face construction, no-mount type. In

3 models: #3200, high impedance for vacuum-tube circuits; #3201, medium impedance for vacuum-tube or transistor circuits; #3203, low impedance record only for vacuum-tube or transistor circuits. Above models with rear mount \$17.40.

Nortronics
Record/Play Heads
Series 4100
\$34.70

Full-track mono with hyperbolic face construction, no-mount type. In 2 models: #4100, medium impedance for vacuum-tube or transistor circuits; #4101, special record only head for vacuum-tube or transistor circuits. Above models with rear mount \$36.20.

Nortronics
Record/Play Heads
Series 5601
\$99.00

4-channel, hyperbolic face construction, no-mount type. In 3 models: #5601, special record-only head, low impedance for vacuum-tube or transistor circuits; #5602, low impedance for vacuum-tube or transistor circuits; #5603, medium impedance for vacuum-tube or transistor circuits. All above models with rear mount \$105.00.

Nortronics
Record/Play Heads
Series 5700
\$99.00

3-channel, hyperbolic face construction. For stereo record/play plus cue channel on broadcast cartridge machines. In 3 models: #5701, medium impedance, record/play, for vacuum or transistor circuits; #5702, low impedance record/play, for transistor circuits; #5703, low impedance for vacuum-tube or transistor circuits.

Nortronics
Heads
Series 8000

Record/play, record-only, erase heads for professional and broadcast equipment. Available to match Ampex, Brush, Concertone, Crown, Magnecord, Muzak, Presto and RCA heads.

Nortronics
Erase Heads
Series 1400
\$12.00

4-track stereo, metal face construction, no-mount type. In 2

models: #1400, high impedance for vacuum-tube circuits; 60 kc operating voltage, 90-160 volts; #1401, medium impedance for vacuum-tube or transistor circuits, 60 kc operating voltage, 28-42 volts. Above models with rear mount \$13.50.

Nortronics
Erase Heads
Series 3600
\$8.00

2-track mono with full metal face construction, double gap, no-mount type. In 2 models: #3600, high impedance for vacuum-tube circuits, 60 kc operating voltage, 100-150 volts; #3601, medium impedance for vacuum-tube or transistor circuits, 60 kc operating voltage, 32-48 volts. Above models with rear mount \$9.50.

Nortronics
Erase Heads
Series 4400
\$14.00

Full-track mono with full metal face construction, no-mount type. In 2 models, #4400, high impedance for vacuum-tube circuits, 60 kc operating voltage, 100-150 volts; #4401, medium impedance for vacuum-tube or transistor circuits, 60 kc operating voltage, 32-48 volts. Above models with rear mount \$15.50.

Nortronics
Erase Heads
Series 2200
\$12.00

2-track stereo, full metal face construction, no-mount type. In 2 models: #2200, high impedance for vacuum-tube circuits, 60 kc operating voltage, 100-150 volts; #2201, medium impedance for vacuum-tube or transistor circuits, 60 kc operating voltage, 32-48 volts. Above models with rear mount \$13.50.

Nortronics
"Adjustable" Assembly
\$2.25

Includes provision for adjustment of tape head for warp, height, tilt, azimuth.

Nortronics
76
\$12.00

For Ampex 300, 350, 400, 3000 & 32000 tape series/transports.

Nortronics
82
\$2.00

For Tandberg 6, 64, 74, 84.

Nortronics
116
\$12.00

For various Roberts, Akai, Metzner, Terracorder models.

Miscellaneous

Concertone
Tape-Timer Strobe
\$19.95

Times length of tape in minutes and seconds. Determines accuracy of tape speed.

Nortronics
Alignment Tape
AT-100
\$4.95

7½ i.p.s. Checks record/play-back of all types. 40-10,000 c.p.s. For azimuth, equalization & head wear.

Robins
Leader Tape
LT-100
\$1.00

1½ mil white Mylar, 100-feet x ¼-inch on 2½-inch reel.

Robins
Mylar Splicing Tape
TST-235—\$1.00
TST-376—\$1.00
TST-501—\$1.00
TST-751—\$1.00
TST-233—\$1.00

¼ x 300-inches.
⅝ x 275-inches.
½ x 250-inches.
¾ x 150-inches
Self-stick, pre-cut splicing patches.

Robins
MSW-150
Swabbies
\$1.00

Cotton tips on six-inch applicators. Package of 150.

Robins
TB-12
Tape Mailing Boxes
\$1.00

For reels up to 3¼-inches dia. Package of 12.

Robins
Title Labels
TL-150
\$1.00

2 x ½-inch pressure sensitive labels. Package of 50.

Robins
Tape-Log-Discs
TLD-15
\$1.00

Miscellaneous cont.

For indexing seven-inch reels. With calibrated scale for marking beginning and end of each recorded subject. Package of 15.

Robins

Plastic
Reel Holders
TRN-2

\$1.00
Package of two with two Tape-Log-Discs.

Robins

Replacement
Pressure Pads
TPP-1

\$1.00
Pre-cut felt pads. For most recorders. Package of 50.

Robins

Replacement
Pressure Pads
TPP-2

\$1.00
44 pre-cut felt pads and two U-Cut-It pads. Self-sticking.

Robins

Tape Jockey Cloth
JCT-2

\$1.00
Cleans and lubricates tape. With silicone. Package of three.

Robins

Tape Clips
TC-75

\$1.00
Package of 75.

Robins

Tape Head Cleaner
HC-2

\$1.00
Two ounce bottle with applicator cap.

Robins

"Tape Clean"
Cloth Tape
THC-5—\$2.50
THC-3—\$1.65

Cleans and lubricates tape heads and guides.
5-inch reel.
3-inch reel.

Robins

Tape Head &
Guide Lubricant
RC-2-22

\$1.00
Silicone base liquid. Two ounce bottle.

Robins

Tape & Phono
Drive Oil
RC-2-33

\$.75
Two ounce bottle. For rotating and moving parts.

Robins

Non-Slip for Tape
& Phono Drives
RC-2-56

\$1.00
Two ounce bottle.

Robins

VU Meter
VU-100

\$32.00
0-100% mode, -20 to 3 db Dual impedance output. Sensitivity 200 micro amps. Shunts for 1.2 or 12 volts. "zero." Size 4 1/2-inches. Mounts in 2 3/4-inch hole, 1 1/2-inches depth.

Robins

TRB-3
Tele Pickup and
Transistorized Beeper
\$30.00

Transistorized battery-operated signal generator injects 1 KC "Beep" into phone lines and recorder at 15 second intervals. Includes on-off switch, six-foot shielded cable. Uses standard 2 1/2 volt battery.

Robins

Tele-Tape Telephone
Pick-up Coil
TRP-1

\$6.00
Gives 3-5 db more gain. High signal-to-noise ratio. Includes six-foot shielded cable.

Robins

TRP-2
Economy Phone
Pick-up
\$3.00

Includes five-foot cable. Fastens to phone by suction cup.

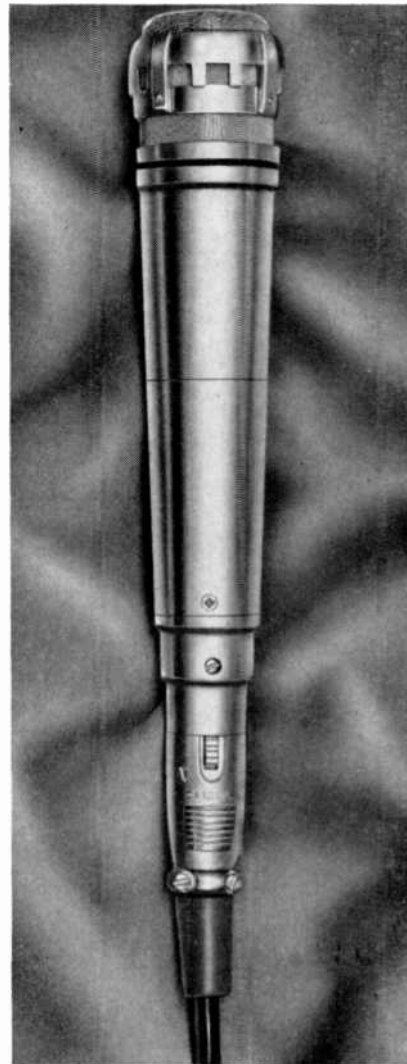
Soundcraft

\$9.92
1/4-inch x 18 yards, one metallic side, one adhesive side. Activates sensing devices and reverse tape movement on recorders. Can of 2 rolls.

Soundcraft

Magna-See Solution
Type PR
\$4.25

1/2 pint can.



art collector

The finest home recording equipment in the world can only record what comes through the business end — that's why it doesn't pay to cut corners when selecting your microphone. If quality counts with you, enjoy the magnificent reproduction possible with the Turner Model 500 Cardioid. With fine equipment, and the Turner 500 every tape is a work of art. Ask your dealer about it next time you're in.

 **THE TURNER MICROPHONE COMPANY**
942 17th Street N.E.
Cedar Rapids, Iowa

In Canada: Tri-Tel Associates, Ltd., 81 Sheppard Ave. West, Willowdale, Ontario
Export: Ad Auremo, Inc., 85 Broad Street, New York 4, N.Y.

A Guide to Stereo Headphones

by Robert Angus

Stereo headphones are essential to the serious recordist for both editing and monitoring tapes as well as for private listening. When editing or cueing tape, headphones keep out extraneous noises. For monitoring, it is essential to know that the sounds you hear are actually going on your tape. Headphones are the answer. And, when listening to music, only headphones deliver the original recording sound without being altered by the acoustics of your room.

The points to consider when buying stereo earphones are sound, weight and fit. Stereo earphones, like loudspeakers, tend to have their own sound coloration. Therefore, they should be selected only after listening to several different models. The most important thing to listen for is clarity. You should try to pick out individual instruments in an orchestra and watch out for high frequency distortion. Fit is very important because you may want to wear your earphones for hours and if they pinch or squeeze your ears you will be uncomfortable. Unless you have a good air seal against your ears, you will lose bass response. On some models earcushions are washable. This is an advantage since you will be able to remove dirt or saturated skin oils this way. Naturally, the lighter the headset, the longer you can wear it without fatigue. A little practice trying on a few sets of headphones will help you determine which fit and weight is right for you.

