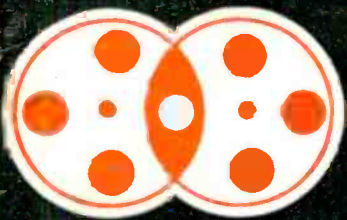


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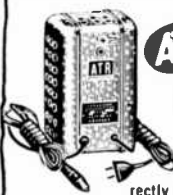


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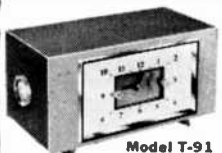
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TAPE RECORDING

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NEW TAPES

★—Fair
★★—Good

★★★★—Very Good
★★★★★—Excellent

CLASSICAL

Reviewed by Robert E. Benson



Music ★★★
Performance ★★★
Fidelity ★★★
Stereo Effect ★★★

LISZT: Piano Concerto No. 1 in E Flat Major, Hungarian Fantasy, Mephisto Waltz, Funerailles, Sonata in B Minor
Jorge Bolet, pianist; Symphony of the Air conducted by Robert Irving
EVEREST TT 43-008 (twin pack)
4-track, 7 1/2 ips
\$11.95 . . . 82 min.

A convenient collection of some of the best-known and best music of Franz Liszt, consisting of the *Concerto No. 1*, *Hungarian Fantasy*, *Mephisto Waltz*, *Funerailles*, *Sonata in B Minor*, and lesser-known *Funerailles*, played by Jorge Bolet, accompanied in the two concerted works by the Symphony of the Air under the direction of Robert Irving.

Bolet specializes in the music of Liszt and was the pianist for the movie *Song Without End* which purported to be Liszt's life story. He has an extraordinary technique, and temperament suitable for this music. These are rousing performances, with superb sound in the *Concerto* and *Fantasy*, although the piano solos have a somewhat brittle quality in the higher register. The great *Sonata in B Minor* is perhaps Liszt's finest work, and a welcome addition to the four-track catalog. Here the performance falls only slightly short of the impact the *Sonata* has when played by Vladimir Horowitz, whose recording on 78's is now a collector's item. With a total playing time of well over eighty minutes, this is another Everest bargain.



Debussy-Ravel
Music ★★★★★
Performance ★★
Fidelity ★★★
Stereo Effect ★

Boulanger
Music ★★★★★
Performance ★★★★★
Fidelity ★★★
Stereo Effect ★★★★★

BOULANGER: Psalm 130, Psalm 24, Psalm 129, Daily Prayer for the Whole Universe, Pie Jesu
Soloists, Elisabeth Brasseur Chorale and the Lamoureux Orchestra conducted by Igor Markevitch
DEBUSSY: Iberia; RAVEL: La Valse, Rhapsodie Espagnole
Rochester Philharmonic Orchestra, Theodore Bloomfield, conductor
EVEREST TT 43-010 (twin pack)
4-track, 7 1/2 ips
\$11.95 . . . 82 min.

This is the first recording ever made of the work of Lili Boulanger, sister of the remarkable Nadia Boulanger. Lili Boulanger was born in Paris in 1893, and was in ill health during most of the twenty-four short years of her life. Her music has a mystic quality that is immediately compelling, and the power of her music is quite incongruous with the image of a woman, and particularly a young girl, composer. Although the fury and power of the *Psalms* is remarkable, I was most impressed by *Pie Jesu*, her last work, scored for boy soprano with organ and strings, a brief, touching prayer, completed just before she died. Performances here are exemplary, and were made under the personal supervision of Nadia Boulanger. Everest's sound is big and bright, with some sonically thrilling moments in the heavy choral-orchestral climaxes.

The Debussy and Ravel masterpieces on the reverse track of this tape are, to put it bluntly, not good. One would like to be charitable, but these performances are so sub-standard that I must warn prospective purchasers to buy this tape only for the Boulanger music. The Rochester Philharmonic sounds small, perhaps partially because of the dry acoustics, and the orchestral playing is timid. Everest's reproduction has some good heavy bass, but the over-all sound on this track is disappointing. Perhaps Everest will re-issue the Boulanger works as a single tape, or with a more compatible coupling.



Music ★★★
Performance ★★★★★
Fidelity ★★★
Stereo Effect ★★★

CHOPIN: Piano Concerto No. 1 in E Minor, Op. 11
MENDELSSOHN: Capriccio Brillant, Op. 22
Gary Graffman, pianist; Boston Symphony Orchestra conducted by Charles Munch
RCA FTC 2050
4-track, 7 1/2 ips
\$8.95 . . . 47 min.

A remarkably successful venture. Gary Graffman is one of the most gifted of the younger set of American pianists, and he presents an individual, convincing interpretation of the Chopin *Concerto*, displaying a solid technique and musicianship. The result is an appealing entity, rarely heard in performances of this concerto. The attractive Mendelssohn *Capriccio Brillant* is an added bonus.

Sound is of the best Victor has achieved with the Boston Symphony, although woodwinds are somewhat subdued. There is a delicate interplay of string sound in the accompaniment signifying meticulous engineering. Unfortunately, there is a slight pre and post echo to mar the technical perfection of the tape.



Music ★★★★★
Performance ★★★★★
Fidelity ★★★
Stereo Effect ★★★

HAYDN: Symphony No. 94 in G "Surprise",
Symphony No. 101 in D "Clock"
Vienna Philharmonic Orchestra conducted
by Pierre Monteux
RCA FTC 2030
4-track, 7 1/2 ips
\$8.95 . . . 47 min.

Two of Haydn's best-known symphonies coupled on one tape. The playing of the Vienna Philharmonic is all one could ask for, and the verve and spirit of the interpretations belie the fact that the conductor is in his eighties. A full string complement is used, and the resultant rather thick quality of the strings may not please those who prefer this music played by a small orchestra. The stereo is superb, with luxurious sound. If only Victor would get sound approaching this in their recordings with the Boston Symphony!



Music ★★★★★
Performance ★★★★★
Fidelity ★★★★★
Stereo Effect ★★★★★

DEBUSSY: La Mer, Three Nocturnes
RAVEL: La Valse, Bolero
Amsterdam Concertgebouw Orchestra conducted by Eduard van Beinum
EPIC EC 813
4-track, 7 1/2 ips
\$7.95 . . . 71 min.

Without a question, this is a tremendous buy in four-track tape. A playing time of better than 70 minutes for \$7.95 is a rare bargain indeed, particularly when the performances are as expert as these and the sound is satisfactory. Here on one tape we have some of the most important examples of French impressionism. Some listeners might prefer a French style of playing for such music, but I rather imagine most will be delighted with the rich, sonorous, Germanic sound of the Concertgebouw. Beinum was particularly fond of Impressionistic music, and under his knowing baton these scores surge with life and vitality.

The orchestra itself is superb. One could point out numerous examples of outstanding playing; the dazzling, cleanly articulated trumpets throughout the Debussy works; the sensuous cboe solo in the *Dialogue of the Wind and the Sea* from *La Mer*, hauntingly played over an immaculately intoned violin harmonic, or the precision of the pizzicato strings. The wordless chorus in the last of the *Three Nocturnes* is beautifully sung by women's voices of the Collegium Musicum Amstelodamense.

The Debussy works were recorded several years ago, and receive warm, resonant sound, with ideal stereo effect and remark-

able clarity. The Ravel pieces were done later and for some reason, the sound isn't as good, lacking in heavy bass, with rather strident strings. The processing to four-track tape has left nothing to be desired, with superior sound to the disc versions.



Music ★★★★★
 Performance ★★
 Fidelity ★★★
 Stereo Effect ★★★

BACH: Fantasia and Fugue in G Minor, Prelude and Fugue in E Minor, Toccata and Fugue in D Minor, Passacaglia and Fugue in C Minor, Four Chorale Preludes
 LISZT: Fantasia on B-A-C-H
 Karl Richter, organist
 LONDON LCK 80067
 4 track, 7 1/2 ips
 \$11.95 . . . 82 min.

With this tape London helps fill a great gap in the four-track tape repertory—that of classical organ music. How strange it is that there are so few good recordings of classical organ music, played on a large instrument in a resonant hall. The recordings on this tape were made on the Victoria Hall organ in Geneva, Switzerland. There is some astounding bass here, with clean, clear highs, although there could be more resonance.

Richter's performances are occasionally curiously mannered, but not to any disturbing extent. The Liszt *Fantasia on B-A-C-H* sounds frightfully banal compared with the Bach, but it is a fine showpiece for the organist. Let's hope that soon we will have four-track tapings of some of the symphonies for organ of Vierne, Dupre and other modern composers.

SHOWS



Music ★★★★★
 Performance ★★★★★
 Fidelity ★★★★★
 Stereo Effect ★★★★★

MOVIE THEMES

Side 1: Theme from "The Apartment"; The Green Leaves of Summer; Never on Sunday; Theme from "A Summer Place"; Just in Time; Pepe

Side 2: Gigi; Theme from "The Unforgiven"; Theme from "The Sundowners"; The River Kwai March

Frank Chacksfield and His Orchestra
 RICHMOND (London) RPE 45026
 4 track, 7 1/2 ips
 \$4.95 . . . 33 mins.

For those who like lush, sweet music, here is an assortment of theme songs from recent movies. "Never on Sunday," "The Apartment," "Gigi" and many others come to life with verve and authority—Frank Chacksfield is a master of precision, definition and feeling. His orchestra responds accordingly, and the combination results in a



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tape for delightful listening. It is beautifully recorded with highs that are full and clean, and proper balance for good stereo effect. Nice to listen to, even if you haven't seen the movies.—*F. N. West*

POPULAR



Music ★★★★★
Performance ★★★
Fidelity ★★
Stereo Effect ★★

MUSIC OF JEROME KERN

Sequence A: Smoke Gets in Your Eyes, The Last Time I Saw Paris, The Night Was Made for Love, The Song Is You, Yesterdays, All the Things You Are
Sequence B: Lovely to Look At, Long Ago and Far Away, The Touch of Your Hand, I've Told Every Little Star, They Didn't Believe Me, The Way You Look Tonight

The Melachrino Strings and Orchestra

RCA FTP-1053

4 track, 7½ ips

\$7.95 . . . 40 mins.

You don't have to hunt around to find a favorite song created by Jerome Kern — they're nearly all favorites — Smoke Gets in Your Eyes, The Last Time I Saw Paris, The Touch of Your Hand, They Didn't Believe Me, are all cases in point, and they, as well as many others, comprise this tape.

These immortals are well played by the Melachrino Strings, but from the standpoint of top-flight recording technique, there is a little something missing—not enough to spoil your enjoyment, but enough to make you wish they had been better recorded.

You'll like it however, and chances are,

you'll be humming along from the very first number.—*F. N. West*



Music ★★★★★
Performance ★★★★★
Fidelity ★★★★★
Stereo Effect ★★★★★

LATIN PERCUSSION

Track A: In A Little Spanish Town Cha-Cha, The Breeze and I, Heartaches, Patricia, Besame Mucho, Everything's Coming Up Roses

Track B: By Heck Cha-Cha-Cha, Oye Negra, I Could Have Danced All Night Cha-Cha, Bijou, The Lamp of Memory, Baia

David Carroll and His Orchestra

MERCURY (Bel Canto) ST-6000

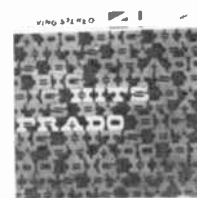
4 track, 7½ ips

\$7.95 . . . 29¼ mins.

From the title, one would expect the customary Latin favorites, splashed around with an overdose of percussive sound, of which there has been quite a lot lately. However, such is not the case in this new offering by David Carroll, of a new series correctly named Perfect Presence Sound. His ingenuity seems boundless as he offers a collection of standard tunes imaginatively arranged in Latin Percussion—your old favorites such as "I Could Have Danced All Night," "Heartaches," "In A Little Spanish Town" and others, prettily set down in rumba and cha-cha rhythm, and all in the best Latin mood with plenty of pleasant but not raucous percussion. A good stereo system is necessary to bring out the wonderful concept of sound that this master creates. The whole thing is so beautifully recorded and impeccably clean

that there is no room anywhere to find fault—you just listen in wonderment.

A descriptive insert is included which gives complete information on personnel, program and technical notes on the recording.—*F. N. West*



Music ★★★★★
Performance ★★★★★
Fidelity ★★★★★
Stereo Effect ★★★★★

BIG HITS BY PRADO

Sequence A: Mambo Jambo, Cherry Pink and Apple Blossom White, Why Wait, Guaglione, Mambo No. 5, Paris

Sequence B: In a Little Spanish Town, Patricia, Ruletero, Mambo No. 8, My Roberta, Caballo Negro

Perez Prado and His Orchestra

RCA FTP 1038

4 track, 7½ ips

\$7.95 . . . 28 mins.

This collection of hit numbers by the talented Cuban pianist and arranger really has a beat and a sound that's indescribably Prado, complete with "grunts" — a grunt as he does it becomes an integral part of his musical expression. The instrumentation here is most unusual, featuring the electric organ as well as the famous Prado trumpets in such numbers as Cherry Pink and Apple Blossom White, Patricia and several mambos of his own — all of them designed to set your feet tapping to the rhythm. Hi-fi stereo fans will find this one a good showpiece both from equipment and performance standpoint.—*F. N. West*



Music ★★★★★
Performance ★★★★★
Fidelity ★★★★★
Stereo Effect ★★★★★

TEMPTATION

Side 1: Theme from "The Sundowners", Theme from "The Apartment", Temptation, One Finger Symphony, Homesick for New England, La Montana, Never on Sunday

Side 2: Riviera Concerto, It's Now or Never, What Lies Over the Hill?, Raindrops, Little Rock Get Away

Roger Williams

KAPP KTL-41028

4 track, 7½ ips

\$7.95 . . . 34 mins.

Roger Williams is now established as one of the leading artists at the keyboard. Possessed of great ingenuity and talent, one of his greatest attributes is that his good taste and judgment are evident in all he does. In this new tape, he continues his magic formula for playing piano music that is fresh and colorful. He includes some of today's favorites such as "Theme From the Apartment," "Never on Sunday," "The Sundowners," together with others not so well known. Regardless, they all become favorites when he is done with them.

Orchestra accompaniment provides nice support for his piano and sound is well recorded. However, the last four minutes of tape on the second side were blank. I wish they could have filled it out with some music.—*F. N. West*



- Music ★
- Performance ★
- Fidelity ★★
- Stereo Effect ★★

ELVIS IS BACK!

Sequence A: Soldier Boy, Such a Night, It Feels So Right, The Girl Next Door, Like a Baby, Reconsider Baby
Sequence B: Make Me Know It, Fever, The Girl of My Best Friend, I Will Be Home Again, Dirty, Dirty Feeling, Thrill of Your Love

Elvis Presley with The Jordanaires
RCA FTP-1024

4 track, 7 1/2 ips
\$7.95 . . . 32 mins.

His tour of duty in the Army now completed, Elvis is back but not with all of the old rock and roll personality he once displayed. Instead he seems to be trying a new style in some of his selections. He also has the Jordanaires to help him. The result is something that will only be appreciated by his faithful fans.—*F. N. West*

FOLK



- Music ★★
- Performance ★★★
- Fidelity ★★★
- Stereo Effect ★★

SOVIET ARMY CHORUS & BAND

Side 1: Song of Youth, Kalinka, Far Away, Volga Boat Song, You Are Always Beautiful, Along Peter's Street, Tipperary
Side 2: A Birch Tree in A Field Did Stand, Bandura, Oh, No! John!, Snow Flakes, Ukrainian Poem Poem, Soldier's Chorus

Soviet Army Chorus and Band

ANGEL ZS 35411

4 track, 7 1/2 ips
47 mins.

The Russians must take time out from their missile program to develop the love of music and singing in their army because they exhibit in this tape a well trained chorus of male voices under the direction of Col. Boris Alexandrov. They sing thirteen folk and contemporary songs by Russian and European composers with stirring, dramatic and tender interpretations. Their tonal qualities and dynamic effects make this an enjoyable listening experience even though all of the songs except two are sung in Russian. Their rendition of Tipperary (in English) is something you must hear. The band gives excellent support. Recorded in Europe, the sound is rich and full.—*F. N. West*



CLEAR MIRROR-LIKE REPRODUCTION with

BURGESS MAGNETIC RECORDING TAPE

- ★ LOW NOISE LEVEL
- ★ SUPERB FREQUENCY RESPONSE
- ★ HIGH SENSITIVITY
- ★ UNIFORM, TROUBLE-FREE PERFORMANCE

Remarkable Burgess engineering developments have produced an audio tape of superlative quality.

