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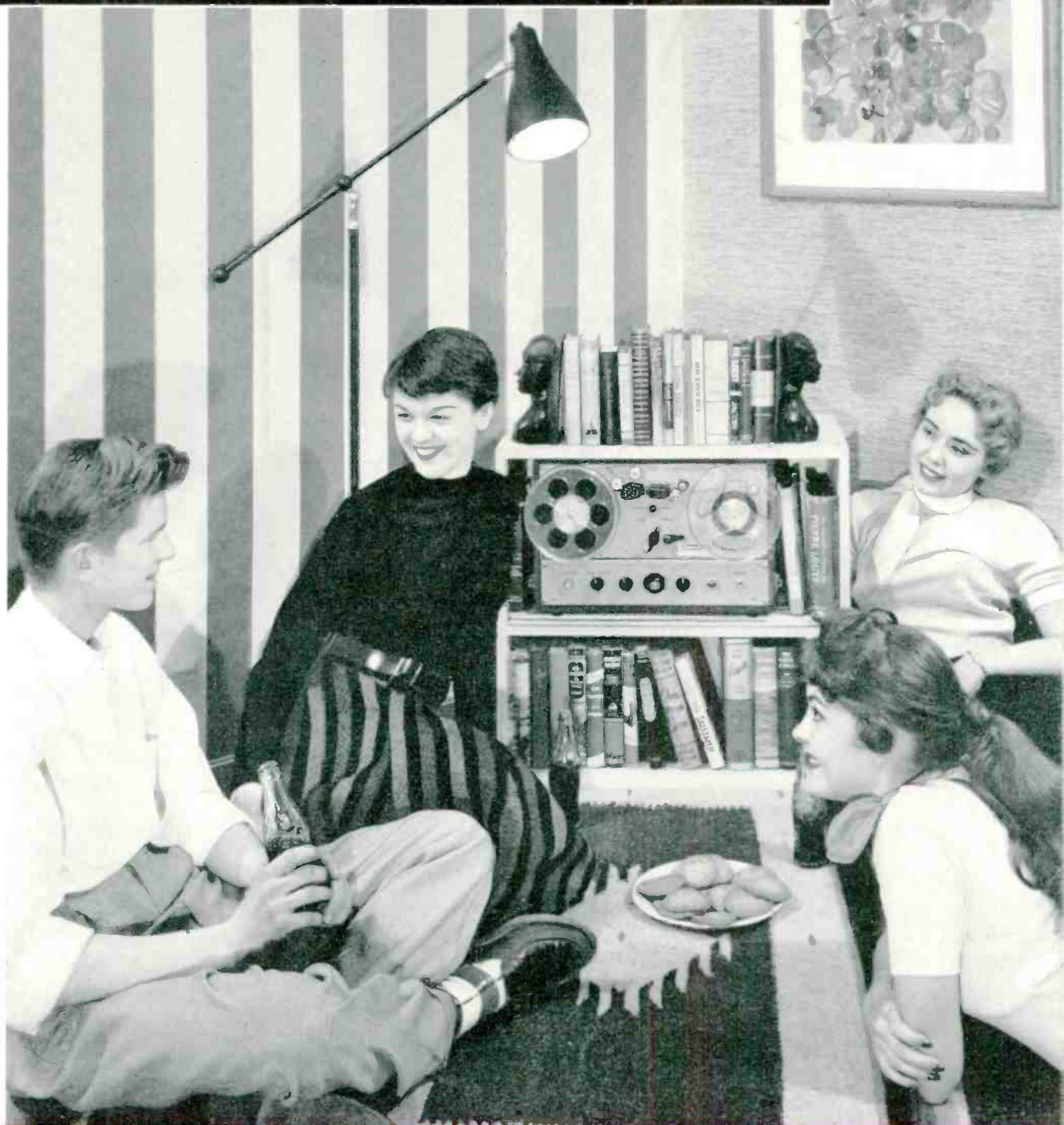
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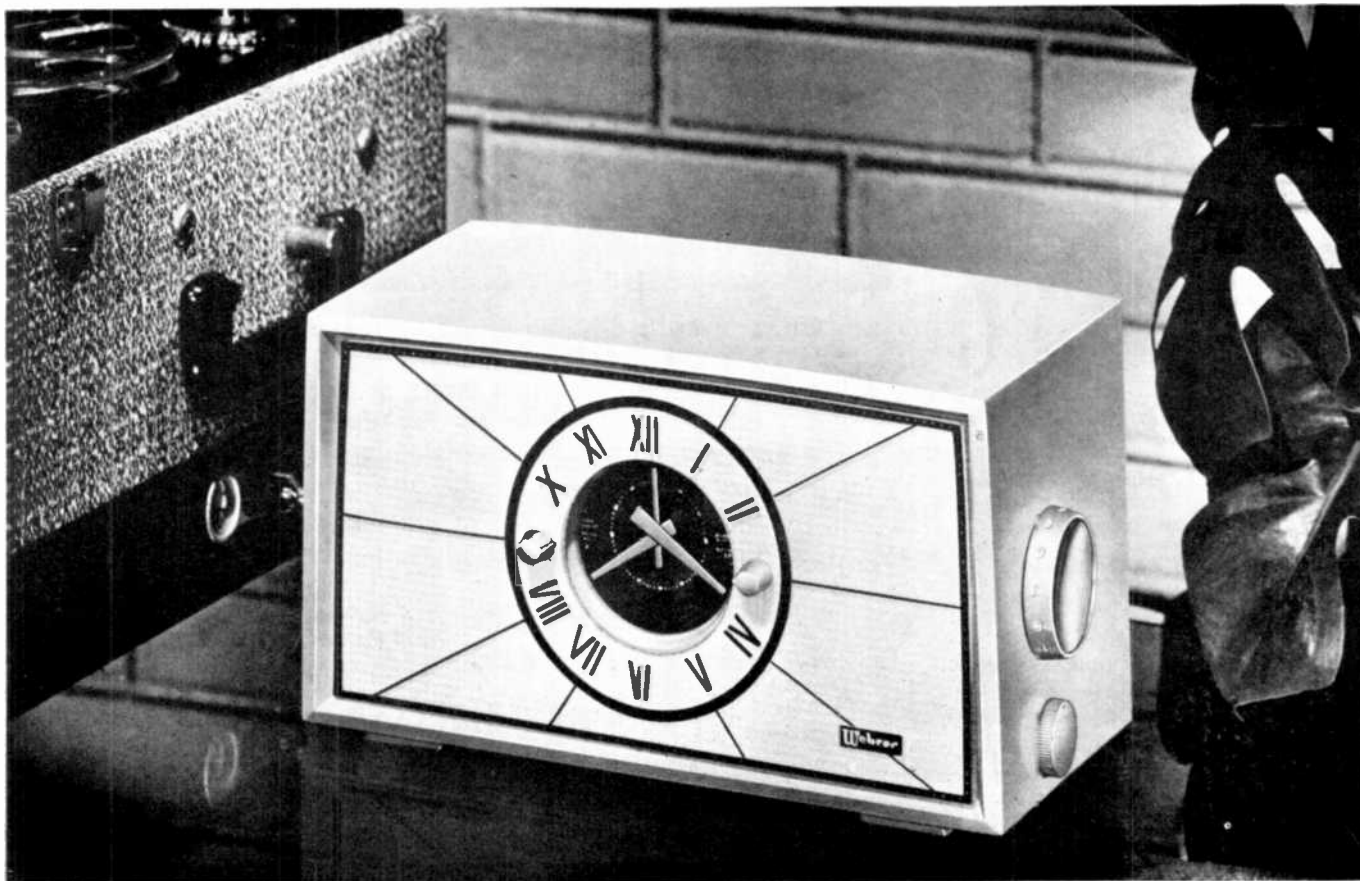
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Vol. 2 No. 1

