

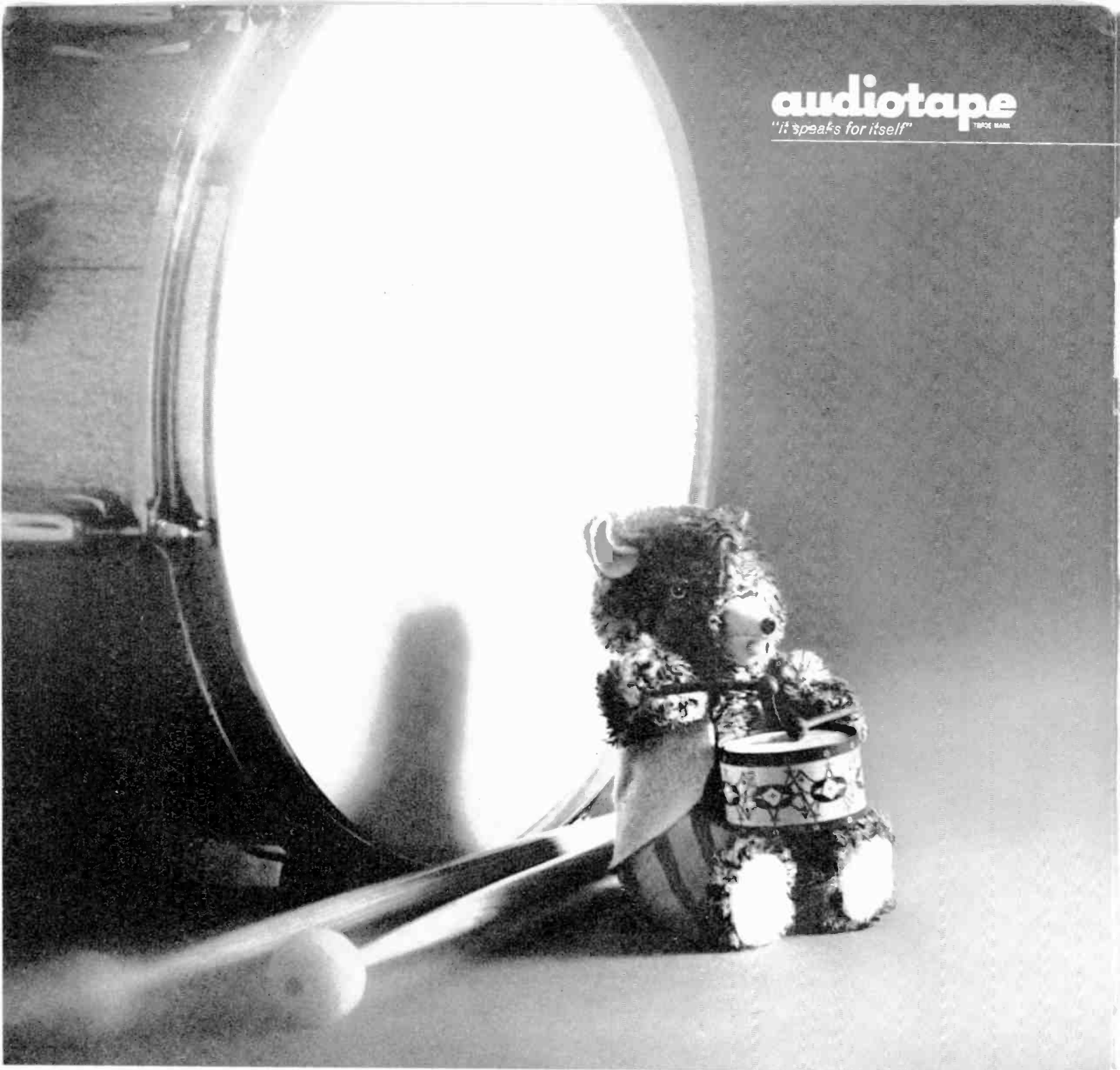
TAPE RECORDING



Mr. Roy Perrin
231 Woodland Ave.
Rutherford, New Jersey

April 1963
35c

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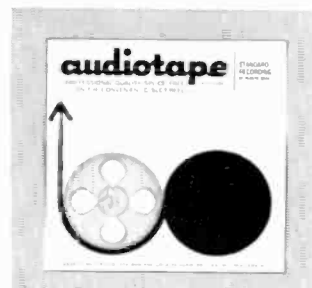
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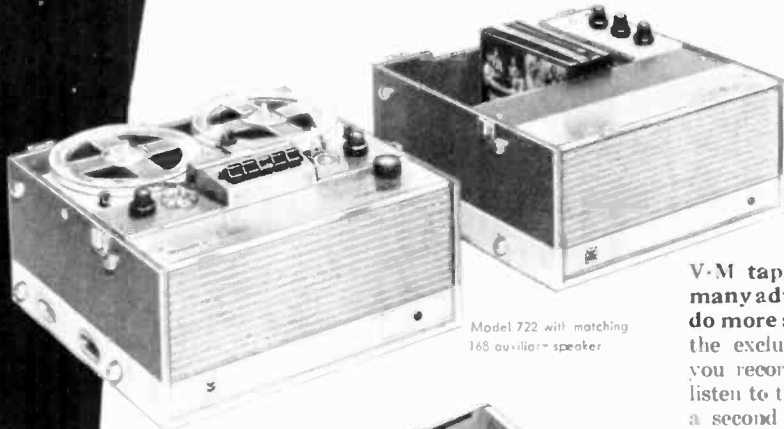
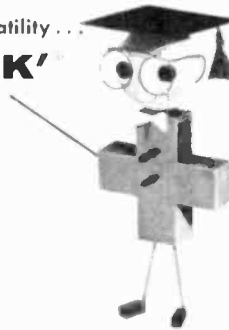
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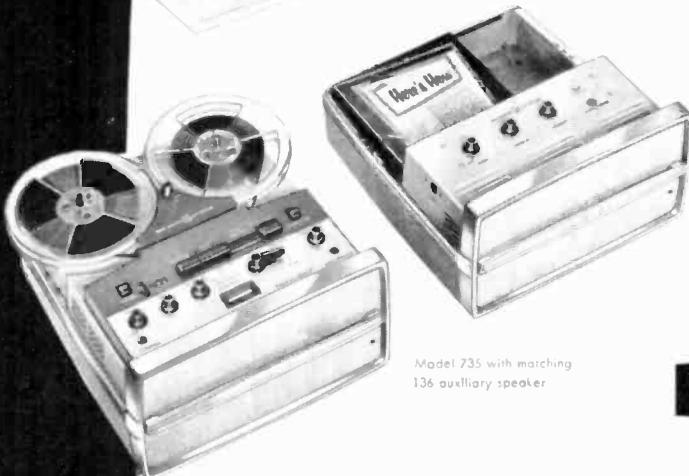
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THE VOICE  OF MUSIC®

*Reference: authoritative trade source.
Data available on request.



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TAPE RECORDING

VOL. 10 NO. 5

APRIL, 1963

MARK MOONEY, JR.
Editor and Publisher

JOHN L. ALLEN
Circulation Manager

JEAN COVER
Assistant Editor

ROBERT W. LAPHAM
Art Director

JAMES H. MILLS, SR.
Technical Consultant

ANTHONY J. MORIN, JR.
National Advertising Manager
 274 Madison Ave., New York 16, N. Y.

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NEW TAPES

★—Fair

★★—Good

★★★—Very Good

★★★★—Excellent

Classical—Robert E. Benson

Popular—F. Norman West

CLASSICAL

HANDEL: Six Organ Concertos, Op. 4
Karl Richter, organist and conductor of a chamber orchestra

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

LONDON LCK 80111

4 track, 7½ ips, 77 mins., \$11.95

This is one of the most satisfying tapes to come along for some time. The music is elegant and performances are superb. Karl Richter succeeds admirably in his dual task of soloist and conductor. Sound enthusiasts will delight in this tape, recorded in St. Mark's Church in Munich, as the organ has a big, clear baroque quality. London's engineers have captured the spaciousness of the church in what is one of the most natural stereo recordings I have heard. The processing is immaculate, and the tape highly recommended.

PUCCHINI: Madame Butterfly (complete opera in three acts)

Leontyne Price, soprano; Richard Tucker, tenor; Rosalind Elias, mezzo-soprano and others with the RCA Italian Opera Orchestra and Chorus conducted by Erich Leinsdorf

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

RCA VICTOR FTC 8006

4 track, 7½ ips, 2 hrs. 38 min., \$21.95

This is the first complete opera recording to be made in RCA's new studios in Rome, and in many ways it is extraordinarily successful. Leinsdorf directs a big-scale performance, with Leontyne Price in splendid voice in a thrilling interpretation of the title role. Richard Tucker sounds rather strained as the erring Lt. Pinkerton, but Rosalind Elias is a fine Suzuki, and the rest of the cast is uniformly satisfactory.

RCA has offered here a brilliant, vivid sound. As their new studios are so large, one would expect more resonance than is found here. The strings lack some sensuous quality this Puccini score demands, and there is occasional distortion in some of the louder passages. The tape processing is fine, and RCA is to be complimented for arranging the music so each act can be heard uninterrupted. The final half of the second reel is devoted to music of Verdi and Puccini including Leontyne Price singing arias from "Aida," "Il Trovatore," "La Rondine," "Tosca," and "Turandot." These were recorded several years ago, but the sound is more spacious than the new "Butterfly," and Price is at her best.

All in all, an attractive recording, with much appeal for the opera collector.

MAHLER: Symphony No. 9 in D. Minor
Columbia Symphony Orchestra conducted by

Bruno Walter

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

COLUMBIA MQ 516

4 track, 7½ ips, 81 min., \$7.95

If ever a tape could be called definitive, this is it. There was an earlier recording of this symphony on Everest played by the London Symphony Orchestra conducted by Leopold Ludwig (43-011, \$11.95) that had much to offer, including spectacular recorded sound. However, Bruno Walter's penetrating insight into the score is a revelation; hearing this tape is an extraordinary emotional experience. The hand-picked orchestra plays wonderfully, and Columbia's sound is big in scope, free from distortion and fully conveys the sonic qualities of Mahler's large orchestra. Tape processing is so fine one hardly realizes one is listening to recorded music. This tape should be in the library of every serious collector.

DEBUSSY: The Afternoon of a Faun, Printemps, Nuages and Festivals from "Three Nocturnes"

RAVEL: Bolero, Pavane for a Dead Princess, Bolero

Boston Symphony Orchestra conducted by Charles Munch

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

RCA VICTOR FTC 2135

4 track, 7½ ips, 71 min., \$8.95

This is a rather unusual tape in that it contains performances that have not yet been released on LP. The Ravel selections were released on disc in March, but the Debussy works are not yet available on disc, although doubtless RCA plans to issue them very soon. As the playing time of the Ravel is only slightly more than a half hour, it was wise of RCA to couple something else with it on the tape version.

No one could find objection to the performance, as Munch is at his best here. He seems to excel particularly in the Debussy. The high point of the tape is the stunning *Printemps* in its first stereo taping, and the *Afternoon of a Faun*, which seldom sounds as sensuous as it does here.

From a reproduction standpoint, the Debussy fares best, with a brilliant, luminous sound quality and convincing stereo spread. The transparency of the sound is extraordinary, but the close-up recording eliminates any natural hall effect. The Ravel must have been recorded with an entirely different microphone arrangement, as the sound leaves much to be desired. Dynamic range is definitely restricted, and this is particularly noticeable in the *Bolero*, where the opening is entirely too loud, which limits the climax of

the music. There is a rather shrill, unresonant quality to the Ravel works, and definite distortion and muddiness in some louder passages. In spite of this, the Debussy is well worth having, and the tape is a fine value in playing time. Except for a few minor spill-overs, tape processing is fine, with virtually no hiss.

"THE VIRTUOSO FLUTE"

Julius Baker, flute, with I Solisti di Zagreb conducted by Antonio Janigro

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

VANGUARD 1659

4 track, 7½ ips, 55 min., \$7.95

This tape is intended as a vehicle for flutist Julius Baker, who plays Mozart's Concerto in C. K. 299 for Flute and Harp (with the assistance of Hubert Jelinek) and Telemann's Suite in A Minor for Flute and Strings. The Mozart concerto is positively delightful, especially when played with the consummate delicacy and grace heard here, and it is captivating in its simplicity. Telemann's suite is also beautifully done, although it rather lacks the musical inventiveness and originality of the Mozart.

Throughout the sound is clear, bright and resonant, with the sound of flute and harp caught with superb fidelity. When you hear the first few minutes of the Mozart concerto, you won't want to be without this tape.

POPULAR

FIDDLE-FADDLE—BLUE TANGO—SLEIGH-

RIDE. Boston Pops, Arthur Fiedler.

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

Sequence A: Fiddle-Fiddle, Blue Tango,

Sleigh Ride, The Waltzing Cat, Jazz Pizzicato-Jazz Legato, Saraband.

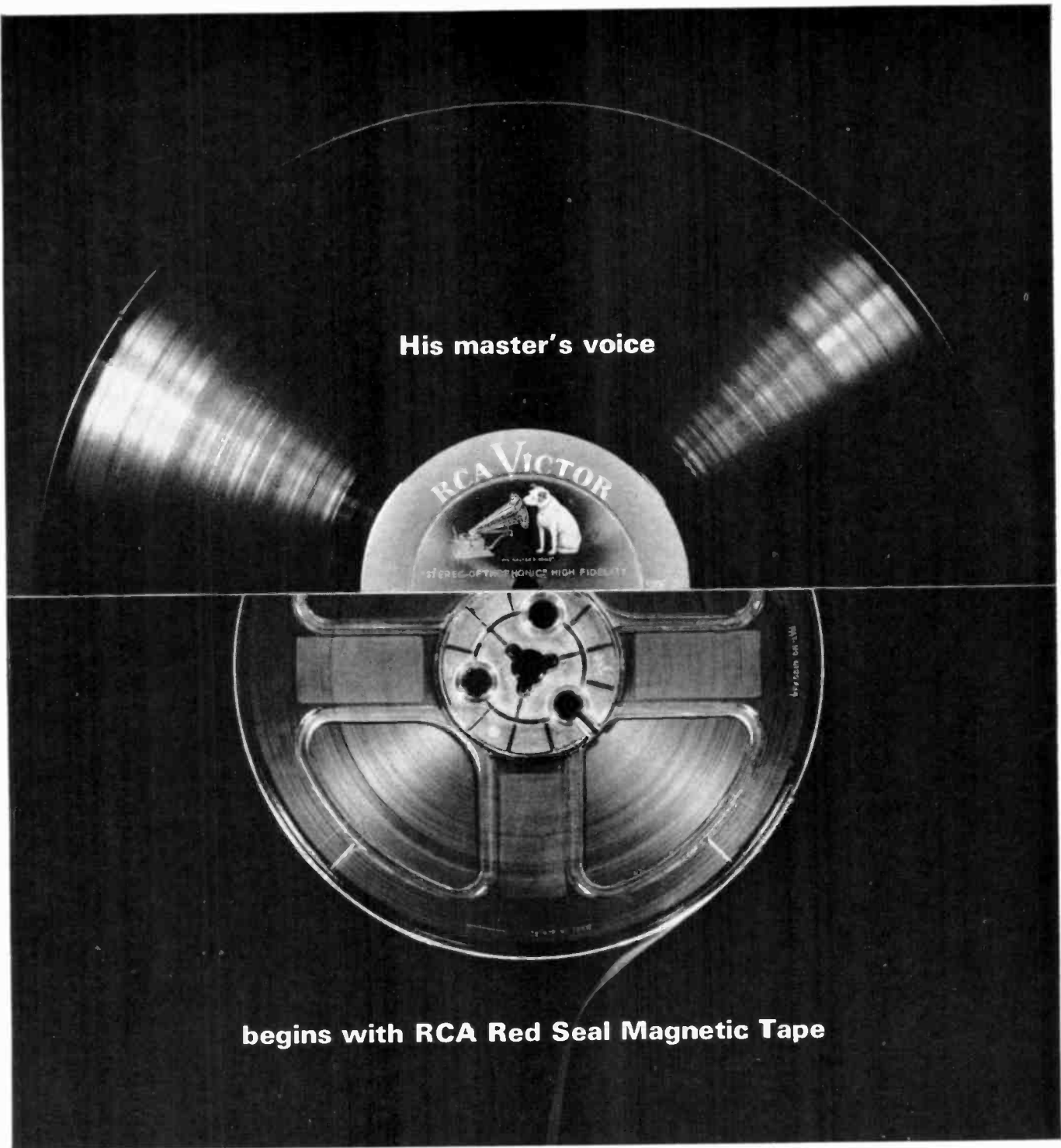
Sequence B: The Syncopated Clock, Classical Juke Box, Plink, Plank, Plunk! Belle of the Ball, Serenata, Chicken Reel.

RCA VICTOR FTC 2126

4 track, 7½ ips, 35 mins., \$8.95

Leroy Anderson's compositions are always so spirited, happy and colorful, that it is small wonder that audiences everywhere love to hear them played by the Boston Pops with Arthur Fiedler conducting.