Prices for name brand stereo headphones range from \$14.95 to \$99.50 with over 90 per cent of all models falling in the under \$50 range. We believe that a small investment in stereo headphones will bring you satisfaction far in excess of the cost.

The following list includes the models of prime suppliers in the United States. In addition, there are a number of headphones by recorder manufacturers for use with their own recorders. These will be listed in their entirety in next year's Buying Guide. Finally, there are a number of stores across the country offering stereo headsets under proprietary labels. These have not been included because of the difficulty of establishing an accurate list price and obtaining full details on these units.

A small investment in stereo headphones will bring you satisfaction far in excess of the cost.

Model	Price	Resistance in Ohms	Plug(s)	Remarks
Clark 100	\$39.50	8	3-element	Dynamic transducer, contains 8-foot cord
Clark 103	\$39.50	300	3-element	Dynamic transducer, 8-foot cord
Clark 112	\$44.40	1200	3-element	Dynamic transducer, 8-foot cord
Clark 200	\$26.95	8	3-element	Magnetic transducer, 6-foot cord
Jensen HS-2	\$24.95	8	3-element	Foam cushions, 8-foot cord
Koss SP3X	\$24.95	4-16	3-element	Dynamic transducer, 8-foot cord, foam pads
Koss SP5SM	\$24.95	4-16	3-element	Built-in stereo-mono switch
Koss SP5NS	\$24.95	4-16	2 mono RCA	Dynamic transducer, 8-foot cord
Koss K0727	\$34.95	4-16 or 100	3-element	Coiled cord, switch for mono, padded cushion
Koss PRO	\$45.00	8	3-element	Liquid-filled pads, mike boom attachment
Koss KR2+2	\$34.95	300 stereo or 600 mono or 150 mono	2 mono RCA	Sold with microphone for language lab use Second plug is for microphone
Koss KR 1492	\$24.95	300 stereo or 600 mono or 150 mono	mono RCA	Dynamic driver, language lab use
Norelco K50	\$22.50	200	3-element	6½ foot cord, dynamic capsules
Sharpe HA-10	\$43.50	8	3-element	6 foot cord, dynamic reproducer, liquid fill
Sharpe HA-10B	\$43.50	100	3-element	8 foot cord, dynamic reproducer, liquid fill
Sharpe HA-10C	\$43.50	8	2 mono RCA	8 foot cord, dynamic reproducer, liquid fill
Sharpe HA-10LM	\$99.50	4		Headset-microphone combination
Sharpe HS-10LM	\$64.50	4		Headset-microphone combination
Sharpe HA8		8	3-element or 2 mono phone	For language training, 6 foot cord
Superex ST-PRO	\$50.00	4-16	3-element	Dynamic woofer, ceramic tweeter
Superex ST-M	\$29.95	4-16	3-element	Dynamic woofer, ceramic tweeter
Superex ST-PRO-7	\$50.00	4-16	1 mono phone	Dynamic woofer, ceramic tweeter
Superex ST-PRO-H	\$55.00	600, 2,000 15,000 or 50,000	3-element	Dynamic woofer, ceramic tweeter
Superex ST-M7	\$29.95	4-16	1 mono phone	Dynamic woofer, ceramic tweeter
Superex STM-2H	\$40.00	15,000	3-element	Dynamic woofer, ceramic tweeter
Superex STM-2H7	\$40.00	15,000	1 mono phone	Dynamic woofer, ceramic tweeter
Superex ST-S	\$24.95	4-16	3-element	Dynamic reproducer, 7 ft. cord
Superex ST-S7	\$24.95	4-16	1 mono phone	Dynamic reproducer, 7 ft. cord
Superex ST-SH	\$29.95	15,000	3-element	Dynamic reproducer, 7 ft. cord
Superex ST-SH7	\$29.95	15,000	1 mono phone	Dynamic reproducer, 7 ft. cord
Superex ST-S-U	\$31.95	4-16 or 15,000	3-element	Switch controls impedance, 7 ft. cord
Superex ST-SU7	\$31.95	4-16 or 15,000	1 mono phone	Switch controls impedance, 7 ft. cord
Superex SX 800	\$21.95	4-16	3-element	Dynamic reproducer, light weight
Superex SX 807	\$21.95	4-16	1 mono phone	Dynamic reproducer, light weight
Superex SX 300	\$11.95	4-16	3-element	Dynamic element, 7 ft. cord
Superex SX 307	\$14.95	4-16	1 mono RCA	Dynamic element, 7 ft. cord
Superex SX-NS1	\$10.00	4-16	3-element	Dynamic driver, 7 ft. cord
Superex SX-NS7	\$40.00	4-16	1 mono RCA	Dynamic driver, 7 ft. cord
Superex SX 700	\$22.95	4-16	3-element	Dynamic driver, 7 ft. cord
Superex SX 707	\$22.95	4-16	1 mono RCA	Dynamic driver, 7 ft. cord
Superex SX 740	\$24.95	4-16	3-element	Separate volume controls, 7 ft. cord
Superex APS	\$24.95	600 or 4-16	1 mono RCA	Retractable cord, for language labs
Superex SX 357	\$16.95	50,000	1 mono RCA	Ceramic element, 7 ft. cord
Superex SX 350	\$18.95	50,000	3-element	Ceramic element, 7 ft. cord
Superex SX 750	\$20.95	50,000 or 4-16, 600, 2,000	3-element	Ceramic element, 7 ft. cord/foam cushions
Superex SX 757	\$18.95	50,000	1 mono RCA	Ceramic element, foam cushions, 7 ft. cord
Telex Adjustatone	\$15.95	3-16	3-element	Reversal of phones adjusts stereo perspective
Telex Serenata	\$59.95	3-16 or 600	3-element	Knob adjusts ear pressure, detachable 8 ft. cord
Telex ST-10	\$24.95	3-16	3-element	8 ft. cord, foam rubber cushions
Telex ST-20	\$29.95	4-16	3-element	Knobs control balance of each speaker, 8 ft. cord

(Continued from page 85)

Concert Royal No. 13	4:55
Concert Royal No. 14	7:30
Sonata, La Steinkerque	8:36
Sonata, L'Astree	10:43
Sonata, L'Imperiale	10:45

Danzi

Divertimento in g	14:34
-------------------	-------

Dauvergne

Concert de Symphonies Op. 3 No. 1	17:52
--------------------------------------	-------

Debussy

La Mer Quartet	24:43 25:12
-------------------	----------------

Delibes

Sylvia: Ballet music	14:09
----------------------	-------

Delius

Appalachia	38:10
------------	-------

Donizetti

Concertino for English Horn	11:36
-----------------------------	-------

Dittersdorf

Concerto for Double Bass	15:05
Concerto for Harp	19:10
Divertimento in B	11:00
Partita in D	13:00
Sinfonia Concertante for Double Bass	16:15

Fischer

Oboe Concerto No. 2	18:09
---------------------	-------

Frederick the Great

Flute Concerto in C	14:02
---------------------	-------

Gershwin

Concerto in F for Piano	27:20
Cuban Overture	9:12

Gluck

Iphigenia in Aulis Overture	10:17
Orfeo ed Eurydice Overture	3:44
Act 1	29:30
Act 2	50:50
Act 3	52:34

Gould

Fall River Legend	20:04
Interplay	14:40
Latin American Symphonette	8:51

Graun

Flute Concerto in F	13:23
---------------------	-------

Grofe

Grand Canyon Suite	31:30
Mississippi Suite	11:42

Handel

Alexander's Feast Overture	6:00
Part I	57:15
Part II	35:40
Arias for Horns	4:58, 1:10
Belshazzar Act I	79:30
Act II	35:20
Act III	32:42
Concerto Grosso, Op. 3 No. 1	9:18
Concerto Grosso, Op. 3 No. 2	10:25
Concerto Grosso, Op. 3 No. 3	8:34
Concerto Grosso, Op. 3 No. 4	10:51
Concerto Grosso, Op. 3 No. 5	11:25
Let Thy Hand Be Strengthened	8:38
The King Shall Rejoice	11:38
Zadok the Priest	5:21
Ode for the Birthday of Queen Anne	26:41
Ode for St. Cecilia's Day	59:48
Overtures Ariadne	6:24
Ezio	3:01
II Pastor Fido	10:16
Jephtha	4:07
Rodelinda	5:45
Terpsichore	3:47
Theseo	5:43
La Resurrezione Part I	61:10
Part II	46:38
Samson Act I	50:58
Act II	53:02
Act III	48:29

Saul

Act I	49:43
Act II	33:03
Act III	40:09
Sonata for Flute No. 1 in e	7:20
Sonata for Flute No. 2 in g	8:08
Sonata for Flute No. 3 in G	10:23
Sonata for Flute No. 4 in C	10:19
Sonata for Flute No. 5 in F	7:25
Sonata for Flute No. 6 in b	11:05
Suite for Harpsichord in B ^b	10:11
Te Deum for the Peace of Utrecht	45:00

Hasse

Concerto in D for Flute	11:03
-------------------------	-------

Haydn, FJ

Cassatio in C	27:32
Concerto for Flute and Oboe No. 2	13:32
Concerto for Flute and Oboe No. 3	14:55
Concerto for Flute and Oboe No. 4	13:25
Concerto in D for Horn	14:23
Concerto No. 1 for Organ	18:50

Concerto No. 2 for Organ	12:13
Concerto No. 3 for Organ	13:20
Concerto for Trumpet in F ^b	14:14
Creation, The Part I	39:50
Part II	40:50
Part III	30:00
Divertimento a Sei	14:04
Divertimento for Baryton No. 45 in D	12:30
Divertimento for Baryton No. 49 in G	10:27
Divertimento for Baryton No. 60 in A	13:46
Divertimento for Baryton No. 64 in D	8:27
Divertimento for Baryton No. 113 in D	9:42
Katharinentanze	29:58
Lo Speziale: Abridged Act I	22:00
Act II	15:43
Act III	6:23
Nocturne in C	14:04
Quartet for Guitar	24:30
Seven Last Words of Christ, The (Oratorio)	54:55
Sonata for Piano No. 34	9:46
Sonata for Piano No. 35	17:00
Sonata for Piano No. 37	17:20
Sonata for Piano No. 40	3:35
Sonata for Piano No. 49	23:32
Symphony No. 6	17:17
Symphony No. 7	21:36
Symphony No. 8	17:10
Symphony No. 19	7:10
Symphony No. 22	17:04
Symphony No. 26	15:22
Symphony No. 31	19:20
Symphony No. 39	17:43
Symphony No. 45	26:33
Symphony No. 73	19:39
Symphony No. 83	23:18
Symphony No. 92	25:45

Haydn, Michael

Divertimento in D	14:10
-------------------	-------

Hoffmann

Concerto for Mandolin in D	19:27
----------------------------	-------

Hummel

Concerto for Mandolin in G	20:06
Quartet for Clarinet	25:15

Hesse

Duo for Viola and Guitar	6:09
--------------------------	------

Holst

Suite No. 1 for Military Band	9:36
Suite No. 2 for Military Band	10:25

Holzbauer

Sinfonia in G	15:04
---------------	-------

(Continued on page 101)



Pop Sounds

by Richard Ekstract

"POW!"
"BAM!"
"ZONK!"
"ZAM!"