Announcement

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Netherlands Philharmonic Orchestra; Zurich Tonhalle Orchestra; Grant Johannesen, Pianist; Ricardo Odonoposoff, Violin; Heinz Wehrle, Harpsichord, and other renowned artists indicate the quality of the classical MUSIKON tapes now in process.

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Here's a tip of the Swain Florida fedora to the magazine tape reviewers of the country who have been so generous in their praise of MUSIKON TAPE programs, and who, upon occasion, have gently chided us with sincere criticism which has led to still further improvements.

But what pleases me most is the legion of folk who buy one tape for a try-out and eventually wind up with most of the whole library. That's proof of popularity!

And I can't begin to tell you how happy I am that soon these classical programs will be added to my 46 other half hour MUSIKON TAPE programs. Ask to be advised immediately upon their release. FREE CATALOG of current programs—just write Dept. TR-12, P. O. Box 2384, Sarasota, Florida.

Nice to chat with you!
Business is booming,
thank you all!

Yours,
Hack



MAGNETIC FILM &

TAPE RECORDING

VOL. 2 NO. 2

JANUARY-FEBRUARY, 1955

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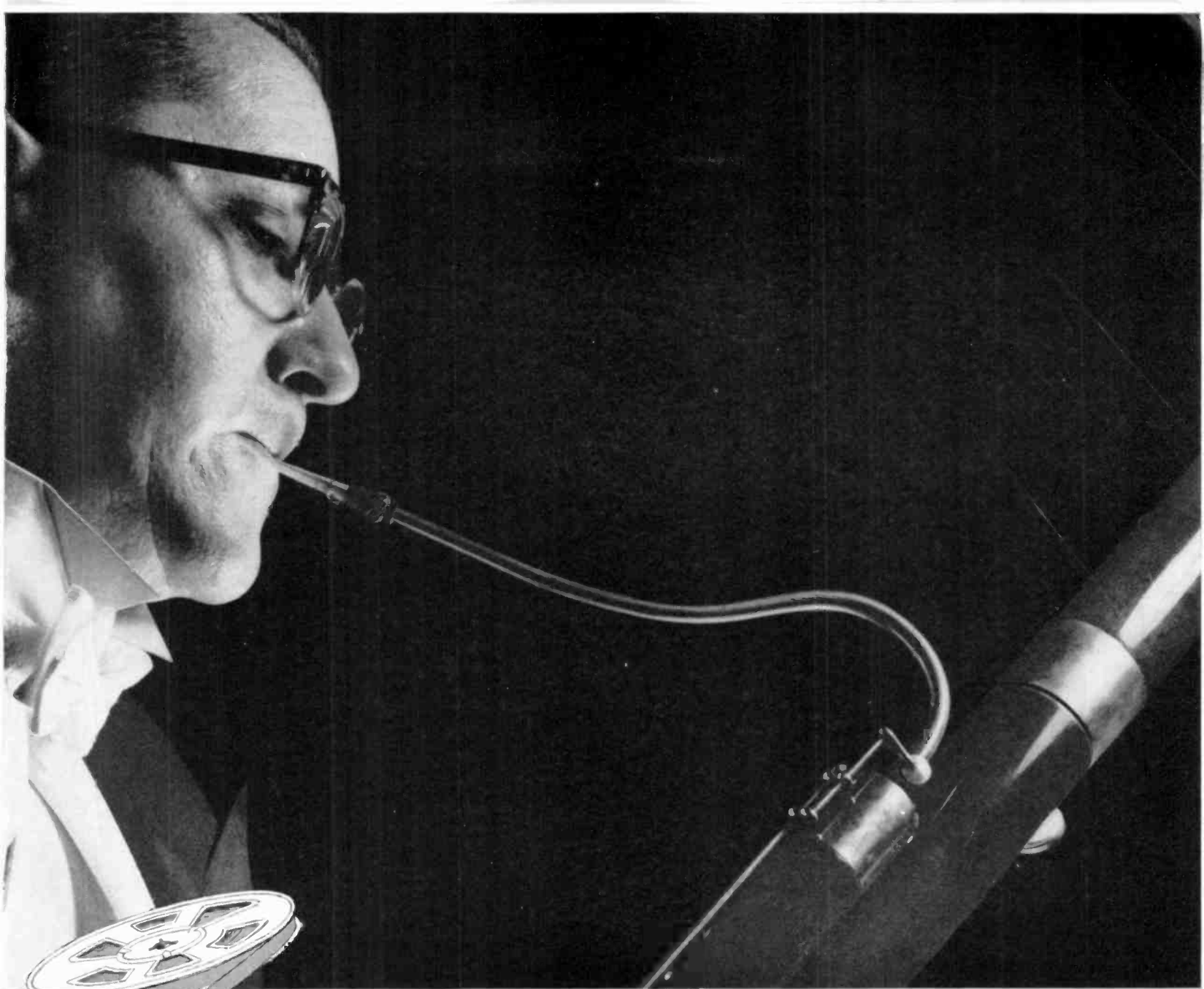
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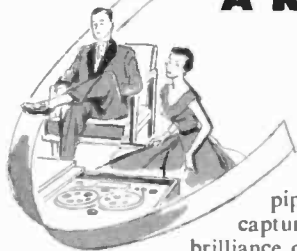
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NEW TAPES

By Charles D. Sigsbee

THERE are many pending, and surprising, releases due in the near future from several companies. Most of them were made possible through special arrangements between the tape producers and disc recording companies.