These favorites now sound better than ever with what is called the "New Sound of the Boston Pops" and deservedly so. The Music has a new clarity and depth of tone, with brilliance and fidelity of the highest order. RCA's engineers have provided their best recording techniques, and the result is fine music. Well balanced stereo adds to this musical treat.—F. N. West



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NO STRINGS—STATE FAIR

Boston Pops, Arthur Fiedler

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

Sequence A: The Sweetest Sounds, Be My Host, Nobody Told Me, Love Makes The World Go, Look No Further, No Strings.

Sequence B: Our State Fair, It Might as Well Be Spring, That's For Me, More Than Just a Friend, Willing and Eager, It's a Grand Night for Singing.

RCA VICTOR FTC 2124

4 track, 7 1/2 ips, 32 mins., \$8.95

Arthur Fiedler again demonstrates the versatility of his orchestra with the music of Richard Rodgers. The Boston Pops can play anything, and here, just to be different, they play "NO STRINGS" with strings, using their own arrangements. The versatile Richard Rodgers demonstrates that he can also write lyrics as well as melodies, and does so with the new musical "NO STRINGS" and the new film version of "State Fair."

The musical quality suffers somewhat in comparison with the "New Sound of Boston Pops" tape above. The "A" side, "No Strings," seems to be recorded heavily on the right channel, but the "B" side, "State Fair," has good balance and better quality.

Just Drums

Here is a tape of "Just Drums"—12 different tempos: cha-cha, a slow Foxtrot, Twist. Slow 12/8. Dixieland, shuffles, etc all recorded so you can easily play, whistle, sing or dance. Excellent for music and dance instruction. Recorded full-track to play on any recorder.

7" Reel, 7 1/2 IPS.

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The "Pops" Orchestra gives a good account of itself, but is limited by lacklustre scorings and recording.—*F. N. West*

MUSIC MADE FAMOUS BY GLENN MILLER

Ray Eberle—Tex Beneke—The Modernaires.

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

Side 1: Tuxedo Junction, Along The Santa Fe Trail, I've Got A Gal In Kalamazoo, Sunrise Serenade, Elmer's Tune, Sun Valley Jump.

Side 2: St. Louis Blues March, Blue Champagne, Ida, Sweet Eloise, Rhapsody In Blue, Don't Sit Under The Apple Tree.

WARNER BROS., WSTC 1468

4 track, 7 1/2 ips, 37 mins., \$7.95.

This is the second album of Glenn Miller music issued by Warner Bros., that features members of the original organization. The first album was reviewed here Sept., 1962. Ray Eberle, Tex Beneke, and The Modernaires, with Paula Kelly recreate the atmosphere and enthusiasm of the original presentations, in a performance that was recorded "live" at Las Vegas' Sahara Hotel.

The band now seems to have more of the Glenn Miller tone and an easier playing style than they had in their first release. The engineers have also done a first rate recording job with exceptional presence, good fidelity and stereo separation. They have also wisely eliminated much of the superfluous crowd noise and applause that was distracting in the previous tape.

While we highly recommend this tape for the older Miller fans, we suspect the youngsters will like this one, too, for it has that inimitable beat that appeals to most everyone. . . . *F. N. West.*

A BIG BAND GOES BROADWAY

Ralph Kennedy and his Band

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

Side 1: Standing On the Corner, Jubilation T. Cornpone, The Sound of Music, Get Me To the Church on Time, A Hundred Million Miracles.

Side 2: I Feel Pretty, Just in Time, Gigi, Take Me Along, Seventy-Six Trombones.

RICHMOND RPX 49002

4 track, 7 1/2 ips, 29:40 mins., \$5.95

Ralph Kennedy and his Band make their debut on the Richmond Percussive Stereo Series by playing favorites from Broadway such as Music Man, Sound of Music, My Fair Lady and others.

This is a lively, brilliant tape, chock full of tonal and stereo effects, not the least of which is to play first from one speaker and the other, momentarily deadening one channel at a time. This is not necessary to prove it is stereo music, and in a way it is distracting. However, the arrangements are catchy, the balance generally is reasonable, the fidelity is exceptionally good, and the music enjoyable.

With the Kennedy Band giving a good account of themselves, this becomes a satisfactory tape for nice listening.—*F. N. West*

PASSPORT TO PLEASURE

Raoul Meynard and Orchestra

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

Side 1: Wonderful Copenhagen, On A Little Street In Singapore, Summertime in Venice, Berlin Melody, Paris Pastiche, Valencia.

Side 2: Calcutta, Summer in Cyprus, Midnight in Moscow, Palma De Majorca, Vienna, My City of Dreams, Baghdad Bazaar.

WARNER BROS. WSTC 1469

4 track, 7 1/2 ips, 31:35 mins., \$7.95

Raoul Meynard and his orchestra, long time favorites on the Continental hotel circuit, demonstrate their versatility in this new release. The "Passport" is a world tour, with stops here and there, just long enough to listen to, and acquire the flavor of the music of the area, and then on to another country, where the musical atmosphere is quite different. Regardless of the location, the bouquet of that land's music comes pleasantly and distinctly forward.

Meynard uses an orchestra typically French in style, made up of strings, accordion, musette and guitar. Excellent arrangements, well played and recorded, with plenty of variety, interest and fine natural stereo effect. This tape is one to be recommended.—*F. N. West*

LET'S DUET

Gordon Jenkins Voices and Orchestra

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

Side 1: You're Just In Love, Jingle, Jangle, Jingle, Repeat After Me, Mine, Cream Puff, That Old Song and Dance.

Side 2: Play a Simple Melody, I've Heard That Song Before, Boys and Girls, Fugue For Tinho, I Said My Pajamas, Let's Duet.

WARNER BROS. WST 1464

4 track, 7 1/2 ips, 26:50 mins., \$7.95

Gordon Jenkins, whose talents for composing and arranging are equaled only by his conducting, has now worked out a stereo formula for voices and orchestra that is fresh and interesting.

Boys on one side, and girls on the other side, singing some of the best "duet songs" ever written.

Good judgment is evident throughout the tape, in the choice of songs, in the blending of the voices, and orchestra, and the fact that each number is not only pleasant to listen to, but also excellent for dancing. Quality

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and fidelity are fine, with, of course, a very pronounced stereo effect. You'll like it.
—F. N. West

RENDEZVOUS IN PARIS

Michel Legrand

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

Track A: Melodie D'Amour, C'est Si Bon, Venez Donc Chez Moi, C'est Magnifique, Comme Ci, Comme Ca, Domino.

Track B: Boum, I Wish You Love, Pigalle, Milord, Petite Fleur, Padam Padam.

PHILIPS PT-600-045

4 track, 7 1/2 ips, 33:30 mins., \$7.95

For a musical and romantic trip to the heart of Paris, this new tape by Michel Legrand offers an easy and enjoyable way to do it from your arm chair.

Long an exponent of French music with a modern touch, this talented composer, conductor and arranger has more musical tricks than most of the better bands, and daringly presents them with clarity of tone, originality, and variety that always characterizes his music.

It has appeal because it just couldn't be stereotyped—a bit of Dixieland, French style—a touch of Jazz—tender love ballads. With it all there's a wonderful beat coupled with danceable rhythm. This is French music played as only Frenchmen can play it, and presented in sparkling stereo sound.

—F. N. West

GIANT PIPES

Gus Farney at the Wurlitzer

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

Side 1: The Continental, By a Waterfall, Shine On Harvest Moon, I Only Have Eyes For You, Cheerful Little Earful, The Birth of the Blues.

Side 2: Shuffle Off to Buffalo, Dancing on the Ceiling, Shadow Waltz, Forty-Second Street, I Cover the Waterfront, Lullaby of Broadway.

WARNER BROS., WSTC 1433

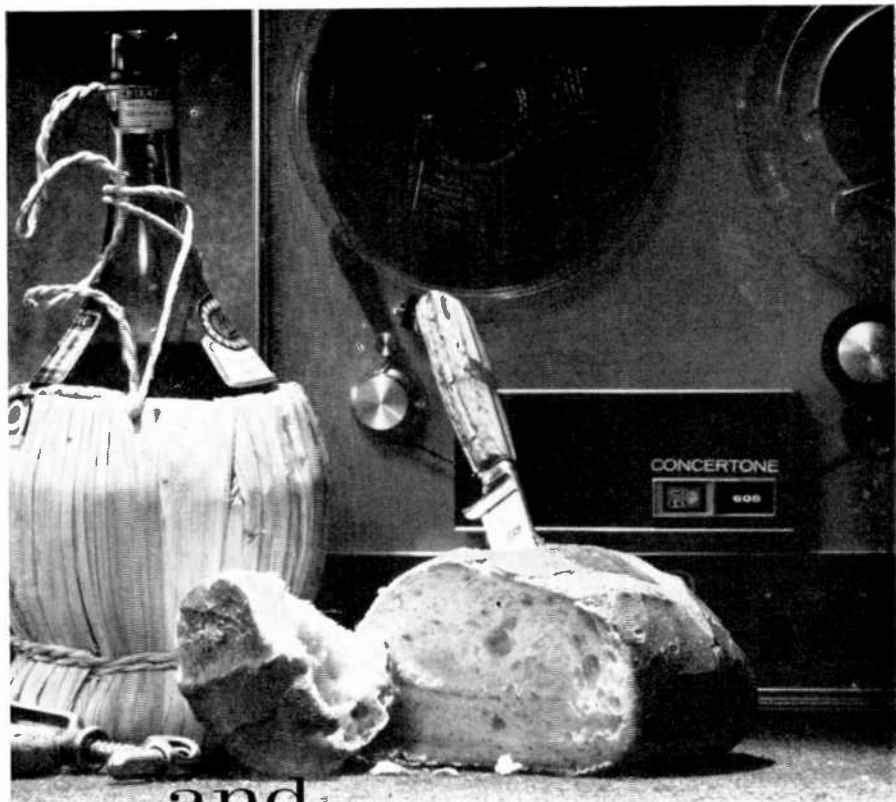
4 track, 7 1/2 ips, 30:15 mins., \$7.95

After listening to this tape we were inclined to give three cheers—for the engineers who did the recording job, for Gus Farney's nostalgic playing, and for the fact that there are still some big theatre organs in existence.

This giant Wurlitzer, with it's 5 manuals, is so beautifully played, and so excellently recorded, that while playing the tape, one is apt to close his eyes and be carried back to the days of the 30's. Gus has taken a dozen of these immortal melodies, written by such masters as Gershwin, Rodgers, Hart, Warren, DeSylva, and others, and woven them into a program that we think is one of the best that we have heard in a long time.

Recorded at Salt Lake City's organ loft, this is magnificent big organ sound, produced by a master whose vast experience just bulges out and makes you appreciate it more with each selection.

With good organ tapes somewhat scarce, we suggest you see your dealer soon for this one.—F. N. West



...and

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CAPSULE REVIEWS

POPULAR

RCA CAMDEN CTR 710. **THE GUITAR STYLE OF AL CAIOLA.** 4 track, 7½ ips., 22 mins., \$4.95. Playing lead guitar, surrounded by 5 of the best guitarists in the business, drums, vibes and brass, Al really makes sweet Georgia Brown, Dipsy Doodle and 8 other favorites come alive, as he cavorts through this tape. All the stereo you'd ever hope for, tastefully and pleasantly arranged for fine listening. Diversity in choice of numbers and in arrangements serve to keep you intensely interested from beginning to end.

RCA CAMDEN CTR 637. **THE LIVING STRINGS PLAY MUSIC OF ROMANCE.** Hill Bowen Conductor. 4 track, 7½ ips., 33 mins., \$4.95. Mantovani set a pattern in which high strings became an expected part of modern mood music. The Living Strings, conducted by Hill Bowen, carry on the tradition in fine style with this pleasant, personable string music, good for any type of listening. The strings are recorded with excellent quality and fidelity, in contrast to some of the other Living Strings tapes in the Camden line which have been deficient in this respect. Stereo effect also is good.

RICHMOND RPX 49012. **BAND CONCERT.** Roland Shaw Band and Orchestra, 4 track, 7½ ips., 26:30 mins., \$5.95. Roland Shaw plays a dozen of the popular band favorites and adds the swinging beat of an orchestra for something that is a bit different. Unique arrangements permit a smooth blending of both tempos, and the band moves easily from one to the other. Broad stereo is used effectively to make this a pleasant, though unexciting concert.

CAPITOL ZT 1771, **ROUTE 66 THEME.** Nelson Riddle and his Orchestra, 4 track 7½ ips, 28 mins., \$6.98. With theme music tapes still proving to be rather popular, this group of TV Themes should be welcomed by most video fans. Ben Casey, Dr. Kildare, Andy Griffith, Steve Allen and other favorites are all here, headed by the title tune, Route 66. Nelson Riddle's orchestra is flexible and versatile, and does full justice to his special arrangements.

CAPITOL ZT 1818, **SOUNDS! WHAT SOUNDS.** Dean Elliott and his Orchestra, 4 track, 7½ ips, \$6.98. Combining mechanical sound effects with a big band sound may not be new, but it certainly is noisy! Dean Elliott has taken a long list of noise makers and woven them into his themes, some even melodically. It's all hard to digest, when apparently the orchestra is basically a smooth pleasant one. If you persist, you can get some enjoyment, and you can't help but recognize some sort of creativeness in this offering. If it is good for anything, it might be considered a test for your hi-fi rig.

MGM STC 4200, **MUTINY ON THE BOUNTY.** Music from the Sound Track, 4 track, 7½ ips, 35:25 mins., \$7.95. Robert Armbruster conducts the MGM Symphony Orchestra, playing the Bronislaw Kaper original score from the film. He has interpreted the moods and themes most descriptively from a musical standpoint. Recording has clarity, beauty and excellent fidelity. Although impressive and possibly full of meaning if you have seen the picture, it is rather meaningless under any other condition.

WARNER BROS. WSTC 1479, **GAY PURR-EE.** The Voice of Judy Garland, 4 track, 7½ ips, 34:35 mins., \$7.95. The complete original sound track of the music from Warner Bros. new full-length animated musical cartoon. The voices of the cartoon characters are provided by Judy Garland as Mewsette, a kitten with her pals, portrayed by Robert Goulet, Red Buttons, Hermione Gingold, Paul Frees and a chorus. Songs are catchy and appealing. Sound is brilliant, with well balanced stereo. Judy Garland fans will like this.

CLASSICAL

LONDON LCL 80104, \$7.95, 4 track, 7½ ips, 59 mins., **GRIEG: Piano Concerto in A Minor, Op. 16 SCHUMANN: Piano Concerto in A Minor, Op. 54** both played by Julius Katchen with the Israel Philharmonic Orchestra conducted by Istvan Kertesz. London offers excellent value here in playing time, but Katchen seems to be miscast in these romantic concertos, and the sound is muddy in the low frequencies. For this coupling, the Epic tape with Leon Fleisher and the Cleveland Orchestra conducted by George Szell is unequalled, now that the technical deficiencies of the first issues of this tape have been corrected (Epic EC 812, \$7.95).

LONDON LCL 80113, \$7.95, 4 track, 7½ ips, 42 mins., **SHOSTAKOVITCH: Symphony No. 5 in E, Op. 47** played by the Suisse Romande Orchestra conducted by Istvan Kertesz. This orchestra lacks the big sound quality and virtuosity demanded by this score. As Leonard Bernstein's Columbia tape has rather brash sound, Stokowski's recording with the Stadium Symphony Orchestra of New York remains the preferred version (Everest T 43010, \$7.95).

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"WHY MY RECORDER IS

IMPORTANT TO ME" CONTEST

WIN A REEL OF TAPE. Tell us in your own words why your recorder is important to you, not why it could be important to someone else. Entries will be judged on the basis of their usefulness to others and on the uniqueness of the recorder use. No entries will be returned. Address your entry to: Important Recorder Contest, Tape Recording Magazine, Severna Park, Md.

Gentlemen:

My recorder is important to me because I love to listen to music of all kinds if it has been well written, well performed, and faithfully reproduced. For the past twenty years I have collected disk recordings of the music I like but the reproduction has always left a lot to be desired. After being played a few times a disk develops surface noise which is very objectionable and of course the old 78 R.P.M. records were easily broken and were of poor fidelity. About a year ago I purchased a Webcor Regent Coronet Recorder. With it, in addition to playing back pre-recorded 2 and 4 track stereo tapes, I am able to make stereo and monaural recordings.

It is hard to describe the joy I experienced the first time I played a pre-recorded 4 track stereo tape. Here at last was what I had been searching for. No surface noise, or scratch, just good, pure stereophonic sound that was so authentic that it seemed that I was actually sitting among the musicians that made the recording. Other advantages are ease of storing, little or no breakage, plus an exceptionally wide variety of pre-recorded music to choose from.

This in itself was enough to completely sell me on tape; however I found much more to be happy about. I play and teach Clarinet and Saxophone. I occasionally get together with other musicians to play for our own amusement. The recorder is indispensable at these sessions. As for musical instruction, the recorder is an excellent method of showing a student a mistake he is making. I have also used my recorder to record from Radio and TV, not only any music that I would like to hear again, but speeches such as the "State of the Union" address by President Kennedy.

The things that can be done with a tape recorder are almost unlimited. I take quite a lot of 35mm. slides and my future plans include a synchronizer for tape background of music and commentary for slide shows. I want to record my children's voices for a permanent record of how they sound while they are little. I want to use my recorder to copy stereo records and tapes that belong to some of my friends and I want them to copy as many of mine as they want.