Is it the neighbors brawling again or is it Batman, the latest "Pop Culture" denizen to invade our homes via the TV screen? Maybe it's a new hit record. Or, could it be James Bond fighting a Spectre agent?

Could you tell?

Pop Culture is everywhere these days: in our galleries and museums, in newspaper and magazine ads, in discotheques and even in movies and on television. Comic book and movie heroes of the past are the new cultural heroes of today. The most expensive Broadway musical in history is the forth-coming, "It's a Bird, It's a Plane. . . It's Superman!" And with all this, there are sounds. But is anybody listening to the sounds of America today? Do they mean anything?

Some observers feel Pop Culture was spawned by the Pop Art movement. Some say Pop Art was a revolution against the limitations of the abstract expressionist movement in art. Some say it is just a grand spoof. Others say it's a serious attempt at social commentary on the vulgarities of our materialistic society. Some say that's what folk-rock is all about, too. . . and much of our present literature and poetry.

TAPE RECORDING readers, your moment is at hand. You, too, can Rebel if you like. Produce art, if you can. How? Join the *new* Pop movement.

"The trouble with many people these days is they don't really listen to so many of the sounds that we live with every day," says Henry Geldzelder, Associate Curator of the Metropolitan Museum of Art and one of the most important figures in the art world today. "We *have* to tune in on many sounds such as the honking of a horn or the ring of a telephone or a doorbell at home but a murder could be happening in the street outside and many people would be completely tuned out. It's just not part of their world—so they don't listen. It's a pity that we haven't learned to really listen to more of the important sounds that surround us because there's much that's fascinating—even beautiful."

Yes, there is art in the sounds we hear just as there is in all of nature. Mr. Geldzelder agrees and so do many of the nation's most prominent artists, some of whom are currently experiment-

(Continued on next page)

Editor's Note: Film makers have film festivals, amateur photographers have contests for prize photos, artists compete in public exhibitions and even writers compete for prizes with their work. In the belief that sound recording is an art form, the editors of TAPE RECORDING offer here-with a new competition to tape recordists. We tried to make this contest a little off-beat and interesting. Without doubt, this is the biggest tape recording contest ever held anywhere. See details at left:

Pop Sounds . . .

(Continued from page 95)

ing with sound. A few are adding sound to works of art and sculpture. Others are exploring tape recording as a new medium of communication. We now invite you to do the same.

We're calling the new movement, "Pop Sounds." You could also call it, "The Sounds of America Today." What we're after is a new medium of self-expression that will mirror present day society. All you need for this new art is a tape recorder and a little editing ability.

Perhaps you're interested in social commentary. Fine, make a "Pop Sound" tape. Perhaps you'd like to comment on the sounds that many of us take for granted such as the roar of a dishwasher or the whack of a bowling ball hitting ten pins or the jangle of a garbage truck. Television and radio commercials can be the basis for interesting "Pop Sound" tapes. In fact, we recently experimented with a sound-activated recorder placed next to a television receiver's speaker with a certain volume level required to activate the recorder. We got some interesting results.

Perhaps you'd like to spoof it all, be funny, far out or satirical. Welcome. You might like to tape children. They say some very revealing things about us. You could experiment with speeding up a tape or slowing one down. Or, did you ever play a talk or music tape backwards? We don't want to suggest too many possibilities or directions because we don't want to restrict your thinking. You can make "Pop Sounds" alone or with a group. You could even have a "Pop Sounds" party at home.

We're offering over \$10,000 worth of prizes for the best "Pop Sounds" tapes plus a public listening of your tape at a prominent art gallery in New York late next fall along with tapes made by some of the most prominent people in the art and entertainment world today. Contest entries will be judged by a panel consisting of many of the nation's foremost artists, including Andy Warhol who appears in the photo on page 94.

Sound like fun? That's what we want it to be. It's the easiest contest ever. Nothing to buy. No boxtops. The only limitations we suggest are tapes of a minimum length of 20 seconds and a maximum of three minutes—so that judging won't be too difficult. And since many people associate "Pop Sounds" with popular music—no music tapes, please. That's all. No other restrictions. Identify your work. Submit tapes on three inch reels, if possible. Tapes cannot be returned and all entries become the property of TAPE RECORDING magazine. Now, for a list of the many prizes, simply turn to page 97. Enter as many times as you like. A list of the award winners will be published.

First Award



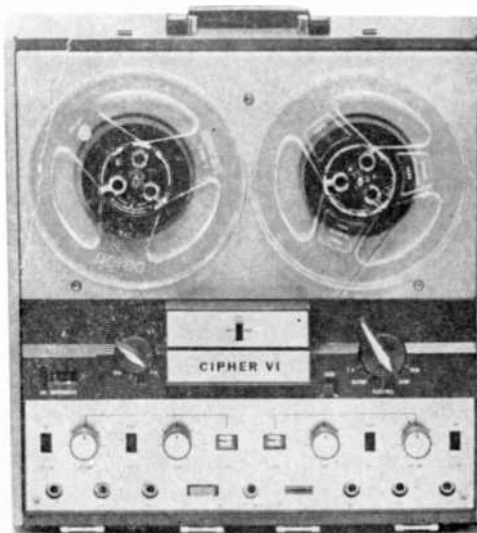
*Ampex Home Videotape Recorder with Camera
The "Cadillac" of today's low-priced home units*

Second Award



*Viking 880 portable stereo recorder
The newest model from one of America's top makers*

Fourth Award



*Cipher UI portable stereo recorder
Detachable speaker wings spread stereo sound*

"POP SOUNDS" AWARD LIST

	<i>Approximate Value</i>
1st Award—AMPEX home videotape recorder and camera	\$ 2000
2nd Award—VIKING 880 tape recorder	\$ 440
3rd Award—OKI 555 tape recorder ..	\$ 350
4th Award—UNIVERSITY matched pair of Model 1000 professional, dynamic cardioid microphones	\$ 248
5th Award—CIPHER VI tape recorder	\$ 240
6th Award—ELECTRO-VOICE matched pair of gold-plated 676 dynamic cardioid microphones ...	\$ 220
7th, 8th, 9th, 10th Awards CONCERTONE Cosmopolitans	\$ 200 each
11th Award—ELECTRO-VOICE "Entertainer" home entertainment system	\$ 199
12th Award—SHURE Unidyne III matched microphones	\$ 170
13th Award—VIKING 807 tape deck	\$ 125
14th-to-38th Awards 25 NORELCO "Carry-Corder" recorders	\$ 100 each
39th Award—MARTEL tape recorder	\$ 60
40th-to-51st Awards 12 TELEX Serenata stereo headphones	\$ 60 each
52nd to 63rd Awards 12 KOSS "PRO" stereo headphones	\$ 45 each
64th to 75 th Awards 25 CONCORD F-85 portable recorders ...	\$ 40 each
76th to 88th Awards 12 KOSS SP3 stereo headphones	\$ 25 each
89th to 100 Awards 12 TELEX Adjustatone stereo headphones	\$15.95 each
101 to 150th Awards 50 CAPITOL pre-recorded tapes	\$ 8 each
151 to 200 Awards 50 RCA pre-recorded tapes	\$ 8 each
201 to 250th Awards 50 REPRIZE pre-recorded tapes	\$ 6 each
251 to 350th Awards 100 7" Reels AUDIO DEVICES 1251—High Performance recording tape	\$ 3.50 each

25 of These



Norelco "Carry-Corder" Model 150
The most popular battery cartridge recorder

Sixth Award



Matched pair of Electro-Voice 676 Dynamic Cardioid Mikes
The easiest way to improve home recordings

25 of These



Concord F-85 battery portable
The "Sound-Camera" for intimate snapshots in sound



How to Select the Right Recording Tape

by Robert Angus

The first thing you'll learn about tape is that there are two kinds—branded and unbranded. The latter type has one distinct advantage over the former—price. It's often half the price of standard-brand tape, and many new recorder owners are tempted to buy it for that reason. Unbranded tape is made, for the most part, by the manufacturers of brand-name tapes—but it's sold under the names of specific dealers, under certain proprietary names such as Maestro or Fidelitape or even in a plain white box rather than under the manufacturer's own name. The reason for this is that the manufacturer is making no claims of quality or performance for his unbranded tape. It may be spliced ends from large reels sold by duplicators, edges of the wide rolls on which tape is made in the factory (containing uneven coating and occasional defects). It may even be videotape or instrumentation tape reslit for use on audio recorders. In some cases, it's a special low-cost formulation made specifically for sale as so-called white-box tape. The quality varies from excellent (in the case of the spliced ends) through fair for some of the low-cost coatings to harmful for reslit videotape and downright poor in the case of outside cuts. While you may be lucky and hit a good source of supply for unbranded tape, the odds generally are against you since you have no way of telling just what your source is.