The most notable expansion is that of the Livingston Electronic Corporation of Livingston, New Jersey. It is going to tape and release material for five independent record companies: Atlantic Records, Empirical, Esoteric, Oceanic, and Riverside.

Atlantic Records has announced material recorded by such artists as Erroll Garner, Mary Lou Williams, Jimmy Yancey, Barbara Carroll, Sylvia Syms, Dizzy Gillespie, Wilbur DeParis, Mabel Mercer, Mae Barnes, Vernon Duke, and other top recording stars. These programs will be available on dual-track reels, predominately 5", with the exception of binaural tapes which will be supplied on 7" reels. An interesting item in the Atlantic Library will be a complete performance of Romeo and Juliet, starring

Eva Le Gallienne, Dennis King, and Richard Waring. Atlantic executives have indicated that much of their material will be made available in binaural form.

Empirical Recording, a high-fidelity label rapidly gaining recognition for its unusual work in Dixie-land recordings will release its library on tape on a regular schedule and will also make available material recorded binaurally. Dave Jones, of Empirical, has reported that all his sessions are being done binaurally in anticipation of heavy tape demands.

Esoteric Records, Inc., have announced their first five reels of a diversified repertoire which will include their famous English Medieval Christmas Carols with the Primavera Singers of the Pro Musica Antiqua of New York, Seven Canzonas of Giovanni Gabrieli with the New York Brass Ensemble, an album of 18th century music with Nicanor Zabaleta, harpist, an album of African tribal music and dances, and an album of Larry Carr recently released on disc.

Oceanic Records will feature in their first tape release a Saint Saens Cello Concerto in A Minor, Op. 33, Haydn Cello Concerto #1 in D Major, Op. 101, Beethoven's "Battle" Symphony, Op. 91, Bizet's Symphony in C Major and other material not yet designated. These classical tapes will be available on 7" dual-track reels. Also announced by Oceanic are 5" reels of melody cruises to Italy, Paris, Latin America, Israel and others.

An unusual entry into the tape field is the Riverside label. In this group the accent is not on high-fidelity, but rather on the rarity of the material and the desirability of preserving it on a permanent medium. For example, Riverside's firsts will include an album of Jazz of the Roaring 20's, Rediscovered Fats Waller Solos, some rare Bix Beiderbecke, and other collector's items normally not available on tape. In addition to these, high-fidelity material will be presented in some unusual recordings of world folk music, and the first of what may prove to be an interesting series of Dixie-land recordings.

This, in their own good words, is the story and an impressive one to say the least. Coming as it does on the heels of the announcement concerning the release of their own label, "Connoisseur" high-fidelity tape library, it puts this company in the running as a formidable figure in the recording field generally. Please note that the "Connoisseur" library even includes the first opera on tape: Verdi's "A Masked Ball."

Meanwhile, down in sunny Sarasota, Florida, Hack Swain is preparing a recorded tape surprise in the way of four classical releases featuring standard repertoire (Beethoven, Tchaikovsky, Grieg) played by readily recognizable artists. According to the literarily voluble, "Doc" Woolley, public relations man for the Swain organization, these reels, "reproduced from the original foreign master tapes are simply out of this world!! No disc pressing could possibly compare with their full audio beauty on tape." If they are as well-reproduced as other Hack Swain releases, I can well believe it, but will reserve judgment until I hear them.

pardon our crowing

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N. Y. TIMES REVIEW
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Hamburg Philharmonia Orch.
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N. Y. Times

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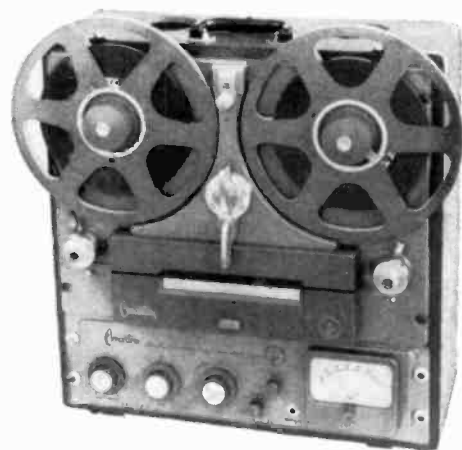
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As long as we are in the realm of classical tapes recorded directly from the European masters, it is well to take note of the unusual and provocative Ameritape label released by Amerecord of San Francisco. They are releasing for the first time in the United States, five tapes of Masterworks recorded in the Soviet Union by some of their best known concert artists.

Amerecord goes most of the other companies one better by offering custom equalization at no extra charge, upon request. If you are interested in this service, all you need do is include with your order the name and model number of your recorder.

As long as we are on the subject, why not begin the reviews with their current output:

AMERITAPE

2166 Market Street
San Francisco, California
7" reels, 7½ IPS

\$8.50 per reel or \$8.00 each for two or more

#101 PROKOFIEV: Sonata No. 2 in D Minor, Op. 14

E. G. Gilels—piano

SHOSTAKOVICH: Preludes and Fugues, Op. 89

D. Shostakovich—piano

This tape is of great interest for two important reasons; first, it introduces to American audiences a hitherto unknown Russian concert pianist, E. G. Gilels, and second, it presents Shostakovich as concert

pianist interpreting his own work. As a virtuoso, Shostakovich comes off second best but as a composer even these three little piano pieces support the opinion of many that he is one of the world's greatest.

Gilels does a masterful presentation of this early and familiar Prokofiev work. His technique is solid, though not flashy and his interpretation is as youthful as the composer at the time of writing.