The things I have mentioned are just some of the *bonus* benefits I have received from my recorder because my primary objective was playback of pre-recorded tapes.—*Bernard A. Buroker, Richland, Washington.*

Gentlemen:

My Revere tape recorder is very useful for many reasons. The most important are:

I have relatives in California, and we correspond with 3-inch reels periodically. We find more can be said orally than can be written in the same time. Hearing a voice tends to bring the "writer" into the same place as the listener. The meanings are conveyed correctly because writing cannot bring out the meaning as human voice can. Also, we are able to trade material such as songs, speeches, etc., either is unable to get in his locality. My grandmother neither writes nor reads English and, in this way, we, too, can correspond, and she bought a tape recorder solely for this purpose.

I have also used our Revere in the sleep-learning method. It has helped me in the preparation of speeches for English Composition, in remembering material for tests and learning poetry.

The enjoyment of being able to listen to hours of good music is the best reward of all. This is the most important use our Revere tape recorder is put to.—*Bart Montante, Milford, Michigan.*

Gentlemen:

Since 1955 I have used it to tape children's voices, for record of our Church Business meetings, sent tapes rather than write or call relatives, leave messages for children when wife and I went somewhere before they got in from school, took tapes of singing and let shut-ins hear them, record latest songs on Radio, etc. Every day I find new uses for my recorder and it grows more important to me.—*Arvon Keeton, Marion, Ind.*

Gentlemen:

I am a man seventy-three years of age and I have been totally blind for the past fifty-six years. I lost my sight as a result of a charge of dynamite while working in the Copper Queen Mine in Bisbee, Ariz. I picked into what is known as a missed hole.

I have been using tape recorders for more than ten years for the purpose of copying books into braille which explain the Bible. These books are not available in braille anywhere and my purpose in copying them is not only for my own use in carrying on Bible studies with other people, but to make them available to other blind people. I have copied over ten thousand pages and bound them into volumes of approximately one hundred pages each. A considerable number of my books are now being read by other blind people. I also find the tape recorder of great value when I have to prepare a talk for my part in the ministry school. I couldn't get along without one.—*Darcy Trezise, Los Angeles, Calif.*

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cost way
to reduce
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and
distortion



ROBINS HEAD DEMAGNETIZER

Model HD-3 If noise and distortion are impairing reproduction of your favorite tapes—there is a good chance your recording head is magnetized. By removing permanent magnetization, Robins HD-3 dramatically reduces noise and distortion—thus restoring listening pleasure. No tape recordist should be without one.

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CROSSTALK

from the Editors

WE SEE NOW that the FTC (Federal Trade Commission) has in the works an official definition of "High Fidelity" so the poor unsuspecting consumer when he goes to buy a "hi-fi" won't be gypped. This has some segments of the hi-fi industry in an uproar.

* * * * *

THE "PACKAGE" MANUFACTURERS who put the works in a wife-appealing cabinet came up with some suggestions through the Electrical Industries Association. This caused the components manufacturers to throw up their hands in horror for the specs suggested, they felt, were too lax. They wanted much more stringent specs, which in turn would make things rough for the packaged people.

* * * * *

THEN THE CRY WAS raised that High Fidelity could not be defined because it wasn't a product at all but a subjective thing. It was something that was experienced by each listener, not something that could be measured in miles per gallon, watts per channel or anything else.

* * * * *

ONE MAN'S HI-FI is another man's poison. As we grow older our hearing becomes less sensitive. Many older people can neither hear low lows nor high highs. So the FTC should come up with a definition for young people and one for older people. Obviously this can become very ridiculous.

* * * * *

WE THINK THE WHOLE thing is a big, fat mistake, including the Federal Trade Commission. As we get it, it is the purpose of this body to see that advertising of things represents the things as they are, not as some Madison Avenue adman pictures them to be. This also seems to include packaging, they are now looking at large packages which are loosely packed so that the housewife, seeing the larger package, figures she is getting a bargain whereas she really is getting gypped or maybe just her money's worth. Doubtless such packages will become illegal.

* * * * *

IF THE AMERICAN public is going to lean on the Great White Father in Washington for a stamp of approval on products and advertising we are going to lose whatever is left of our natural caution. The public will assume that everything that is advertised is exactly as advertised because Big Brother is there watching . . . with the net result that people will be able to be gypped more than ever. The FTC could not possibly police all manufacturers and advertisers.

* * * * *

WE FEEL THAT every American has an inalienable right to be gypped—if he is stupid enough to let himself in for it. We have been gypped more than once—we didn't enjoy it but we sure learned from it and the cost was worth it. Someone who is buying a hi-fi or anything else should bone up on the subject before he lays down any cash. There are plenty of books, magazines and owners available to help him, and he will learn something in the process.

* * * * *

THE GYPPER PROFITS temporarily but soon the word gets around that his products are not as represented. People stop buying and he is finished—out of business. This solves the problem.

* * * * *

NO MANUFACTURER CAN last long on shoddy products, nor misleading claims, nor under-filled boxes. If people display their native caution, his life will be short. If they lean on Big Brother they will get a minimum product, just enough to get by the FTC . . . and the reputable manufacturer will suffer.

* * * * *

THE PEOPLE OF the old frontier were hoss traders of a high order. We seem to have lost this capability and are wandering bright-eyed and bushy-tailed under the protection of the Great White Father. It is time that each individual became his own FTC every time he makes a purchase. Bone up on what you want to buy before you buy it—and "ask the man who owns one."

TAPE CLUB NEWS

IRC Elects Officers

The newly elected line-up of officers for the Indiana Recording Club for 1963 are as follows: Elmer Friman remains as President, 3035 Banbury Road, Indianapolis 26, Indiana; Arthur Hendricks, Vice-President, 360 Albany St., Indianapolis 3, Indiana; Rosemauri Brickens, Secretary, R.R. 4, Box 384, Indianapolis 27, Indiana; Bert Everhart, Treasurer, 1317 N. Dearborn St., Indianapolis 1, Indiana; K. Richard Hartley, Member Board of Directors, 3445 Greenhills Overlook, Indianapolis 22, Indiana.

Formerly secretary, Mazie Coffman is now the editor of Tape Squeal, the club's official bulletin.

Club Bulletin Features Picture Page

Members of the Indiana Recording Club approve heartily of the club's bulletin now containing a page of pictures of members. In most cases, pictures of those members who write articles, or about whom there is mention in Tape Squeal, will be used in any current month. It is suggested that members start an album of fellow members' photos.

Fund for Blind and Handicapped Needs Donations

The Tarver Memorial Fund, operated by the Voicespondence Club, Noel, Va., is in need of cash donations to further its work.

The Fund maintains a library of materials for the blind and handicapped and also, through partial financing and, in many instances outright gifts, provides recorders and other supplies for voicerecording to those who otherwise could not afford them.

The purpose of the Tarver Memorial Fund

is to bring to the blind and handicapped new hope and open a new world to them. The Fund now circulates taped copies of four magazines and also has a library of 100 books all on tape.

Readers wishing to donate to this worthy cause may send contributions to: The Tarver Memorial Fund, Voicespondence Club, Noel, Virginia.

WTP Begins Membership Drive

World Tape Pals has begun a drive to increase membership in the organization by including incentive awards for each member who signs up three other new members. The reward for three new members is a year's free membership. Instead of sending out membership applications from headquarters upon receipt of an interested person's name, membership blanks will be furnished to all members who request them so that applications can be completed on the spot and sent in to headquarters in Dallas with the membership fee. You can still join directly, however, through headquarters.

The organization has also changed its name slightly but with no change in the method of operation. World Tapes for Education, Inc., is now the parent body with World Tape Pals being a subsidiary. The change was made because the educational aspects of the organization have grown, with an increasing number of teacher and school memberships.

New Club Forming

A new club for *shut-ins only* is being organized by Charles W. Ingersoll, 1420 Avenue C, Cloquet, Minn. To be known as the

SAXITONE RECORDING TAPE

*Oxide guaranteed not to rub off or squeak—or money back. Compare ours with other "Bargain" tape. You'll find it's more than just "price" when you deal with us. We are original pioneers in the tape recorder business and our reputation means everything to us.



600' acetate (plastic), 8 inch reel... .78
600' MYLAR 8 inch reel... .85
900' MYLAR Polyester, 8 inch... .85
1200' MYLAR, 1/2 mil, 3 inch reel... 1.18
1200' Acetate (plastic), 3 inch... 1.18
1200' MYLAR, 1/2 mil, (strong), 7 inch... 1.39
1800' acetate (plastic), 7 inch... 1.39
1800' MYLAR, 1/2 mil, (strong), 7 inch... 1.69
3600' MYLAR, unannealed, 7 inch... 2.89
3600' MYLAR, annealed, 7 inch... 2.89

SAVE 30% 4-track stereo music on tape

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Famous ABBRHM, twin cone 8" (75-10,000 cycles) comparable net 9.90 now 4.95, 2 for 9.00, plus postage. OTHER Norelco models at BIG DISCOUNTS. Specifications on entire Norelco line sent on request.

SAXITONE TAPE SALES
d/c. Commission Electronics, Inc.
1776 Columbia Rd., Wash., D.C.



"Friendly Tape Network," it is now seeking members. Anyone interested may secure full details by sending an addressed stamped envelope to Mr. Ingersoll.

Norwegian Tape Club

Nor Tape International is a new overseas club headed by John-Kenneth Kristeffersen. The address is Lille Frogner Alle 3, Oslo, Norway. They publish an English club paper six times a year and a Scandinavian one 10 times a year.

The club is international in scope and welcomes members from any country. For full details write to the club.

Ups Bulletin Frequency

The Australian Tape Recordists Association will publish its bulletin called "ATRA-VUE" every month except January, the height of the Australian summer. Grahame Lowe is the new secretary but the address of the organization remains the same. Representatives have been appointed in many areas. The U. S. representative is William C. Eaton, P.O. Box 1958, Las Vegas, Nevada.

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.

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

AMATEUR TAPE EXCHANGE ASSOCIATION
Ernest Rawlings, President
54 I Borage Street
Cartierville, Montreal 9, P. Q., Canada

AMERICAN TAPE EXCHANGE
Clarence J. Rutledge, Director
1422 No. 45th Street
East St. Louis, Illinois

CARTRIDGE CORRESPONDENCE CLUB
George C. Ekmalian, Sect.-Treas.
45 Haumont Terr.
Springfield, Mass.

CATHOLIC TAPE RECORDERS OF AMERICA, INTERNATIONAL
Jerome W. Giarrocchi, 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
Rosemauri Brickens, Secretary
R.R. 4 Rm 384
Indianapolis 27, Indiana

INTERNATIONAL VOICES OF YOUTH
P. O. Box 3041-T
San Mateo, California

MAGNETO-VOX CLUB
J. M. Roussel, Secretary
7915 Des Erables
Montreal 35, Que., Canada

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

STEREO INTERNATIONAL
O. B. Sloat, Director
1067 Flatbush Avenue
Brooklyn 26, N. Y.

TAPEWORMS INTERNATIONAL TAPE RECORDING CLUB
Marion Chism, Co-ordinator
129 South Broad Street
Carlinville, Illinois

THE SOCIETY OF TAPE HOBBYISTS
Ralph Holder, General Secretary
116-06 139th Street
South Ozone Park 36, N. Y.

THE VOICESPONDENCE CLUB
Charles Owen, Secretary
Noel, Virginia

UNION MONDIALE DES VOIX FRANCAISES
Emile Garin, Secretary
c/o Roman's Languages—Rm. 1617
Cathedral of Learning
University of Pittsburgh
Pittsburgh 13, Pa.

UNIVERSAL TAPE NETWORK
Larry Duhamel, President
R. F. D. #1, Main St.
East Douglas, Mass.

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

OVERSEAS

AUSTRALIAN TAPE RECORDISTS ASSOC.
Grahame Lowe, Hon. Sec./Treas.
P. O. Box 67, Eastwood,
New South Wales,
Australia

ENGLISH SPEAKING TAPE RESPONDENTS' ASSOCIATION
Robert Ellis, Secretary and Treasurer
Schoolhouse, Whitsoe By Duns
Berwickshire, Scotland

INTERNATIONAL TAPE FELLOWSHIP
Fred Rimmer, Overseas Rep.
21 Mount Pleasant
Sutton-in-Ashfield
Nottinghamshire, England

STEREO TAPE CLUB
P. J. Kruger, Secretary
3 Ctan Building
181 Main Road
Diep River
Capetown, South Africa

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

WORLD WIDE TAPE TALK
Charles L. Towers, Secretary
35 The Gardens, Harrow
Middlesex, England

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NEW PRODUCTS

Transistorized TV Recorder



Precision Instrument Company, Palo Alto, California, has announced a portable television tape recorder weighing only 68 pounds. It uses one inch tape which records both audio and a 3.5 megacycle bandwidth at 7½ ips. The TV recorder is fully transistorized. The device uses 25% less tape than is required by present recorders with each 10½ inch reel of 1 inch tape providing 96 minutes of programming. The head places the signal on the tape with a helical scan using 180° tape wrap and two video heads. For price and details write to firm.

Vernon Transistorized Recorder



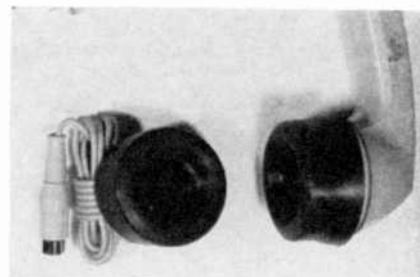
Vernon Audio, 144 E. Kingsbridge Road, Mt. Vernon, N. Y. is marketing the Vernon 47/26 stereo tape recorder and audio center. The name of the recorder comes from the 47 transistors and 26 diodes used in the circuitry. The unit is self-contained with dual recording and playback amplifiers and built-in monitoring speakers. It delivers ten watts per channel. It has three separate motors, three heads, electronic switching, mixing facilities, sound-on-sound, echo effects, etc. Frequency response is 30-20,000 cps at the 7½ ips speed. Price is \$600.

Roberts 1055



Roberts Electronics, Inc., 5978 Bowcroft Street, Los Angeles 16, California has just announced the Model 1055 which retails for less than \$300. The unit weighs less than 17 pounds. It features 4-track stereo and monaural record/playback, 2-track stereo and monaural playback, dual power amplifiers, a VU meter with a simple A-B switch, stereo preamps to connect to existing hi-fi system and it will operate either horizontally or vertically. Speeds are 7½ and 3¾ ips with a 15 ips kit available. It also has built-in head demagnetization. It has two high impedance mike inputs, two radio/phono inputs, two high impedance outputs. It has an automatic shut-off. Suggested retail price will be \$269.95.

Telephone Pickup



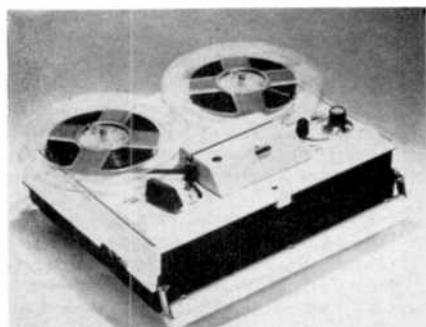
Western Sound Accessories, 1601 N. Gower Street, Hollywood 28, Cal. is now introducing its Model 245 Telephone Pickup. The unit was originally designed for the strict requirements of the dictation field and is now being made available to the recording field. The new pickup combines a comfortable "muff" or cushion with a highly sensitive and hum free induction coil and can be supplied with plugs to fit any recorder or business machine. Write manufacturer for price and details.

Webcor Viscount II



Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago, Ill. has announced the Viscount II recorder which will retail for \$140. The recorder is a monaural unit, has three speeds and will accommodate reels up to 7". It has two speakers, a digital type tape counter, volume and monitor tone controls, high and low level inputs and external speaker and amplifier jacks. A single lever controls forward, fast rewind, play and stop. The amplifier is rated at 5 watts. A roomy compartment is provided in the case for the storage of tape reels, microphone and cords. Recording level is indicated by the use of a magic eye tube. The unit may also be used as a PA system. Weight of the recorder is 20 pounds.

Concord 104 Compact



Concord Electronics, 809 N. Cahuenga Avenue, Los Angeles 38, Cal. has announced its new Model 104 Compact tape recorder. The unit is designed to sell for under \$100 and has two speeds, 7½ and 3¾ ips. It also features a magic-eye indicator and mixing features which permit mixing two sound sources on one tape track. Separate jacks allow monitoring during recording or private listening through an earphone, and connection to an external speaker. Controls have been simplified and the case is impact proof molded styrene plastic. Accessories included with the unit include: a crystal microphone, patchcord for external connection to radio, phono or TV, 7" takeup reel and splicing tape. Frequency response at the higher speed is 50-12,000 cycles and a signal to noise ratio of better than 35 db is claimed. The weight is 10½ pounds. The unit has five tubes and a 10" x 2½" speaker.