1. Micro-finished surface and built-in lubrication eliminates tape squeal and reduces recording head friction.
2. Improved pre-coating process produces a superior bond, eliminating flake-off so that recording heads stay clean.
3. Revolutionary dispersion process produces tape with high sensitivity, extraordinary frequency response, eliminating print-through, and delivering mirror-like sound reproduction.

Nationally Advertised in top-flight consumer magazines read by tape recording enthusiasts.

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DIVISION OF SERVEL, INC.

MAGNETIC TAPE DIVISION

FREEPORT ILLINOIS NIAGARA FALLS, CANADA

Manufactured by the makers of Burgess Batteries.



NOVELTY



- Music ★
- Performance ★
- Fidelity ★★
- Stereo Effect ★

NIGHT IN HOLLYWOOD

Track A: My Recent Tour, The Old Maid & The 3 Wishes, The Wild Father, The Cuckoo and the Reeper
Track B: Impersonations

George Kirby
BEL CANTO ST-140

4 track, 7 1/2 ips
\$5.95 . . . 32 mins.

George Kirby, a former dishwasher turned impressionist, does his act before a studio audience, supposedly in Hollywood, but it could be any night club in any place. He runs through a series of humorous discussions, mixed with tired jokes, mimics musical instruments, and impersonates various show-biz headliners such as Nat King Cole, Marlon Brando, Billy Eckstine, Johnny Mathis and others. Some are good and some are just so-so. It's all been done before.

Recording is good, but why make a solo performance of this type in stereo? The effect is very limited and the whole thing becomes a bore after two or three playings.—*F. N. West.*

CROSSTALK

from the Editors

HISTORY HAS A WAY of repeating itself, so we are told, and we are wondering if the tape recorder is going to go through the same sort of development as the phonograph.

* * * * *

THE EDISON CYLINDER was the first commercially available form of sound recording. This was a rather soft, wax-like cylinder about a quarter of an inch in thickness with the sound grooves winding spirally around the outside. It was kept and shipped in a felt lined cardboard tube.

* * * * *

THEN CAME THE flat disc running at 78 revolutions per minute. The first discs were thick and heavy. The sound was recorded mechanically, and reproduced the same way. Improvements in base materials made it possible to reduce the thickness to the familiar 78 rpm record.

* * * * *

THROUGH THE INVENTION of the vacuum tube, it became possible to record electrically with much finer results. Then came tape and this was used for all mastering, the master record being cut from the tape. The use of tape meant great savings in recording for errors or flubs could be edited without repeating the entire performance.

* * * * *

DR. PETER GOLDMARK of Columbia then came up with the microgroove record which allowed a speed of 33-1/3 rpm (RCA went to 45 rpm) and much finer grooves. This also meant a new needle, called a stylus, had to be developed, and so it was.

* * * * *

IN ORDER TO KEEP peace with the millions of people who had a collection of 78 rpm records, machines had to incorporate both the 78 and the 33-1/3 rpm speeds. RCA tried to hold the 45 rpm speed but this too was absorbed by the players, including the larger spindle hole, and machines are now available which will run at 78, 45, 33-1/3 and 16 rpm, the speed of the "talking book records". Thus, instead of many systems the record industry was forced to build machines that would accommodate all. The 78 record has now passed away pretty much but there are still millions of them around. Lately, the record industry has been toying with the idea of going entirely to the 33-1/3 speed.

* * * * *

TAPE HAS NOT made as many changes as the disc industry, despite all the uproar every time a change is made. The early speed of 15 ips is still used for professional recording. The 7 1/2 ips speed is standard for hi-fi music reproduction from tape and has been for some 8 years. Head configurations have changed from full track to dual track, then to staggered stereo and two track stacked stereo to the present four track. These changes came about through technological improvements and resulted in less cost to the consumer.

* * * * *

MOST RECORDERS have the 7 1/2 and 3 3/4 ips speeds as standard and some have the 1-7/8 speed also. RCA came forth with the cartridge a few years ago which runs at 3 3/4 ips but progress was slow. The cartridge could not be played on reel-to-reel equipment unless the tape was removed from the plastic container and reels could not be played on the cartridge machine.

* * * * *

JUST RECENTLY RCA came out with a line of cartridge players more in keeping with the size of the cartridge. Bell Sound also has had a line of cartridge machines for some years. But RCA also brought out an accessory which sells for a few dollars which enables the user to play small reels of tape on the cartridge player!

* * * * *

THERE ARE ALSO the Cousino cartridge and the Eash cartridge, both of which have found wide application for specialized uses, and the Minnesota Mining cartridge which uses half-width tape and plays at 1-7/8. None of these is compatible with the others.

* * * * *

BUT IN VIEW OF what happened in the record player industry, we are wondering if history might not hiccup again and we shall see recorders that will take almost any and all forms of tape.

* * * * *

INDUSTRY NEWS

NEW YORK HI-FI show held in the Trades Show Building had an attendance of 33,500 persons, according to the Institute of High Fidelity Manufacturers who sponsored the show. This represented an increase of 25% over last year's show. The paid attendance was 26,000.

TELECTRO, Long Island City, N. Y., has a new president, S. Robert Gordon, who was the senior partner in the firm of S. Robert Gordon & Co. which is an accounting and management consulting service. Harry Sussman will assume the post of executive vice president. He will be responsible for design, engineering and manufacturing.

REVERE CAMERA COMPANY, Chicago, has made changes in its dealer policy including a reduction of quantity discounts and prepaid freight on all purchases of major units. J. C. Landen, director of marketing, said Revere will not bring out any new models of cameras, projectors or recorders for the remainder of the year.

FEDERAL AVIATION AGENCY, Washington, D. C., is expected to award a contract soon for the research and development of a crash-proof recorder which will record the pilot's comments prior to a crash. The agency is also interested in a microphone which will screen out engine and other noise and only pick up the voice. Pending development of the recorder, which must be impact and fireproof, they are thinking of setting up an emergency frequency to broadcast the output of the mike prior to difficulties. The theory is that the pilot would be able to give an account of what was happening when the emergency occurred.

The Amazing Electronic Educator!



The Electronic Educator is an amazing new scientific device designed to train and teach at both the conscious and subconscious levels. You read, speak or transcribe recorded material thru the microphone, where it is recorded on special endless tape cartridges holding from 1 min. to 2 full hours of tape. This tape repeats itself and your message endlessly to give you the necessary repetition to memorize material. Comes complete with mike, Slumber Speaker, timer and cartridges. Offers thousands of uses from learning languages to helping backward students. Write for free descriptive literature. Sleep-Learning Research Ass'n Box 24-W Olympia, Washington.

MICHIGAN MAGNETICS, Vermontville, Mich., has appointed John Willigman as Chicago sales engineer. He fills the vacancy created when William R. Spackman was promoted to general sales manager of the company.

RADIO STATIONS now broadcasting multiplex FM stereo include: WGFM, Schenectady, N. Y.; WQXR, WLIR, New York, N. Y.; WSPA-FM, Spartanburg, S. C.; WBNS-FM, Columbus, Ohio; WDTM, Detroit, Mich.; WEFM, Chicago, Ill.; KIXL-FM, Dallas, Texas; KFMU, Los Angeles, Calif.; KPEN, San Francisco, Calif.; and KLSN, Seattle, Washington. Most are broadcasting stereo on a restricted schedule.

ALLIED RADIO, Chicago, Ill., has set up a new subsidiary, Allied Electronics Corporation, to deal in materials for the industrial electronics field. On the consumer side, they have liberalized credit plans which now feature no down payment and add-on purchasing up to 24 months.

SARKES TARZIAN, Bloomfield, Ill., is offering an hour-long tape with \$14.90 worth of music on it for \$1.49 and the purchase of a blank reel of Tarzian Tape at the regular price. The recorded tape contains Concertapes stereo albums from Gigi, My Fair Lady and Silk, Satin and Strings. The tapes will be available through Tarzian dealers. The company also has a three-color counter display for dealers which holds 7, 5 and 3-inch reels of tape.

MOHAWK ELECTRONICS CORP., Brooklyn, N. Y., has restyled its Midgetape recorder and produced an industrial model of its Message Repeater drive mechanism. The firm expects sales for the year to be \$1,200,000 based on present indications.

MINNESOTA MINING AND MANUFACTURING CO., St. Paul, Minn., has adopted a new identification program. The company has been using more than 50 different trademarks in as many type faces, none of which bore any relation to the others. This has now been changed through the use of a new symbol and alphabet so that any of the firm's many products may be readily identified with the company. The numeral 3 and the letter M are prominent in the new trademark.

The company has also brought out a counter dispenser which holds the 3" "Living Letter" reels used for tape correspondence and dictation. Each dispenser holds a dozen reels with numbered holes along the edge to make the contents visible.

VIKING OF MINNEAPOLIS has introduced a packaged tape player to sell for \$154.75. The unit incorporates Viking's Model 35 tape cartridge handler which uses the Eash type cartridge.

try triton tape

If the quality of Triton Magnetic Recording Tape is deficient for any reason whatsoever, we will replace it with whatever brand you prefer. A complete no-risk Guarantee Certificate is included with every reel. For clean, full-response recordings that only a quality tape can give, try Triton.

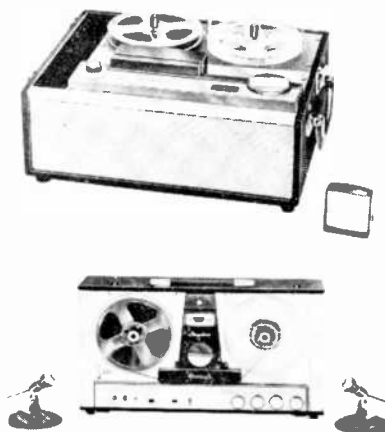
Write for your free copy of *The Triton Story*.



TRITON ELECTRONICS, INC., DEPT. T-11
62-05 30th Avenue, Woodside 77, N. Y.

NEW PRODUCTS

NEW GEMARK RECORDER LINE



A completely new expanded tape recorder line of four models for 1962 has been announced by General Magnetics and Electronics, Inc., 134-09 36th Road, Flushing 54, New York. This new Gemark line includes Model 102 (top), which has monaural record/play, 5" reels, 2 speeds, 2-tone styling, 8" elliptical speaker, 5-watt (peak) output, simple 1 knob operation, volume and tone controls, pushbutton speed change, and it weighs 14 lbs. Price: \$89.95.

Model 107 is deluxe 4-track monaural with up to 8 hours record/play time, 2 speeds, 1 knob mechanism control, volume and tone controls, 8" elliptical speaker and response 100-12,000 cps. Price: \$109.95.

Model 407 is deluxe 4-track stereo and monaural play, 4-track monaural record. It has exclusive Dub a Track for simultaneous record and play on separate channels; two preamplifiers and two power amplifiers, plus 8" elliptical speaker built-in; and is complete with external second speaker for the second channel. Price: \$159.95.

Model 420 (bottom) has true professional quality and features which include 4-track stereo record and play, 4-track mono record and play, exclusive Gemark Dub a Track sound-with-sound plus sound-on-sound. It is completely self-contained, with two dual-cone speakers. Price: \$249.95.

All details available from the manufacturer.

NEW PENTRON MACHINE



A compact, lightweight, self-contained tape recorder and playback system which can record from any source, add to existing recordings, as well as play stereo 1/4 track and 1/2 track tapes, has been developed by Pentron Electronics Corp., 777 S. Tripp Avenue, Chicago 24, Illinois. Dubbed the "880," this unit contains two hand-wired amplifiers and pre-amplifiers, two full-range speaker systems, two microphones, and a foolproof push-button controlled tape transport mechanism in a nearly indestructible molded fibre case. The "880" can record and playback in stereo. In addition, special inputs permit recording of stereo FM/multiplex broadcasts as well as standard radio. An unusual Ad-Sound feature permits adding voice, music, or special sound effects to recorded tapes for teaching and other education and business purposes. The cost of the "880" is \$369.95. Any additional details may be obtained from the manufacturer.

M.M.&M. SENSING TAPE



A new conductive sensing tape, for use with recorders having electronic sensing controls, has been announced by Minnesota Mining and Manufacturing Co., 900 Bush Avenue, St. Paul 6, Minn. The new product, named "Scotch" brand sensing tape No. 51, is a thin, flexible conductive foil, which is coated with a special pressure sensitive adhesive for easy application to magnetic tapes. It is available in two widths—7/32 inch for use on standard quarter-inch tapes, and 1/2 inch for special applications. It can be applied half-width on tapes requiring sensing placement on upper or lower track areas only. The tape has an easily-removed adhesive liner, which keeps the adhesive fresh and clean in storage and simplifies application. The roll for home users is 150 inches long and is packed on a special container card, which is equipped with cutter edge and application guide. Write M.M. & M. for all information and prices.

MULTIPLEX ADAPTER

A compact, transistorized stereo multiplex adapter that converts any conventional FM tuner or receiver into full high fidelity stereo reception has been designed by ABC Electronics, Inc., 611 Brookhaven Drive, Orlando, Florida. The self-contained and self-powered adapter, which is F.C.C. approved, converts FM broadcast into a fully



mixed and compatible stereo signal—and not just the right and left channels. The front panel stereo balance control knob equally mates these channels for optimum balance. The adapter provides these two channels in the 0 to 15,000 cps range. This Model 611 Multiplex Adapter is quickly and easily attached to all discriminator-type multiplex tuners or to any other FM unit by going to the center tap of the discriminator of the FM radio or tuner. The adapter features a simple, yet effective switching arrangement. Separation is at least 20 db over the entire audio range, with frequency response from 30 to 15,000 cps on both channels with full separation. The cost is under \$40. For free literature, write to ABC Electronics, Inc., 611 Brookhaven Drive, Orlando, Florida.

NEW RCA CARTRIDGE MACHINES



Three new tape recorder-players, using RCA's magazine-loading tape cartridge system, in compact, dual-purpose units, were announced recently by the RCA Sales Corporation. The three tape cartridge recorders range in price from \$99.95 for a monaural unit—the Prompter Model 1YB1 (top) to \$169.95 for a deluxe stereophonic instrument—the Fortnighter Model 1YC1 (bottom). An optional adapter permits any of three units to play reel-to-reel tape. The adapter package is \$4.95. All three recorders feature two speeds, 3 3/4 and 1 7/8 ips; frequency response at the faster speed is 50 to 15,000 cps. There is no threading of tape, the cartridge simply slips into the machine. Simple controls and a safety interlock are also included in the units. For more information, contact your local RCA dealer.

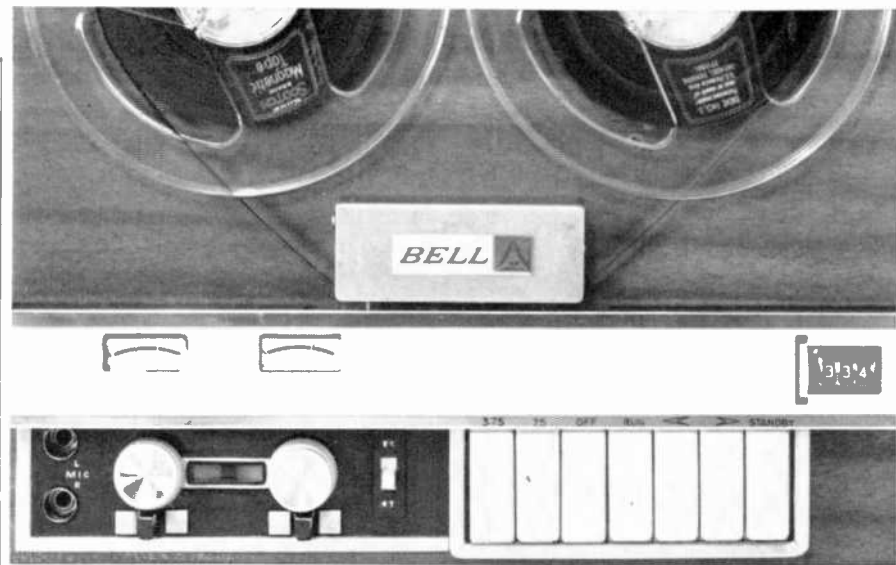


Allied Radio Corp., 100 N. Western Avenue, Chicago 80, Illinois, will send you free upon request a copy of their new 1962 Electronics Catalog. The new 444-page catalog lists over 60,000 items and includes 288 pages in rotogravure. The tape recording section features a comprehensive listing of stereophonic high fidelity tape recording equipment. Included are recording and playback units by Knight, Ampex, Tandberg, Viking, Concertone, and Sony. There are tape recording components for custom installation, all types of recording accessories, and a complete listing of tapes in the leading makes. There is a full presentation of leading stereophonic and monophonic components. There is also a special selection of the latest stereo records and tapes, and an expanded 1962 Knight kit line, plus many other features. Write for your copy today.