The reproduction is not as brilliant as that found on recent American piano recordings but quite adequate for high-fidelity equipment, particularly when one considers the musical content.

#102 SCRIBAN: Concerto for Piano and Orch.

USSR Grand Symphony Orch.

S. Feinberg—Piano

GLIERE: Romance for Violin and Orch.

USSR State Symphony Orch.

D. Oistrakh—Violin

A lush and beautiful recording of the Scriabin Concerto sensitively handled by 65 year old Samuel Feinberg, quite possibly the world's foremost interpreter of the music of this highly romantic composer.

For people not familiar with Scriabin (are there any?) the first movement could well be discouraging for it sounds like nothing more than a movie theme, but be of stout heart the andante has much to offer. Here in a slowly developing, Chopinesque composition Feinberg

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and Scriabin combine to present memorable music. Here, too, is perfect rapport between orchestra and pianist. To be listened to with the eyes closed.

In the final allegro moderato the combined virtuosity is maintained. When listening to these final overwhelming climaxes, one must marvel at the vitality of the aging pianist. First movement, and all, the interpretation and reproduction throughout is superb. I enjoyed it thoroughly.

The companion piece is a four minute and thirty-six second introduction to the great David Oistrakh around whose violin ability a storm of critical debate is currently taking place. On the basis of this little bagatelle by Gliere, I would certainly make no definitive judgment of my own except to be absolutely positive that I would want to hear more. So, consequently, I did . . . in the next tape.

#103 TCHAIKOVSKY: String Quartet No. 1, Op. 11

D. Oistrakh—1st Violin
P. Bondarenko—2nd Violin
M. Terian—Viola
S. Knuzhevitski—Cello

If you happen to be numbered among the jaded minority who have decided that Tchaikovsky is beneath your interest, and feel that the String Quartet No. 1 is hardly worth hearing again, listen to this version.

Sparked by the masterful first violin of Oistrakh, this familiar quartet is given a freshness and life that would make it seem one was hearing it for the first time. The often heard Andante Cantabile has never been more beautifully done. Throughout the recording one very often feels they could put their hands on the shoulders of the instrumentalists. Get it by all means.

RCA VICTOR—TC4
Dual Track $\frac{1}{2}$ IPS
7" Reel—\$14.95

BEETHOVEN—Concerto No. 5 ("Emperor")

Vladimir Horowitz
RCA Victor Symphony Orch.
Fritz Reiner, Conductor

The first RCA tape sent to this reviewer is an excellent one. For one who has struggled along for years with the old 78 RPM recording of Walter Gieseking and Bruno Walter I flatly refuse to admit, even with prodding from outside sources, that this is the definitive presentation of the "Emperor." I will agree that it is quite possibly the best recent recording of the work, however, and have a profound respect for the deft and beautiful handling of the work by Horowitz and Reiner. As the old 78 recording is out of print, I shall be forced, even without prodding, to give it my plus recommendation.

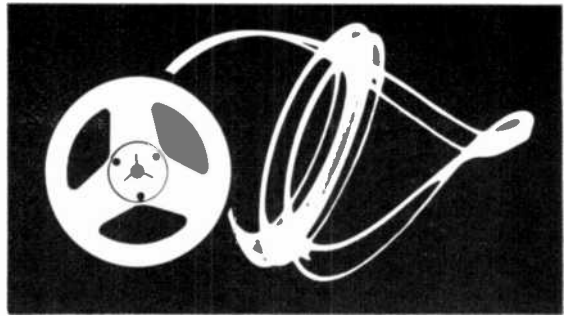
RCA Victor engineers have done a flawless job in preparing this tape. It is as good as, but not better than, their "New Orthophonic" disc records. The biggest advantage in the tape is its silent surface and lasting quality.

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Full Track— $\frac{1}{2}$ IPS

(Continued on next page)

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#1062 — ERSKINE BUTTERFIELD,
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A collection of old favorite pop tunes liberally improvised around by five past masters at the art of improvisation . . . tunes like "Honeysuckle Rose," "If I Had You," and "Tuxedo Junction."

There is no need here to go into the abilities or techniques of Butterfield's group as everyone who knows jazz is familiar with every name on the list, and what they can do individually, and collectively. However, reproduction-wise I have a question: Where did Livingston record this—in Madison Square Garden? I love a feeling of spaciousness in recordings but feel that a ten-second time lag is overdoing it a bit. Kidding aside, the hall used for this date would appear to be too large based on the sound reproduced by my equipment. This little group, without brass reinforcement, seems somewhat lost in space. Otherwise, a good recording.

#T-1085—"JOSH WHITE COMES A-VISITIN"

Josh White came a-visiting to my house for the first time via this tape and he is welcome to come back any time he chooses. A more thoroughly enjoyable visit we haven't had in quite some time. The only complaint hereabouts is that a half-hour isn't long enough, therefore, we are putting up an immediate clamor for more.

Supported (not that he needs it) by a group that can be best described as a sort of bayou Trapp family, Josh presents in a delightful manner, an equally delightful group of folk tunes, some new, some old, some Josh White originals . . . all excellent.

If I had to single out one for special mention, I would choose "Bury Me High" a plaintive dirge-like folk song that has its origin in the swamp country of the South. Outstanding throughout is the unusual guitar figuring employed by Josh; this alone is worth a second listen. The recording leaves nothing to be desired . . . but more.

WEBCOR TAPE RECORDS

Webster-Chicago Corporation
Chicago, Illinois

#2923-3 SORKIN SYMPHONETTE
7" Reel—Dual Track

Concerto Grosso in D minor—Vivaldi
Serenade in G major—Eine Kleine
Nachtmusik, K. No. 525—Mozart
Serenade for Strings, Op. 48—

Tschaikovsky
Minuet—Bolzoni

This new Webcor release presents three of the most popular works for string orchestra played by the Leonard Sorkin Symphonette of sixteen hand-picked musicians.

The whole tape comes off very well from the adagio of the Concerto Grosso by the 17th Century composer, Vivaldi, to the finale of the Tschaikovsky Serenade. The instrumental technique is flawless and the recording has been well engineered, managing as it does to present a highly



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master tapes.