Because it's impossible to discuss unbranded tape in specifics, the rest of this treatise will be concerned with standard brands of tape—those made by manufacturers whose name and address appears clearly on the box. Most manufacturers supply essentially the same coating of oxide on a wide variety of tape bases, at a wide variety of prices. Price here reflects not quality, but the quantity of tape you're buying and the cost of the base material.

All manufacturers choose from among three types of base materials—acetate film, polyester, and an intermediate plastic called polyvinyl chloride (PVC for short).

Acetate is the oldest of the three, and the least expensive. It is reasonably flexible, breaks clean when too much tension is exerted on it, and is favored by professional users for these reasons. Theoretically, it is subject to changes in temperature and humidity and tends to oxidize when stored over long periods of time. As a practical matter, however, acetate tapes stored with normal

care in the home last as long as 10 years before deteriorating—if they do even then. Acetate tapes come in thicknesses of $1\frac{1}{2}$ and one mil (.0015" and .001" respectively).

Polyester tapes, many of them sold under the trade name Mylar, are slightly more expensive for a comparable amount of tape on a comparable reel. Polyester tapes are somewhat stronger than acetate, however, and as a result can be made even thinner—they come in $1\frac{1}{2}$, one and half mil thicknesses. Unlike acetates, they aren't affected by heat or humidity, and they stretch before they break. The super-thin ($\frac{1}{2}$ mil) tapes used to be subject to stretching while in use on average home recorders. To eliminate the problem, suppliers began pre-stretching their bases, making for a stronger and more costly tape. These pre-stretched bases are identified on the box as "tensitized," and usually are to be found only on half-mil tape.

Somewhere in between is PVC. It has some of the strength of polyester and some of the economy of acetate. It breaks—but it requires a great deal of effort. It can be made in half-mil thicknesses.

So far, we've been talking about bases, not coatings. Since most tape manufacturers buy these base films from the same suppliers, bases have little to do with the sound quality of a given tape, although they have quite a bit to do with cost. It's worth noting that, while all recorders are supposed to work equally well with all tape bases, some machines perform very much better with some tape types than with others. Many of today's less expensive home machines, for example, work best with the thinner polyester tapes because these tapes have the greatest flexibility and can wrap themselves comfortably around the recorder head. On the other hand, professional machines and many older home recorders were designed to utilize $1\frac{1}{2}$ mil tapes.

The so-called standard coatings of most manufacturers have improved greatly in the past few years. These are designed to provide wide latitude for recording anything from the rumblings of the New York City subway to a symphony orchestra; from taping the song of the nightingale to the kids' birthday party. Most manufacturers put this coating on a wide variety of tape bases, in a variety of lengths, with a variety of prices. There is no difference in quality or in sound reproduction, however, between a 55 cent three-inch reel and an \$11.95 seven-inch reel with the same

(Continued on page 103)

Description	Stock No.	Price
1½ Mil Acetate, Standard Coating		
150 ft. 3 in. reel	American 1A	55¢
150 ft. 3 in. reel	Ampex 911	65¢
150 ft. 3 in. reel	Audiotape 151	70¢
150 ft. 3 in. reel	Burgess 111-1.5	70¢
150 ft. 3 in. reel	Irish 190	65¢
150 ft. 3 in. reel	Irish 211	70¢
150 ft. 3 in. reel	RCA 15A-1.5	70¢
150 ft. 3 in. reel	Sarkes Tarzian 1131-01	43¢
150 ft. 3 in. reel	Scotch 111-150	70¢
150 ft. 3 in. reel	Soundcraft S-1	70¢
250 ft. 3¼ in. reel	American 2A	75¢
250 ft. 3¼ in. reel	Burgess 111-2.5	\$1.25
300 ft. 4 in. reel	American 3A	\$1.10
300 ft. 4 in. reel	Burgess 111-3	\$1.35
300 ft. 3 in. reel	Irish 190	\$1.55
300 ft. 4 in. reel	RCA 15A-3	\$1.35
600 ft. 5 in. reel	American 6A	\$1.75
600 ft. 5 in. reel	Ampex 911	\$1.75
600 ft. 5 in. reel	Burgess 111-6	\$2.25
600 ft. 5 in. reel	Burgess 141-6	\$1.75
600 ft. 5 in. reel	Irish 190	\$1.75
600 ft. 5 in. reel	Irish 211	\$2.25
600 ft. 5 in. reel	RCA 15A-6	\$2.25
600 ft. 5 in. reel	RCA V15-A-6	\$1.50
600 ft. 5 in. reel	Sarkes-Tarzian 1131-06	\$1.40
600 ft. 5 in. reel	Scotch 11-600	\$2.25
600 ft. 5 in. reel	Soundcraft S-6	\$2.10
850 ft. 5¾ in. reel	Burgess 111-8.5	\$2.85
850 ft. 5¾ in. reel	Irish 190	\$2.50
850 ft. 5¾ in. reel	Irish 211	\$2.80
900 ft. 5¾ in. reel	Reeves 59	\$2.73
1200 ft. 7 in. reel	American 12A	\$2.75
1200 ft. 7 in. reel	Ampex 911	\$2.95
1200 ft. 7 in. reel	Burgess 111-12	\$3.50
1200 ft. 7 in. reel	Burgess 131-12	\$4.40
1200 ft. 7 in. reel	Burgess 141-12	\$2.95
1200 ft. 7 in. reel	Irish 190	\$2.95
1200 ft. 7 in. reel	Irish 211	\$3.50
1200 ft. 7 in. reel	RCA 15A-12	\$3.50
1200 ft. 7 in. reel	RCA V15-A-12	\$2.50
1200 ft. 7 in. reel	Sarkes Tarzian 1131-12	\$2.33
1200 ft. 7 in. reel	Scotch 111-1200	\$3.50
1200 ft. 7 in. reel	Soundcraft S-12	\$3.50
1500 ft. 7 in. reel	American 15-A	\$3.50
1 Mil Acetate, Standard Coating		
225 ft. 3 in. reel	American 1-2A	70¢
225 ft. 3 in. reel	Ampex 921	80¢
225 ft. 3 in. reel	Burgess 190-2.25	90¢
225 ft. 3 in. reel	Irish 196	80¢
225 ft. 3 in. reel	Irish 221	90¢
225 ft. 3 in. reel	RCA 10A-2.25	55¢
225 ft. 3 in. reel	Sarkes Tarzian 1121-02	60¢
225 ft. 3 in. reel	Soundcraft S5-2	90¢
350 ft. 3¼ in. reel	American L-3A	\$1.00
375 ft. 3¼ in. reel	RCA 10A-3.75	\$1.15
450 ft. 4 in. reel	American L-4A	\$1.40
450 ft. 4 in. reel	Irish 196	\$2.10
900 ft. 5 in. reel	American L-9A	\$2.50
900 ft. 5 in. reel	Ampex 921	\$2.50

Description	Stock No.	Price
900 ft. 5 in. reel	Burgess 190-9	\$3.50
900 ft. 5 in. reel	Burgess 140-9	\$2.50
900 ft. 5 in. reel	Irish 196	\$2.50
900 ft. 5 in. reel	Irish 221	\$3.25
900 ft. 5 in. reel	RCA 10A-9	\$3.50
900 ft. 5 in. reel	RCA V10-A-9	\$1.95
900 ft. 5 in. reel	Sarkes Tarzian 1121-09	\$2.10
900 ft. 5 in. reel	Scotch 140-900	\$2.50
900 ft. 5 in. reel	Scotch 190-1800	\$5.50
900 ft. 5 in. reel	Soundcraft S5-9	\$3.29
1200 ft. 5¾ in. reel	Burgess 190-12	\$4.25
1150 ft. 5¾ in. reel	Irish 196	\$3.95
1150 ft. 5¾ in. reel	Irish 221	\$4.00
1500 ft. 7 in. reel	Burgess 190-15	\$4.50
1800 ft. 7 in. reel	American L-18A	\$4.10
1800 ft. 7 in. reel	Ampex 921	\$4.25
1800 ft. 7 in. reel	Burgess 190-18	\$5.50
1800 ft. 7 in. reel	Burgess 140-18	\$4.25
1800 ft. 7 in. reel	Irish 196	\$4.25
1800 ft. 7 in. reel	Irish 221	\$5.25
1800 ft. 7 in. reel	RCA 10A-18	\$5.50
1800 ft. 7 in. reel	RCA V10-A-18	\$3.75
1800 ft. 7 in. reel	Sarkes Tarzian 1121-18	\$3.45
1800 ft. 7 in. reel	Scotch 140-1800	\$4.25
1800 ft. 7 in. reel	Scotch 190-1800	\$5.50
1800 ft. 7 in. reel	Soundcraft S5-18	\$5.17
2000 ft. 7 in. reel	American L-20A	\$5.17
1½ Mil Polyester, Standard Coating		
150 ft. 3 in. reel	American 1-M	60¢
150 ft. 3 in. reel	Soundcraft L-1	75¢
600 ft. 5 in. reel	American 6-M	\$2.10
600 ft. 5 in. reel	Ampex 931	\$2.25
600 ft. 5 in. reel	Burgess 102-6	\$2.65
600 ft. 5 in. reel	Irish 231	\$2.65
600 ft. 5 in. reel	RCA 15M-6	\$2.65
600 ft. 5 in. reel	Scotch 102-600	\$2.65
600 ft. 5 in. reel	Soundcraft L-6	\$2.65
850 ft. 5¾ in. reel	Burgess 102-8.5	\$4.25
1200 ft. 7 in. reel	American 12-M	\$3.35
1200 ft. 7 in. reel	Ampex 931	\$3.65
1200 ft. 7 in. reel	Burgess 102-12	\$4.25
1200 ft. 7 in. reel	Irish 231	\$4.25
1200 ft. 7 in. reel	Burgess 138-12	\$5.10
1200 ft. 7 in. reel	RCA 15M-12	\$4.25
1200 ft. 7 in. reel	Scotch 102-1200	\$4.25
1200 ft. 7 in. reel	Soundcraft L-12	\$4.25
1 Mil Polyester, Standard Coating		
225 ft. 3 in. reel	American L-2M	75¢
225 ft. 3 in. reel	Ampex 941	\$1.00
225 ft. 3 in. reel	Burgess 150-2.25	\$1.00
225 ft. 3 in. reel	Irish 197	95¢
225 ft. 3 in. reel	Irish 241	\$1.00
225 ft. 3 in. reel	RCA 10-M-2.25	\$1.00
225 ft. 3 in. reel	Sarkes Tarzian 1321-02	67¢
225 ft. 3 in. reel	Soundcraft PL 2	\$1.00
300 ft. 3 in. reel	Sony PR-150	85¢
300 ft. 3¼ in. reel	Sony PR-150	95¢
350 ft. 3¼ in. reel	American L-3M	\$1.15
375 ft. 3¼ in. reel	Burgess 150-3.75	\$1.75
450 ft. 4 in. reel	Irish 197	\$2.55