SHURE MIKE



Shure Bros., Inc., 222 Hartrey Avenue, Evanston, Ill., has introduced its Model 545S Unidyne III microphone with uniform cardioid pick-up pattern. Designed to reduce or eliminate feedback and background noise pickup, this mike is suitable for public address and recording under the most adverse acoustic conditions. It is a rugged, compact, unidirectional, moving coil microphone, which features wide range reproduction and offers flexibility of uses as a hand or stand mike. The cost is \$85.00. All information is obtainable from Shure



True professional recording now within your reach. This new Bell Stereo Tape Transport has all the features of tape recorders costing as much as \$350 more . . . every feature you need to record *with superb fidelity* . . . on 2 track and 4 track: Record Level Meters on each channel • Integrated record-playback Stereo Pre-Amplifier on single chassis • Automatic switching of record equalization to assure maximum response at 7½ and 3¾ ips speeds • Positive Record Interlock with back-lighted indicators for added safeguard against erasure • Mike Inputs on master control panel, always accessible • Stereo headphone monitor output jack on pre-amp • Electrical switching between 2 track and 4 track heads • Heavy duty 3-motor drive • Electro-dynamic braking • Wow and flutter less than 0.2% • Record-Playback frequency response of 18-16,500 cps @ 7½ ips, 18-15,000 @ 3¾ ips, 7 models, priced from \$140 to \$390, styled to match other Bell stereo components. See and hear them at your Bell dealer's. Or write for catalog. *Bell Sound Division, Thompson Ramo Wooldridge Inc., Columbus 24, Ohio.*

FEATHER-LITE HEADPHONES



Permoflux Corp., 4101 San Fernando Road, Glendale 4, California, has announced the addition to their line of headphones of the Feather-Lite series, an all new light-weight headphone. These headphones employ the Permoflux Life-Time Plastic Cones. They are ruggedly constructed and cannot be damaged from ordinary handling. They are light, flexible and fully adjustable to fit any size head. Earcushions are designed for comfort, effective noise exclusion and are easy to keep clean. Monaural types are available in 8 and 100 ohms and stereo types in 16/16 ohms. For more information and price, write to Permoflux.

PROFESSIONAL QUALITY
SPLICE FREE

AUDIO unlimited
RECORDING TAPE — 7" REELS
freq. response: 20-20,000 cps

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INDUSTRIAL USERS,
AUDIO ENTHUSIASTS



UNCONDITIONALLY
GUARANTEED

	3+	12+	24+
1200' ACETATE	1.59	1.49	1.39
1800' ACETATE	1.89	1.79	1.59
1800' MYLAR	2.39	2.29	2.09
2400' MYLAR	2.95	2.85	2.75
2400' TENS. MYLAR	4.55	4.25	3.95

ADD 15¢ per REEL POSTAGE
24 or more: 10¢ per reel (can be mixed)

ALSO AVAILABLE
White box tape at low prices—free list

FRANCHISED DEALERS: TANDBERG, ROBERTS, SONY, CONCERTONE, CROWN PRINCE, WOLLENSAK, SCOTCH TAPE, ETC.

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Norelco®

brings you a portable tape recorder that works on ordinary flashlight batteries so you can now record anything, anytime, anywhere! Only 8 lbs.—is worn over your shoulder like your camera. Records and plays back up to 2 hours on one reel. Simple to use? Push two buttons and you're recording... push one button and you're playing back. What could be simpler! Sound is clear as a bell and as loud as you want it. Ruggedly built, with constant-speed motor... handsomely styled... surprisingly low-priced. It's the newest of the famous Norelco Continentals—the Continental '100'... available at camera shops, hi-fi dealers and other leading stores all over the country.

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P-11

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In Canada and the rest of the free world, Norelco is sold under the name 'Philips'.

FEEDBACK

Excerpts from readers' letters will be used in this column.

Address all correspondence to: The Editor: TAPE RECORDING, Severna Park, Maryland

Boquet to Tommy

To the Editor:

I would like to commend Mr. Tommy Thomas on his article "Sound on Sound" in the October issue. It is not only "interesting" as he states, it is also a very interesting pastime. I have made many such tape recordings at parties (as he explains) and they always went over big. He mentioned it is not necessary to use hi-fi equipment to get this enjoyment. I will agree with him. There should be some practice preceding the final recording so as to get good results. I have found that giving the artist a little hi-fi also helps. He or she will respond more quickly to all your requests and it will bring out all their hidden qualities that you are so earnestly seeking.

I can say that any such tape recordings will be an everlasting enjoyment, not only to the artist, but also for your friends at any future re-play.

In closing I would like to state that I have written hundreds of sets of instructions (of a mechanical nature) for my employer and I know what instructions should convey. There is hardly an instruction that I receive—not only on tape equipment, etc., but others, that I don't have to add notes, sketches, etc., to make "known" what the manufacturer intended to "tell me." Read Eastman Kodak literature for tops as to instructions and you will see what I mean.

Mr. Thomas' article is written so you can understand it. It leaves no doubt in any phase. A very nice piece of work, Mr. Thomas. — *Charles Huseman, Cincinnati, Ohio.*

We quite agree that Mr. Thomas' articles are very complete and detailed, that's why we publish so many of them. He is one of the top writers in the field.

Butoba Missing

To the Editor:

A very brief question. Why, in your Directory of Portables in your July issue did you leave out the Butoba MT-5? While not quite in the class of the TransMagnemites as far as quality of its recording is concerned, it is far beyond the quality of all the pocket units now flooding the market. In price, it is well within the reach of anyone needing a portable. I have had mine for several months, have encouraged others to purchase them and have heard no complaints so far. As a missionary to the Congo I am particularly interested in a machine which is rugged, truly portable and yet with fair frequency response.

I have been doing quite a bit of speaking since I have returned to the States and have been showing slides. Following one of your articles, I began taping my slide shows. It

is amazing how much better the slides have been received and how much more professional the presentation seems. I wanted to combine some singing by Congolese with commentary but was faced with the possible necessity of purchasing a mixer. Since the expense for a good mixer was prohibitive, I looked around for some substitute. I have a PA amplifier, with separate volume controls for mike and phono inputs. This, I discovered, makes a very acceptable substitute for a mixer. The sound quality seems at least as good as that obtained by clipping onto the speaker leads of phono or radio.

Your magazine has been very helpful and interesting—especially the articles by Tommy Thomas. — *Rev. Donald L. Ellis, Malden, Mass.*

We were unable to reach the distributor by letter, wire or phone, so therefore did not list it.

Thank You

To the Editor:

After a bit over a year with my new recorder I find I still want "Tape Recording" every month and am still satisfied with being a "now and then" reader of your competitive magazines.

I find your bias to the amateur and advanced amateur just about right. If you move in any direction I suggest a slight more leaning to the advanced amateur and semi-professional.

As a contribution to your reader opinion file I might mention that, aside from your articles, I find myself interested in the other content in about the following order: Advertisements, New Tapes, New Products, Questions and Answers and Feedback (why not combine them), New Product Report and Crosstalk.

While I'm not a reader yet of your Tape Club News, I'd not like to see it de-emphasized. I find Industry News and Tape in Education only moderately and occasionally of interest. I assume you include these with the idea of broadening your subscription base.—long live "Tape Recording."—*Lt. Col. M. M. Lawson, Arlington, Va.*

Thank you, Colonel, for your kind comments. We try to completely cover the field of tape recording with attention being given to the broadest segments. The field of tape recording is like the general who mounted his horse and rode off in all directions at once. No matter where you look, you can find some application of tape in the foreground or background. It computes payrolls, keeps inventory, serves as a fine musical medium, records data, does banking, furnishes a link between friends through tape correspondence around the world and so on, and on.

TAPE CLUB NEWS

Indiana Club Meeting

On August 20, 35 members of the Indiana Recording Club, Inc. met for a lecture by Mr. Martin Williams of WFMS, Indianapolis, on Multiplex Stereo. Following his talk with a question and answer session, Mr. Williams did a great deal to inform local tapers about the future of multiplex and its relation to tape recording.

As a surprise part of the program, Elmer Friman, program chairman for the month, presented a stereo tape of the first multiplex program recently broadcast in the San Francisco area, sent by IRC Harry Tuckey of Walnut Creek. Tuck also sent personal greetings to the meeting.

During the business session, a committee was named to arrange for a booth at the Hobby Show, Nov. 11 to 19, where the 9 day attendance usually totals about 100,000 people. The committee, headed by Dick Lindamood, includes Jim Herdman, Ed Bush, Rotha Calhoun, Mac Herrington, and Mazie Coffman.

Coffee and cookies were served during the social hour after the meeting, with Kay Bossert and Linda Steele contributing the cookies.

Monthly Newsletter Series

The current issue of *Tape Squeal*, monthly newsletter of Indiana Recording Club, Indianapolis, Indiana, carries the first of a series of articles about "The Uses of the Tape Recorder," a tape-phone interview with IRC Mac Herrington, popular Hoosier entertainer just returned from a two-weeks' engagement at Miami Beach. In the interview, various uses of the recorder in the entertainment field are discussed. Next month, an article on "Using the Tape Recorder in a Manufacturing Plant," by IRC Joe Zissen (Ohio), will continue this series.

Future feature stories about the tape recorder's use in churches, in schools, in the home, and in other business enterprises are in preparation by the staff of *Tape Squeal*, and will be published in subsequent months.

Tape Squeal is distributed free to all members of Indiana Recording Club, but is not available by subscription. Members may indicate with their membership applications whether or not they are interested in tape exchanges around the world, and in the other different services of the club.

WTP Welcomes Tanganyika Society

World Tape Pals is welcoming the Tanganyika Tape Recording Society which has now become an official Reel, the first in East Africa. Its officers include Frank Weston, president; Miss Irene Pye, secretary; and Mrs. Barbara Hulley, treasurer.

In addition to the regular members of the Society, seven schools have joined the Reel with particular interest in participating in the World Tapes for Education program.

JOIN A CLUB

TAPE RECORDING Magazine assumes no responsibility for the management or operation of the clubs listed. This directory of clubs is maintained as a service to our readers. Please write directly to the club in which you are interested regarding membership or other matters.

AMATEUR TAPE EXCHANGE ASSOCIATION
Ernest Rawlings, Secretary & President
5411 Boscage Street
Cartierville, Montreal 9, P. Q., Canada

AMERICAN TAPE EXCHANGE
Cortlandt Parent, Director
Box 324
Shrub Oak, N. Y.

CATHOLIC TAPE RECORDERS OF AMERICA, INTERNATIONAL
Jerome W. Ciarrocchi, Secretary
26 South Mount Vernon Avenue
Uniontown, Pennsylvania

CLUB DU RUBAN SONORE
J. A. Freddy Masson, Secretary
Grosse Ile, Cte, Montmagny,
P. Que., Canada

INDIANA RECORDING CLUB
Mazie Coffman, Secretary
3612 Orchard Avenue
Indianapolis 18, Indiana

MAGNETO-VOX CLUB
J. M. Roussel, Sec.-Exec.
8140, 10th. Avenue
Montreal 38, Que., Canada

ORGAN MUSIC ENTHUSIASTS
Carl Williams, Secretary
152 Clizbe Avenue
Amsterdam, New York

STEREO INTERNATIONAL
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129 South Broad Street
Carlinville, Illinois

THE VOICESPONDENCE CLUB
Charles Owen, Secretary
Noel, Virginia

UNION MONDIALE DES VOIX FRANCAISES
Emile Garin, Secretary
886 Bushwick Avenue
Brooklyn 21, N. Y.

WORLD TAPE PALS, Inc.
Marjorie Matthews, Secretary
P. O. Box 9211, Dallas 15, Texas

OVERSEAS

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Box 970, H., G.P.O. Adelaide, South Australia

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TAPE RECORDER CLUB
A. Alexander, Secretary
123 Sutton Common Rd.
Sutton, Surrey, England

THE NEW ZEALAND TAPE RECORDING CLUB
Kenneth M. Tuxford
P. O. Box 7060
Auckland, W. I., New Zealand

Please enclose self addressed, stamped envelope when writing to the clubs.

New Officers for WTP Reel #1

Reel #1 of World Tape Pals held its annual election of officers on September 8. They are: Glenn Moore, president; Ben Wilson, 1st vice president (in charge of programs); Alvin Bagnall, 2nd vice president (in charge of properties); and Bob Black, secretary. The Reel plans to issue a new roster soon.

World Tape Pals announces that its World Tapes for Education Library now is located at the international headquarters in Dallas, Texas. All requests from members for tapes on loan will be filled promptly, and additions are welcomed. A new listing with many additions is being prepared.

Customs Passage of Tape

Harry Matthews, executive director of World Tape Pals, has written David Ben-Gurion and the customs officials of Israel asking that steps be taken to arrange for the free passage of small tapes through customs. It is suggested that other organizations join in this effort.

CTRI Representative

George Warren of 47 Princes Avenue, Church End, Finchley, London N. 3, England, has accepted to act as Catholic Tape Recorders, International representative throughout Great Britain and Ireland. He and his wife, Maura, are both actively interested in tape recording and have responded with several CTRI members in the past. George is also a member of the Challoner Club in London; a club for Catholic gentlemen. He has introduced CTRI to members of the Challoner Club with the hope of forming a CTRI unit in the city of London.

George lived in the state of Ohio for six years before returning to his home in England. He is very familiar with our American ways and traditions.

Membership fee for the CTRI unit in Great Britain and Ireland will be 10 shillings annually. For more information concerning CTRI in Great Britain and Ireland we suggest that you contact George at his address above.

New Club

We are including a new club in our roster beginning this issue—Tapeworms International Tape Recording Club. This club has no registration fees or dues. Its sole aim and object is to cement the bond of friendship between peoples and nations, to encourage development of talent and to promote the almost lost art of making conversation.

Marion Chism is the founder of this group and he acts as director and serves also as secretary. Tapes are exchanged directly between members. Marion also furnishes mailing stickers printed with the club insignia for which no charge is made.

Inquiries are invited.

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QUESTIONS AND ANSWERS

Questions for this department may be sent by means of a postcard or letter. Please Address your queries to "Questions and Answers," TAPE RECORDING, Severna Park, Maryland. The most interesting and widely applicable question will be used in this department.

Magnetic Erasing

Q—In answer to a question by N.F.C. of Elmira, N. Y., in your October issue, you gave instructions concerning the use of a bulk eraser in demagnetizing tape heads. It is my opinion that this answer might be misunderstood. I am not familiar with the "Magneraser" but I have another make bulk tape eraser.

I know that a bulk eraser will not affect the erase head on a recorder with an electromagnetic erase head but is it possible that such a bulk eraser would render inoperative a non-electromagnetic erase head? Also would it not have the same effect on an "Echoraser" used in removing print-through?

If I am wrong on this point please correct me for my own information.—D.A.C., Sr., Elizabeth, N. J.

A—You are correct and we should have mentioned in our reply that it is possible to partially or completely demagnetize a permanent magnet erase head through the use of a strong demagnetizer. Even though the permanent magnet is made of magnetically hard material, it is possible to decrease its magnetism by subjecting it to a gradually weakening alternating magnetic field.

The permanent magnet erase is not found on most home tape recorders at the present time although they were quite popular in the early days. In the recorders of today the electromagnetic type of head is used which is powered from the bias oscillator to give a current which alternates very rapidly, usually above 40 KC.