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E. G. Gilels—Piano.
Shostakovich: Preludes and Fugues, Op. 89
D. Shostakovich—Piano.
- # 102 *Scriabin*: Concerto for Piano and Orch.
USSR Grand Symphony Orch. S. Feinberg—Piano.
Gliere: Romance for Violin and Orch.
USSR State Symphony Orch. D. Oistrakh—Violin.
- # 103 *Tchaikovsky*: String Quartet No. 1, Op. 11
D. Oistrakh—1st. Violin.
- # 104 *Miaskovsky*: Quartet No. 13.
USSR Beethoven Quartet.
Glazounov: Melody for 'Cello and Orch. Op. 20, No. 1.
USSR State Symphony Orch. 'Cello — M. Rostropovich.
- # 105 *Soviet Folk Festival*: 11 selections of Georgian, Armenian, Ukrainian, and Moldavian choral groups, including "Kalinka" by the Soviet Army.

- CUSTOM EQUALIZATION — at no extra charge—to give the utmost fidelity on your particular tape recorder. Include the name and model number of your recorder with your order.
- Full Track AMPEX recorded for either single or dual track recorders.
- 7 inch reel at 7 1/2 inches per second, 1/2 hour.
- \$8.50 a reel, or \$8.00 each for two or more, postpaid.



2166 Market St., San Francisco, Calif.

realistic string tone.

The release might well have been titled, "Evolution Of Composition Style For String Orchestra" covering, as it does, two centuries of musical development. Because of this, the tape would appear to have double value because it not only makes for an hour of home musical enjoyment but for an extra classroom demonstration as well.

One gets so used to hearing the Tschai-kovsky Serenade presented by gigantic and overblown string ensembles that it is refreshing to hear it scaled down to the size of this highly skilled group. For me it could be the definitive version.

HACK SWAIN PRODUCTIONS
Sarasota, Florida

#530—MUSIKON TAPE

#531—Charlie Davies—Piano

Pianist, Charlie Davies, is one of Hack Swain's hottest properties right now and on hearing these two tapes it is easy to understand why. The gentleman knows his way around the keyboard.

Recorded on these two tapes are nineteen old standard pop tunes presented in a highly engaging and polished manner. In short, he is good! Let it be clearly understood, however, that this is not jazz in the order of the Barbara Carroll style reviewed in the last issue; this is straight piano much as you would like to hear it in every cocktail lounge, but rarely do.

His entire repertoire of nearly 2000 tunes is carried in his head which probably has much to do with the relaxed and easy style presented on these tapes. All of them are his original arrangements which would undoubtedly not sound the same twice presented.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 21, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1916 (Title 39, United States Code, Section 233) of Magnetic Film and Tape Recording published bi monthly at Severna Park, Md.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher Mark Mooney, Jr., Severna Park, Md. Editor Mark Mooney, Jr., Severna Park, Md. Managing editor none Business manager none

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

MARK MOONEY, JR., Publisher
Sworn and subscribed before me this 28th day of October, 1954.

JANE W. REGESTER, Notary Public
(My commission expires May 4, 1955)

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is an entertainment thrill!"



says Johnny Desmond



From the faithful recording of children's brightest moments to the exacting recording needs of the professional musician and entertainment star, Magnecord holds its reputation for the finest in tape recording. Johnny Desmond, popular star of TV, radio and recordings, his wife, Ruth, and little Diane and Patti listen to one of the new pre-recorded high-fidelity tapes, reproduced with perfect fidelity on his new Magnecorder M-30. If you've wanted the finest in true, high fidelity recording and reproduction, now you can own a Magnecorder too!

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magnecord, inc.

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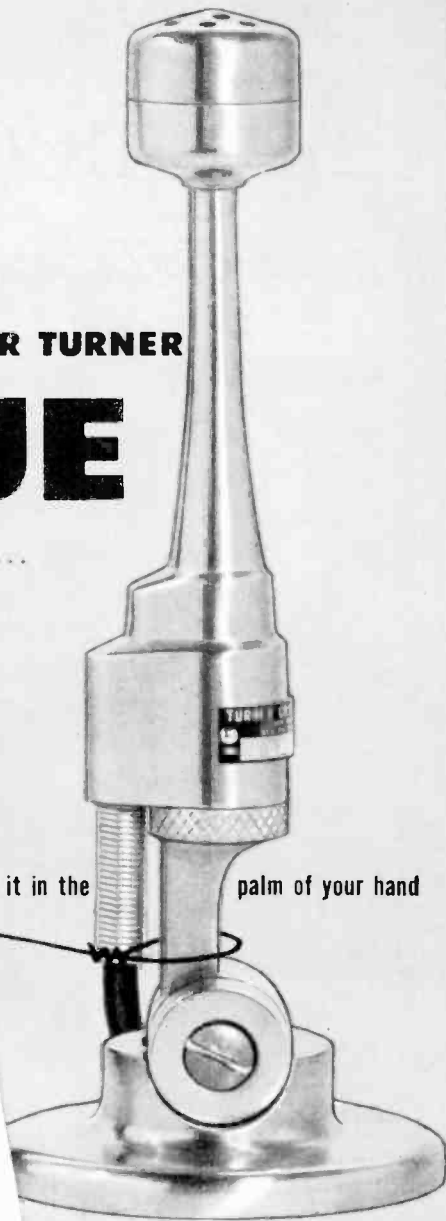
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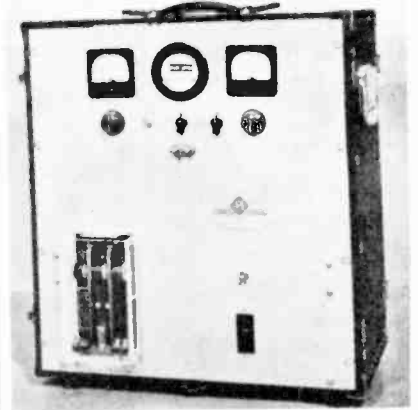
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NEW PRODUCTS

ELECTRONIC POWER SUPPLY



Stancil-Hoffman Corporation, Hollywood 38, California, has announced the Model V1B, 500 watt electronic power supply, which furnishes 117 volts 60 cycles AC. It has sufficient capacity to handle recorders, turntables and other synchronously driven pieces of equipment that require constant speed. Power supply has no change in output voltage, with changes in load; has a built-in oscillator which controls the output from 35 to 90 cycles, and will control outputs of gas driven generators and other power sources making it excellent for field or lab installation. Operating under full load, the output wave distortion is slightly more than 5%. For additional information and prices write Stancil-Hoffman.