Description	Stock No.	Price
900 ft. 5 in. reel	American L-9M	\$2.70
900 ft. 5 in. reel	Ampex 941	\$2.85
900 ft. 5 in. reel	Burgess 150-9	\$3.60
900 ft. 5 in. reel	Burgess 142-9	\$2.85
900 ft. 5 in. reel	Irish 197	\$2.85
900 ft. 5 in. reel	Irish 241	\$3.40
900 ft. 5 in. reel	RCA 10M-9	\$3.60
900 ft. 5 in. reel	RCA V10M-9	\$2.25
900 ft. 5 in. reel	Sarkes Tarzian 1321-09	\$2.40
900 ft. 5 in. reel	Scotch 150-900	\$3.60
900 ft. 5 in. reel	Sony PR-150	\$1.75
900 ft. 5 in. reel	Soundcraft PL-9	\$3.40
1200 ft. 5¾ in. reel	BASF 204-0051	\$4.76
1200 ft. 5¾ in. reel	Burgess 150-12	\$4.65
1200 ft. 5¾ in. reel	Irish 197	\$3.50
1200 ft. 5¾ in. reel	Irish 241	\$4.50
1500 ft. 7 in. reel	Burgess 150-15	\$5.15
1800 ft. 7 in. reel	American L-18M	\$4.60
1800 ft. 7 in. reel	Ampex 941	\$4.95
1800 ft. 7 in. reel	BASF 204-0052	\$6.62
1800 ft. 7 in. reel	Burgess 150-18	\$6.20
1800 ft. 7 in. reel	Burgess 142-18	\$4.95
1800 ft. 7 in. reel	Irish 197	\$4.95
1800 ft. 7 in. reel	Irish 241	\$5.80
1800 ft. 7 in. reel	RCA 10M-18	\$6.20
1800 ft. 7 in. reel	RCA V10M-18	\$4.25
1800 ft. 7 in. reel	Sarkes Tarzian 1321-18	\$4.13
1800 ft. 7 in. reel	Scotch 150-1800	\$6.20
1800 ft. 7 in. reel	Sony PR-150	\$2.95
1800 ft. 7 in. reel	Soundcraft PL-18	\$5.80
2000 ft. 7 in. reel	American L-20M	\$5.80

½ Mil Tensilized

300 ft. 3 in. reel	American D-3MT	\$1.25
300 ft. 3 in. reel	Ampex 951	\$1.35
300 ft. 3 in. reel	Burgess 200-3	\$1.60
300 ft. 3 in. reel	Irish 198	\$1.40
300 ft. 3 in. reel	Irish 251	\$1.60
300 ft. 3 in. reel	RCA 5TM-3	\$1.60
300 ft. 3 in. reel	Sarkes Tarzian 1411-03	\$1.07
300 ft. 3 in. reel	Scotch 200-300LL	\$1.85
300 ft. 3 in. reel	Soundcraft XP-3X	\$1.60
500 ft. 3 in. reel	American D5MT	\$1.60
600 ft. 3 in. reel	Scotch 290-600-LI.	\$2.95
600 ft. 3¼ in. reel	Burgess 290-6	\$2.50
600 ft. 3¼ in. reel	RCA 5TM-6A	\$2.95
600 ft. 3¼ in. reel	Sarkes Tarzian 1411-06	\$1.93
600 ft. 3¼ in. reel	Soundcraft TP6*	\$2.29
600 ft. 3½ in. reel	BASF 205-0062	\$2.94
600 ft. 4 in. reel	American D-6MT	\$2.30
600 ft. 4 in. reel	Burgess 200-6	\$3.05
600 ft. 4 in. reel	Irish 198	\$3.75
600 ft. 4 in. reel	RCA 5TM-6	\$3.05
900 ft. 4 in. reel	BASF 205-0063	\$4.27
1200 ft. 5 in. reel	American D-12MT	\$4.30
1200 ft. 5 in. reel	American D-12MS*	\$2.75
1200 ft. 5 in. reel	Ampex 951	\$4.50
1200 ft. 5 in. reel	Burgess 200-12	\$5.45
1200 ft. 5 in. reel	Burgess 144-12	\$4.50
1200 ft. 5 in. reel	Irish 198	\$4.50
1200 ft. 5 in. reel	Irish 251	\$5.45
1200 ft. 5 in. reel	RCA 5TM-12	\$4.75

Description	Stock No.	Price
1200 ft. 5 in. reel	RCA V5TM-12	\$3.95
1200 ft. 5 in. reel	Sarkes Tarzian 1411-12	\$3.63
1200 ft. 5 in. reel	Scotch 200-1200	\$5.45
1200 ft. 5 in. reel	Scotch 144-1200	\$4.50
1700 ft. 5¾ in. reel	Burgess 200-17	\$7.05
1650 ft. 5¾ in. reel	Irish 198	\$6.80
1650 ft. 5¾ in. reel	Irish 251	\$6.80
1800 ft. 5 in. reel	American D-18MT	\$5.90
1800 ft. 5 in. reel	BASF 205-0065	\$7.65
1800 ft. 5 in. reel	Scotch 290-1800	\$6.95
1800 ft. 5 in. reel	Soundcraft TP-18*	\$3.40
1800 ft. 5¾ in. reel	Soundcraft XP-18X	\$7.48
2400 ft. 5¾ in. reel	Reeves TP-24*	\$6.96
2400 ft. 5¾ in. reel	BASF 205-0066	\$8.82
2400 ft. 7 in. reel	American D-24MT	\$7.50
2400 ft. 7 in. reel	American D-24MS*	\$5.10
2400 ft. 7 in. reel	Ampex 951	\$7.95
2400 ft. 7 in. reel	Burgess 200-24	\$9.50
2400 ft. 7 in. reel	Burgess 144-24	\$7.95
2400 ft. 7 in. reel	Irish 198	\$7.95
2400 ft. 7 in. reel	Irish 251	\$9.50
2400 ft. 7 in. reel	RCA 5TM-24	\$8.75
2400 ft. 7 in. reel	RCA V5TM-24	\$6.95
2400 ft. 7 in. reel	Sarkes Tarzian 1411-24	\$5.70
2400 ft. 7 in. reel	Scotch 200-2400	\$9.50
2400 ft. 7 in. reel	Scotch 144-2400	\$7.95
2400 ft. 7 in. reel	Soundcraft XP-24X	\$9.50
3000 ft. 7 in. reel	American D-30MT	\$9.50
3600 ft. 7 in. reel	American D-36MT	\$10.95
3600 ft. 7 in. reel	BASF 205-0067	\$11.76
3600 ft. 7 in. reel	Burgess 290-36	\$11.95
3600 ft. 7 in. reel	Sarkes Tarzian 1411-36	\$8.70
3600 ft. 7 in. reel	Scotch 290-3600	\$11.95
3600 ft. 7 in. reel	Soundcraft TP 36*	\$10.00

PVC-Based Tape

300 ft. 3 in. reel	BASF 203-0031 (¾ mil)	\$1.47
450 ft. 3¼ in. reel	BASF 203-0032 (¾ mil)	\$2.44
600 ft. 5 in. reel	Burgess 175-6 (1½ mil)	\$2.40
900 ft. 5 in. reel	BASF 202-0013 (1 mil)	\$3.33
900 ft. 5¾ in. reel	BASF 201-0003 (1½ mil)	\$3.09
1200 ft. 5 in. reel	BASF 203-0034 (1½ mil)	\$4.90
1200 ft. 5¾ in. reel	BASF 202-0015 (1 mil)	\$3.72
1200 ft. 7 in. reel	BASF 201-0005 (1½ mil)	\$3.75
1200 ft. 7 in. reel	Burgess 175-12 1½ mil)	\$3.75
1800 ft. 7 in. reel	BASF 202-0017 (1 mil)	\$5.42
1800 ft. 5¾ in. reel	BASF 203-0037 (¾ mil)	\$6.00
2400 ft. 7 in. reel	BASF 203-0039 (¾ mil)	\$7.80