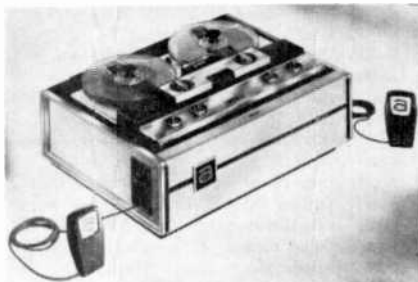
Martel Portable Stereo



Martel Electronics, 7400 Melrose Avenue, Hollywood 28, Cal. importer of the Uher line of recorders announces the first delivery of a new battery-operated tape recorder for stereo recording and playback.

The new model, designated the 4004 Report Stereo, is built around the proved transport mechanism of the model 4000 Report. It provides four track monaural and stereophonic recording and playback. Each channel has its individual input level control. It has four speeds from 7½ to 15/16 ips and the frequency response at 7½ is 40 to 22,000 cps. The unit can be operated with four "D" cells, rechargeable battery or from 110 volt lines. Complete data and price is available from Martel.

Argus Enters Tape Field



Argus Incorporated, 5950 Touhy Avenue, Chicago, one of the nation's largest manufacturers of photographic equipment announced its entry into the tape market with the introduction of three recorders. Shown above is the Model 800, a full stereo recorder featuring four track stereo and monophonic recording. The unit has "Simul Sound" which permits recording on one track while listening on the other. Each of the three new recorders has a peak output of 12 watts with the frequency response ranging from 40 to 15,000 cps in the Model 800 to 40-8,000 in the low priced Model 200. Prices range from \$270 for the Model 800 to \$160. The Model 800 has three speeds, 7½, 3¾, and 17/8 ips. The carrying case can be closed with the reels in place and the unit will operate in either vertical or horizontal position. It weighs 28 pounds. The model 400 machine records four track mono and plays back two and four track mono and stereo. For further details contact Argus.

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FilMagic Pylon (patented automatic silicone applicator), with Long-Life Conditioner and Cleaner Fluid insures clean, "wow-free" tapes and constant head lubrication. Pylon kit contains all essentials: One Pylon Applicator (suction-grip, flange or "pin-in" base), bottles of Tape Conditioner and Cleaner Fluid, extra sleeves, fluid dispensing pipette, and full instructions. At your dealer or send \$3.45 for postpaid U. S. delivery to:

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"MASTER MAGNETIC" tapes are top quality, have high sensitivity and higher frequency response at 15 KC than others.

Selected for FM recordings and theatrical sound cues and effects. All 7" reels are guaranteed splice free with 15 day money back guarantee.

	3-11	12-23	24+
1200' 7" Acetate	1.23	1.21	1.19
1800' 7" Acetate	1.59	1.57	1.55
1200' 7" Mylar regular	1.47	1.45	1.43
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2400' 7" Mylar tensilized	2.89	2.86	2.83

Other sizes—3" to 14" reels and pancakes upon request. Can be assorted. Add .15 postage per reel. .10 for 24' lots.

Dictating machine tape and reels available. Speed winders, any size reel 3" to 14" combination standard spindle or NARTB hub, \$69.50 each. Aluminum construction.

R. S. DECH, R. No. 1, Allentown, Pa.

TAPE RECORDING IN EUROPE

Some of the most interesting developments in tape recording are taking place in old-established factories and laboratories in Europe. The fullest information about them appears regularly in TAPE Recording Magazine, published in London, England, since February 1957.

TAPE Recording Magazine was the first and is today the foremost publication in Europe in this field.

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PD-2 Sentimental Favorites.

Lenny Herman: Miss You; Skip A Lou; Avalon; London Derry Air; Margie; Who; Believe Me If All Those Endearing Young Charms; Humoresque; Beautiful Dreamer; I'll See You in My Dreams; La Cinquantaine.

PD-3 Muscial Trip Around The World.

Lenny Herman: Andaluia; Baia, Tzena-Tzena; Chique; Cruiskeen Lawn; Misirlou; Autumn Leaves; Frasuqita; Serenade; Roman Guitars; Estrellita.

PD-4 The Quintet Plus.

Lenny Herman: Will You Take A Walk With Me; I'll Take You Home Again Kathleen; Glowworm; Ma He's Makin Eyes At Me; Canadian Capers; I Found A Lucky Penny; The World Is Waiting For the Sunrise; Sleep; Martha Polka; Tales of the Vienna Woods.

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tions from Student Prince; Fiddle Faddle; Crossroads; Same Silver Moon; You'd Be Nice To Come Home To; Hungarian Dance # 5; Hungarian Dance # 2; Our Love; Orchids in the Moonlight; Trade Winds.

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TAPESPENDENTS WANTED

This listing is for those seeking tape correspondents, looking for swaps of tapes, etc. and it is a free service for our readers. If you wish your name listed send us the following information on a post card: 1-Name, 2-Mailing Address, 3-Kind of recorder, speed and number of tracks, 4-Subjects on which you want to tapespond or items for which you are looking, 5-Indicate whether you are an adult or teenager. Listing will run two months and then be dropped to make way for new listings. Address your postcard to: TAPESPENDENTS WANTED, Tape Recording Magazine, 101 Baltimore-Annapolis Blvd., Severna Park, Md.

Tape Recording magazine assumes no responsibility for any inquiries between people listed in this column which are not answered.

Charles Q. Berkey, Jr., P. O. Box 3461, Hayward, California; Recorder: Roberts 1057, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, 2 & 4 track stereo, 1, 2, 4 track mono; Interests: Commercial photography, sound effects, pre-recorded music. I am starting to learn Spanish. Would like to talk to any of Jehovah Witnesses, any country; Adult (27), married.

Sid Finley, Jr., P. O. Box 1709, Asheville, N. C.; Recorders: Telefunken-85, dual track, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Korting-158S, 4 track, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, stereo/mono, record/playback; Norelco-100, dual track, 1 $\frac{1}{8}$ ips only; Interests: Women, recorders, C.B. radio, motorcycles of all kinds, music of all kinds except opera, sport cars, women; Adult (single).

Roger Feingold, 2055 Cruger Avenue, Bronx 62, N. Y.; Recorders: V-M 722 and 714, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, 1, 2 and 4 tracks, stereo record/playback; Interests: Hypnotism, music—all kinds, people from other countries, science-fiction, all forms of E.S.P., mental telepathy and other phenomena of this kind, just talking in general about anything, debating, photography, occult, anything I left out? I will answer all tapes from boy or girl, man or woman, any age, from this country or any other. I speak a little Spanish; Teenager (17).

Mary Victoria Monroe, 116 Drake Avenue, South San Francisco, Calif.; Recorder: Sony 300, 7 $\frac{1}{2}$ or 3 $\frac{3}{4}$ ips, 2 or 4 track; Interest: Would like to tapespond with anyone interested in poetry and/or camping; Adult.

James Fishel, 137 5th Street Northwest, New Philadelphia 1, Ohio; Recorder: Trav-Ler, 3 $\frac{3}{4}$, 7 $\frac{1}{2}$ ips, 2 track; Interests: Comedy shows, religion, sports, music, ham radio, electronics, photography; Adult.

Philip Moshcovitz, 65 Bellingham Road, Chestnut Hill 67, Mass.; Recorders: Webcor Royal Coronet, stereo playback, 2 track, 7 $\frac{1}{2}$ & 3 $\frac{3}{4}$ ips; Wollensak Model T-1500, stereo playback, 4 track, 7 $\frac{1}{2}$ & 3 $\frac{3}{4}$ ips; Interests: I would like to tapespond with anybody seriously interested in horror and science fiction pictures and special effects in the movies. Also people who collect material on this subject; Teenager (19).

Avon Keeton, 1611 S. Adams St., Marion, Indiana; Recorder: Silvertone, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Interests: Good Gospel singing and sermons; Adult.

Ed Faith, 20584 Eastwood Ave., Fairview Park 25, Ohio; Recorder: V-M, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, 2 and 4 tracks; Interests: Amateur radio, easy way to learn code, abnormal psychology, para-psychology, medicine, hypnosis, adult party recordings, all controversial subject matter, books on strange subjects, the unusual. Will pay fee for recording of Abbott and Costello's "Who's On First, What's On Second." Send tapes, will answer immediately; Adult (39).

D. H. Hansen, 10311 Ramona Blvd., Cleveland 4, Ohio; Recorders: Concertone E05-4, Uher 4000 Report (battery portable), Wollensak 1515-4, Bell Transport. Have duplicating and mixing facilities, speeds 7 $\frac{1}{2}$ to 15/16 ips, any and all tracks, mono or stereo; Interests: Exchange of highest quality tapes of medieval, baroque, chamber, opera and other classical

music, especially 3 B's and Schubert and Mozart (4 track stereo if possible). Also interested in sound effects and folk music. Would like to correspond with resident of Hawaii (Honolulu) or any nation (English only) on following subjects: Education, art, music, photography, audio-visuals and tape recording. Own over 250 4 track classical tapes and many sound effects and educational programs from radio (FM) and TV; Adult (30), art teacher.

John Washko, 13956 Kentfield, Detroit 23, Michigan; Recorders: Webcor Royal Stereo, Webcor Royal Coronet Stereo, and Silvertone—all two track, 3 $\frac{3}{4}$ and 7 $\frac{1}{2}$ ips; Interests: Would like to copy as many as is possible "Greatest Story Ever Told" half-hour programs that were sponsored by the Goodyear Tire & Rubber Company a few years ago. Have last 100 myself, will lend to interested parties. Also interested in Gilbert & Sullivan Light Operas by the D'Oyly Carte Opera Co.; Adult (56).

Al Block, 735 Cedar Ave., San Bruno, Calif.; Recorder: Ampex 600, Grundig TK 64, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, half track, quarter track; Interests: Collecting old radio programs. Primarily interested in the following radio shows: James Melon, Great Moments In Music, Prudential Family Hour, American Album of Familiar Music, or any air shots of Nelson Eddy, Jan Peerce, Gladys Swarthout, etc. Have hundreds of radio programs to exchange, also many movie sound tracks of the 30's and 40's, personalities, comedy, drama, classical, opera, jazz, swing, etc., all 1929 thru 1947. You name it!; Adult.

Ray Foreman, 9300 Lorel Ave., Skokie, Illinois; Recorder: Sony 101, 2 track mono, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Interests: Black and white photography, current events, politics, psychology, philosophy, criticism on most all subjects the average intelligent person may care to discuss, books, adult humor, controversial discussions, current living conditions in foreign countries, general tapespondence. Will answer all tapes absolutely. Would like to hear from people including teenagers with problems; Adult (34).

T. G. Holmes, 73A, Long Nuke Road, Northfield, Birmingham, 31, England; Interests: Books, sports (fishing especially), all music (jazz, classical, pops, etc.) and general interests. Want American tapespondents, male or female; Adult (20).

Dick Davis, 205 West Holly St., Pasadena, Calif.; Recorders: 2 Magnecords, 7 $\frac{1}{2}$ ips, monophonic; Interest: Tape recording player piano rolls, especially old rags, 88-note and earliest QRS; Adult.

Richard J. Arthur, 2217 Winterwood Lane, Topeka, Kansas; Recorder: Wollensak T-1515, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, 2 track, monaural & stereo; Interests: Square dances with calls. Will trade tapes of good professional or



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ARTISTIC



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semi-professional callers. Send sample of one singing and one patter call and/or further information. Non-commercial, strictly hobby and fun; Adult (37).

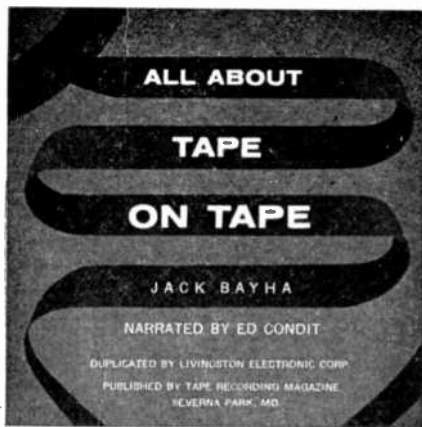
Peter N. Bernstock, 2205 Davidson Ave., New York 53, N. Y.; Recorder: Ampex, 2 track mono and stereo, 4 track playback only, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Interests: Talk to anybody, any place, about anything except religion. Would prefer people around my own age (18-25). I'm a college student majoring in Communication Arts (radio & TV). Interested in all music, hi-fi, stereo, radio & TV electronics. Can converse intelligently on most subjects. Send tape or card, all answered within 3 days.

Victor Wise, 1331 Teller Ave., Bx. 56, N. Y.; Recorder: American Concertone 505-4, records 4 track stereo-monoaural, plays 4 track stereo, mono, half track (dual), 2 track stereo, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Interests: Would like to tapespond with anyone interested in the aspects of broadcasting, announcing, D. J. shows, techniques involved, also jazz, classical and popular music, sound effects—lots of records to exchange, will soon have provisions for dubbing tapes. However, if there is anyone who would just like to shoot the breeze about anything at all, don't hesitate to get in touch, will answer all tapes; Adult (22).

Bob Piedot, Rt. 1, Box 212, Menasha, Wis.; Recorder: Wollensak, 2 & 4 track, mono and stereo, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips; Interests: Receiving tapes of popular organ, pipe and electronics to build library, also TV and night club comedy (Jose Immenez). My collection small but available for exchange. Other interests — sports, water skiing, etc. No need to write, will answer all tapes. Would like to obtain worldwide contacts.

Robert Ettinger, 3821 18th Avenue, Brooklyn 18, N. Y.; Recorder: Wollensak 1500, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, dual track, monaural; Interests: Big band swing, music of the 30's and 40's, New Orleans and Dixieland jazz music; Adult (37).

Mike King, No. Eastham, Cape Cod, Mass.; Recorder: Webcor Music Man, 1 $\frac{7}{8}$, 3 $\frac{3}{4}$ & 7 $\frac{1}{2}$ ips, mono and stereo, 2 and 4 track; Interests: All kinds of music, especially R & R, sports, radio broadcast band DXER, bowling, will tapespond with boy or girl; Teenager (16).



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LETTERS

Excerpts from readers' letters, including questions and answers, will be used in this column. Address all correspondence to: The Editor: TAPE RECORDING, Severna Park, Maryland

Preserving Recorders

To the Editor:

In the January issue of your magazine under "Crosstalk", the page was devoted to the preservation of original tape recorders, starting from the earliest machines, and I agree with you that they should be sought out and placed in a place like the Smithsonian Institution or Henry Ford Museum, etc., where they could be seen by everyone. However, it is so closely allied with the record and recording industries I feel that everything pertaining to radio and sound should be included rather than wire and tape recorders alone. Incidentally, most of the makers of tape recorders also make recorders for scientific instrumentation and computers for missile centers, space travel satellites, automation, heartbeat and other medical recording, etc., so there is no limit to its uses.

I hardly agree that the possibility of acquiring the original machines is quite as bad as you state, because since tape recording was developed in Germany during World War II, the machine being called the Magnetophone, there must be others available there. Then, of course, there is Videotape which records vision and sound on tape at a speed of 15 ips for TV transmission immediately after rewinding which, of course, started a revolution on TV in 1956. This was the beginning of a new area in magnetic recording of major networks in the U. S.

One other subject of a different kind I'd like to speak of is that my name recently appeared in the magazine requesting tape-spondence with those interested in honky-tonk piano and organ music. Believe me, the response was overwhelming. I never would have believed that there were so many other persons with recorders all wanting to exchange tapes of a similar nature. I was literally overwhelmed with them, therefore I want to make a request that I do not require any more honky-tonk piano or organ but rather popular songs, documentaries and sound effects or just plain talk is all right. I have enough tape on hand to take care of anyone not having any tape if they will just drop a card. I think taping is a fine hobby and I have many tape pals around the world. — John W. Howe, Transworld Tape Exchange, 84 Sprout, Detroit 1, Mich.

Many of the original machines have been broken up and either scrapped or parts used again in something else. We know this for a fact.

Some years ago, while working on a history of tape recording, we contacted many of the old-timers. One of them who had had something to do with the early machines that used Vicalloy, a steel tape, told us that these machines had been stored and then sold for scrap when the room they occupied was needed for something else.

Thus some of the old machines are already gone beyond recall. The point of our editorial was that the time to begin collecting things was NOW or else still more of the early birds will disappear.

Keep It Simple

To the Editor:

In your Crosstalk column of February 63 issue you asked, why not more people are not tape hobbyists?

It is true that TV has a part to blame but also the tape industry is at fault. Look at any stereo tape recorder and it looks like the panel of a jet plane. The public wants it's electronic equipment to be simple, that's why they still buy phonographs. Look at the mess: full track, 2 track, 4 track, 4 speeds, reel, RCA cartridge, now Revere cartridge. As long as this mess continues the tape will never replace the disc. (Now they have a phono cartridge that does not damage the records.) A world standard must be found. One system, one speed, one reel size or cartridge. Now the new Revere system makes sense only we need a low price model that plays one cartridge at a time, 48 minutes of playing time is long enough. The automatic model is priced too high for the average person. So Revere, RCA, Ampex and all the rest please get together and put out *one system only*.—Charles Emanuelli, New York, N. Y.

From New Zealand

To the Editor:

I have just received a very warm and friendly letter from Lloyd Herman, Staff Assistant of N.A.T.O. in Washington, D. C., in which he has asked me to contact you.