NEW MAGNECORDERS



Magnecord, 1101 S. Killbourn Ave., Chicago, Ill., has announced the M 90 and M 81 recorders designed for broadcast use, musicians and professional and industrial users. Both machines conform to NARTB standards and feature slot loading, full range frequency response (20,000 cps on the M 90, 15,000 for the M 81), push button controls, interchangeable head assemblies permitting half track, full track or instrumentation without loss of head alignment. The units will start and stop instantaneously, are available in either 7½ and 15 ips speeds or 7½ and 3¾. Head assem-

blies are interchangeable. The M 90 also features remote control. Prices start at \$800 for the M 81, \$1295 for the M 90. For full details write to Magnecord.

MICROPHONE CATALOG



Turner Company, 948 17th Street N.E., Cedar Rapids, Iowa, now has available upon request a new catalog, No. 961-A. This issue covers microphones, microphone replacement cartridges, accessories, and phonograph pickup cartridges. In all, 40 models of various types and impedances are described, with detailed ordering information given.

NEW "SCOTCH" PE TAPES



"Scotch" brand magnetic tapes No. 111 and "High Output" No. 120 are now nationally available on high-strength polyester backing as well as on conventional acetate backing according to an announcement by Minnesota Mining and Manufacturing Company, St. Paul, Minnesota.

Designated "Scotch" magnetic tapes No. 111 AM and "High Output" No. 120 AM. Labeled "PE" backing, the new tape is recommended where extreme toughness and resistance to effects of temperature and humidity change are required. Cost of the 120 AM tape is \$9.75 for a 1200 foot reel as compared with \$5.50 for the acetate base tape.

CUSTOM EKOTAPE

The Webster Electric Co., Racine, Wisconsin announces an addition to their Ekotape line with a new recorder mechanism designed for custom installations. Known as the model 212 Symphotone, the unit consists of a two speed record-playback mechanism finished in antique copper and

"Tested in the Home"
report available



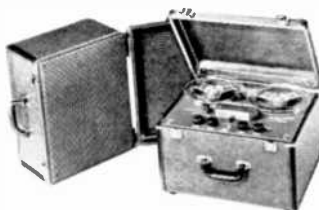
Crestwood goes to the heart of sound

At the great Hi-Fi Shows in Chicago, Boston and New York... in homes and offices across the country... in critical tests made by experts... CRESTWOOD 303 rates as a truly exceptional tape recorder.

Used with Hi-Fi Systems, CRESTWOOD 303 offers smooth, wide-range frequency response... separate bass and treble controls... professional type recorder "red heads"... an all-important monitor jack ahead of power output and speaker for easy connection into Hi-Fi Systems.

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Model 401 (Recorder) \$199.50
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Model 402 (Power Amplifier and Speaker) \$100.00

Crestwood Model 303
Tape Recorder \$199.50

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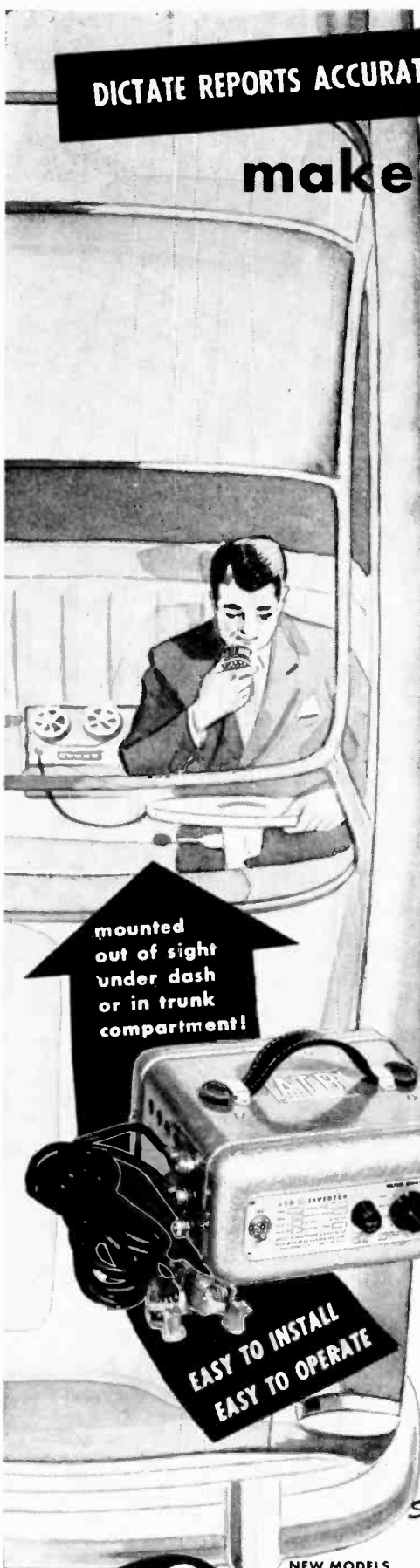
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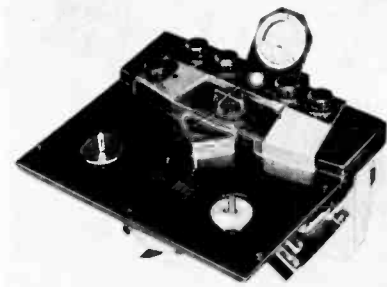
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brushed chrome plate. The 212 uses a twin track recording head and has two speeds 3 3/4 and 7 1/2 inches per second. One control handles the tape travel and others are included for speed selection, volume, record-playback. It has a high impedance jack for a microphone and a high impedance input on a terminal strip for a phono or radio tuner. Two indicator kits are available as accessories: these are a decibel meter and a "magic eye" tube for recording level. For price and details write to Sound Sales Division, Webster Electric Co., 1900 Clark Street, Racine, Wisconsin and ask for Bulletin RSA1.