Description	Stock No.	Price
Low Noise Tape		
600 ft. 5 in. reel	Scotch 201 (1½ mil acetate)	\$2.80
600 ft. 5 in. reel	Scotch 202 (1½ mil polyester)	\$2.85
900 ft. 5 in. reel	Scotch 203 (1 mil polyester)	\$4.25
1200 ft. 7 in. reel	Audiotape 1257	\$4.30
1200 ft. 7 in. reel	RCA 15ALN-12 (1½ mil acetate)	\$4.40
1200 ft. 7 in. reel	Scotch 201 (1½ mil acetate)	\$4.40
1200 ft. 7 in. reel	Scotch 202 (1½ mil polyester)	\$5.10
1800 ft. 7 in. reel	Scotch 203 (1 mil polyester)	\$7.35
High Output Tape		
225 ft. 3 in. reel	Audiotape 261 (1 mil polyester)	\$1.00
300 ft. 4 in. reel	Audiotape 351 (1½ mil acetate)	\$1.35
300 ft. 3 in. reel	Audiotape 331T (1½ mil polyester)	\$1.60
600 ft. 3¼ in. reel	Audiotape 631T (½ mil polyester) *	\$2.95
600 ft. 5 in. reel	American HO-6A (1½ mil acetate)	\$2.25
600 ft. 5 in. reel	American HO-6M (1½ mil polyester)	\$2.65
400 ft. 3 in. reel	Kodak 11P4 (½ mil tensilized)	\$2.00
600 ft. 3¼ in. reel	Audiotape 633T (½ mil polyester) *	\$2.95
600 ft. 3¼ in. reel	Kodak 12P6 (½ mil tensilized)	\$2.50
600 ft. 5 in. reel	Audiotape 671 (1½ mil polyester)	\$2.65
600 ft. 5 in. reel	Audiotape 651 (1½ mil acetate)	\$2.25
600 ft. 5 in. reel	Scotch 120-600 (1½ mil acetate)	\$2.25
625 ft. 5 in. reel	Kodak 34A6 (1½ mil acetate)	\$1.85
900 ft. 5 in. reel	Audiotape 941 (1 mil acetate)	\$3.50
900 ft. 5 in. reel	Audiotape 961 (1 mil polyester)	\$3.60
900 ft. 5 in. reel	Kodak 21P9 (1 mil polyester)	\$2.85
1200 ft. 5 in. reel	Audiotape 1231T (½ mil tensilized)	\$5.45
1200 ft. 5 in. reel	Audiotape 1231 (½ mil polyester) *	\$3.50
1200 ft. 7 in. reel	American HO-12A (1½ mil acetate)	\$3.50
1200 ft. 7 in. reel	American HO-12-M (1½ mil polyester)	\$4.25
1200 ft. 7 in. reel	Audiotape 1251 (1½ mil acetate)	\$3.50
1200 ft. 7 in. reel	Audiotape 1271 (1½ mil polyester)	\$4.25

Description	Stock No.	Price
1200 ft. 7 in. reel	Scotch 120-1200 (1½ mil acetate)	\$3.50
1250 ft. 5 in. reel	Kodak 11P12 (½ mil tensilized)	\$4.60
1250 ft. 7 in. reel	Kodak 34A12 (1½ mil acetate)	\$2.95
1800 ft. 5 in. reel	Audiotape 1833T (½ mil tensilized)	\$6.95
1800 ft. 5 in. reel	Kodak 12P18 (½ mil tensilized)	\$5.95
1800 ft. 7 in. reel	Audiotape 1861 (1 mil polyester)	\$6.20
1800 ft. 7 in. reel	Audiotape 1841 (1 mil acetate)	\$5.50
1800 ft. 7 in. reel	Kodak 21P18 (1 mil polyester)	\$4.95
2400 ft. 7 in. reel	Audiotape 2431T (½ mil tensilized)	\$9.50
2400 ft. 7 in. reel	Audiotape 2431 (½ mil polyester) *	\$6.50
2500 ft. 7 in. reel	Kodak 11P25 (½ mil tensilized)	\$7.95
3600 ft. 7 in. reel	Audiotape 3633T (½ mil tensilized)	\$11.95
3600 ft. 7 in. reel	Kodak 12P36 (½ mil tensilized)	\$9.95
Low Print Tape		
150 ft. 3 in. reel	Kodak 13A1 (1½ mil acetate)	\$6.00
600 ft. 5 in. reel	Audiotape 671M (1½ mil polyester)	\$3.20
625 ft. 5 in. reel	Kodak 31A6 (1½ mil acetate)	\$1.85
900 ft. 5 in. reel	Kodak 21A9 (1 mil acetate)	\$2.55
1200 ft. 7 in. reel	American LP-12A (1½ mil acetate)	\$4.40
1200 ft. 7 in. reel	American LP-12M (1½ mil polyester)	\$7.70
1200 ft. 7 in. reel	Audiotape 1271 (1½ mil polyester)	\$5.10
1200 ft. 7 in. reel	Irish 271 (1½ mil acetate)	\$4.48
1200 ft. 7 in. reel	Irish 273 (1½ mil polyester)	\$5.50
1200 ft. 7 in. reel	Scotch 131-1200 (1½ mil acetate)	\$4.40
1200 ft. 7 in. reel	Scotch 138-1200 (1½ mil polyester)	\$5.10
1250 ft. 7 in. reel	Kodak 31A12 (1½ mil acetate)	\$2.95
1800 ft. 7 in. reel	Kodak 21A18 (1 mil acetate)	\$4.35
1800 ft. 7 in. reel	Irish 272 (1 mil acetate)	\$7.25
1800 ft. 7 in. reel	Irish 274 (1 mil polyester)	\$7.35
2400 ft. 7 in. reel	Irish 275 (½ mil tensilized)	\$9.80

Description	Stock No.	Price
Slow-Speed Recording Tape		
600 ft. 5 in. reel	Ampex 531-13 (1½ mil polyester)	\$2.65
900 ft. 5 in. reel	Ampex 541-13 (1 mil polyester)	\$3.40
1200 ft. 5 in. reel	Ampex 551-13 (½ mil tensilized)	\$5.45
1200 ft. 7 in. reel	Ampex 531-15 (1½ mil polyester)	\$4.25
1200 ft. 7 in. reel	Ampex 541-15M (1 mil polyester)	\$3.50
1200 ft. 7 in. reel	Ampex 536-15 (1½ mil polyester)	\$4.75
1200 ft. 7 in. reel	Ampex 545-15M (1 mil polyester)	\$3.95
1200 ft. 7 in. reel	Soundcraft GTA-12 (1½ mil acetate)	\$4.70
1800 ft. 7 in. reel	Ampex 541-15 (1 mil polyester)	\$6.20
1800 ft. 7 in. reel	Ampex 545-15 (1 mil polyester)	\$6.90
1800 ft. 7 in. reel	Soundcraft GTM-18T (1 mil tensilized)	\$7.50
2400 ft. 7 in. reel	Ampex 551-15 (½ mil tensilized)	\$9.50
2400 ft. 7 in. reel	Ampex 556-15 (½ mil tensilized)	\$10.75
2400 ft. 7 in. reel	Soundcraft GTM-24T (½ mil tensilized)	\$11.40

Recording Tape . . .

(Continued from page 99)

coating by the same manufacturer. The difference is only in the amount of tape you get and the type of base you get it on.

Besides the standard coating, there are several specialized coatings, designed for specialized types of recording. These include tape specially designed to reduce print-through (leakage of a recorded signal from one layer of tape to the next creating an echo); low noise, designed to reduce tape hiss; high output, designed to allow you to put a stronger signal on the tape; mastering tape, designed for transferring a recording to other tapes; and slow-speed recording tape, designed to improve high frequencies at slow tape speeds.

Tape brands do differ, though, even within the "standard" coating. Manufacturers seek to enhance one part or another of the recording curve. One manufacturer selects a figure for tape bias which is just right for machines A and B, but not so good for machines D, E and F. His competitor hits a formula that's just perfect for Machine D, but not as good for the others. And the owner of machine E likes the sound he gets from a third tape, even though it's really engineered to go with machine F. If you're the owner of a new tape recorder, you'll want to try several tapes before settling on one for day-in-day-out use. Nobody can tell you just which one is exactly right—just as nobody can tell you which gasoline will satisfy you best in your car. But our experience is that you'll find one tape which sounds just a bit better to you than all the others.

tapes
sound
fuzzy
& distorted?

STEREO REQUIRES MATCHED MICROPHONES . . .

Pianos sound like barrel organs? Violins like musical saws? Voices lost in a welter of "hollow" background sound? Friend—look to your microphone! You'll be amazed by the clear, life-like tapes you can make with the new Shure Unidyne A . . . a low-cost, fine quality unidirectional microphone that picks up sound from the front uniformly while rejecting sounds from the rear. Equipped with plugs to match most tape recorder inputs. Unidyne A matched pairs can detect the subtle differences that "localize" sound for realistic, spatially-correct stereo tapes.

NEW!



SHURE

UNIDYNE/A

MATCHED STEREO MICROPHONES

In the quality tradition of the famed Unidyne family of unidirectional dynamic microphones . . . at a new dramatically low price. Never before such quality at so low a price! Model 580SA(MP)—Only \$70.80 net.



LOOKING FOR
"PROFESSIONAL"
QUALITY?

SHURE
UNIDYNE III

The favorite of performers and public speakers. Dual impedance, ultra-small size, true-cardioid pick-up pattern, symmetrical about the axis in all planes, at all frequencies. Wide-range response. Amazingly faithful voice and music reproduction. Model 545S (with On-Off switch) \$53.97 net. (Matched pairs available).

Shure Brothers, Inc.
222 Hartrey Avenue, Evanston, Illinois
Circle 54 on Reader's Service Card

NEVER MONITOR TAPES WITHOUT KOSS STEREOPHONES!

Why? Koss Stereophones tell you what the recording head is putting on your tape. Insures proper volume level, tells you if outside noise is going on the tape, helps you adjust for smooth bass and treble response.

NEVER PLAY BACK TAPES WITHOUT KOSS STEREOPHONES!

Why? Koss Stereophones reproduce all the critical sounds on your tapes. Sensitive frequency response gives you realistic "sound picture" of what is on your tapes — either monaural or stereo — without disturbing others.

NEVER EDIT TAPES WITHOUT KOSS STEREOPHONES!

Why? Koss Stereophones give you personalized listening. You avoid annoying others with the constant replay of material being edited. You aren't annoyed by others either. You actually edit faster because you avoid outside distractions.



SP-3X STEREOPHONES

Wide range 10-15,000 c.p.s. response obtainable only through earphone listening. Sensitive 3½" sound reproducers mounted in each earpiece. Soft sponge foam ear and head cushions. Impedance 4-16 ohms. \$24.95.



PRO-4 STEREOPHONES

Fluid-filled earpads for tight, comfortable seal. A durable phone designed for professionals. 30-20,000 c.p.s. response. \$45.00.

KOSS electronics inc.