Some small portable machines, especially the inexpensive variety, may feature permanent magnet erase and the bulk erasers should not be used for head demagnetization on them. The small, head erasers may be used on this type machine without danger to the permanent erase magnet, however.

Hum Trouble

Q—I am plagued with hum in my stereo deck. Believing, at first, that contamination was occurring in the preamplifier or amplifier, I had each checked, with negative results. Since hum is present only when the transport motor is running, I am quite convinced that the motor is producing hum in either the heads, heads-to-preamplifier leads, or both. Replacing the cable with continuous shielded cable produced limited improvement; hum is still objectionable when using earphones.—G.H.M., Paramus, N. J.

A—Of all the possible troubles that can beset audio equipment, hum is the commonest and, at the same time, one of the most difficult to eliminate. The principle difficulty lies in locating the source of the hum, or its cause.

It is possible that when the motor is on you have hum induced into some part of the

circuit that is not shielded, such as a lead in the preamps. The routing of the power line to the motor might induce hum if it is near any input leads. Try altering its position in relation to other wires.

You might also check to see that the head shielding is adequate and continuous and that all grounds in the chassis are good. Sometimes when the deck is connected to other equipment there is a difference in potential between the units which will cause hum due to an AC loop. If the deck is connected to other units, test it for hum with those units disconnected from it. Even such a simple thing as reversing the plug in the wall outlet will frequently lower hum level. If a number of equipments are interconnected they should all be connected to the same power source.

The power transformer in some recorders is also a source of hum if improperly shielded or if it is mounted with its axis the wrong way. This may be checked by loosening the bolts and turning it a bit.

Recording Weddings

Q—We wondered if you could possibly give us some idea of what would be a fair price to charge for recording a wedding? We would appreciate whatever advice you could give us.—C.M.M., Lexington, Oregon.

A—The rate to charge would depend upon how elaborate the recording. If you furnish the couple with a microgroove record in a fancy wedding album (which is cut from the tape) the charge may run as high as \$100. This would include narration, interviews with the guests and a complete and professional editing job. The going rate for simply recording the wedding from the time the music starts to the time it stops seems to run anywhere between \$25 and \$50. If the couple wants the recording on a record so that it may be played on a phonograph, then the costs of the records (usually about \$6.00) is added to this.

Recording weddings is a field which most professional recording studios do not want to bother with since it is rather time-consuming and unless a good many weddings are done, will not bring a high rate of return. You must figure about four or five hours of your time since you must get to the church well before the ceremony and set up the recorder and mike, or mikes, and check them out. The time mentioned usually takes care of travel time between home and the church.

In addition, the tape should be edited to make a smooth job of which you will be proud. There is a possibility that you could team up with a local photographer who does a lot of weddings and thus make a package deal of both pictures and sound.

If the tape is delivered it should be in a good box with an appropriate and attractive label.

TAPE IN EDUCATION

Robert C. Snyder

I would like to add my voice to the cry for two specific improvements in tape recorders which would seem to me useful to all users and especially valuable in educational use of tape recorders.

These improvements are a readily adjustable speed control to bring tape exactly on speed for pitch control, and an accurate footage counter which would precisely measure the actual footage of tape which had passed over the capstan.

The need for a precise footage counter should be obvious to all manufacturers. One of the substantial difficulties in the use of tape recorders either for educational purposes or for office dictation is the difficulty of immediately locating any exact point on the tape. This is practically impossible with tapes recorded in a different make of recorder or calibrated for a different make than the one you are using.

Furthermore, if a tape is re-reeled onto a reel with a different hub size, or a desired section is reeled off separately, all bets are off on the conventional recorder.

If all indications were of the actual footage type and were coupled directly to the capstan, then all tapes could be indexed in feet by the manufacturer. With such a precise index, any selection, lesson, or other indexed portion of the tape could be found almost at once on any machine. A small further refinement might also be useful. That would be some type of indexing mark or tone at the start of the tape to identify the tape-zero point.

Having had occasion to work with a number of taped language materials, I know what this could mean for the teacher or student who did not wish to have to waste time fooling around trying to find a given short section in a lesson somewhere in the middle of a five or seven inch reel.

It is this very difficulty of scanning through a tape which has led me to select a magnetic disc recording dictating machine (Telefunken) for use in my office. Although the indexing device on this machine is not absolutely accurate, it is quite adequate because the machine has both a remote electrical reverse switch on the microphone and a manually controlled lever which permits either dictator or transcriber to put the magnetic playback head on any desired portion of the disc without playing through the whole disc.

I have heard and seen it explained more than once that speed regulation difficulties make the actual-footage counter arrangement impractical on moderately priced machines.

However, it seems to me that the combination of a capstan-driven footage counter and a vernier type speed adjustment into one drive should make it possible to kill both of these birds very satisfactorily with one stone.

At least two speed control arrangements are possible. The first, of course, is some type of adjustable friction brake

control which could be connected somewhere between the capstan and the footage counter. With the capstan slightly overdriven, the friction brake could be tightened down, slowing the capstan until the speed was right on the dot. Unfortunately, I believe such a brake would have problems of wear which would require frequent readjustment and might also require replacement of brake parts perhaps more frequently than desirable.

A second possibility offers greater possibilities in my mind. Some years ago I had occasion to design a continuously variable speed control for a machine intended to draw unlimited families of ellipses. The machine was never actually built, and so far as I know, I have never seen or heard of the use of the speed regulating system.

The speed control consists of a driven cone, powered by the drive motor, an idler mounted on a screw so it can travel along the length of the face of the cone, and the capstan which is in turn driven by the idler. The shafts of the capstan and idler are parallel, but the axis of the shaft of the cone is slanted away from the axis of the other two shafts so that the face of the cone nearest to the idler is exactly parallel to the idler shaft.

When the idler is moved up and down the length of the driving cone, the circumference of the contacted part of the cone increases as the idler moves toward the large end of the cone, then speeding up the capstan. The range of speeds over which this vernier type adjustment will work is dependent upon the degree of taper cone and the length of travel through which the idler may be moved.

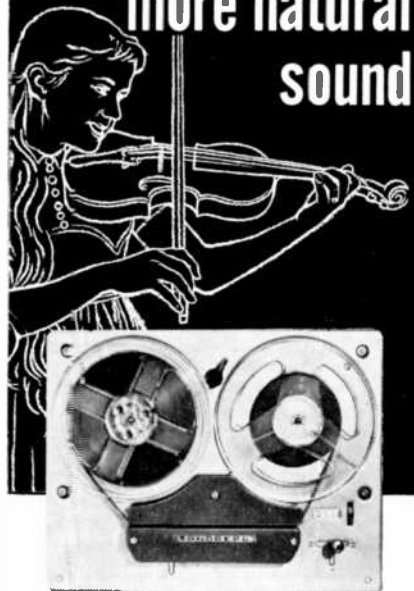
This drive presents no unusual problems of wear and no new problems of drive in a belt driven machine. The driving belt is simply made to appear at the driven end of the cone at right angles to the axis of the cone.

A simple stroboscopic disc printed on the top of the capstan or any of the existing auxiliary tape speed gauges can be used to determine when the tape is exactly on speed.

Since a minimum of friction would be required in this system (being needed only to hold the tape in contact with heads and to prevent the tape from spilling off the supply reel), tape speed should stay in adjustment for a relatively long period of time and be practically constant regardless of reel hub size or other factors which produce speed variation difficulties in present machines.

Since I have never seen this drive employed in any device, this may constitute a patentable disclosure. If any recorder manufacturer thinks so and wishes to process the patent application I will be delighted to make a most reasonable agreement. If it does not, I would certainly be pleased to see tape recorder manufacturers use this idea or any other idea that occurs to them in order to solve these two problems of accurate footage counters and readily-adjustable accurate tape speed.

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Gentlemen:

My recorder is most important to me because it enables me to turn four hours and sometimes more of formerly wasted time into very profitable study time. I hold a full-time job while attending seminary. Hence every minute is very valuable. While commuting from my job to seminary, I play my Webcor Microcorder through my car radio's loudspeaker. Hence I hear parts of my lectures all over again either before I go to class or after class. I also record main points and other important information to play back. Thus I gain each week four or more hours of study and review while eliminating four or more hours of waste time.—*David W. Salinger, West Trenton, N. J.*

Gentlemen:

My tape recorder is my only means of income. I am not yet 18 years old and therefore I cannot work in a factory until the end of this my last year in high school. I live in an apartment house and I am a local disc jockey in the Fort Wayne area. I record top hits from the radio and television and use this music for my record hops. (By the way, I do have permission to do this, and my lawyer has consented me this right also.) I started the business a little less than a year ago and have earned enough to pay my way through school and this summer vacation. To me, my recorder is a matter of bread and butter.—*Randy Galloway, Fort Wayne, Indiana.*

Gentlemen:

My recorder is important to me because before my broadcast I can practice my commercials and find out how they sound before I go on the air. It works wonderful. I own a Webcor Stereo.—*Henry R. Kirker, Santa Ana, Calif.*

Gentlemen:

First of all my interest is music. I have a Hammond concert model organ which I am teaching myself to play.

My recorder aids me by hearing on it the styling, different progressions of chords and to select the most pleasing ones to the ear.

Mistakes come out clear as never before than when I am at the console.

I can play the songs and record second or third parts with it later—either voice or instrumental.

For people who are visitors I record music with greeting and narration along with a few personal items about them (jokes, etc.) which make good entertainment.

In other words a good tape recorder is a must for the musician, amateur or professional to hear himself as others hear him.—*Earl F. Wilson, Granada Hills, Calif.*

Sirs:

Although I have a very interesting and exciting job as Range Controller here at White Sands Missile Range, it does not compare to the thrilling "Life & Death" use I make of my tape recorder during non-working hours.

As an active layman in my local church, with my recorder I am able to take the life saving gospel of Jesus Christ into homes and hearts of fellow Alamogordoans. Through the use of my recorder I give a series of 30 Bible lessons over a period of 30 weeks narrated by wonderful Christian speakers in a professional manner that I, as an inexperienced speaker, could never do.

It is always a thrill to me as couples see the saving power of Jesus Christ and choose to follow Him completely and let Him rule and lead their lives, accepting his free gift of eternal life.

I have found peace and happiness in this use of my recorder.—*William E. Truskett, Alamogordo, New Mexico.*

Gentlemen:

Gee Wiz! Someone must be crazy, for once a tape nut always a tape nut. That's my opinion. So... here's why my tape recorder is truly an important part of me.

To tell such a story, I must admit to being hep on rock and roll and admit that there's nothing like tape to store it on. This is an economical way of obtaining an abundant supply of this trend, and a sure way to be the main source of dance entertainment at teen-age dance parties.

Secondly, I must admit to being sly and even sneaky. By this I mean; you borrow a jazz, classical, or folk music album, that you like, and you copy it. In doing so your collection grows, as I shall point out by this: My tape collection consists of forty-five tapes with a trend toward rock and roll, as mentioned, and folk music. This does not do away with classical, jazz or stage presentations, for the collection is sprinkled throughout with a sampling of these. The point here is that none of these are pre-recorded. Thus giving me many an evening of fruitful recording experience and many headaches. However, I would do it all over again for the many hours of pure listening pleasure obtained.

Ever have the urge to create? Well, here's where a tape recorder is your solution. With your voice, your voice over music, or yours and others doing something special, it's tremendous. My specialty is poetry to music... queer I know... but it's the truth. I write the poems and pick the musical background to set the mood.

Other uses are recording T. V. and radio

programs, outdoor sound effects, and talking letters. I especially enjoy talking letters, for I belong to a tapespondence club, World Tape Pals Inc., Dallas, Texas.

Oh! I almost forgot. My home studio consists of a Bell stereo tapedeck, a Bell fifteen watt external amplifier, a fifteen inch external speaker, an A. M.—F. M. radio, and a three speed, homemade, hi-fi set up.

So just remember that I am a tape nut and shall always be proud to remain such. Need more be said?—*Carl Lamb, Jr., Wallingford, Conn.*

Gentlemen:

My recorder is important because it is the only way I have to commute to the whole world, to talk to the people of all countries around the world, to promote "World Peace."

I only wish I had contacts in the U.S.S.R. for taping "World Peace."—*Chester A. Jones, Syracuse, N. Y.*

To the Editor:

Why is my recorder important to me? I think more so than to the average recording fan.

In my work as a Mobile Postal Transportation Clerk of the US Postoffice Dept. I am required to have a knowledge of dispatching connections of at least eleven states and all Foreign Mail. I am required to take semi-annual examinations on five of these states. This is done by having a card for each postoffice of the state and learning it to your best connection. When I am prepared I am given a test by an Examiner at which time I must make a grade of 97% or better.

When I received my recorder for Christmas, I became interested in the use of endless tape. I purchased a Cousino Audio Vender Magazine, and after a few weeks I found the proper way to record the lessons so that I would learn from the tape. I use the constant repetition method. When I study, I either just relax in a chair or correct my schemes and schedules. I usually use ear phones as the constant repetition of names almost drove my family nuts. After a few hours of listening to the recorder, I will take the cards and see how many I have learned. Those that I still have trouble with, will be recorded over with a new lesson until I have learned the whole state. The last examination I took was the easiest in my twelve years in the postal service.

I also use my recorder as an entertainment and relaxing device. I capture relatives' voices, candid and planned, which makes them seem close to us even though they are many miles away. I am very well satisfied with my T1500 Wollensak, and intend to convert to Stereo. I do most of my recording from radio or hi-fi. I enjoy your magazine very much and look forward to reading each issue. Keep up the good work.—*Laurence E. Folske, Fond du Lac, Wis.*

Gentlemen:

My tape recorder is important to me because it gives me a sense of belonging and being a part of a normal society. It means endless hours of listening pleasure to all varieties of music and thus gaining an appreciation of this form of the arts; the making of musical tapes, historical events, events of importance in our family life, graduations, plays and the like. With

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the recorder I am abreast of current events and other forms of reading material. By means of the tape recorder I am able to continue my studies and advance my knowledge of my field of endeavor. Through the tape recorder I am permitted to correspond by voice with friends. With a telephone connection important messages are recorded for references.