I am a young man who has spent a lot of time in the States and hope some day to return on another visit. I am a graduate of University of Adelaide in Arts and have a wide and lively interest in many things, particularly Art, the Theater, travel, music, culture, archeology, etc. I have recently started writing letters to folk all over the globe, many in the U.S.A. Mr. Herman suggested that, since I was keen on Tapesponding with folk in the U.S.A., your magazine would be only too pleased to help me by inserting a small par. about my requests for such folk who might like to tapespond with me.

As a matter of interest for you I am what is called a "shut in" and on the kind of pitance I get for a pension I haven't an awful lot of money to spend on much but I have found that it is quite a necessary thing to have a fruitful hobby, so I am asking you if you'd be kind enough to send me some back issues of your magazine as it is not procurable here in N. Z. as far as I know. In any case, I don't get around any more to find out. I am mobile but I seem to find myself unable to move around the city for any length of time. I had an accident with an auto and came off second best so I stay home. It's now more of a psychological nervous upset that has kept me at home.

I am married and my wife is a fine singer and a good woman. I don't have any family. My friends are legion though, I think it keeps us together and proves how very close we can all be no matter the distance geographically. I save stamps and I love reading. I

ive right in the heart of the city and, although it is only a small apartment, we are very happy. My machine is a CSR1 (English) 2 track, two speed (3 1/4 & 7 1/2 ips), and I get a lot of fun with it. Also, I'm crazy about good music and the light musical comedy and show field. I was in show business for over ten years and spent nearly four years in the U.S.A. with U.S.O.

I'd like to see N. Z. get really smart and play for the world market, they can produce lots of stuff here but they're too casual and too old worldly to really understand that the world doesn't owe them a living. We could use another 10,000,000 people here and I would love to see Americans come here and settle, it's a fine land and there's plenty of room and for young folks plenty of time to grow with the country. Right now the overall population doesn't exceed more than 3,000,000 and that isn't the population of one decent city in Australia. So if you happen to know of any folk who are interested in coming over here you might mention that in my tapes I'd like to stress the importance of being an earnest advocate for immigration to N. Z. Anyone, anywhere in the continental U.S.A. who will write or send a tape to me will get all the information about the things that really matter on N. Z. We have difficulty here getting reels, so I am hopeful that any folk who may be kind enough to contact me will send me a spare reel or two. Particularly 3" size which are just impossible to get. Tapes are expensive here too, they range from 2 dollars 50 cents to 8 dollars 75 cents each.

I have a keen interest in Theology, and hold four degrees in the subject, A, Th. S.T.B. M (Hebr.), Litt. & LL. & Dip. Sac. Phil. So ministers and lay folk through all the Churches, particularly Churches of Christ, Holiness and Disciples will be most welcome contacts.—Nathan P. Rodman, 67 Pirie St., Wellington, C-4, New Zealand.

Suggestions

To the Editor:

I would like to offer a suggestion, even though I enjoy your magazine very much as it is. Your tape reviews, I think, are particularly fine, and I have found them very helpful to me. But if you can't enlarge your magazine somewhat, if it is to remain about the same size for some time to come, I would prefer shrinking the sections on Tape-spondence and Tape In Education so as to provide more space for articles on such subjects as Preventive Maintenance of recorders and tapes, Trouble Shooting to eliminate malfunctions, recording techniques (from records, off-the-air from radio & TV, and live with mikes), building small mixers to use with recorders which do not have built-in mixers, and many things of this sort which should appeal to a wide range of your readers. Articles of this sort which you *do* have are very interesting and useful—I would just like to see more of them. Also, since the use of tape recorders is becoming more widespread all the time (I have seen this for myself here at Hill Air Force Base, as well as in Puerto Rico, from which I recently returned), I would like to see your Equipment Review section enlarged, including not only recorders but such useful accessories as bulk tape erasers, head demagnetizers, etc. Again, these are things which could be useful to *all* tape fans, not just those in the educational field or in tapespondence clubs.

Thank you for the opportunity to sound off a bit. Keep up the good work—and if you can become even better, more power to you.—Frank N. Moyer, Major, USAF, Layton, Utah.

Likes Reviews

Dear Sir:

I was first introduced to your magazine five years ago. It is the best thing that has

ever happened to tape recording. I particularly prize your extremely impartial tape reviews, the casual, but effective, air of the whole magazine, your wise remarks on Crosstalk, your letters. In sum, I am in love with the whole issue. Keep up the tremendously good work.—F. X. Micallef, Gzira, Malta.

Demagnetization

To the Editor:

I have read so much in your wonderful magazine pertaining to the de-magnetization of recording heads on tape recorders. When one de-magnetizes his recording head should his machine be left on or off? or does it matter?

As far as you can discern, what is the future outlook for monophonic tape recorders? Will they become obsolete?

I have many valuable monophonically recorded tapes (1/2 track dual recordings) and I have noticed that already some stereo tape recorders and decks won't play any 1/2 track monophonic recordings.

When I do buy a stereo deck or self-contained recorder I will need one that will be also capable of playing my 1/2 track monophonic tapes.

I am fearful, for every tape I have is a collector's item of music. Are my fears justified? Please extend me the courtesy of a reply.—N. H., Portsmouth, N. H.

Surprisingly enough, despite all the advertising and bullabuloo there are still more monophonic recorders being made than stereo. The mono recorder will not become obsolete. All four-track stereo recorders should be able to play monophonic dual track tapes but not as well as a regular half track machine since the heads are narrower and the pickup level will be less. Leave the machine off when you use the demagnetizer. It really doesn't matter so long as the heads are not energized.

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"For your information friend, that is a crocodile."

"Writing" with Tape

by

Bill Francois

. . . The tape recorder is a very useful tool for authors.

FEW persons would dispute the statement that tape recorders are versatile tools; yet there might be quite a few cocked eyebrows if the claim was put forward that these ingenious machines could be used to create—in the sense that an artist creates. Critics would quickly point out that tape recorders cannot think; ergo, they could not "create."

While it's true that tape recorders do not possess brain-power, nevertheless they can be the right-hand ally of at least one kind of artist—the writer who must tap the thoughts of others if the fountain of creativity is not to run dry.

The desire to create exists in all of us. It takes various forms, such as gardening, craftsmanship with tools, sculpturing, painting; but it is most apparent among the legions of men and women who labor over a typewriter in their collective desire to become a writer who can sell his or her brainchild. They are the ones who dream of authoring the great American novel, or cast themselves in the image of a Steinbeck, Hemingway, Faulkner or Lewis. To make such dreams come true, millions of dollars are spent each year by neophytes who seek to acquire the art of using words, or who wish to sharpen their ability to record the hundreds of facts and impressions that exist in the world around them.

While no formula exists that can assure success, it can be said that a neophyte will not become a full-fledged member of the writers' clan if he is unable to record vivid details about *persons, places* and *things*. To those who have not been initiated, this may seem a simple thing to do; but the primrose path to success is strewn with thorns and a struggling writer needs all of the help he can get.

In addition to accuracy, a writer must select and use words that will be the warp and woof of magic carpets that can whisk readers away on wonderful journeys into the unknown. This creativity rests in part upon a multitude of experiences. A writer must draw upon them in order to paint word pictures. Yet such experiences are necessarily limited. If they are to be supplemented, the writer must have the wherewithal to re-create from the minds of others who furnish the raw materials for articles and books.

It is in this sense that tape recorders can be used for creative purposes. Few, if any, writers have the training that permits them to speedily record a vast array of facts and details which are essential for nonfiction writing. Tape recorders, however, can faithfully collect every word and phrase and store them away for future use. This *modus operandi* provides a writer with *total recall* at the very

moment that he may be struggling to infuse color or additional details into his composition.

In connection with this, I recall a magazine article of mine that appeared in *Minutes*. It concerned a Kentucky farmer and his wife who had built a dormitory-type home for unwanted children. I had traveled about 500 miles to interview the couple and to take photographs. Fortunately, this trip marked the first time that I had included a tape recorder with my other equipment. Although I made notes, several key quotes were lacking when I began to write the article. But in the playback of the tapes, the phrase—"Sometimes our obligations are invisible, yet we have them just the same . . ."—was like a clarion call. I salvaged it, plus enough other information, to put the article together without revisiting the Kentucky home.

My free-lance writing became an important part of my life about three years ago and, since that time, I've had major articles published in more than 30 national magazines, including *Popular Mechanics*, *The Reporter*, *Science Digest*, *Popular Boating*, *U. S. Camera*, *Motor Boating*, *The Progressive*, etc. In fact, articles that appeared in *The Reporter* and *The Progressive* magazines recently led to a book contract from Crowell-Collier Publishing Co.

In dealing with highly technical subjects—such as boating, motion picture photography, radio astronomy, plastic-making, lie detectors, fuel cells, and others that are equally complicated—I soon discovered my own inadequacy when it came to note-taking. I frequently found myself bogged down in the mechanics of recording information and afterwards attempting to translate my pencilled hieroglyphics into meaningful data. Such a "system" was obviously intolerable, since it placed me in a literary straitjacket. It was virtually impossible to follow up new ideas or "leads" during an interview without abruptly terminating a part of my note-taking chores (and thereby losing forever a portion of what had been said).

A way out of this dilemma did not occur to me; instead it was impressed upon me quite by accident. I was thumbing through an issue of the *Saturday Evening Post* and stopped to scan an article by Pete Martin. One of the accompanying photographs showed the author "at work" in the home of a Hollywood movie star. If this was work, it is what I've always envisioned—for Mr. Martin looked utterly at ease. There were no broken pencils in sight, no notebook, no harried look in the writer's eyes. I soon discovered the reason for this state of bliss—and it had nothing whatever to do with the starlet who also occupied the room and the writer's attention. Next to Mr. Martin was a "secretary"—a tape recorder doing the job that I had been

The author at work! An easy-to-carry portable tape recorder can be used for outdoor information-gathering expeditions. In this case, some of the recorded data was useful in writing an article for a construction magazine.



While gathering information for book on automation, the author visited the home of National Cash Register Co. in Dayton, Ohio, and "talked" with M. L. (Red) Melville of NCR's public relations staff. In this instance, no resistance was found when it came to author's use of a tape recorder.



Left: Ohio's Governor Mike DiSalle also was "friendly" when a tape recorder was used during an interview. Unlike some public officials, DiSalle willingly permitted his views to be recorded. Right: Miss Mildred Cunningham, Governor DiSalle's secretary, was equally co-operative when the author sought information in the case of Edythe Klumpp, convicted murderess whose life was spared by Ohio's chief executive. A great deal of "record" information was easily tape recorded. In fact, the governor "taped" a truth serum test administered by a doctor at the prison where Mrs. Klumpp was confined.

attempting to do for lo those many months with pencil and paper.

Once I became aware of the obvious, it did not take long to discover that other writers use tape recorders—although the ones who do are probably still in the minority. I am confident that in the next few years other writers will also sing praises about mechanical secretaries. Despite the fact that these "secretaries" cannot make coffee, they do offer these advantages over my previous inefficient methods:

1. They're accurate—and a foolproof way of preventing someone from claiming a misquotation.

2. They save time and money. First, an interview can be conducted swiftly, and this is especially gratifying to a busy executive who has been kind enough to fit a writer into an otherwise crowded schedule. Second, return trips are usually unnecessary because of the prodigious amount of material that can be recorded.

3. They permit the writer to keep the decks cleared for followup questions. Such reporting in depth might be the difference between an article that sells and one that's filed away in a trunk—or some other equally convenient graveyard for unsold manuscripts.

4. Last, but not least, is the capture of colorful words or phrases which might otherwise be lost forever under the sheer weight of writing down each word in pencil. This latter operation is, of course, a virtual impossibility unless a courthouse reporter is at work.

As for the disadvantages, I've discovered only two so far, and neither can be laid at the doorstep of tape recorders.

The first concerns the reluctance of some persons to talk in the presence of a tape recorder. During the past two years I've encountered a few government officials who would rather not have their views so unalterably "on the record." For one reason or another, they might wish to

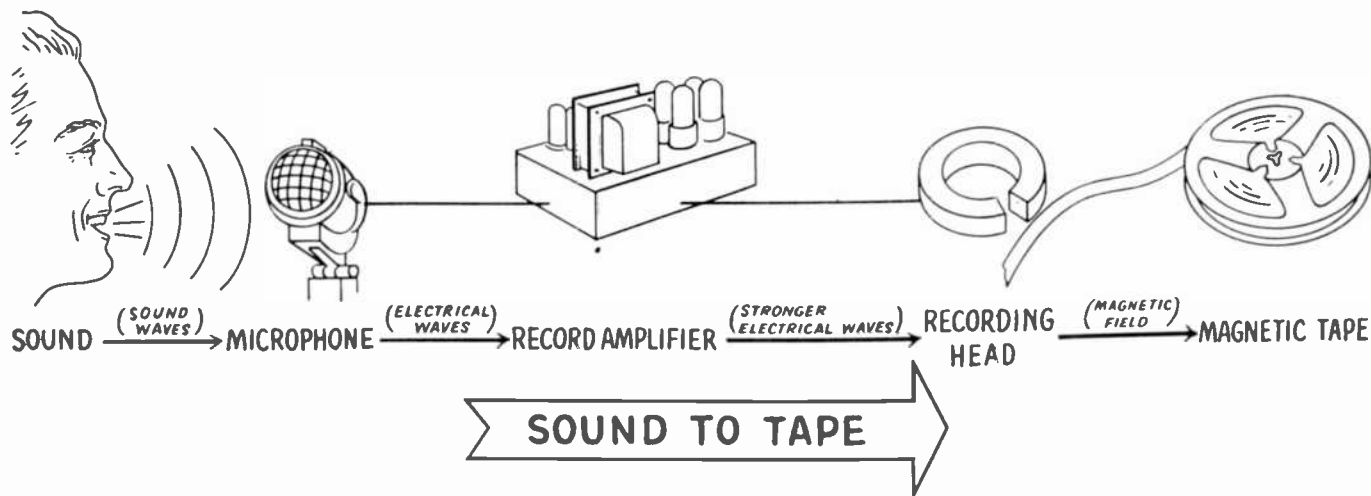
claim they've been misquoted once an article is published—and, if their voice is loud and clear on tape, this is difficult for them to accomplish. There are exceptions, however.

The most notable one, in my limited experience, is an interview that took place in 1961 in the state capitol office of Ohio's governor Mike DiSalle. I had arranged an interview with the fiery and dynamic chief executive to obtain information for an article about a convicted murderess whose life had been spared. The governor was very much at ease with the microphone in his hand—and he did not pull any punches in spite of the "record" that was being made. His secretary was equally helpful and by the time I left there were more than 60 minutes of conversation and information on tape. If I had tried to write all of this down, "writer's cramp" would have been a fitting description.

Because of the reticence of some public officials, I've made it a practice to go armed for any eventuality—both a tape recorder and pencils and paper. I also make it a practice to write a letter beforehand mentioning the fact that I intend to record an interview. Unless an objection is raised, I proceed on the basis that the tape recorder will meet no resistance.

The second disadvantage actually amounts to an advantage, even if it adds up to some extra work for the writer. If the taped material is not too long, I can transcribe it onto paper by means of a typewriter almost as fast as it plays back. When I have a large amount of information on tape, however, I "edit" as the tape is played; that is, select those portions of the tape that I feel will be useful in writing the article. Should I need additional information, it's easily obtainable by replaying the tape and pruning for more data. What's the advantage?

It's far better to have too much material than not enough. Ergo—one more bonanza that comes from the use of tape recorders!



How Your Recorder Works

by
Ronald Anderson

... a knowledge of the "how" of tape recording can help you get better results.

"YOU push the button, we do the rest" was a slogan that helped make photography a national pastime. It made photographers—of one sort or another—of an entire nation.

Yet a number of amateur photographers were not content to be mere "button pushers," and as a result, started the still-growing cult of darkroom addicts and accessory bugs that have turned amateur photography into a challenging, but highly rewarding hobby.

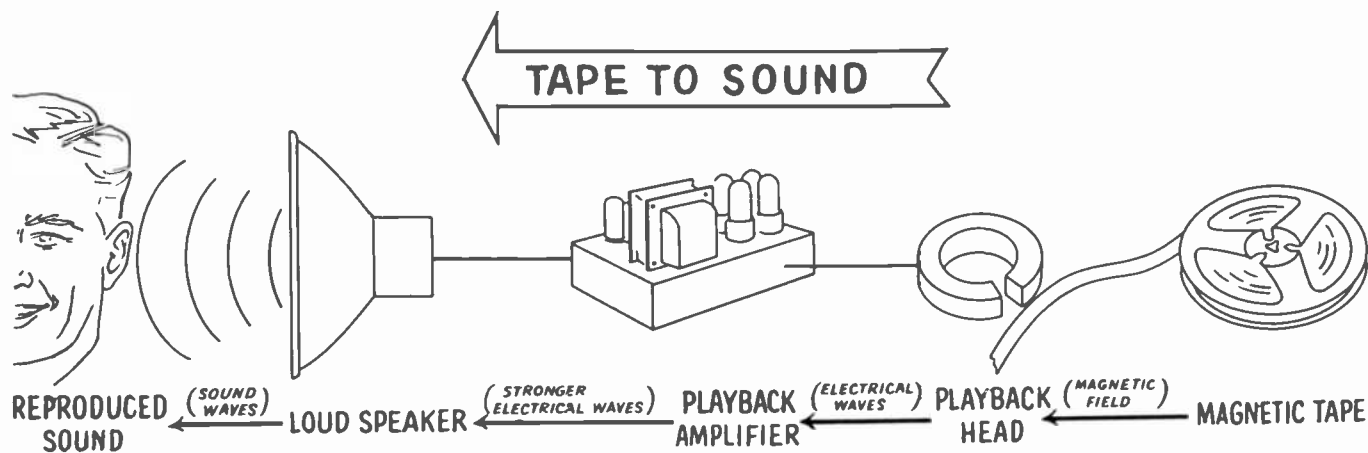
Tape recording, as such, might well be regarded as the "button pusher's delight." By the very nature of the tape recording process, as well as the manufacturer's efforts to make recording as simple as possible, it has appealed to a large number of people. No matter how inexperienced or inept the tape recorder operator may be, chances are he'll

come up with acceptable sound on his tape. He "pushes the button, the tape recorder does the rest."