2227 N. 31ST STREET • MILWAUKEE, WISCONSIN 53208 U.S.A.

Koss Impetus International • 2 Via Berna • Lugano, Switzerland

Circle 46 on Reader's Service Card

(Continued from page 93)

Kabalevsky	
The Comedians	14:58
Khachaturian	
Gayne Ballet Suite (complete)	45:44
Masquerade Suite	17:30
Kodaly	
Hary Janos Suite	24:29
Lalande	
De Profundis	34:30
Leclair	
Oboe Concerto in C	11:13
Sonata No. 8 in D	9:07
Sonata Op. 9 No. 3 in D	10:35
Liszt	
Concerto for Piano No. 1	19:10
Concerto for Piano No. 2	21:40
Hungarian Rhapsody No. 1	12:15
Hungarian Rhapsody No. 2	11:12
Loeillet	
Sonata in c, Op. 2 No. 5	7:50
Sonata in C, Op. 3 No.	8:30
Sonata in g, Op. 4 No. 6	6:45
Trio Sonata in c No. 5	9:00
Trio Sonata in F, Op. 1 No. 1	10:12
MacDowell	
Piano Concerto No. 1	25:15
Piano Concerto No. 2	25:38
Mahler	
Songs of a Wayfarer	
Wenn mein Schatz Hochzeit	4:00
Ging heut'Morgen uber's Feld	3:45
Ich hab'ein gluhend' Messer	3:00
Die zwei blauen Augen	4:45
Symphony No. 7	52:15
Mendelssohn	
Capriccio Brilliant	10:15
Concerto No. 1 for Piano	19:19
Concerto No. 2 for Piano	22:41
Concerto for 2 Pianos in E	28:35
Concerto for 2 Pianos in A ^b	30:52
Destruction of Doftanas	13:59
Elijah	
Part 1	71:30
Part 2	71:11
Funeral Music	8:15
Overtures	
For Wind Music	9:56
Legend of the Fair Melusine	9:51
Ruy Blas	7:54

(Continued on page 105)

Tape Recording

(Continued from page 104)

St. Paul	
Part 1	77:15
Part 2	27:10

Mica

Concertino Notturmo	30:00
---------------------	-------

Mondonville

Sonata in G	10:00
-------------	-------

Monteverdi

L'Incoronazione di Poppea	142:00
---------------------------	--------

Mouret

Concert de Chambre in E	20:43
Les Festes de Thalie Suite	12:40

Mozart, WA

Concerto No. 1 for Horn	8:47
Concerto No. 2 for Horn	14:35
Concerto No. 3 for Horn	14:55
Concerto No. 4 for Horn	15:50
Concerto for Piano No. 14	21:43
Concerto for Piano No. 16	23:31
Concerto for Piano No. 17	30:00
Concerto for Piano No. 21	28:24
Concerto for Piano No. 22	30:05
Concerto for Piano No. 23	23:55
Concerto for Piano No. 24	29:37
Concerto for Piano No. 25	32:52
Concerto for Piano No. 26	29:10
Concerto for Piano No. 27	30:14
Concerto for 2 Pianos in E ^b	24:23
Concerto for Violin No. 1	20:56
Concerto for Violin No. 3	24:41
Concerto for Violin No. 5	29:15
Contradanses, k.606	5:20
Divertimento in D, k.131	25:31
Divertimento in B ^b , k.196f	11:35
Divertimento in D, k.205	16:30
Divertimento in F, k.213	9:28
Divertimento in F, k.247	26:54
Divertimento in B ^b , k.270	11:23
Divertimento in B ^b , k.439b	23:41
Don Giovanni	
Overture	5:41
Act 1	80:36
Act 2	85:20
Fantasy for Organ No. 1	12:23
Fantasy for Organ No. 2	12:20
German Dances, k.586	22:05
Mass No. 5	31:16
Mass No. 6	25:05
Musical Joke	18:09
Quartet for Piano in g	25:36
Quartet for Piano in F ^b	27:11
Quintet k.174	26:13
Quintet k.614	21:17
Rondo for Piano k.511	9:33
Serenade No. 6	12:04
Serenade No. 9	40:58
Serenade No. 10	47:10
Serenade No. 13	16:50
Serenade No. 3 for Violin	26:50
Serenade No. 4 for Violin	27:00
Sonata for Flute No. 1	9:14
Sonata for Flute No. 2	7:28
Sonata for Flute No. 3	5:35

Sonata for Flute No. 4	9:45
Sonata for Flute No. 5	8:08
Sonata for Flute No. 6	5:20
Sonata for Organ No. 1	2:56
Sonata for Organ No. 2	2:53
Sonata for Organ No. 3	3:54
Sonata for Organ No. 4	3:23
Sonata for Organ No. 5	3:25
Sonata for Organ No. 6	3:29
Sonata for Organ No. 7	4:39
Sonata for Organ No. 8	4:28
Sonata for Organ No. 9	2:52
Sonata for Organ No. 10	4:00
Sonata for Organ No. 11	3:55
Sonata for Organ No. 12	3:45
Sonata for Organ No. 13	3:43
Sonata for Organ No. 14	4:02
Sonata for Organ No. 15	4:50
Sonata for Organ No. 16	4:30
Sonata for Organ No. 17	5:07
Sonata for 2 Pianos k.448	20:38
Sonata for 2 Pianos k.497	26:53
Sonata for 2 Pianos k.521	21:21
Symphony No. 33	18:56

Paganini

Sonata for Violin and Guitar	5:52
------------------------------	------

Pergolesi

Concerto for Flute in G	13:28
The Music Master	38:27

Poulenc

Concerto for Organ	22:12
--------------------	-------

Prokofiev

Alexander Nevsky	41:13
Lieutenant Kije Suite	20:14
Love for Three Oranges Suite	17:30
On Guard for Peace	40:20
Symphony No. 1	12:52

Puccini

Tosca	
Act I	44:42
Act II	39:52
Act III	27:05
Turandot	
Act I	31:47
Act II	42:32
Act III	39:30

Purcell

Indian Queen: Abridged	41:25
Suite in C	5:14

Quantz

Concerto for Flute in G	15:00
Trio Sonata in c	12:35
Trio Sonata in C	12:30

Rameau

Six Concerts in Sextuor	
No. 1	7:05
No. 2	12:00
No. 3	9:20
No. 4	7:12
No. 5	7:17
No. 6	12:45
Les Palladins Suite	8:25
Suite for Harpsichord in E	19:58

Ranki

Pentæcrophonia	14:05
----------------	-------

Ravel

Quartet in F	27:55
--------------	-------

Reicha

Quintet in E ^b	24:39
---------------------------	-------

Respighi

Feste Romane	23:50
The Fountains of Rome	15:37
The Pines of Rome	20:06

Richter

Sinfonia con Fuga in g	20:52
------------------------	-------

Rossini

Introduction, Theme and Variations for Clarinet	14:08
La Scala di Seta	71:42
Il Signor Bruschino	60:55

Rousseau

Le Devin du Village: Overture	3:30
-------------------------------	------

Sammartini

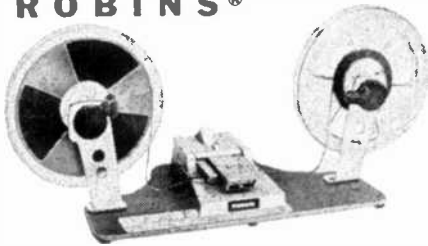
Concerto in F for Flute	13:01
-------------------------	-------

Schubert

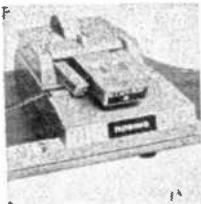
Fantasy in f	19:40
German Dances, Op. 33	12:08
Italian Overture in C	7:24
Italian Overture in D	8:44
Quartet No. 1	24:45
Quartet No. 2	8:30
Quartet No. 3	17:03
Quartet No. 4	22:01
Quartet No. 6	26:25
Quartet No. 7	16:52
Quartet No. 8	27:25
Quartet No. 9	23:45
Quartet No. 10	20:35
Quartet No. 11	22:30
Quartet No. 12	8:22
Quartet No. 13	31:29
Quartet No. 14	38:45
Quartet No. 15	35:05
Quintet in A for Piano and Strings	36:17

(Continued on page 106)

NEW! ROBINS®



COMPLETE TAPE EDITING WORKSHOP



The highly acclaimed Robins "Gibson Girl"® Stereo 4 Deluxe Tape Splicer is now coupled with two hand operated Tape Winders. They give you a Complete Tape Editing Workshop! You can edit, repair, or combine recording tapes on reels up to 7" easily, accurately and quickly!

The "Stereo 4" Tape Splicer has an easy threading integral tape dispenser. You can edit 4 track, 2 and 1 track tapes like a pro. The Splicer and Winders attach to a handsome, sturdy base. An accurately calibrated editing/timing scale, part of the Workshop base, tells you how much time you are cutting out or adding to your tapes. Put Robins #TK-9 Tape Editing Workshop to work - for you!

ROBINS INDUSTRIES CORP.
FLUSHING, N. Y., 11356

Circle 53 on Reader's Service Card

THE Turntable of the Tape-Age

807

Enjoy the superior quality of tapes with the convenience of phonograph records.

Connect a Viking 807 to your music system and play stereo or monaural tapes, half or quarter track at 3-3/4 or 7-1/2 ips. Automatic shut-off, cueing, fast forward and rewind features included for your pleasure.