Thus through the enumerated uses of the tape recorder, it has given me independence and freed me from frustrations which would cause discomfort to those close to me and certainly in a way, a burden to society. All these things my recorder means to me because I am without sight and to me it is the eyes of the world.—*Joseph T. Frank, Fair Lawn, N. J.*

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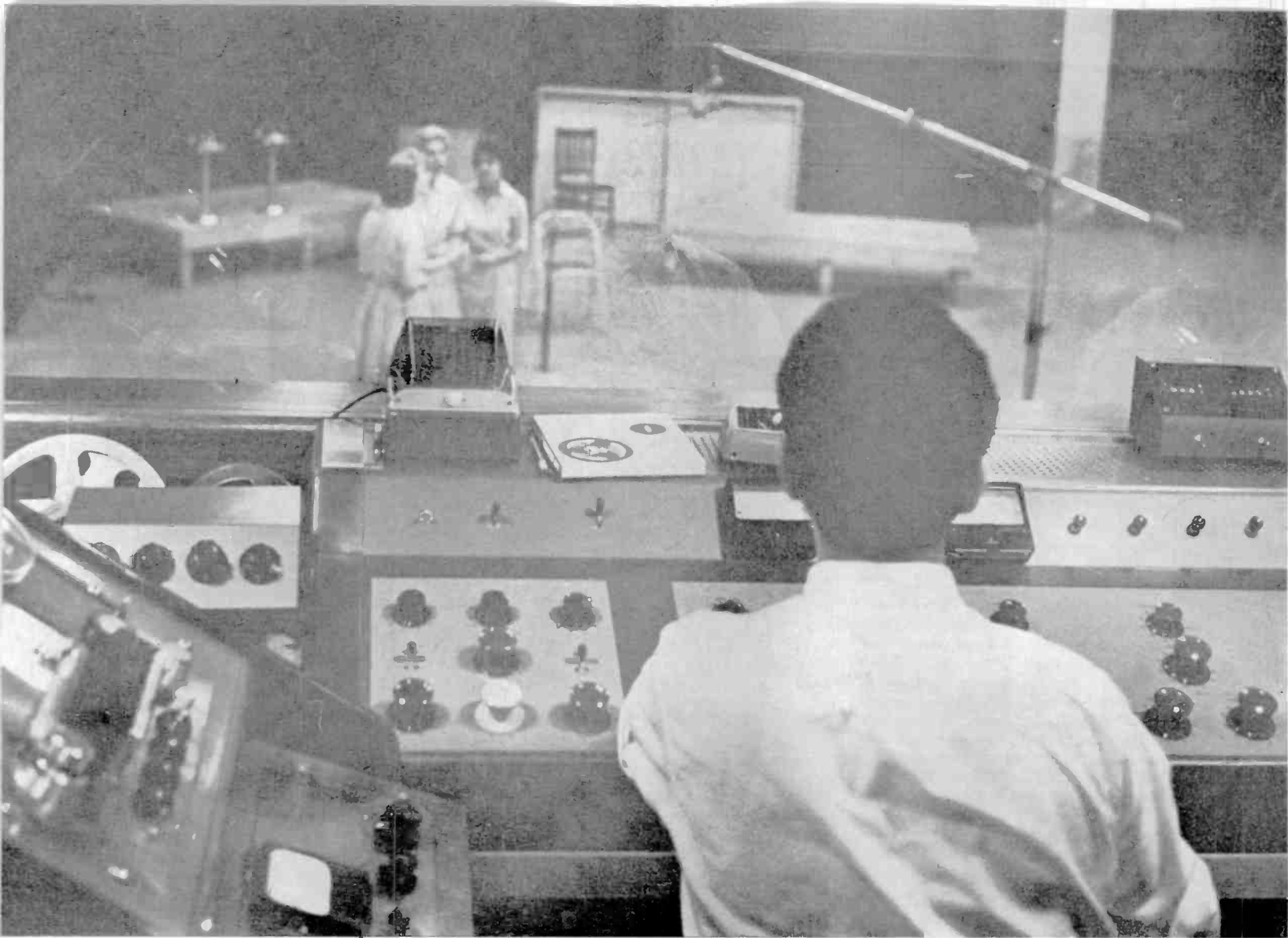


Photo by Kirsch Studio

MAKING AN ADD + A + TRACK TAPE

by Bart Pierson

... National Men's and Women's Barbershop Quartet champs team up on tape designed to demonstrate possibilities by Add + A + Track Process.

THE tape recorder, in one form or another is one of the most versatile instruments ever developed. It has taken many forms, from the familiar home-type recorder to the computer type that does record keeping inventory control and banking.

For the most part, up until a few years ago, the home recorder was limited to straight recording and playback in either monaural or stereo. While this offered plenty of potential for versatility, the capabilities of the tape recorder were jumped tremendously by the inclusion of the Add + A + Track method, which was pioneered on home-tape recorders by the V-M Corporation.

In the ordinary machine, the recorder is in either record or play, including stereo models, but in an Add + A + Track machine, two channels are employed and one of them can be in play while the other one is in record.

This possibility has been widely used in language laboratories where the instructor's voice is on the master track (usually the lower one) and the student records his responses on the upper track after listening to the instructor's voice coming from the second track.

Even this widespread educational use did not utilize the full possibilities of the Add + A + Track process for it is possible to make the recordings so that they are perfectly synchronized. Not only that, but the student recording may be done over and over again without harming in the least the materials recorded on the master track.

The owner of an Add + A + Track recorder may make his own tapes by first recording on the lower track either the melody or harmony of a song, using either instrument or voice and then, by putting the machine in the Add +



Photo by Kirsch Studio

RECORDING: Left: The Yankee Misses recording with the lead voice omitted. From left to right: Sue Arabian, Tenor, Marcia Wittmer, Bass, Alice Farsakian, Baritone and seated, listening, Marilyn Hamilton, Lead. Right: The Pitch Hikers making a four voice recording. From left to right: Larry Hedgepeth, Tenor; Keith Young, Lead; Keith Keltner, Baritone; and Joseph Delzell, Bass. Both Quartets are Barbershop International Champions.

A + Track mode, recording on the upper track the second part. When the tape is rewound and played back, the two parts will then be heard in synch.

This is accomplished by utilizing an external amplifier and speaker which plays the bottom channel. This is the track on which the master material, or material to be complemented by another part, is recorded.

Since the lower channel is always in the play position and the recording is done on the upper channel, there is no possibility that it will be erased unless the machine is deliberately set to record the lower channel only.

Almost anything may be done using the Add + A + Track method from question and answer sessions covering school work to singing or playing a duet with yourself, or learning a foreign language.

To demonstrate the possibilities of the Add + A + Track method, the V-M Corporation recently commissioned two

of the nation's top Barbershop Quartets to make for them a tape of the sing-along variety.

The two quartets are: The Pitch Hikers, International Champions, 1959-60 of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. and The Yankee Misses, International Champions, 1959-60 of the Sweet Adelines, Inc., the feminine counterpart of the men's quartet.

These quartets represent the best singers from more than 630 local chapters and nearly 30,000 members in the case of the S.P.E.B.S.Q.S.A. and of more than 10,000 women members of the Sweet Adelines.

The way to the top in either organization is not easy. The quartets are formed in the local chapters and through regional contests they are eliminated until only relatively few finalists are left. The finalists once a year meet in national competition at which time the championship quartet

LISTENING: "How did we sound?" is the big question as the Yankee Misses and The Pitch Hikers listen to their efforts on playback. Both quartets found the recording session a comparatively easy one with few flubs.

Photo by Kirsch Studio



Recording Engineer Jim Siracuse of United Sound Studios rides the gain on the recorder from the control room as Yankee Misses arranger Renee Limburg, one of the Sweet Adelines top arrangers who is well-known to Barbershoppers as "Miss Barbershop" watches the girls through the control room window and listens on the control room speaker.

Photo by Kirsch Studio



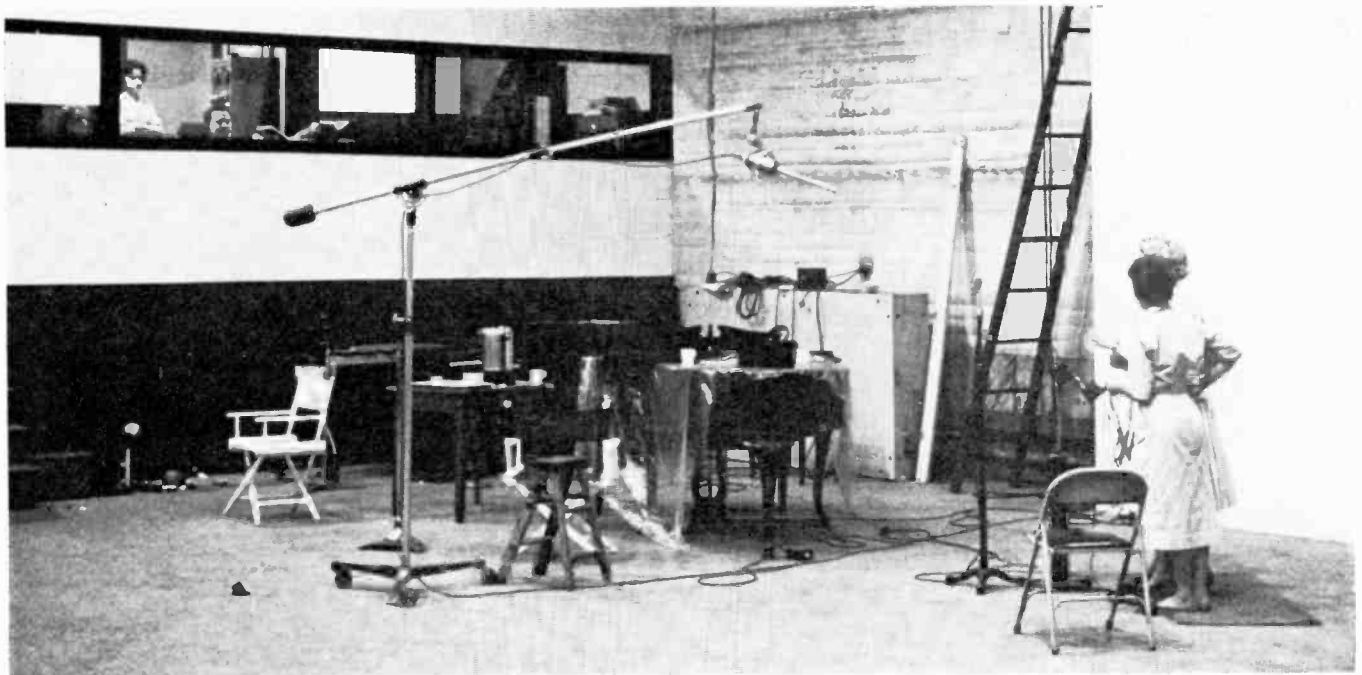
is selected. The winning quartet retains the trophy and championship for a year.

The Pitch Hikers quartet is composed of Larry Hedgepeth, Tenor; Keith Young, Lead; Keith Keltner, Baritone and Joseph Delzell, Bass. Their arranger was S. K. Grundy, one of the S.P.E.B.S.Q.S.A.'s top arrangers. They had scored three times as Medalists (among the top five in its annual competitions) prior to winning the championship. It is probably one of the youngest quartets to win because three of the members were already singing together in high school.

They are from Springfield, Missouri.

The Yankee Misses quartet is composed of: Sue Arabian, Tenor; Marilyn Hamilton, Lead. Alice Farsakian, Baritone and Marcia Wittmer, Bass. They won the International Championship the first time they entered competition! They are from Detroit where three of the girls work for General Motors and the fourth is a school teacher. They met, and formed their quartet, at the Southern Oakland County Chapter of the Sweet Adelines, Inc. Like the male quartet, they also had one of the top arrangers, Mrs. Renee Limburg,

View of United Sound Studios recording room in Detroit as the Yankee Misses, with shoes off, hit into the tune being recorded for the Add-A-Track tape.





The Add + A + Track principle is shown above. The one part, accompaniment or otherwise is recorded on the lower track and picked up by the playback head at right. The new material is recorded on the other track by the top part of the head at left.

well known to all Barbershoppers and often called "Miss Barbershop."

Making a home-type Add + A + Track tape is very easy, especially if you are doing something simple, such as singing a duet with yourself, or making a dual instrument recording.

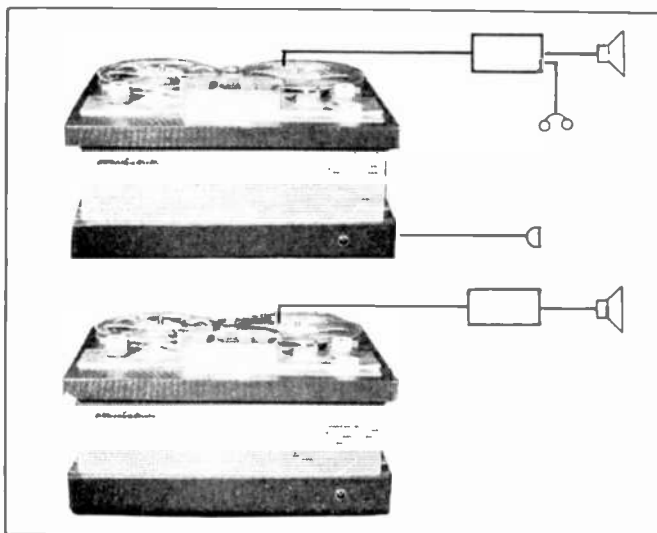
As it turned out, it was easy for both quartets to make the professional recorded Add + A + Track also. According to Joe Delzell, Bass of the Pitch Hikers, no difficulty was experienced by the men. On the tape each tune is first sung complete, with all four members singing their parts and, on the second go 'round, the lead voice drops out. After years of singing together the men had no difficulty doing the part with the missing voice.

The Yankee Misses had it even easier through the thoughtfulness of recording engineer Jim Siracuse of United Sound Studios in Detroit. He arranged things so that after the first recording was made, using all four voices, this tape was played back through headphones to the group who then sang along with themselves except for the lead voice for the final master.

Since all voices were heard by the quartet members as the second recording was made, the absence of the lead voice was never missed. The result was a series of tunes that needed only a few retakes.

Both quartets got a big thrill out of hearing themselves in this fashion.

The ease with which both Barbershop Quartets accomplished the job of recording the tapes was in sharp contrast to the experience of a Viennese Quartet in Europe some time ago.



Top: to record, the microphone is plugged in the jack and the recorder put in record position with the control knob at the Add + A + Track position. Bottom track plays through speaker or headphones as desired. Lower: on playback second track plays through external amplifier and speaker and top track through speaker in recorder. "Add + A + Track" is a registered trademark.



The completed tape is attractively boxed with pictures of the two championship quartets on the cover. It will be used as a promotional item by the recorder manufacturer.

In this instance an attempt was made to record them in Add + A + Track fashion omitting the lead violin. With the musicians assembled and everything in readiness a start was made by the three players. It wasn't long before they became confused and stopped playing.

Another try was made, and another and finally the recording session was called off when the musicians declared they could not play without the lead violin because he was the pace setter and leader of the group.

Unfortunately for posterity, the engineer doing the recording did not have the resourcefulness of Jim Siracuse and did not think of playing the whole selection back to the three members of the quartet through headphones. This would have solved the problem.

The Williams Recording Studio in Springfield, Missouri recorded the Pitch Hikers.

In each case the tapes were recorded full track at 15 inches per second and after being edited and programmed, were duplicated at 7½ ips for use on the V-M Add + A + Track recorder. The tapes for the recorder use were likewise made in full track.

To use the tape, it is put on the recorder and the external amplifier-speaker connected to the stereo output jack. The machine is put in the Add + A + Track mode, the record button depressed and the tape started. The quartet singing will come from the amplifier speaker. The first tune heard is the full quartet and by singing along with the full quartet the recordist will be in tune and swing for the next section of the tape which is exactly the same except the lead, or melody, is missing. This is recorded by singing into the recorder mike. When the tape has been completed it is re-wound and played back with both tracks in the play position. The quartets will still be heard from the amplifier-speaker and the recordist's voice will be heard from the recorder speaker. The synch will be perfect.

At present the tape is not for sale being part of a kit of four tapes which V-M is using as a promotional item for new purchasers of the V-M Add + A + Track machine. The kit also includes two music tapes and an instructional tape.

Timer Clocks and a Demagnetizer Alarm

by Tommy Thomas

. . . . now you can go out and still record your favorite program at home.



Fig. 1: All set for a "Knight" on the town, with your recorder hooked up to a timer clock and also (arrow) plugged into a radio or TV that turns automatically on and then off again, to record your favorite programs even though you're not actually at home yourself.

MADE a rather unhappy finding recently. Although a great many people have discovered the fascinating hobby of recording, most of them do not know much about *timer clocks* for recorders. These wonderful clocks will take over for you when you're away from home for the evening, automatically turning your recorder and a pre-tuned TV or radio set on at a preset time, and then off again an hour or so later. Surely, I thought, everyone must know all about this!

But not so, I was surprised to discover in talking to quite a few home recordists over the past few months. So, if YOU don't already have a timer clock of your own (a *recorder timer*, now) then please read on. You've obviously been missing out on some of the biggest excitement recording has to offer: the fascination of being in two places at once, so to speak. After that evening out you can come home to find your favorite programs recorded and awaiting your pleasure. And even TV, which is mostly concerned with visual impact, has much to offer in the audio-only vein. "Sing Along With Mitch" and "Mantovani" are but two of the many musical TV programs that suffer but little by not being seen. And presidential talks, though naturally more interesting when Mr. Kennedy can be seen as well as heard, needn't be missed altogether because you have a date for the evening.

Most home tuners are made to work with radios and electric coffee makers and fans and such. Waken to the sound of radio music and/or the aroma of coffee, the ads say, but no mention is made of the fact that this may happen anywhere from five to ten minutes from the actual time you set. And to be honest, this "offness" hardly matters for this sort of alarm-timing. But, for recording purposes, you pretty well have to be right on the button. You're going to miss an important part of your special program if the timer starts five or ten minutes early or late.