But as the tape fan develops his ear and compares his tapes with those of other amateurs or with the results of the professionals, he invariably seeks to improve his technique.

And just as the camera fan soon improves his pictures by learning what happens when he clicks the shutter, the tape fan learns how to get the most out of his recorder when he learns how it works.

Many highly technical magazine articles and some books have been written on the principles and theories of magnetic recording. Physicists and engineers still are not in complete agreement on some of the finer points. To thoroughly understand the technical phase of tape recording requires a considerable amount of prior knowledge and experience in



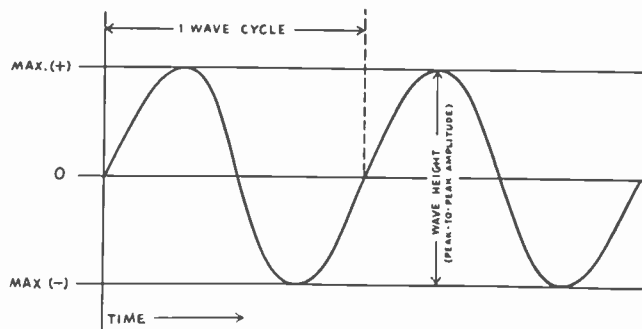
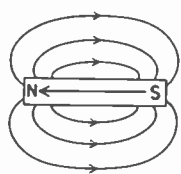


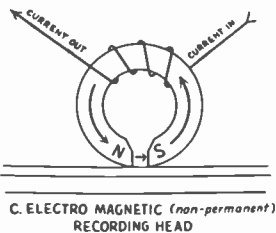
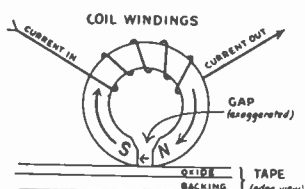
Figure 1. Both sound and alternating current waves are diagrammed as shown above. The number of wave cycles per second is referred to as the frequency in cycles per second. In the case of sound, or audio waves, the frequency determines the pitch. In electricity, it is the frequency at which the current alternates. The height of the sound wave on the chart shows the loudness or intensity of the sound. If an electrical wave is diagrammed, the height indicates the voltage or current.



A. PERMANENT BAR MAGNET



B. PERMANENT HORSESHOE MAGNET



C. ELECTRO MAGNETIC (non-permanent) RECORDING HEAD

Figure 2. The arrangement of flux, or magnetic, lines in a permanent bar magnet are shown at A. Note that here, as in any magnet, the field points from south to north inside the magnet and points from north to south outside. At B the flux lines around a permanent horseshoe magnet are shown. Recording heads do not use permanent magnets but electromagnets which have no magnetic force except when a current is flowing through the coil. Top view at C shows the polarity of the magnet when the current is positive, while bottom view shows how polarity reverses when current is negative, or vice versa.

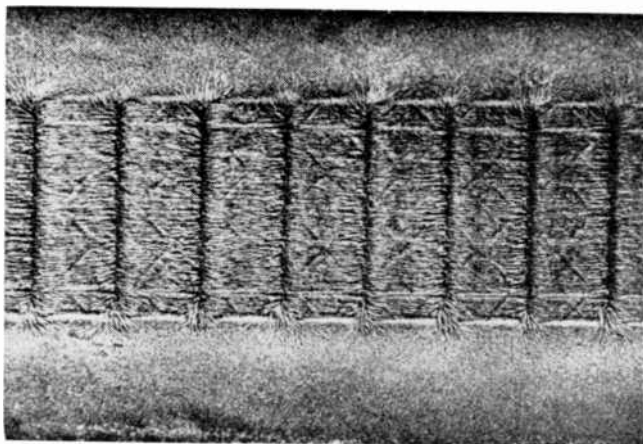


Figure 3. A greatly enlarged section of a recorded magnetic tape showing how the varying audio currents produced in the recording head have created tiny magnets in the tape coating. These magnets when run past the playback head will induce in the head coil a current that corresponds to the original current that created them during recording. The magnetic patterns are not visible to the naked eye.

electricity and magnetism. However, the basic principles are not too difficult to understand.

SOUND WAVES INTO ELECTRICAL WAVES

First, a word about the nature of sound. Sound travels through the air in waves, or surges of energy.

A sound wave, and electrical wave, too, can be diagrammed in terms of amplitude, or height, of the wave and the number of times it repeats itself in a second as in Figure 1. The height of a sound wave determines the intensity, or loudness of a sound, while the number of complete wave cycles per second determines the pitch of a sound. The more wave cycles per second, the higher the pitch.

Intensity of a sound wave is measured in decibels (db's) while intensity of an electrical wave is measured in terms of voltage. The number of waves per second—the frequency of the wave—is measured in terms of cycles per second (cps) in the case of both sound and electricity.

A low-pitched tone, for example, causes the air to vibrate slowly—perhaps only 30 times a second. The frequency of the tone is therefore 30 cps.

When the vibrating air waves reach the sensitive diaphragm in a microphone (or in the human ear), they cause it to vibrate at the same frequency—30 times a second. As the diaphragm moves in, it creates a positive current, and as it moves out, it creates a negative current, or vice versa. In this way, the microphone "translates" the 30 cps sound wave into a 30 cps electrical wave called an audio frequency—a wave of current which alternates from positive to negative and back to positive 30 times a second.

The intensity of the sound wave's vibrations are also faithfully reproduced in terms of voltage or current. The microphone translates a loud sound into a strong current, while a softer sound results in a weaker current.

ELECTRICAL WAVES INTO MAGNETIC PATTERNS

The electrical waves of alternating current go from the microphone through several stages of amplification and then into the recording head, which is actually an electromagnet.

An electromagnet is made by wrapping a metal bar with wire to form a coil. When current flows through the wire, the bar becomes a magnet. One end, or pole, of the bar is a north pole. The other end is a south pole. If the direction of the current flow changes, the polarity of the electromagnet is reversed.

Around any magnet is an area of magnetic attraction, or "field," which is illustrated in a diagram in terms of lines of magnetic attraction. The more closely spaced are the lines, the stronger the magnetic attraction. These lines of magnetic force also have direction. Physicists have arbitrarily agreed that they go from north to south outside the magnet, then complete their circuit by going from south to north inside the magnet.

In the case of the recording head, the bar is bent into a circular shape with the poles almost touching—as little as .00025", or ¼-mil, apart. This distance is referred to as the "gap" of the head.

Unlike a permanent magnet, or the oxide on the tape itself, which is made from a magnetically "hard" material so it will hold its magnetism for an indefinite period of time, the core of the recording head is magnetically "soft." There-

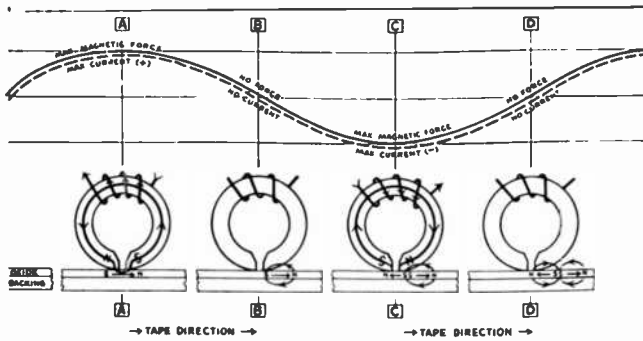


Figure 4. What happens when you record. The graph and sketches show the strength of the current and the magnetic force generated in the head as the tape moves along. The solid line in the graph represents the magnetic force while the broken line shows the current. Note that when the current is greatest the magnetic force is likewise at maximum. When the current drops, the magnetic force likewise becomes weaker. The alternation of the current changes the polarity of the head with each alternation as is shown.

fore it becomes magnetized easily and instantly when current flows into the coil, but—just as rapidly—loses its magnetism when the current stops.

A relatively strong current produces a relative strong magnetic field, while a weaker current results in a correspondingly weaker field. Similarly, a high frequency (rapidly alternating) current causes each pole of the electromagnet to change through one complete cycle in polarity from north to south and back to north very rapidly, while a low frequency (slowly alternating) current causes the polarity to change more slowly.

Whenever a surge of positive current from the microphone goes through the coil, it magnetizes the recording head in one direction. When the current alternates and sends a surge of negative current into the coil in the opposite direction, the head is magnetized in the opposite direction. The polarity of the magnetized head must change with each alternation of current.

When the iron-oxide-coated tape is in contact with the recording head, it offers an easier path for the magnetic lines of force to follow, than does the air gap. Therefore, most of the magnetism gets across the gap by flowing through the iron-oxide-coated tape.

While the magnetically "soft" iron ring of the electromagnet loses its magnetism when the current stops, the magnetically "hard" coating on the tape retains its magnetism and the magnetized area becomes a small bar magnet itself. Because the lines of force left inside the tape point in one direction, that direction must necessarily be north. The other end, therefore, becomes south. This is shown in Figure 4 at A.

At B, the current entering the coil is zero at its point of alternation and consequently, does not create a magnetic field at that time. As a result, the tape moves a fraction of an inch without being magnetized any further.

However at C, when a surge of negative current comes into the coil, a magnetic field in the opposite direction is set up, causing the polarity of the electromagnet to reverse itself.

Again the lines of magnetic force at the poles find it easier to flow through the iron-oxide-coated tape than across the air gap, and again the tape is permanently magnetized, but this time, in the opposite direction.

At D, the tape has again moved, but since the current is

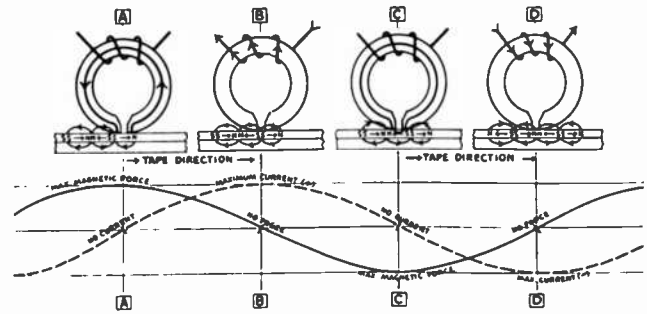


Figure 5. What happens on playback. Here the recorded tape moves past the playback head. The changing polarity in the magnetic patterns on the tape induce a current in the coil. This is fed to the amplifier and the amplified current is then fed to the speaker. Note that current is produced only when the magnetic field changes. The maximum magnetic force produces no current but as the force falls away toward zero maximum current is produced. This causes the current to be 90° out of phase with the magnetic force.

not flowing, no new lines of force are set up at that point.

As a result, the surges of alternating current leave the tape permanently magnetized by setting up a series of flux lines of opposite polarity, creating a series of bar magnets on the tape.

Because the tape is moving, the poles occur at recurring intervals along the tape, in a definite pattern. The frequency at which the current alternates, and the speed at which the tape moves, determines the distance between poles, while the strength of the current, or voltage, determines the magnetic strength of each pole.

As a result, when the 30 cps note reaches the recording head as 30 cps alternating current, it causes the polarity of the electromagnet to change from north to south to north 30 times a second.

The magnetic pattern on the tape therefore consists of 30 magnetic fields pointing toward south, alternated with 30 magnetic fields pointing toward north.

In effect, the oxide coating of the tape is broken up into 60 individual bar magnets, laid end to end, every second the tape moves across the gap. On a tape recorder operating at 7½ inches per second, the 60 bar magnet patterns would cover a space of 7½ inches on the tape. A 100 cps note would be represented on the tape as 200 such magnetic patterns in the same space of 7½ inches.

The above is true only in the case of a steady tone. If the pitch changes, the magnetic pattern changes, as is true in normal recording. Some of the actual magnetic patterns on tape can be made visible by a simple process. A short piece of recorded tape is dipped in a solution of lighter fluid and carbonyl iron, then allowed to dry. As the lighter fluid evaporates, the very fine particles of carbonyl iron will remain magnetically attracted to the tape in definite patterns visible to the naked eye, although much more definitive through a microscope.

The heavily magnetized intervals on the tape—the poles— attract the most carbonyl iron particles and will appear as narrow lines across the tape. The stronger the pole, the heavier the line. The lower the frequency of the current, the greater distance between lines. The actual wave length of the original tone is equal to twice the distance between the lines.

Since sounds, other than a constant tone, are composed of

a series of shorter sounds—each with a different pitch and intensity—the magnetic pattern on a recorded tape shows a wide range of variation in both these dimensions. One of the most significant advantages of recording on tape is the ability of the tape to handle this wide range of sounds.

In summary, then, sound waves pulsate through the air, and cause the diaphragm in the microphone to vibrate accordingly. This produces corresponding electrical pulsations in the microphone which are boosted in strength by an amplifier. The amplified pulsations are then fed into the recording head where corresponding magnetic fields are created, which, in turn, leave their magnetic patterns on the tape.

PLAYBACK—MAGNETIC PATTERNS BACK INTO ELECTRICAL WAVES

In playing back a recorded tape, the recording process is more or less repeated, only in reverse. During the recording process, an electric current in a coil was used to create a magnetic field. In playback, a magnetic field moved through a coil is used to create an electric current.

A basic principle in electricity is that a surge of electrical current can be generated by moving a bar magnet (or its surrounding magnetic field) through a coil. By moving a series of magnets (or their fields) through a coil, a series of electrical currents will be produced. In the recording process, the tape was figuratively broken up into just such a series of short, permanent bar magnets.

What actually produces the current is the change in the magnetic field from positive to negative, or vice versa. The peak surge of current comes at the moment the polarity of the field is changing most rapidly. At the point where the polarity of the head is reversing, however, maximum current is produced.

In the playback process, the bar magnets on the tape are not actually moved through the coil of the electromagnet. Part of the magnetic field of each, however, is. What happens is that the iron ring of the electromagnet playback head temporarily routes the bar magnet's field through the coil.

In Figure No. 5 at A, it can be seen that a north pole and a south pole are on either side of the gap. Normally the lines of magnetic force stay close to the tape, but because it is easier for the magnetic field to follow the iron ring (a much better conductor) than jump the air space at the gap, it does just exactly that.

At A, therefore, the magnetic force in the head is maximum, but current is zero.

When the tape has moved a fraction of an inch farther, as at B, a strongly magnetized line—a south pole—this time is at the gap. The iron ring of the electro magnet serves no useful purpose to the field, so it ignores it, and magnetic strength in the field is reduced to zero. However since this is the point where polarity of the head changes most rapidly, maximum current is produced.

But at C, the situation again occurs where one pole is on one side of the gap, and an opposite pole on the other. As

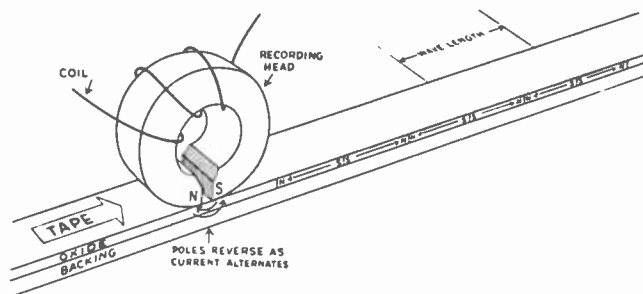


Figure 6. This shows in greatly exaggerated form how the bar magnets are laid down on the tape as it passes the head. The wave length of the sound can be measured as shown on the diagram. Note also the arrangement of the magnetic poles of the signal pattern.

in A, the magnetic field again takes the easiest route and flows through the soft iron ring, again causing maximum magnetic strength in the head, but no current, since this is the point of alternation in the current wave from positive to negative.

At D, polarity of the head is again at the point of reversal, and consequently this sudden change in magnetic force results in the maximum surge of current. Since the surges of current alternate between positive and negative with the same frequency as that which was recorded on the tape, they can be amplified and fed into a loudspeaker to once again produce the original sounds.

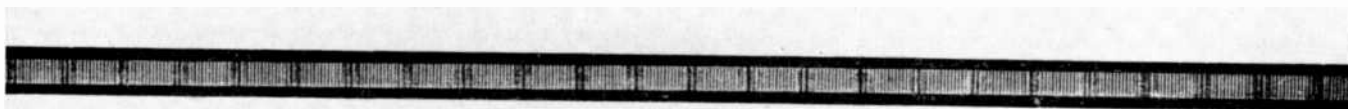
Those who are not very familiar with the behavior of electricity can find this current vs. magnetic force quite confusing. But a little study will quickly set things right.