807 complete with walnut base \$124.95

MADE BY SKILLED
AMERICAN CRAFTSMEN AT
Viking OF MINNEAPOLIS®

9600 Aldrich Ave. So. Minneapolis, Minn. 55420

Circle 60 on Reader's Service Card

(Continued from page 105)

Sonata Op. 140 for Piano	36:14
Sonata in C, Op. Posth.	28:42
Sonata in A, Op. Posth.	37:15
Sonata No. 1 for Violin	13:00
Sonata No. 2 for Violin	20:55
Sonata No. 3 for Violin	14:14
Symphony in C, "Gastein"	34:58
Symphony in E	33:27
Symphony No. 1	27:00
Symphony No. 2	22:00
Symphony No. 3	22:30
Symphony No. 4	32:39
Symphony No. 5	25:42
Symphony No. 6	29:00
Symphony No. 7	50:20
Symphony No. 8	33:07
Wanderer Fantasy	20:50
Waltzes, Op. 9	25:02
Valses Nobles, Op. 77	11:24

Schumann

Carnaval Ballet Suite	24:52
Concerto for Piano	30:15
Konzertstück for 4 Horns	18:00
Konzertstück for Piano in G	16:11
Manfred Overture	11:01
Symphony No. 1	21:19
Symphony No. 2	36:00
Symphony No. 3	32:00
Symphony No. 4	25:15

Shostakovich

Song of the Forests	33:37
---------------------	-------

Sibelius

Finlandia	8:12
Lemminkainen's Return	6:01
Pohjola's Daughter	13:32
Swan of Tuonela	8:25
Valse Triste	5:10

Spohr

Trio in F	8:25
-----------	------

Stamitz, J

Concerto for Clarinet	18:15
Concerto for Oboe	14:16
Orchestral Trio Op. 1 No. 2	11:09
Sinfonia a 8	10:26

Stamitz, K

Clarinet Concerto No. 3	15:02
Concerto for Flute in G	14:55
Quartet Op. 4 No. 4	13:04
Quartet Op. 8 No. 2	10:05
Sinfonia Concertante	20:29

Stoelzel

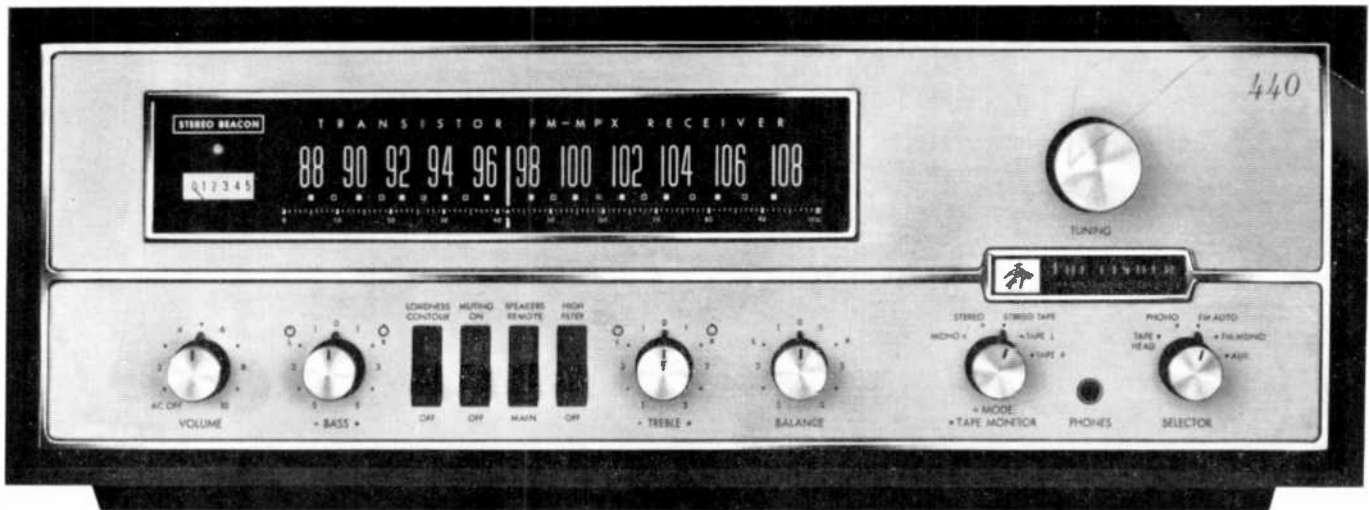
Trio Sonata in c	10:55
------------------	-------

Strauss, R

Also Sprach Zarathustra	34:15
Don Juan	16:11

ADVERTISER'S INDEX and READERS SERVICE

READERS SERVICE CARD NUMBER	PAGE
33 American Recording Tape	6
34 Ampex Corp.	Back Cover
35 Angel Tapes	45
36 British Industries	4
37 Capitol Tapes	45
38 Concertone	69
39 Concord Electronics	17
40 Dual	13
41 Electro-Voice	77
42 Fisher Radio	Inside Back Cover
44 Greentree Electronics	6
45 Irish Tape	85
46 Koss Electronics	104
47 3M Company	Inside Front Cover
48 Morhan Sales	85
49 Musictapes	55
50 Newcomb	44
51 Norelco	3
52 Oki	27
53 Robins Industries	106
54 Shure Brothers	103
55 Sony-Superscope	7
56 Turner Microphones	90
57 United Audio	13
58 University Sound	81
59 Viking 88 Stereo Compact	84
60 Viking 807	106
61 Wollensak	8



A Fisher receiver is greater than the sum of its components.

Fisher has always maintained that an all-in-one receiver can equal or surpass the performance of separate components of similar circuitry. And at far lower cost.

The most recent and eloquent proof of this is the new 440-T, the first all-solid-state stereo receiver of Fisher quality under \$330.

On a single chassis occupying only 16¾ inches of shelf space and only 11 inches front to back, the 440-T incorporates a sensitive FM-stereo tuner with automatic mono-stereo switching, an extremely versatile stereo control-preamplifier, and a heavy-duty stereo amplifier. All transistorized, all with Fisher reliability.

By eliminating duplication of parts and circuits, such as extra power supplies and the low-impedance circuitry usually associated with connecting cables, the 440-T actually has a *plus* factor of reliability over separate components. Obviously, fewer parts mean fewer trouble spots. But that isn't all. Hum and noise are more easily reduced to imperceptible levels. And critical preamplifier and power circuits operate at their electrical best. Elimination of other unnecessary parts, such as extra chassis, jacks, knobs, etc., clearly means a considerable cost saving.

In the 440-T, Fisher engineering has also achieved a new degree of reliability in transistorized components. Conservatively rated silicon output transistors permit higher undistorted power and long, trouble-free operation. Damaging heat has been designed out. The receiver can be operated at full power, hour after hour, without harm. You can even short the speaker leads without causing damage. Adjustments and alignments have been practically eliminated, so that the 440-T will operate as perfectly after two years as on the first day.

In spite of its technical sophistication (just look at the specs!), the 440-T is so simple to operate that even your wife will enjoy using it from the very first day. Masses and messes of wire are gone; you simply connect a pair of fine speakers and turn on the music.

It is this total approach to integrated design that makes the 440-T more than just the sum of a tuner, an amplifier and a control center. And that is why it is an unprecedented buy at \$329.50. (Cabinet, \$24.95.)

Features and Specifications

Tuner Section:

4-gang transistor front end; 4 IF stages; 3 limiters; STEREO BEACON*; automatic stereo switching; sensitivity, 2.0 µV (IHF); stereo separation, 35 db; S/N (100% mod.), 68 db; selectivity, 50 db; capture ratio, 2.2 db.

Amplifier Section:

Silicon output transistors; short circuit protection; speaker selector switch (main or aux.); front-panel headphone jack; music power (IHF), 4-ohms, 70 watts; harmonic and IM distortion, 0.8%; frequency response (overall), 20-22,000 cps ± 1.5 db; hum and noise, 80 db; input sensitivity, phono magnetic (low), 4.5 mv; stereo separation, phono magnetic, 50 db.

Size: 16¾" wide x 5½" high x 12¾" deep (including knobs and heat sink).


Weight: 21 pounds.

*PATENT PENDING

The Fisher 440-T

Fisher's Edition
NEW REVISED AND ENLARGED

The Fisher HANDBOOK



84

FREE! \$2.00 VALUE! Send for your free copy of the new 1966 edition of *The Fisher Handbook*. This revised and enlarged version of the famous Fisher high fidelity reference guide is a magnificent 80-page book. Detailed information on all Fisher components is included.

Fisher Radio Corporation
11-35 45th Road,
Long Island City, N. Y. 11101

Name _____

Address _____

City _____ State _____



Shopping for
a tape recorder?
Here's all
you need to know:

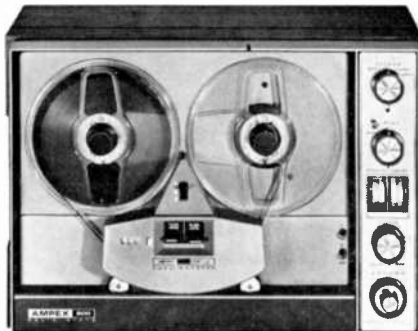
Ampex is the one professionals use!

It's a fact! 'Most all of the music you hear every day was originally recorded on Ampex tape equipment. And now, your nearby Ampex dealer can show you a full line to choose from for home use. Start with our lowest priced #860. Like all Ampex tape recorders, it features dual capstan drive and solid die-cast construction. It makes stereo and mono recordings, plays them back in shimmering high fidelity . . . and costs less than \$330, complete with detachable slide-on speakers. For just a little more,

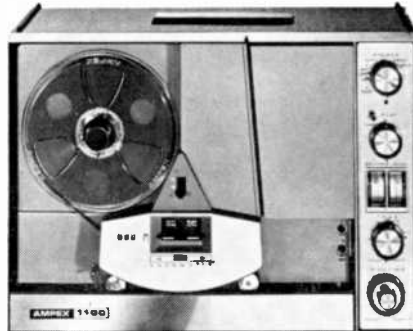
you can have our #1160, which is even easier to use; it has automatic threading and automatic reversing. (You don't have to switch reels to play the other tracks!) And, if you're a "nothing but the best" believer, believe us: you'll be more than happy with our #2060. It offers sound quality on a par with professional equipment and power enough to thrill a small auditorium. To round out the picture, there's also a full line of accessories . . . all in the professional tradition of Ampex.

Special offer: Get \$50 in Stereotapes for just \$12.95! Ask your dealer.

800 SERIES



1100 SERIES



2000 SERIES



tape recorders / speakers / microphones / headsets / blank tape / accessories / stereotapes

AMPEX CORPORATION, 2201 LANDMEIER ROAD, ELK GROVE VILLAGE, ILLINOIS 60007

ask anyone who knows

AMPEX

Circle 34 on Reader's Service Card