So what is needed here is a clock timer that will *reliably* (and "reliability" is the keystone for recorder timing success) give you almost to-the-minute exactness. Unfortunately, this—plus a few other factors which I will mention further on—excludes almost all of the various timers that I have examined lately. What I mostly didn't realize was that my own jewel of a timer (Fig. 3) was no longer being manufactured. But I figured I'd mention it in the hope that you will be able to locate a second-hand one yourself, somewhere. It's a real dandy, and well worth having. The timer is encompassed by the circle of 48 little "pins" that stick out all around the dial. Any or all of these pins, or "trippers," can be pulled out, representing fifteen minutes of "ON" time each. That means that

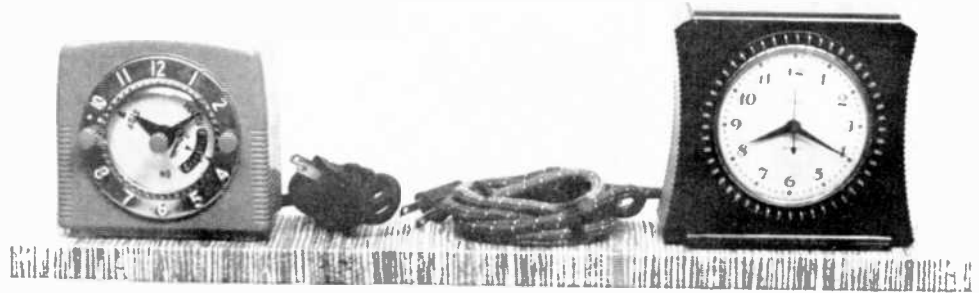
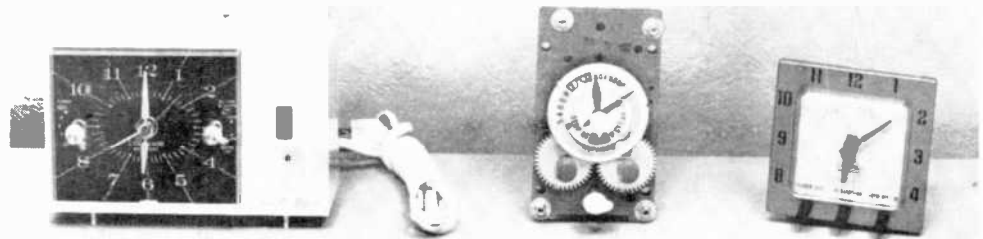


Fig. 2: Only a few of the many types of automatic timer clocks on the market are truly suitable for tape recording usage. Here, the two top clocks are excellent but the rest are close to being valueless for recording purposes because (of utmost importance) they can not be set to start and stop again with to-the-minute accurateness.



whatever external devices are plugged into the rear of the timer will go on for that period of time. Pull out four trippers in a row and you have a full hour. Also, and this can be important in recording, *you can skip around*. Whereas "regular" home-type timers limit you to a certain length of time, just once, that's it, you can "call your shots" with this particular timer. Fifteen minutes here, a half hour there later on, and then another fifteen or thirty minutes still later, until your tape is gone (up to two full hours with long-play tape at $3\frac{3}{4}$ ips). Anyway, in the hopes that you will run across one it's called the Telechron Household Timer, "Selector" Model 8H55.

Now, for those of you who are not able to locate one of these easy-working (but fast-disappearing) "Selector" timers, let me describe the qualifications that a *recording* timer should have. First, it must not only go "ON" at a preselected time within the next twelve hours of its setting,

but it also must go "OFF" again. Some timers only turn things "ON." And almost all of these inexpensive household-type timers are limited to a maximum "on cycle" of one hour. With recorders playing at slower and slower speeds lately, and with long-play tapes available, one hour maximum just isn't enough. Two hours of "ON" time should be the minimum. Also of great importance is the manner in which the amount of "ON" time is controlled. In many timers (Fig. 2, lower right and lower left) there is a tiny knob that is turned to set for times less than the full hour. But it's pretty much of a nebulous thing, being impossible to gauge accurately at all. This may be okay for many timing operations, but not for use with a tape recorder. And last but by no means least is the previously mentioned accurateness of the main "ON-OFF" settings. If you can't set it so it *consistently* works within at least a minute or two of where you set it, then forget that par-



Fig. 3, left: Unfortunately, the very best clock of all (like the one shown which I've been using for almost 15 years now) is no longer being manufactured. But if you can locate one owned by a friend or possibly in a second-hand store, by all means talk or trade him or them out of it. In good condition, it's easily worth twenty dollars. Fig. 4, above: These are the front and back views of another clock, an inexpensive timer that will easily and accurately handle both your recorder and an accompanying TV set or AM or FM radio. The clock will readily handle both sets—to 1650 watts—but as there is only one input receptacle (at arrow) you'll need a 3-way cube tap.

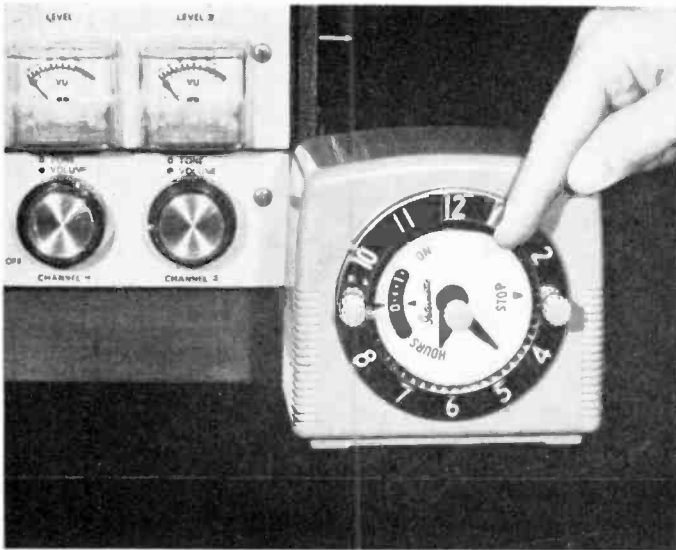


Fig. 5: Though seemingly a bit confusing at first, using this "Intermatic" dock timer is easy enough once you have gone through the various steps a few times. First, turn the center knob to set the correct time (here it's at 6:22), and then decide when you want the timer to turn your recorder back on again later in the evening.

ticalar timer as far as recording goes.

All this leaves us with the "Intermatic" Clock Timer as the only timer (that I could locate) in the low-price range that is really suitable for recorder work. It fills all of the preceding qualifications and then some. It sells for \$7.97 (plus postage on 2 lbs.) and is available from the Allied Radio Corp., 100 N. Western Ave., Chicago 80, Illinois. Ask for Model A401, Car. No. 78B343. It's built to handle up to 1650 watts, way more than what you'll need, and it has an "on cycle" of up to four full hours.



Fig. 6: Let's say you want your recorder (as well as the TV) to turn back on again so you can record a full musical hour from ten to eleven o'clock. So now turn the right-hand knob in a counter-clockwise direction until the little red "Stop" arrow points exactly to eleven as shown here (and note that this is the STOPPING time).

Now, this is a keen little clock that sells for a ridiculous low price considering all it does, but it does have a few minor "eccentricities" that I would like to point out to you. And I strongly advise that you go through a few *practice runs* before you put it to serious use. Actually hook it up to your recorder and to a TV set (or radio) and see how it works out. Especially notice how the right-hand timer knob works in "clicking" fashion, controlling both the "STOP" time and the "HOURS ON" time. Unfortunately (at least in the two timers I experimented with) the dials and the clicks didn't exactly match up, meaning that I had to make my settings just a little bit before or after the number I was "aiming" at. But once you find out which works best with your own setup—a setting just before or just after—always set the same way and your results will be consistent. Finally, and this is something I even do with my Fig. 3 timer, *you may find it necessary to purposely set the WRONG TIME*. In other words, if you discover that your timer always starts working the recorder a few minutes too soon or too late, make up for this by setting the clock *WRONG* by those same few minutes. For example: If you know that your timer always starts two minutes before the actual time shown, set the clock two minutes slow—behind the real time—and this will make up for the difference.

When experimenting hooking up for automatic recording, make a *list* showing just how you do it and always do it this same way. My own system is to set my recorder on the floor next to the TV and for the moment forget the timer clock (Fig. 1, I should mention, is set up for photo-illustration only, as most recorders of this type

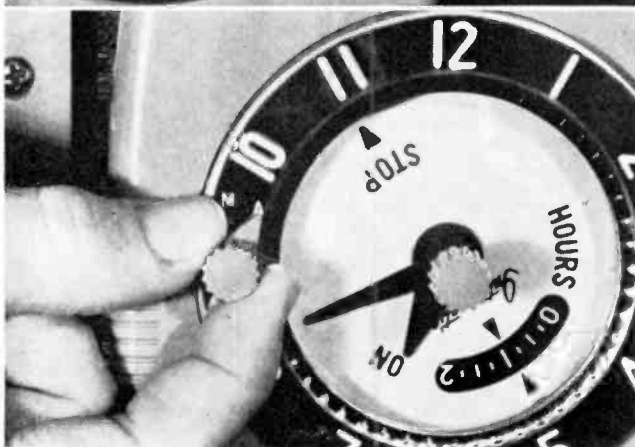
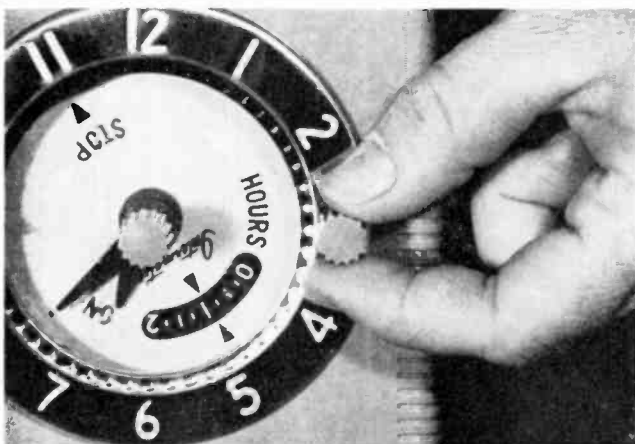


Fig. 7, top: Then, turning the same knob but now in a clockwise direction, rotate it until the recessed black "HOURS ON" dial is set for the exact amount of time you want the recorder and TV to be on. Or, if your recorder has an automatic tape shut-off of its own, it's best to set the timer clock for just a little bit more than an hour. Fig. 8, bottom: Finally, turn the left-hand knob so it points to "A" (for automatic control) and you're all set. At ten o'clock both the recorder and TV will turn on automatically and at eleven o'clock they will go off again. Later, turn this same knob to "M" (manual) and you can work your recorder without unplugging it from the timer.

should NEVER actually be operated in a vertical position or you'll "warp" the gear/belt mechanism in a very short time.) Put a fresh reel of tape on your recorder and turn both it and the TV on. Make the necessary connections and adjustments (of volume and such) just as if you were going to record from TV right away. Then, put your machine on "Record" and let the tape actually start moving. *IF ALL IS WORKING WELL, PULL OUT THE LINE PLUGS ON BOTH RECORDER AND TV.* Now you're ready to set up your timer clock as previously mentioned. Go through all the operations until it's set on "Automatic" and then (but not before) plug both your recorder and the TV in the rear of the timer. And as a final check before you leave for the evening (leaving the timer clock "in charge"), look at the recording tape to see that it is still under tension. Tighten up any slack you may find so there's no chance of improper "feeding" when the recorder starts up again later. That's it.

Whew! No wonder more people haven't gone into timer-clock recording at home. Actually, of course, it's not really difficult once you get organized, but I can see now that it may appear (especially on paper) to be a bit complicated right at the start. But please, try it! There are *SO* many uses for this valuable technique of recording that it would be a shame if you didn't put it to your own very good uses.

DEMAGNETIZATION ALARM:

In investigating these various timer mechanisms I was especially intrigued by the possibilities of one of them (Fig. 9 and 10) as a demagnetization alarm. This particular timer, which has all its controls "up front," is designed for custom mounting. It's $3\frac{1}{2}$ " square and about two inches deep, and is available from Allied Radio for \$5.98 (Cat. No. 78B438). If your recorder has some spare space going to waste—as so many have—you could build this timer right into the side of the case, with the 110-volt leads connected *so that the clock would run only when the recorder itself was running* (perhaps "tying into" the recorder's motor leads?). That way, every time you used your recorder, the timer clock would keep track of how

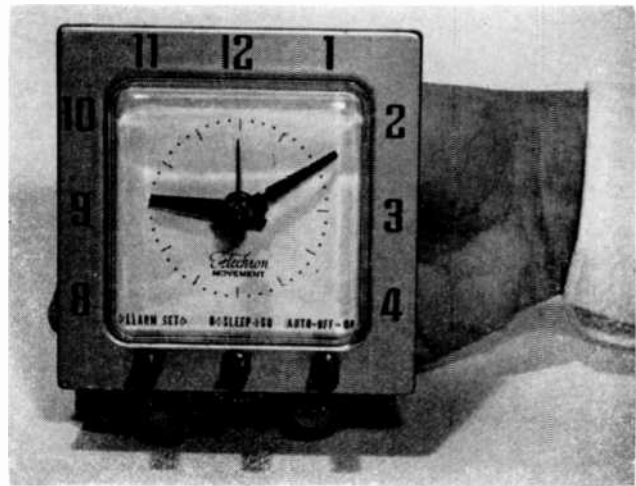


Fig. 9: This particular timer (Fig. 2, lower right) can not be set accurately enough for On-Off recorder use, but it does make an excellent DEMAGNETIZER ALARM. Built into your recorder—if possible—it can be set to "go off" after any desired number of hours to remind you it's time to demagnetize the heads of your machine.

long it was running. Set it initially at zero (12 o'clock), with the alarm set for ten hours later (10 o'clock). Then, when ten hours have elapsed (which may take days, weeks or even months, depending upon how often you use your recorder), the alarm buzzer will sound off, reminding you that it's time for that all-important job of cleaning and demagnetizing your tape heads. This periodic cleaning and demagnetizing will go a long way toward keeping your recorder in top condition, so it may well be worth the extra effort involved in installing this timer unit if that's what is needed to prompt you into doing this important chore. And if you wish, you can also hook a neon indicator light (Allied #53E192, 79¢, Fig. 10) up to work via 110 volts and the timer clock's automatic switch. This way, the light will give you warning ten minutes before the buzzer goes off (usually quite unexpectedly), thereby preventing you from possibly ruining a valuable recording you're making.

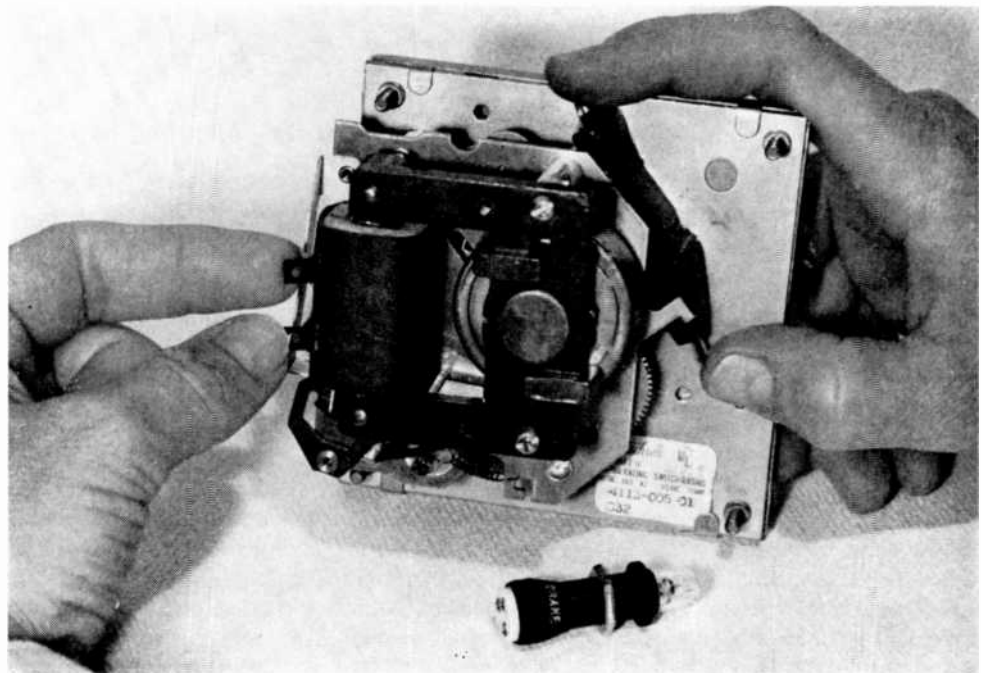


Fig. 10: Here are the rear view workings of this timer. At the left are the two terminals that connect to 110-volts A.C., and at the upper-right are the two switch terminals that are used to turn on the neon indicator light (shown unmounted below) ten minutes before the alarm itself goes off—to avoid spoiling a recording.