"MUSIC FESTIVAL" RECORDER

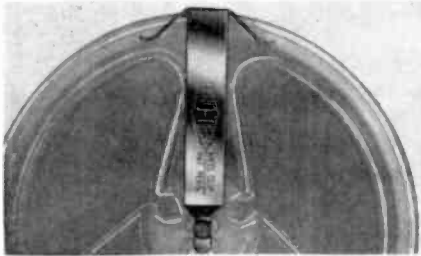


A new table model recorder with a multiple speaker system was announced by the Bell and Howell Company, 7100 McCormick Road, Chicago 45, Ill. Called the "Music Festival" it combines ultra-modern styling with realism in sound reproduction. The latter is achieved by the placement of four separate speakers. Two 8 inch woofers are placed on opposite sides of the unit to reproduce the low tones. For high notes two electrostatic speakers are placed side by side behind the front grill. A dramatic demonstration of the range of tones achieved by the speaker system may be made by turning the selector switch to one speaker at a time, then switching on all four together. The unit contains three motors with one motor driving the capstan. The recorder uses Brush heads and has a program indicator. The cabinet is grained mahogany with gold and sand colored grills. A dark mahogany model (300-M) will be available in December listing at \$299.50. In early 1955 a blond model will be produced to sell for \$314.50.

INVERTER CHART

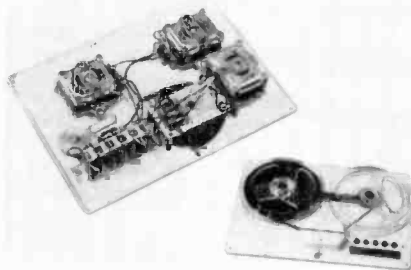
American Television & Radio Co., 300 E. 4th St., St. Paul 1, Minn., announces an Inverter-Recorder Selection Chart which covers all standard AC tape recorder models and enables anyone, at a glance, to determine which inverter should be used for any given tape recorder depending on where the tape recorder is to be used in autos, trains, planes, or DC districts. The ATR chart is available from the above free of charge on request.

REEL BAND HOLDS TAPE



Pro-Tex Reel Band Company, 2108 Payne Avenue, Cleveland 14, Ohio, announces the Pro-Tex Reel Clip, a non-magnetic fastener for sound tape and 8mm motion picture film reels. It snaps into place quickly and easily without picking up the reel, keeps the tape or film tightly and smoothly wound, and has space on the side stem for necessary reel data and other identification. For details and price write to above address.

TAPE DECK



Fenton Company, 15 Moore St., New York 4, N. Y., announces the new "Motek" Hi-Fi Tape Deck with a three-motor (capstan, takeoff, and takeup) drive which results in smoothness of operation. It has an electrically interlocked switch and brake system, frequency response better than 50 to 10,000 cps, less than 0.3% wow and flutter, and silent drive. Half track working on standard 1/4" tape gives 32 minutes of playing time on each track at 7 1/2 ips. Motek provides instructions for building pre-amplifier and oscillator stage, which can be plugged into any home audio system. Also available for the Motek is the Fen-Tone model EAP-2, a complete tape recorder and audio amplifier with separate power pack for remote installation, which is provided with a high fidelity preamplifier output socket. For further details and prices write to above address.

Only Tape Recorder
with Simple Single-Knob Control

\$129⁵⁰ complete

Model
CT-1

PENTRON TAPE RECORDER

with exclusive MONOMATIC® control

This sensational new Pentron gives you the recording-playback quality and all the features of recorders selling for up to twice this price . . . plus fool-proof Monomatic Control, featured in no other recorder at any price!

With Monomatic Control, a flick of the finger instantly gives you selection of Record or Play, in either 7 1/2" or 3 3/4" tape speeds, or Fast Forward and Fast Rewind.

Simplest control ever devised for recording. MONOMATIC Control is your error-proof assurance of getting what you want, when you want it, every time.

- 2 tape speeds—7 1/2" and 3 3/4"
- 2-hour recording and playback
- Straight line slot loading
- True fidelity performance
- Horizontal or vertical operation
- Instantaneous braking—no tape spilling

See it—hear it—to believe it! Ask your Pentron dealer to demonstrate Monomatic Control.

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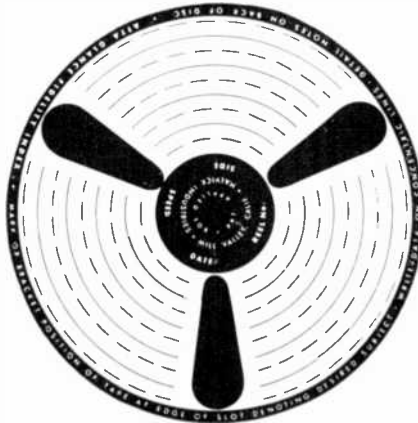
Scheel International, Inc.

4237 N. Lincoln Ave., Chicago 18, Ill., U.S.A.
Cable Address—Harsheel

ELECTRONIC DICTIONARY

Allied Radio Corporation, 100 N. West-
ern Ave., Chicago 80, Illinois announces
the publication of a revised edition of "A
Dictionary of Electronic Terms," No. 37 K
756. This new issue contains an up-to-date
reference source of words used in the elec-
tronics field, including the new language of
color television and the electronics of
nuclear physics. Over 150 illustrations and
electronic circuits are included. Copies are
25¢ each and may be obtained by writing
to above address.

ATTA-GLANCE INDEX



Halvick Industries, 189 Miller Valley, Cal-
ifornia announces the "Atta-Glance Fidelity
Index" disc. This fits over the tape reel and
notations can be made on it with pen or
pencil to pinpoint the contents of the reel.
It is made in both 5 and 7 inch reel sizes
and retails for 15 cents each or eight for
\$1.00. Dealer inquiries will be welcome as
well as individual orders for this clever
solution to indexing a tape.

RECORDER USE BOOKLET

Over 150 uses for a tape recorder are
outlined in the new 14 page booklet "Words
and Music" offered free upon request by
the Webster Electric Company, Racine, Wis-
consin. The booklet is designed to show
prospective recorder purchasers how they
will benefit by owning one and helps in
broadening the activities of those who may
already have recorders. The uses outlined
in the book cover many occupations within
the business world, church, school and home.
A postcard or letter to the Sound Sales Divi-
sion of the Webster Electric Company, 1900
Clark Street, Racine, Wis. will bring you
a copy.