As shown by the chart, the maximum current is created *only* when the magnetic force is *changing direction*. The maximum magnetic force flowing through the head from the tape creates no current because there is no change. It is the sudden switch from full magnetic force to zero and then back again in the opposite direction that starts the current flowing in the coil wires.

Engineers call this current 90° out of phase because the current and force do not match. During recording, the magnetic force and the current which provides it are in phase as the curves show. But on the playback, where the motion of the magnetic force must create the current, the shift in phase takes place.

Once you understand the theory you can see how it affects practical results. Dirty heads impede the flow of the magnetic force, lowering the current and giving poor results. Worn heads may increase the gap width, allowing one of the bar magnets on the tape to fall short of producing the maximum current flow, or allowing the magnetic head to span several at once.

This, then, is a basic explanation of the mechanics of recording an audio frequency on magnetic tape. No attempt has been made to cover other factors such as bias, transfer characteristics, or gap length in a magnetic recording system. It should, however, serve as a starting point for the tape hobbyist in understanding how the tape recording process works.



This is an actual photograph of the magnetic patterns made visible through the use of the carbonyl iron solution described in the text.

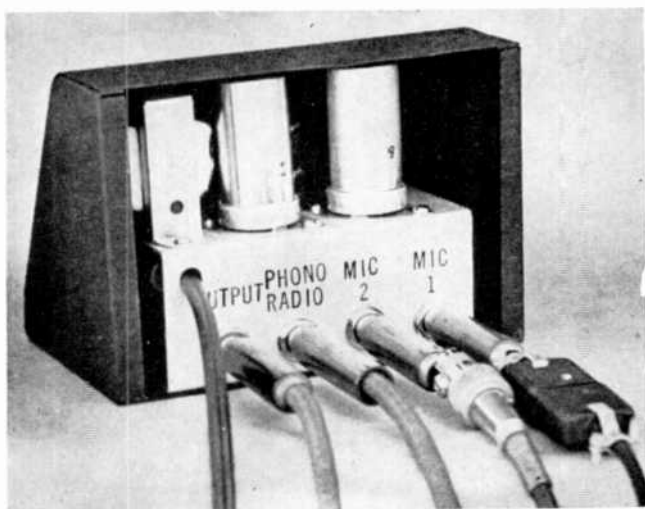
Build this ELECTRONIC MIXER

*... with this unit you can
mix two microphones and
a phonograph*

*by
Walbert T. Gompertz*



SOONER or later—and more oftener it's sooner—we find that our home type tape recorders are not versatile enough to meet our demands. True, some of them have multiple jack inputs for simultaneous mixing of mike and phono but proper adjustment of the volume levels of the different sound sources is not always as convenient as it might be. To overcome these difficulties and provide a flexible means of properly mixing together one or two mike pickups with either a radio or phono pickup, a three channel electronic mixer is a mighty convenient gadget to have on hand.



Rear view of the electronic mixer showing the output and inputs. The cable adaptors shown were rigged to fit the author's recorder. The completed unit is small and very compact so that it takes up little room.

For those of you interested in overcoming these same problems, the accompanying photos and illustrations and text will show how it can be done.

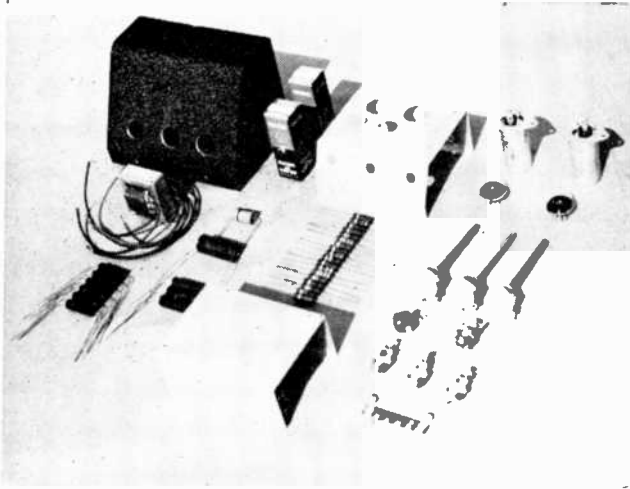
In keeping with the living room decor, an inconspicuous but attractive type cabinet is desirable. The one pictured comes in black wrinkle finish but can be given a couple of coats of grey enamel or whatever other color blends with your particular color scheme. Individual choice of knobs can further dress it up as well as the addition of an attractive carrying handle on the top. The three controls shown do all of the necessary mixing and adjusting of levels of the three inputs. The right hand control also has a switch on it with which the unit's power is turned on and off. The input cables plug into their proper jacks on the rear panel of the chassis as does also the output cable to the tape recorder.

If your mike cable terminates in a different type of connector, the proper mate for it should be substituted in place of the jack. The two mike inputs feed into individual preamplifier stages and volume controls before being mixed together. It is assumed that the radio/phono pickup is at a higher level than the mike output and therefore does not need preamplification. A second stage of amplification further boost the signals to overcome any losses or noise pickup in the output connecting cable.

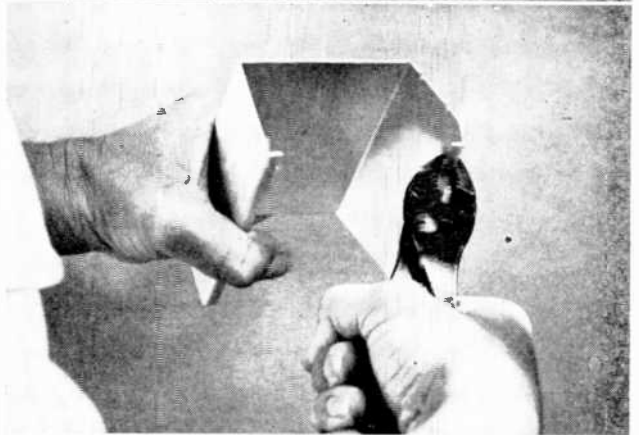
Proper labels can be obtained from suitable decal sets available at your radio parts supply house. You can also pick up some rubber feet or glue a felt pad on the bottom for furniture protection. Now let's get on with the building.

Forming Chassis

The front edge of the chassis must be bent to conform with the slope of the cabinet panel. For those of you with a vise, this no problem. For the rest of you who have only hand tools, this is still not too much of a problem provided you purchased the aluminum U type chassis



Above: the total parts required for the mixer. The chassis in the foreground is before bending and drilling. Upper right: bending the chassis panel is done by applying pressure to it while bearing down on the block holding the inverted chassis on the bench. Upper center: Bending the lower portion back to the vertical is done by working the gas pliers back and forth from end to end. The lip is straightened the same way. Lower center: an under chassis view of the assembled components. Lower: Under chassis view showing placement of transformer leads, selenium rectifier and R-18.



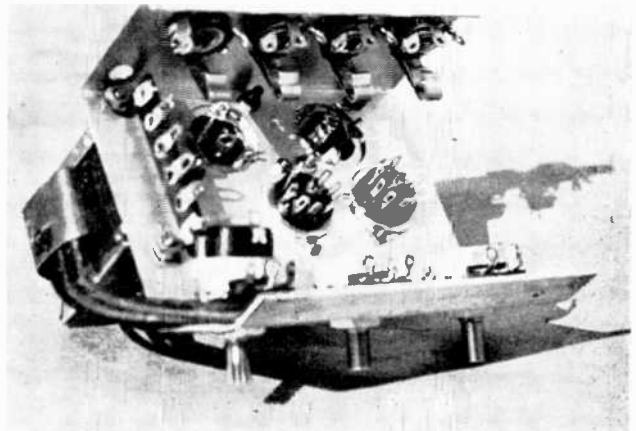
prescribed. Place the chassis upside down on a flat surface and place a short piece of 2 by 5 lumber or other hard block inside the U. Now by exerting pressure on the side piece while bearing down on the block, you can force the side piece out to the proper angle. This can be checked by aligning the chassis alongside the cabinet to see how they conform. Keep manipulating the side piece until you get the proper angle.

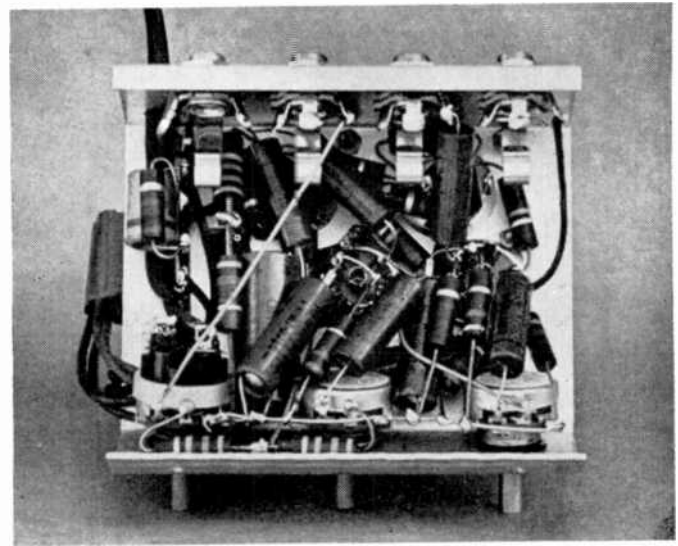
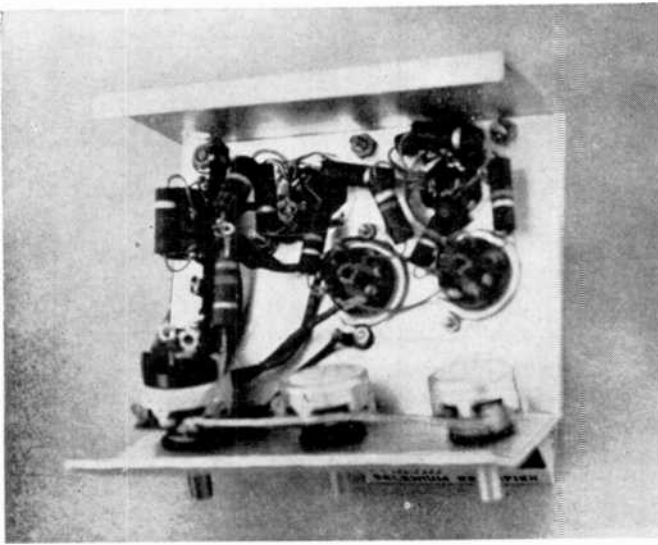
You now have to straighten out the bent lip on the bottom edge and put another slight bend in the side piece to conform with the vertical portion of the cabinet panel. The bend can be made first by gripping the edge with a pair of gas pliers as shown in the photo and bending inward. Start at one end and bend only a small amount. Work your way along to the other end and then back and forth from end to end until you have the proper angle. You can now grip just the lip itself and gradually straighten it out until you have a vertical surface that fits snugly against the inside of the cabinet panel. The rear edge of the chassis should now be flush with the rear edge of the cabinet itself.



Laying Out Panel Holes

Measure one inch up on the sloping panel from the bottom bend of the panel—approximately equidistant from each edge—and make a slight prick in the paint with a nail if you have no center-punch. Now measure 1 $\frac{5}{8}$ " either side of this center mark and still 1" above the bottom bend and make another punch mark. A $\frac{3}{4}$ " diameter hole must now be drilled at each of these marks. A pilot hole is first drilled using a #27 drill. Successively larger holes can then be drilled with larger drills or the original hole can be reamed out to size with a reamer, or a circle of small holes drilled around the inside of the circumference of the $\frac{3}{4}$ " circle and then the center knocked out and the hole smoothed up with a round or half round





Left: under chassis view showing the placement of the initial group of resistor components. To avoid hum and noise troubles be sure all connections are clean and bright and well soldered using rosin core solder. Right: under chassis view of completely wired unit. While this may look difficult to do, it is not if the directions are followed and parts hooked up in the order given.

file. These holes should be large enough to pass the nut that secures the potentiometers (volume controls) to the chassis. On the vertical portion of the cabinet panel, drill two more holes directly below the two outer holes on the sloping panel. Use the #27 drill about $\frac{3}{8}$ " above the bottom edge. The chassis will be secured to the panel by sheet metal screws through these holes or by regular 6-32 screws as described later.

Chassis Layout and Drilling

Measure off and mark the hole centers for the two tube sockets and the two capacitor cans. After centerpunching these, drill with the #27 drill and then redrill with a $\frac{1}{4}$ " drill. Now the holes can be enlarged to size by reaming out with a 1" tapered reamer in a brace. Ream out the tube socket holes to only $\frac{3}{4}$ " diameter. Position the tube sockets so that the pin numbers line up as shown on the wiring layout drawing. Mark the holes for the mounting bolts and drill with a #42 drill.

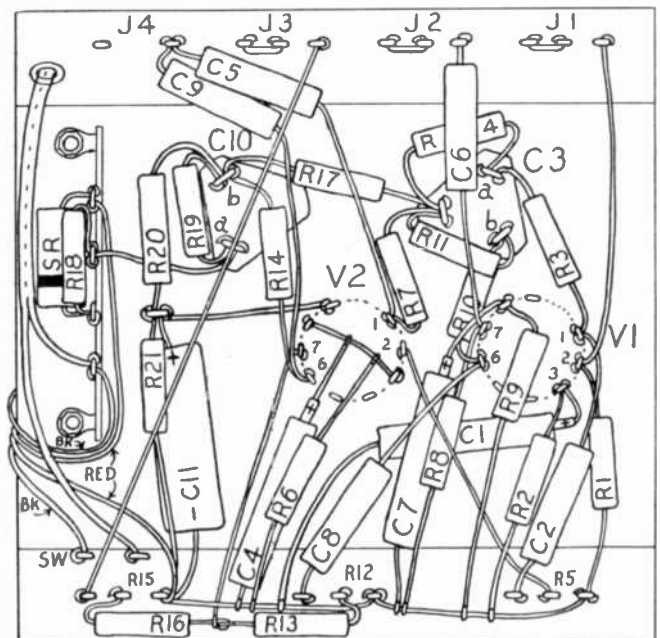
Slip the capacitor mounting plates into position on the capacitor cans and twist the holding lugs a quarter turn or so to make the can secure on the plate. Position the capacitor cans over their respective holes and mark their mounting holes accordingly. Drill these with the #27 drill.

Slip the chassis into the cabinet and center it side to side. Using the previously drilled holes in the cabinet panel as a guide, mark their centers on the chassis panel. This will assure correct alignment of the chassis and cabinet when putting together the finished unit. Drill the three holes in the chassis panel for the volume controls with a $\frac{3}{8}$ " drill or ream out to size after drilling with the smaller #33 drill. By gently working in a 6-32 screw, these holes can be threaded and thereby fasten the chassis to the cabinet by 6-32 screws. The rest of the holes should present no problems.

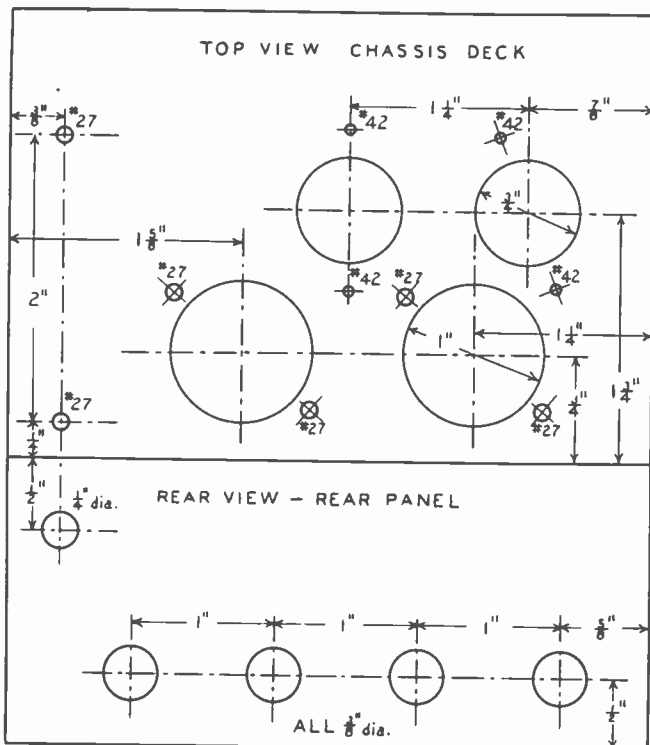
Mounting and Wiring

Note carefully the positions of the connecting terminals of the various components and assemble yours accordingly. The tube sockets are mounted with size 2-56 bolts and nuts. Put a soldering lug under the front nut of the V2

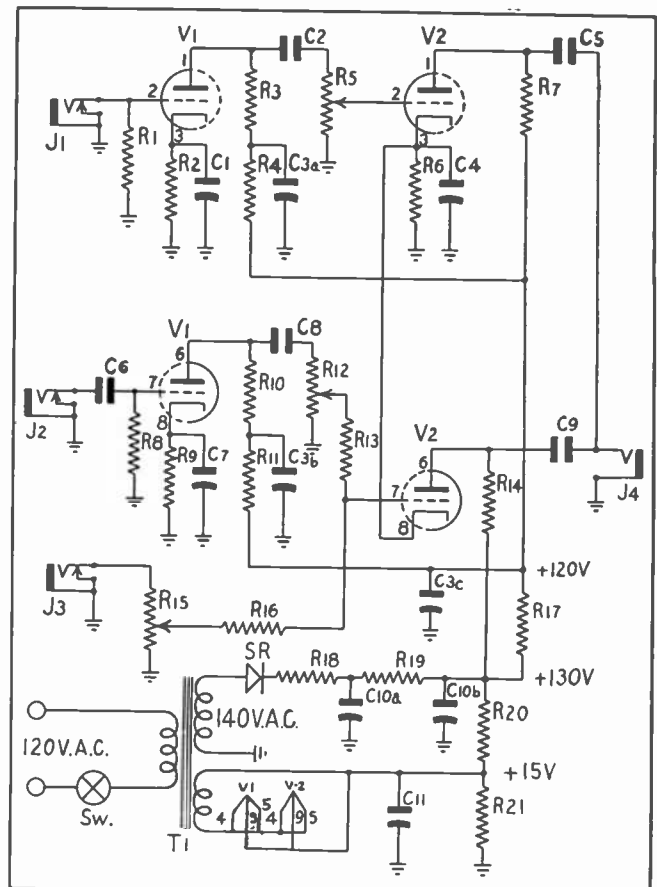
tube socket. Also place a single tie-point terminal lug under the forward mounting nut of the C10 capacitor mounting nut. The mounting lugs of the four-point terminal strip will have to be spread slightly to fit over the transformer mounting bolts. Lock washers should be used under all nuts. Size 6-32 bolts and nuts should be used for mounting the rest of the parts. Appropriate size flat washers can be used on the potentiometer shafts to space them far enough behind the panel so that only enough of the threaded portion of the shaft extends through the hole for secure mounting. Mount everything except the four jacks. This will leave you more room to manipulate the resistors when installing them. Start wiring with the power transformer leads. Be sure tube terminals 4 and 5 are wired together and terminal 9 is wired to the tie-point for R20 and R21. Strap together ground terminals of the potentiometers and connect to the grounded solder-



COMPONENT PLACEMENT CHART.