RECORDING THE PIANO

by
L. L. Farkas

**. . . here's professional advice on getting
a good, clean, noise-free recording of the piano.**

ONE of the most difficult musical instruments to pick up on a microphone and to record is the piano; and yet, with a moderate amount of care, a tape recording of piano music can be made which will compare favorably with any professional job.

The key to success in piano recording—or that of other instruments for that matter, lies in knowing the characteristics of the instrument. How does it work? How does the sound come out?

Basically the piano consists of a large frame, somewhat like a harp, upon which steel strings are stretched. Felt-covered wooden hammers, actuated by keys on a keyboard, strike the strings and make them vibrate. In turn the vibrations are communicated to a sounding board whose function is to transmit the sound waves to the surrounding air. Two

pedals are used to control the quality of the sound: the loud pedal removes the normal dampers from all the strings, thus permitting them to vibrate long after they have been struck; the soft pedal cuts down the volume of the sound either by interposing a strip of cloth or felt between the strings and the hammers, or by shortening the length of the hammer strokes.

Since there are several types of pianos, the sound for each of these will originate from a slightly different location, and naturally, this will influence the position from which the microphone will produce the best possible pick-up for recording. For our purpose however we will consider only the three most common types: the spinet, the upright, and the grand piano.

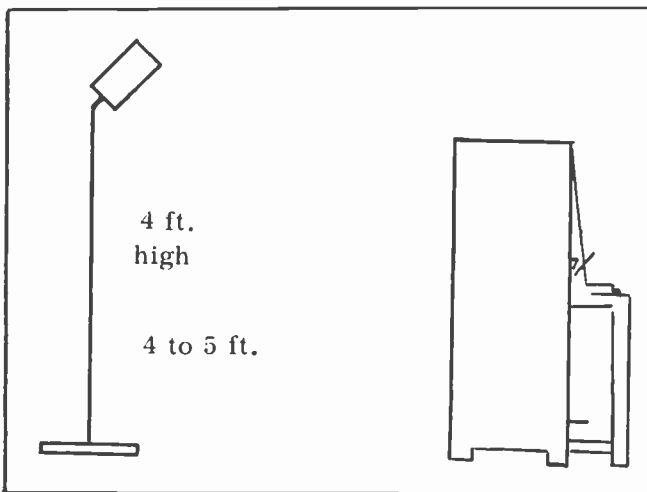
In the spinet, the strings and sounding board are mounted

in a vertical position with the sounding board toward the rear of the instrument. With this arrangement the sound waves will emanate more directly from the back of the spinet than from the front or sides. Consequently, in order to best pick-up the spinet, the instrument should be moved away from the wall where it is generally set and its back portion faced toward the open part of the room. In cases where there is insufficient space to do this, the spinet should be placed so that its back forms approximately a right angle with the wall. This will not only permit the microphone to be set easily at any required distance, but also will prevent any possible distortion that might be caused by reflection of the sound waves from the wall.

There is one school of thought which claims that, with the spinet or piano against the wall, the sounding board transmits its vibrations to the wall itself which in turn acts as a giant sounding board. In addition, the air inside the piano is also made to vibrate by the action of the sounding board and it then transmits the sound to the front part of the instrument. Therefore it is maintained that it is best to leave the spinet in its normal place and simply pick up the sound by facing the microphone toward the front part of the instrument and the wall.

It is true that some of the sound will be transmitted to the wall close to the sounding board, but unless this wall is especially constructed, the sound retransmitted will be weak and may also be greatly distorted. The sound which comes from the front part of the piano will generally be undistorted, but for microphone pick-ups particular care must be taken to keep out the noises introduced by the mechanical action of the keys and pedals. Such noises, normally unnoticed by persons in the room, become very objectionable in a recording where they intrude upon the musical rendition. This is one of the points that makes placement of the microphone very important.

There are two main positions from which the microphone can pick up the sound from the spinet to best advantage. The first and probably most generally used is with the microphone on a stand about four feet high and located from four to five feet from the back of the instrument. The head of the microphone should be tilted so that it faces toward the center of the sounding board. If the head cannot be tilted at an angle it can be placed in a horizontal or vertical position facing the instrument. From this location



Since the sound from an upright or spinet piano comes directly from the sounding board it is best to turn it at right angles to the wall and make the pick-up as shown. Microphone is 4 ft. high, 4 to 5 ft. from piano.

the microphone pick-up will produce a recording in which the musical tones will be full and equal while any noise from either keys or pedals will be reduced to a minimum.

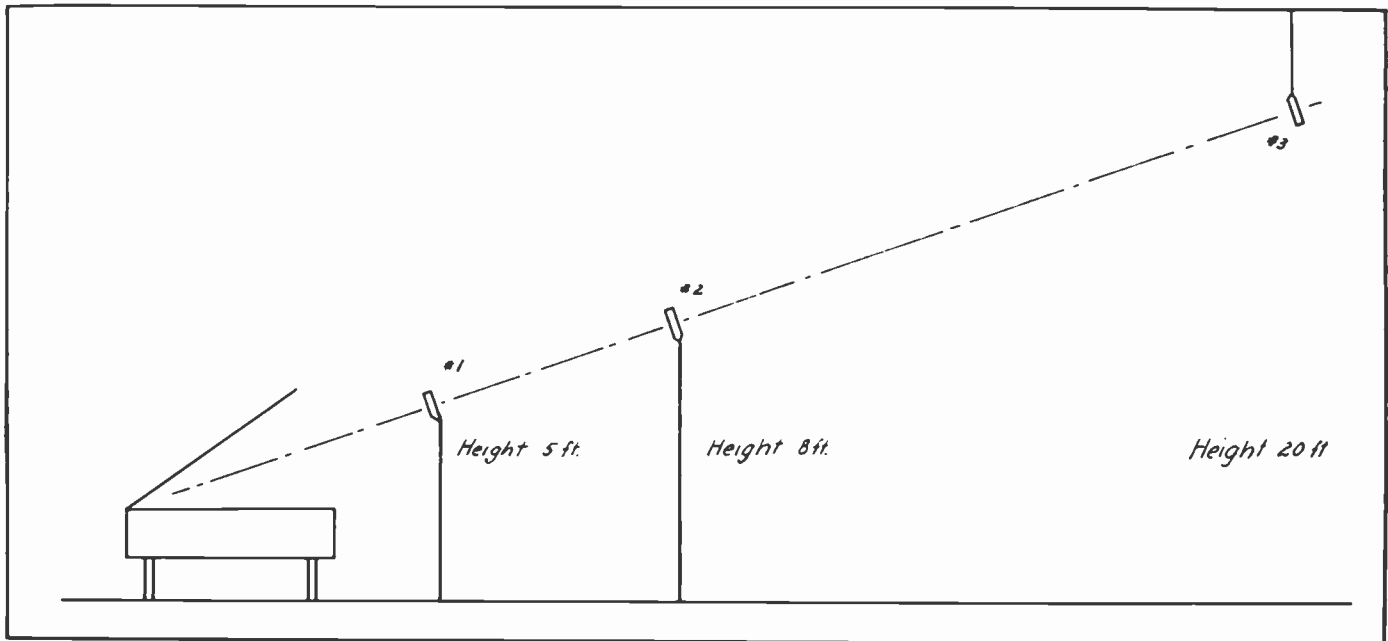
The second position may be termed a close pick-up in that the microphone is set within two or three feet from the rear of the spinet and at a height which places the head of the microphone at approximately the center of the sounding board. For this type of set-up a desk microphone, placed on a stool or chair, may be used. The advantage of this position is that the treble or bass notes can be accentuated to suit personal taste simply by turning the microphone slightly toward the high or low strings. The exact distance from the spinet at which the microphone should be set will depend upon the resonance or amount of sound produced by the sounding board in relation to the noise generated by either the key or pedal mechanism. The best way to check this is by making a test run on tape. If definite key or pedal noises are heard, particularly during pianissimo passages, then the microphone should be moved back to a position where the noise picked up is no longer objectionable. At the same time the microphone can be adjusted to obtain the desired balance between treble and bass notes. With a little care this type of pick-up can produce a clean and very intimate recording which is often preferred to the results obtained with the more distant position.

The procedure for making the upright piano pick-up is very similar to that used for the spinet. There are a few differences, of course, for the upright piano, while using the same vertical sounding board arrangement, is much larger than the spinet and, in some cases, the top portion of the upright can be raised to permit the sound to emerge.

For the best kind of pick-up, it is also preferred that the upright be moved away from the wall, as with spinet. The microphone may also be set at the four foot distance, but here it produces the intimate recording. For a more rounded overall effect the microphone should be moved back from ten to thirty feet and its height adjusted from eight to twenty feet, with the head of the microphone always tilted so that it faces the center of the piano. If the top part of the upright can be raised, an intimate pick-up can again be obtained by setting the microphone on the treble side of the piano, close to the front, and, from a height of approximately six feet, pointing the face of the microphone toward the center of the sounding board. If this cannot be done leave the face in a vertical position. With such a set-up the upright need not be moved from its position close to the wall and still can be picked up to advantage.

The third type of piano which we want to consider—the grand piano—probably can produce the most professional recording, but it also requires the most care in its set-up and, for that reason, will be treated in more detail. Except for the baby grand type, it is larger than the upright; it has a horizontal case, with the sounding board on the lower part and a hinged top that can be adjusted to various openings.

The hinged top is used as a means, beside the pedals, of controlling the volume and quality of the sound produced by the piano. When the top is closed the tones have a tendency to be muffled, for the sound can come out only through the bottom portion of the sounding board, which faces the floor. With the lid on the low stick, the sound can now emerge through the open portion. However, in order to get the full value of the tones, the top should be



Suggested microphone placement for an intimate, semi-distant, and distant pickup of a grand piano. The type of surroundings and the kind of microphone will determine the best position. Test runs on tape should be made to determine this. The picture on page 28 shows the intimate pickup. The close pickup is made at about 3 feet distance, the semi-distant pickup at about 10 feet; distant pickup from 20 to 30 feet away.

placed on the high stick. In this way the sound waves originated by the sounding board are all heard, particularly the bass notes which come out clearly defined. In addition the intensity of the sound is increased in the direction of the open part by the reflecting action of the top which projects the sound forward. Where a non-directional effect is desired, the piano top can be removed entirely. Then the sound will travel upward from the sounding board and be distributed equally throughout the room.

The position of the hinged top will depend upon the type of pick-up desired—distant or intimate—and on the acoustics of the room. One quick check is to raise the top on the high stick; then ask someone to play a selection. By standing a short distance in front of the piano, you can easily tell whether the tones are clear or muffled. Clear and clean-cut tones indicate good acoustical qualities, permitting the use of a distance type of set-up; hollow, reverberating tones indicate that the room is too live and, if some of the echo cannot be cut down by hanging draperies from some of the walls, the only way in which the piano can possibly be recorded, is by a soft, intimate pick-up.

Actually the best way of picking up the notes of any piano is by the use of the distant perspective. The microphone is placed from fifteen to twenty feet away, and is raised to a height of about ten feet, with the head facing downward toward the open part of the piano. If the mike cannot be tilted downward, use it with the face in a vertical position. The tones heard in a test recording should be clear and full. If they sound hollow, the pick-up for that particular boom is too distant and the microphone should be brought closer. This will increase the definition of the notes and at the same time, since less gain will be needed on the recorder, the distortion caused by the excess roominess or echo of the room will be reduced and possibly eliminated.

The microphone should be moved in or out until the recorded tones have the desired quality. One point to keep in mind is that as the microphone is moved, its height

and angle should be changed so that the head of the unit is always in the plane that bisects the angle formed by the piano sounding board and the top. In this way the microphone will always be in the most direct path of the sound. The head of the microphone should also be twisted slightly toward the treble side of the middle C key, for by thus favoring the treble, the high pitched notes that are usually low in volume will be picked up more easily, while the bass notes which are generally heavy and tend to distort on a too-direct pick-up will be left slightly off the center of the microphone beam and will be attenuated.

When recording a piano solo from a very large room or hall that has excellent acoustical characteristics the top of the piano may be removed entirely. In this case the pick-up is quite distant, but excellent results can be obtained. The microphone is placed in a hanging position from twenty to thirty feet away and it is raised to a height of approximately twenty feet. Again the exact position of the microphone should be checked on the recorder. Too distant a pick-up will be indicated by lack of definition and distortion of the piano tones plus a very noticeable booming of the bass notes. Moving the microphone in should eliminate the booming and improve the definition.

When an intimate pick-up is preferred, the top can still be left on the high stick, but the microphone must be moved to a position six to seven feet away from the open end of the piano. As with the other types of close set-ups the microphone should be turned so that it favors the strings in the upper register, thus preventing the bass notes from booming through in the recording.

Occasionally we encounter a room so live that it seems almost impossible to pick up piano tones without distortion. To solve this problem a very close pick-up must be made. With the top on the low stick, the microphone is placed about two feet from the inward curve of the piano, with the head of the microphone at the height of the opening. Under these conditions the treble notes must be particularly favored or the bass notes echoing within the

case will hit the microphone too strongly and cause it to distort; however, with the sound waves being picked up thus close to their source, it is possible to play the piano very softly and in this way avoid picking up any of the reverberations that may be present in the room.

Closely related to the pick-up problem posed by a live room is that condition in which a certain object, like a chandelier or a piece of metal or glassware, resonates with a particular note on the piano. This sympathetic vibration, as it is called, can be stopped by moving or turning the piano so that it faces in a different direction, by playing more softly or, if these steps prove unsuccessful, by finding the offending item and either removing it or damping out its vibrations by wrapping it with a heavy cloth.

Another factor which will affect the pick-up and consequently the recording is the response of the microphone. The fidelity with which it picks up the various frequencies of the piano notes, the width of the beam adequately covered by the microphone, and the level at which the piano tones are transmitted electrically to the recorder: all these will necessitate some slight adjustment of the microphone position. For instance, the crystal microphone, which favors the high frequencies, will have to be turned more toward the bass strings of the piano than a dynamic microphone which favors more of the bass notes. A ribbon microphone, picking up sound from two opposite sides over beams of only approximately forty-five degrees, will have to be set farther back from the piano for a well-rounded pick-up than a dynamic microphone with its beamwidth of about one hundred degrees; also, when the respective sound level is taken into consideration, the ribbon microphone with its greater sensitivity can be placed farther away from the source of music than the dynamic microphone. Now it is not absolutely necessary to know these microphone characteristics to make tape recordings. By careful test-runs any microphone can eventually be placed correctly. Nevertheless, knowing just what your particular microphone can do and its limitations will not only permit you to make a set-up quickly and easily, but it will also help in solving any unusual pick-up problems which may be encountered.

Now thus far the types of pick-ups considered have been piano solos; however there are many occasions, especially with home recording, when both voice and piano must be picked up. If you use more than one microphone with a mixer you have no problem. The piano can be picked up by any of the methods described while the voice is directed over another microphone, either set to one side of the piano on a five to six foot stand when the singer does not play the piano, or placed so that its face is from six inches to a foot away from the mouth of the person singing and playing the piano.

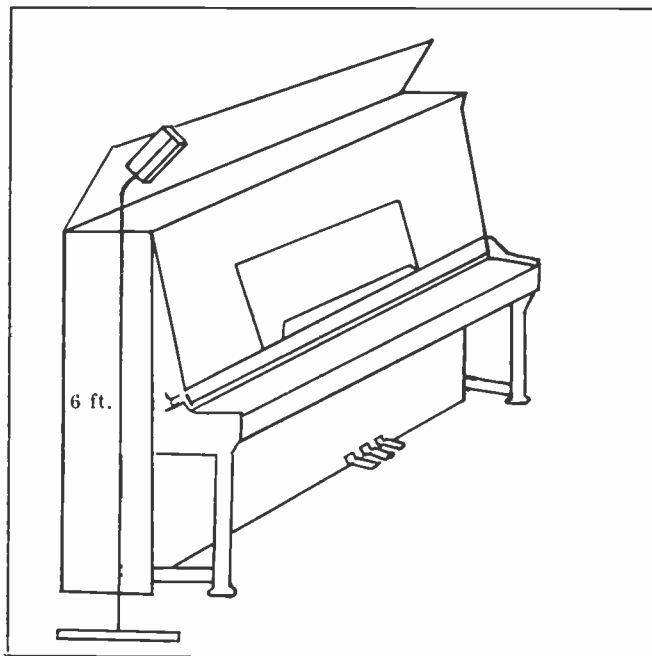
Without the use of a mixer one microphone must pick up both the piano and the voice. One way in which this can be done successfully is by placing the microphone on a short stand or hanging it so that its head is at the eye level and slightly to the right of the person sitting at the piano. The head should also be tilted toward a point slightly above the keys and near the center of the instrument. The person playing then sings upward and across the face of the microphone, exercising only the necessary caution when ever using sheet music not to rustle the pages in turning them over.

Also affecting the results in all types of piano recordings is the operation of the recorder. Generally the gain of the

recorder is adjusted so that the indicator eye just closes on peaks of sound or, if a volume indicator is used, the pointer reaches the zero mark on the scale. But the piano being a percussion instrument—that is to say: the tones being produced by percussion or striking—the sharp bursts of sound thus transmitted through the microphone to the recorder will cause its amplifier to distort. To prevent this it is essential always to run the recorder gain at a lower level for all piano pick-ups. The sound level should be adjusted so that the indicator eye does not quite close or, with the volume indicator, so that the pointer does not exceed a minus 2 on the sound peaks.

The playback gain of the recorder must also be adjusted correctly otherwise what sounds like a perfect pick-up when the piano tones are test-run through the recorder, with the loudspeaker at a low level, often will prove to be boomy and distorted when played back later at a higher level for entertainment. The remedy is to make sure that the loudspeaker level used for test-recording of the piano set-up is the same as that which will be used during the normal playback of the recorder.

The various factors discussed which in one way or another will affect piano recordings may at this time make you feel that the process is very difficult. Actually the main points to keep in mind are: where is the most direct path of the sound emanating from the piano? What kind of a pick-up is desired: intimate or distant? How good is the quality of the piano tones heard over the playback loudspeaker of the recorder? Determining the location of the sound path and the type of pick-up desired will dictate the approximate position of the microphone. Final adjustments can then be made by closely checking the quality and perspective of the playback sound. It may take a little time and practice to become proficient in this technique but when it is once mastered, it will insure piano recordings with clear realistic tones that will compare well with professional recordings made with high-priced recorders. The results are well worth the efforts!



If an upright piano cannot be moved the top should be opened and the microphone set at a height of about 6 feet and pointed toward the strings. The mike should be on the treble end of the instrument; it is shown here on the bass end.

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MARK-Q-MATIC TAPE-SLIDE SYNCHRONIZER

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THE Mark-Q-Matic recorder-slide projector synchronizer is one of the simplest devices to use which we have tested.

It uses neither control signals, metallic tabs or pauses but instead a pencil mark on the tape is all that is necessary to make the device operate.

The pencil mark is made with a special pencil furnished with the device, although in a pinch any pencil which is heavily graphited, such as the Koh-I-Noor "Do All" pencil may be used.

A marking platform is provided on the head of the device to make marking the tape easy. The mark that is placed on the tape should be about one-half inch in length (about the length of the marking platform), and should be reasonably broad.

Since the device scans the full width of the tape, the recording may be made in one direction only. The unit will operate with any tape recorder irrespective of its head configuration and whether it is monaural or stereo.

The first step in setting up the unit is to align the device in relation to

the recorder so that the tape goes evenly across its sensing head and does not touch the reel edges or the recorder deck. When properly aligned, the tape may be put in fast forward or rewind without the tape riding up or making contact with reel flanges or recorder deck.

The height adjustment is made by means of two screws in corresponding slots on a vertical member arising from the heavy metal base of the unit. Two sets of holes are supplied and these, plus the adjustment supplied by the slots should take care of most recorders. For those of unusual height, it may be necessary to raise the device on a flat object, such as a book, or, if the recorder is too low to accommodate the device in its lowest position, the recorder may be raised similarly.

A rubber tipped post holds the unit in alignment at the proper distance from the side of the recorder.

The unit may be placed either between the feed reel and the tape slot or following the tape slot, between it and the take-up reel.

The manufacturer advocates putting

Product: Mark-Q-Matic Tape-Slide Synchronizer

*Manufacturer: General Techniques, Inc.
1270 Broadway,
New York 1, N. Y.*

Price: \$19.95

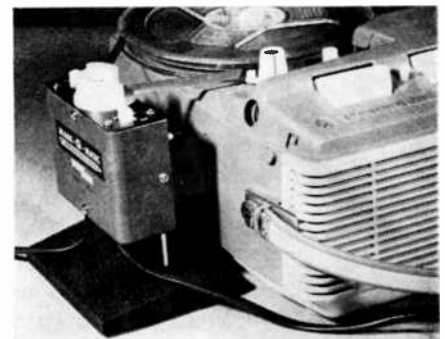
it between the supply reel and the heads since that side provides greater tape tension. We found, on the recorders with which we tried it out, that it worked equally well on either side. With some recorders, which lack pressure pads, care will have to be taken to position the device so that the tape tension across the recorder heads is not disturbed.

However, the unit should be positioned so that the same entrance and exit angle is obtained as the tape passes over the sensing head.

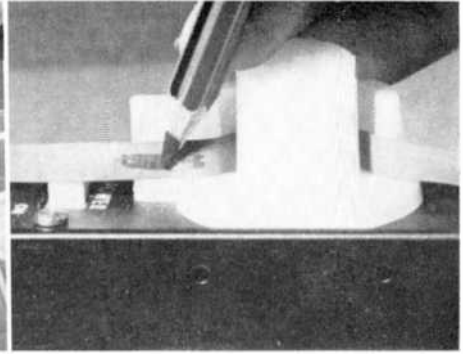
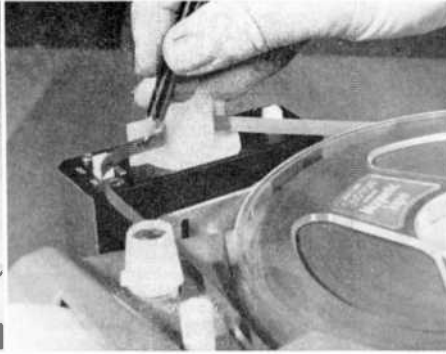
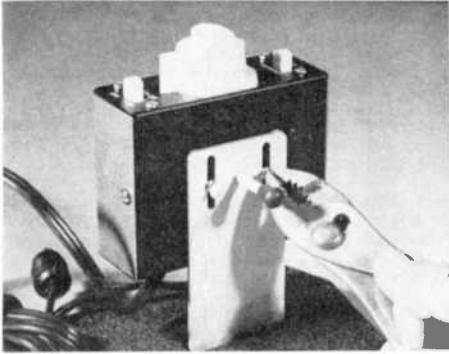
This is composed of two pins, across which the pencil mark makes contact, firing a glow tube and tripping the control relay. An adjustment is provided to change the sensitivity of the trip.

This adjustment is reached by removing a small, nickel-plated plug in the side of the unit and inserting a screw-driver. Ordinarily no adjustment is needed since the units are set for the proper trip at the factory but if tape, such as the graphite coated tape used in continuous cartridges, is used, then an adjustment will have to be made.

The position for the device, when once established in relation to the recorder, may be marked on the side of the recorder by putting a mark where



The unit set up on the feed reel side of a recorder. The head should be positioned so that the tape moves evenly from the reel to the tape head slot.



Left: the height is adjusted by means of two screws and a slotted metal strip. The adjustments provided will cover most recorders. Center: the cue for a slide change is marked on the oxide side of the tape using a special pencil supplied with the unit. Right: close-up shows width and length of pencil mark. A few seconds must be allowed to elapse between slide changes.

the stand-off post touches the recorder side. If the unit is used with more than one kind of recorder, this will help establish both the height and the position in relation to the recorder.

To use the unit, it is set up in position and the narrated tape threaded through the device and through the recorder. The first slide is positioned in the projector and the connection made between the device and the projector.

The recorder is then turned on and at the end of the narration for the first picture the recorder is stopped and the tape slackened from the take-up reel. The special pencil is then used to mark the tape on the platform next to the sensing head. The "Push to Advance" button on the synchronizer is then depressed which brings the next slide into position and the process repeated through the reel.

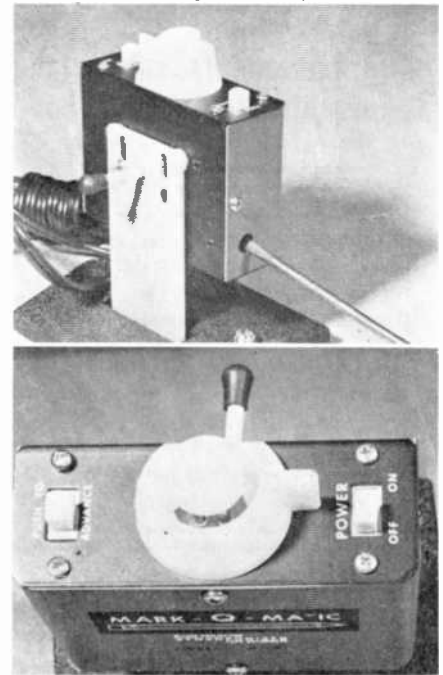
If the tape is marked in the wrong

place, any soft pencil eraser, such as the ones provided on the ends of pencils, may be used to erase it. If desired, the number of the slide may be marked on the tape alongside the synchronizing mark. This makes for easy editing.

After the tape has been marked where desired, the tape should be re-wound and the slides repositioned in the projector and a test run made. Any imperfections can then be corrected.

A cord for connection to the projector is furnished and this will fit a good many of the projectors now on the market. If it doesn't, the proper connector for your projector may be obtained from the firm.

We found the device satisfactory in operation and use. The tripping was reliable and marking the tape on the oxide side had no effect on the program material. It is worthy of your consideration.



Top: sensitivity adjustment is reached by removing nickle-plated cap and is turned with screwdriver. Lower: Top of unit.

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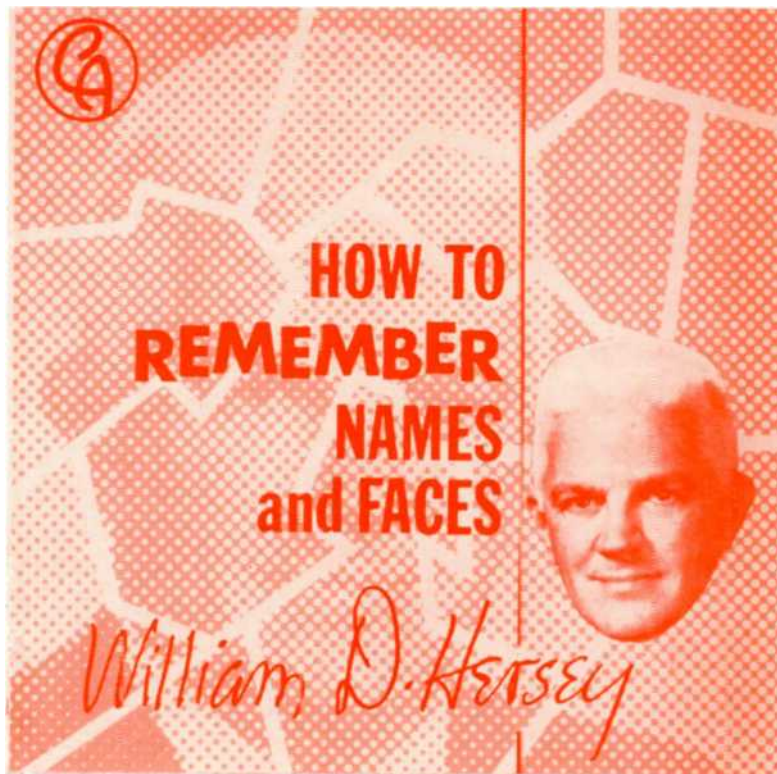
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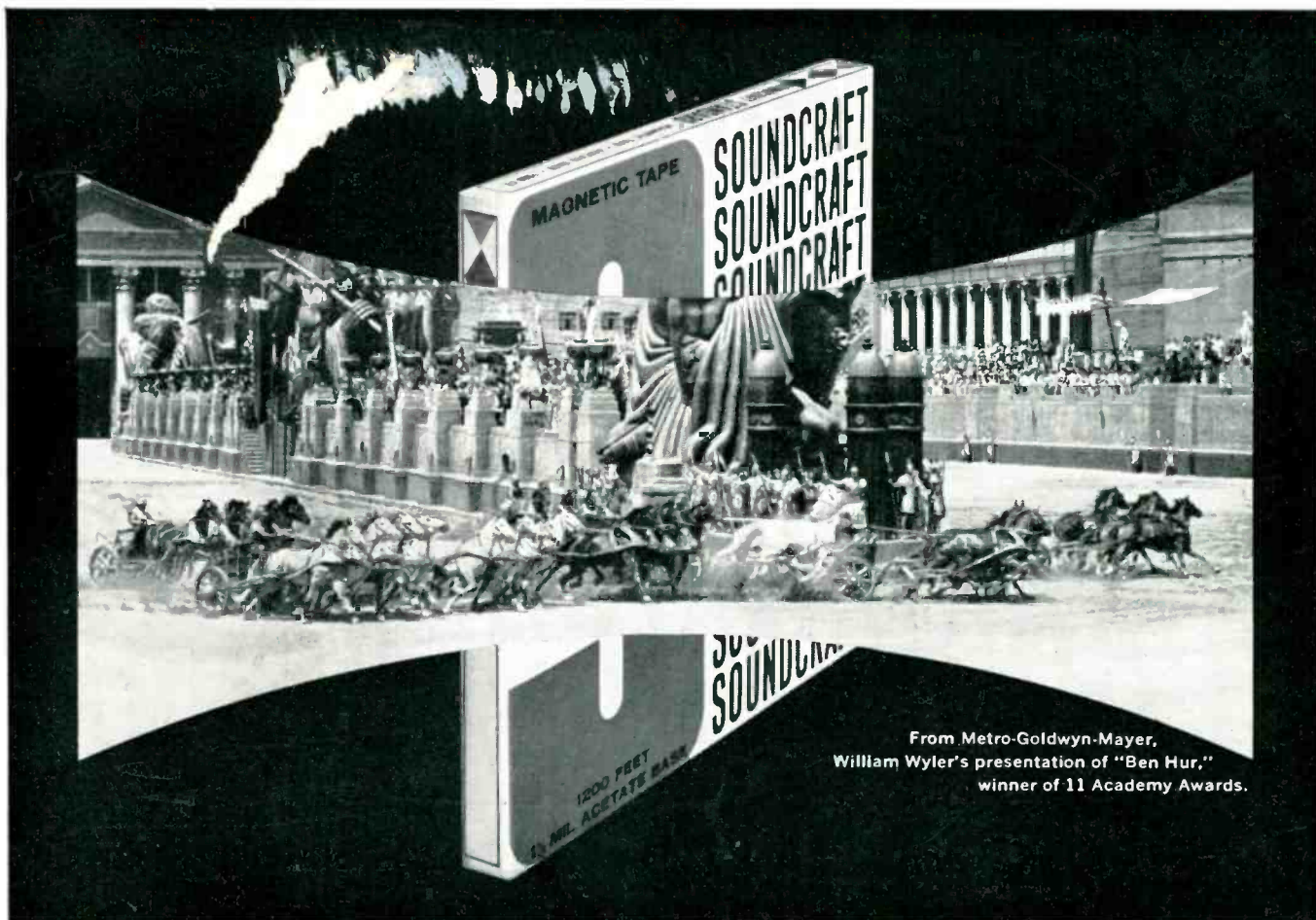
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