Left: the layout for the holes to be cut in the chassis. Holes may be made with a Greenlee punch or by drilling a number of small holes and filing out the larger openings. At right is the schematic diagram of the three channel electronic mixer.



ing lug at V2 tube socket. Install selenium rectifier and R18. Run wire from R18 tie-point to C10a.

Install R19, R17, R4, and R3.

Install R10, R7, R11, and R14.

Install R20 and R21.

Install C11 with—terminals at ground strap. Solder all connections except at terminals 1 and 6 on V1 and V2.

Install C1 and R2, C7 and R9, C8 and R1. Solder each as you install. Mount J1, strap the break contact terminal to the sleeve terminal. Connect the tip spring terminal to V1 terminal #2. Install C2 and solder all connections. Run wire from middle terminal of R5 to V2 terminal #2 and solder.

Mount J2 and strap identical to J1. Install R8 and C6. Join R13 and R16 together and connect to pots. From junction of R13 and R16 run a wire to V2 terminal #7. Install C9 and C5. Connect V2 terminals 3 and 8 together. Install C4 and R6. Connect power line cord. Each of the above steps can be soldered as they are done. This completes the wiring. Naturally, you should double-check each operation as you perform it, both for having the correct component and for correctly placing and connecting it. Likewise, each solder joint should be examined carefully to be sure it is securely soldered and will remain a permanent connection. If all is in order, nothing remains except to plug in the two tubes and line cord, connect up your microphones and radio or phone cords, and take it out for a trial run.

Remember, there is considerable gain achieved by this unit. You may have to feed the signal from the mixer unit to your recorder through a voltage dividing network. That will depend on the input circuit of your particular recorder. If you have a phono/radio input jack already on your recorder, connect the mixer output cable to that jack.

PARTS LIST

R1, R8	—2.2 Megohms, 1 watt
R2, R9	—4700 ohms, 1 watt
R3, R7, R10, R14	—100,000 ohms, 1 watt
R4, R11, R17, R19	—10,000 ohms, 1 watt
R5, R12, R15	—500,000 ohms potentiometer, CRL type B60
R6	—3,300 ohms, 1 watt
R13, R16	—470,000 ohms, 1 watt
R18	—100 ohms, 1 watt
R20	—33,000 ohms, 2 watts
R21	—4,700 ohms, 1 watt
C1, C4, C7	—10 mfd., 25 volts
C2	—0.006 mfd.
C3a, b, c	—20, 20, 20 mfd., 150 volts Sangamo type T-020
C5, C6, C8, C9	—0.01 mfd.
C10a, b	—20, 20 mfd., 250 volts Sangamo type D-110
C11	—25 mfd., 50 volts
J1, J2, J3	—closed circuit phone jack (Switchcraft #12A)
J4	—open circuit phone jack (Switchcraft #C11)
V1, V2	—type 12AX7 vacuum tubes
SR	—Federal Cat. #1159—20 ma. selenium rectifier
T1	—Stancor type PS 8415 power transformer
SW	—CRL type KBI switch—to be attached to R15
2	—Cinch #9EB nine pin miniature tube sockets
1	—Bud Radio Co. cabinet #C-1580
1	—Bud Radio Co. chassis #CB-1625
1	—a.c. line cord
3	—knobs
1	—single tie-point terminal strip
1	—four tie-point terminal strip
1	—6-32 solder lug
1	1/4" rubber grommet
4	—2-56 bolts, nuts, and lock washers
8	—6-32 bolts, nuts, and lock washers
4	—rubber or felt washers for feet
Total cost slightly over \$20.	

Put Your Mike on a Stand

... a steady microphone position eliminates varying sound levels and provides cleaner, sharper recordings.

by
R. C. Reinhardt

Atlas Sound Corporation



PRACTICALLY all home tape recorders are equipped with a small hand type microphone. This is normally held in the hand while recording and this procedure is satisfactory up to a point.

But if the recordist is seeking clean-cut, constant level recordings that sound professional, the mike has to leave the hand and go on a stand.

Just as the photographer uses a sturdy tripod to avoid getting blurred pictures so the sound engineer uses a rock steady microphone position to avoid shifting sound levels.

The use of a stand is practically a must when several persons or an instrumental group are to be recorded.

The regular mike stands are provided with a $\frac{5}{8}$ "-27 thread at the top to fit the majority of better mikes. The hand held microphones can be equipped with a small in-

expensive adaptor that will permit them to be used on all types of mike stands with the large diameter and heavier threads.

Many of the hand type mikes have a small tapped hole in the base which may be used to connect it to the stand adaptor. Occasionally this hole will not be apparent on casual observation for it is sometimes centrally located under a felt pad glued on the bottom of the mike. Usually the hole can be cleared by piercing the felt at this point. The stand adaptor is then attached with an 8/32 screw.

There are many types of microphone stands, fixtures, booms, clamps, etc., available and it would be well for both the amateur and professional "tape worm" to consider the use and application of the various types of supports.

The conventional weighted base floor stand is no doubt the most familiar type of support. The use of a floor stand permits the person who is using the mike to gesture with the hands and as a result feel more at ease. Also the user of the mike can be "spotted" at a fixed location with respect to the mike so that the level of voice energy fed to the mike and ultimately to the tape, will be more likely to remain constant.

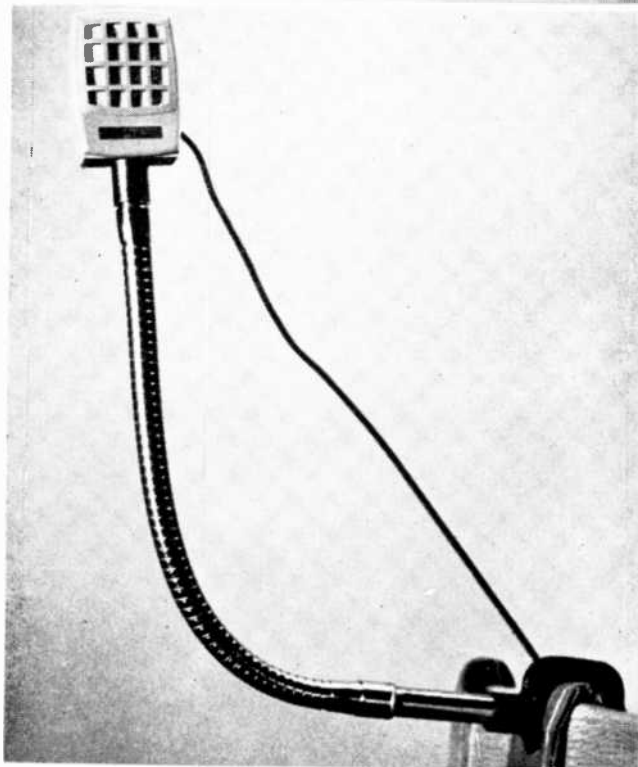
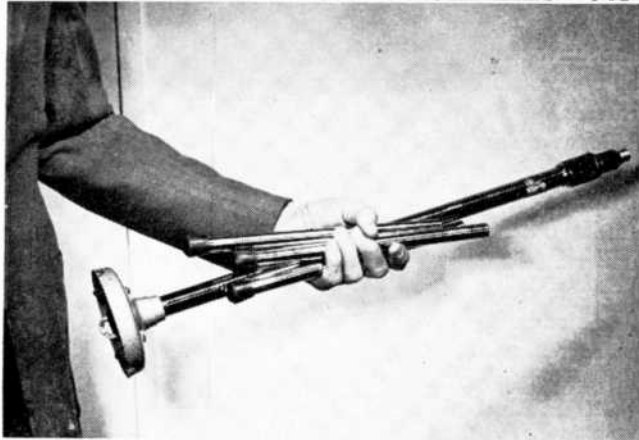
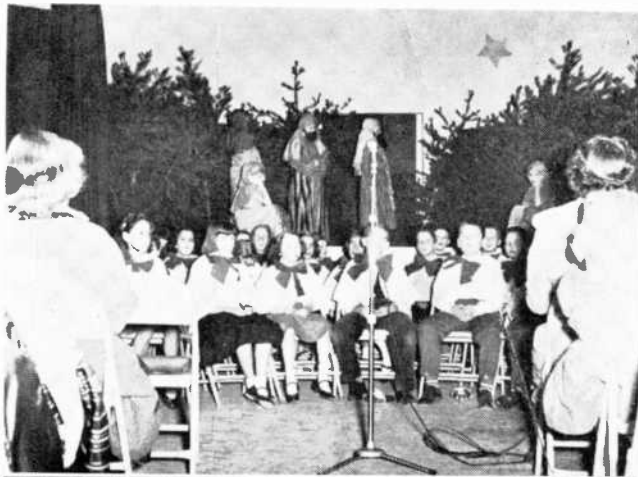
It is difficult for any one to hold a hand mike in a fixed position and the usual tendency is to "crowd the mike" by bringing it closer and closer until finally it prac-



Whenever there is a necessity for making a microphone inconspicuous a small mike may be mounted on a straight stand as shown in the photograph above.



The desk stand makes it easy for commentators or those dictating letters to do their job. A hand held mike set on the table is always in danger of being knocked over, spoiling the recording.



Top: a portable, collapsible Atlas mike stand used to pick up a Christmas entertainment. These stands fold compactly as shown in the second photo. Lower: a home recorder-mike attached by means of an adaptor to a gooseneck. This is held to the chair by a clamp called a "Sky hook." At left, photo shows how the adaptor is attached to the hand held mike. An 8-32 screw is used; the adaptor has $\frac{5}{8}$ -27 threads.

tically touches the lips of the user. This technique can only result in poor recording. If the person using the mike is cautioned against this condition, by some form of signal, the opposite extreme usually occurs and the user holds the mike too far away for adequate sound pickup. A mike stand also makes a fine "prop" for a vocalist who feels that he or she must "hug the stand" and sway in the manner so popular with many of the current crop of crooners.

In the conventional upright floor stand it is also possible to obtain various types and styles of portable or collapsible floor stands as illustrated. These stands are light in weight and do not require a heavy cast iron base. Consequently they can be easily transported or stored away when fully collapsed or disassembled.

The upright type floor stand is available in various base weights and telescopic adjustment mechanisms. The lighter weight base is usually adequate for the smaller light weight mikes. However, if the more professional types of mikes are used, a more sturdy upright with a wide heavy base is best.

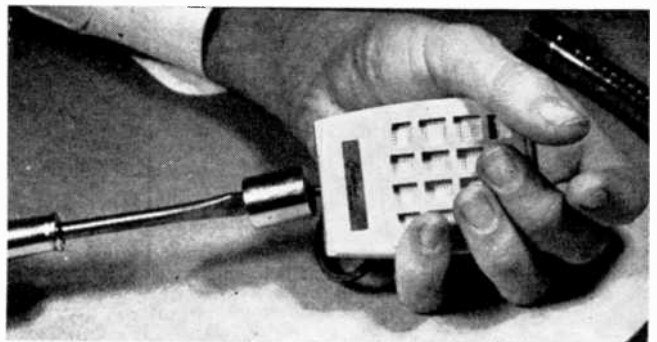
The telescoping mechanism as used in stand adjustment is of two types. The screw clutch or collet type lock is most generally used on floor stands. The other type is the automatic locking type of telescoping clutch mechanism. This automatic action feature, while adding to the cost of a stand, does offer a worthwhile facility.

This is especially true when the stand must be quickly lowered and raised at close intervals for people of various heights.

Desk stands are an inexpensive and popular type of support for a person who desires to record sitting at a desk or table. Placing a hand type of microphone directly on a desk without a stand usually results in the mike being too far away for adequate "pick up" of the speaker's voice. It is also apt to fall over causing a defect in the recording.

A boom arm attachment is a very useful accessory which can be attached to any upright floor stand. A short adjustable boom arm of approximately 32 inches maximum length can be extended over a desk that must often remain free from incumbrances such as a microphone desk stand. A boom attachment is also an excellent device for use at a speaker's table, podium, etc. The boom is also helpful in supporting a mike over certain types of musical instruments for close pick up work.

A large and more professional type of boom stand is very useful under certain conditions. For instance, a vocalist playing his own piano accompaniment could use a boom of this type to good advantage. It is obviously not good practice to support a microphone from the top of the piano. If this is done, the mechanical sounds of the piano, pedal thump, etc., are conducted via the stand to the mike and result in a recording with noticeable and



very objectionable extraneous noises. A conventional upright floor stand is not acceptable for this application inasmuch as it can't be conveniently placed in front of the performer.

A large boom of the type described is ideal for supporting a mike over the heads of a group of vocalists for balanced pickup. Also a floating arm type of boom, as illustrated, can be easily directed by a "boom operator" so that the mike can be quickly and quietly swung back and forth between several persons or instruments that may comprise a vocal group or orchestra. A mobile type boom stand having smooth running casters also adds to the flexibility of this useful type of microphone support.

There are many other useful and functional accessories such as flexible spring extension arms (goose necks), clamps for table top application, swivels, cable hangers, snap on adaptors, etc. All of these items can be used to good advantage by the ambitious "tape worm".

By combining these accessories in various ways it is possible to secure the proper mike setup in practically every case. For speakers who turn from side to side as they talk, a dual mike setup can be made from microphone stand accessory "plumbing" as shown in the photo. A lightweight board mounted between the two upright arms can serve as a desk for the speaker's papers. On a regular rostrum, or pulpit, the mikes can be mounted on each corner for a permanent installation. Thus side-to-side variation can be eliminated.

There are many other accessories that are very useful to the serious "tape worm"—An additional microphone, of the same impedance as supplied with the recorder (usually a high impedance type) is very worth while. A more professional type microphone of either crystal, dynamic or velocity types would operate very satisfactorily with the recorder and often improve its operation.

There are several types of microphone mixers on the market for combining the signal of two microphones—blending the signal together and feeding it to the recorder as balanced program material. The simplest form of mike mixer being a pair of variable resistive controls in a simple shielded case. A more efficient type is one incorporating a full electronic circuit (uses tubes and power supply) and accommodates up to four microphones in a full mixing circuit.

It is also suggested that the tape recordist make up several extension cords for the microphone circuit in various lengths of say 12 and 25 feet. The shielded cable and shielded plugs required for inter-connection of cables and connections to the recorder are available from all electronic distributors and specialists in sound equipment.

The key to good recording however, lies in a good microphone and the use of that mike on an adequate stand. The difference of only a few inches in the position of the person recording can make a lot of difference in the level of the sound as picked up by the mike. Anything that can be done to reduce this variable to zero will help to provide consistently better recordings.

Despite their professional appearance, adequate mike stands are not as expensive as they look and if you do outside recording, such as weddings or conferences, the appearance of a mike stand in your gear will give your customers more confidence.



Top: For speakers who turn from side to side as they talk a twin mike setup is the best. As the volume falls off on one mike it picks up on the other. Such units as shown can be made up of mike stand accessories stocked by most radio parts houses. Lower: a boom mike stand should be used on a vocalist-piano pickup to keep the stand out of the way of the player's hands.

A microphone stand is a protector of the mike, too. It is ever so easy to drop one when passing it from hand to hand or when it is resting on a slippery table top. And with some mikes which are accidentally dropped—like the Irishman's clay pipe—you don't pick it up—you just walk away.

Investing in a good mike stand is an investment in better recordings.

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