NEW TEST TAPE

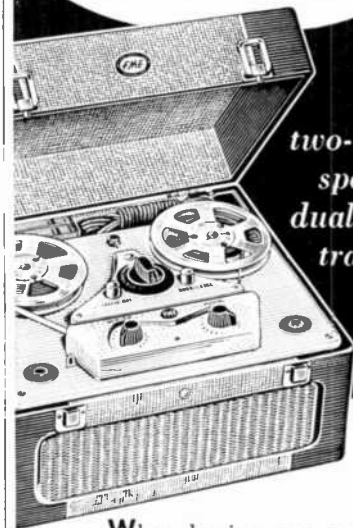
The Dubbings Company, 41-10 45th St.,
Long Island City 4, N. Y., now has avail-
able a reel of pre-recorded tape for testing
recorders, designated as the Dubbings D-
210. The 3" reel contains two timing beeps
to measure tape speed and a 5000 cps tone
for aligning the play head. The tape also
contains musical selections from the Audio
Master Library. Recorded at 7½ ips, it may
be used on full or half-track machines, and
is recorded on Reeves Soundcraft Plus-50
mylar tape. It sells for \$1.00. Write
Dubbings for details.

QUALITY

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FME

TAPE RECORDER



two-
speed,
dual-
track

When buying any recording
equipment you, as a high fidelity en-
thusiast, are interested in its many
technical aspects. Frequency response,
signal-to-noise ratio, flutter and wow
are, certainly, all important. And in
these aspects the FME Tape Recorder
is incomparable in its price class.

Yet, in the truest sense only your ear
can really distinguish the quality of fine
recorded sound. Only your trained touch
can really judge the simple, smooth oper-
ation of a tape recorder. It is for this
reason that Federal, without bold refer-
ence to technical specifications, invites
you, the real jury, to listen to the FME.

Hear for yourself Federal's triumph
in sound. Feel for yourself its quality
construction, its smooth, simple opera-
tion. Playback any tape—either 3¾ or
7½ IPS. Test its single knob control,
its fast forward and rewind, its separate
volume and tone controls and many
other wanted features.

Then look at the price—we're sure
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Only \$139.95. Slightly higher on West
Coast. Supplied complete with ceramic
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- Makes your recorder a continuous play device.
- Can be recorded and played in regular manner.
- Uses high strength mylar tape.

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Three minutes of tape at 3.75 I.P.S. Longer tape lengths available on special order. Full instructions included. At your dealers, or send check or money order to

TELEVISION ASSOCIATES OF INDIANA
Michigan City, Indiana



HI-FI CONVERTER



Carter Motor Company, 2655 N. Maplewood Avenue, Dept. 45, Chicago 47, Illinois, has introduced a new 500 watt Hi-Fi converter, #DR1025C5PX. This converter is designed to deliver 125 volts AC with 120 volts DC input and a load of only 50 watts; voltage variation is held to a minimum. The unit features a 500 watt frame to provide a maximum of 250 watts of controlled power. It has fine regulation, includes a frequency control with meter, and also has a filter available to give noise-free radio reception. In addition, it is useful in running electronic test equipment from DC supply. For complete information and prices write Carter Motor Company.

NEW "FERRO-SHEEN" TAPE

ORRadio Industries, Inc., Opelika, Alabama, announces three new Ferro-Sheen processed tapes: Long Playing Tape No. 600, Shamrock No. 300, and Sound-Plate Mylar No. 220. According to the manufacturer, the new Ferro-Sheen hot lamination process results in the smoothest surface ever attained, extends the frequency range of the tape far beyond the present range, reduces head wear, virtually eliminates nodules and agglomerates and has unexcelled adhesion. The Mylar tape also will not become brittle with age. ORRadio is holding "Open House" during January and invites all tape fans to drop in and see their plant.

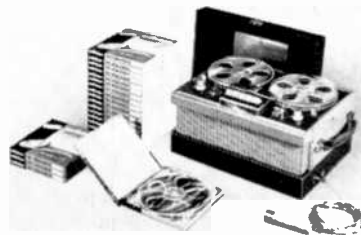
GERMAN IMPORT

American Elite, Inc., 175 Broadway, New York 19, N. Y., is importing the Telefunken Magnetophon Recorder, KL-25. It is available in either 3 3/4 or 7 1/2 ips speed and will take a 7" reel. It has separate erase, record and playback heads, a



resettable time indicator, one-piece capstan assembly, and inputs for microphone, tuner, record player or another recorder. It also has headphone monitoring, external speaker jack, and a connection for feeding an external amplifier. Frequency response is 60 to 12,000 cycles at 7 1/2 ips. speed. It measures 13 x 17 x 7 inches and weighs 29 pounds. It will sell for \$349 FOB New York. For full details write to American Elite.

ARTICLE CONTEST



Audio Devices, Inc., 444 Madison Ave., New York 22, N. Y., is sponsoring a contest for the best articles on home use of magnetic tape recorders. First prize is a V-M portable 2-speed, dual-track type recorder, plus \$100, plus twenty 1200-ft. reels of Audiotape; second prizes (2), each \$100, plus fifteen 1200-ft. reels of Audiotape; third prizes (3), each \$50, plus ten 1200-ft. reels of Audiotape. Articles should tell what tape recording equipment is used for in the home, give a description of equipment, list recording methods, etc. Photographs of equipment will be evaluated as part of the entry. A similar contest, with identical awards, is also being held for church recordists. Write to Contest Dept., above address, for details and rules.

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TAPES TO THE EDITOR

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

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

To the Editor:

In the December issue G.N.W. of Brooklyn asked about a portable wagon for a tape recorder. I thought you might suggest that he look into one of the rigs used to carry golf club bags around the course. They are light, with two wheels, and might do the job. — Robert K. Tracy, Moscow, Idaho.

Our thanks to reader Tracy for his suggestion. Golf club carriers should be easy to convert to make a recorder more portable. Ed.

To the Editor:

I would like to suggest that you run a how-to-build-it article on the subject of a tape cabinet to hold tapes and mikes and also a speaker cabinet for an external speaker. I would also like to have some information on how to store tapes, whether they should be kept horizontal or vertical. When using binaural tapes and a player such as is made by Audiosphere, is it possible to play one channel through the recorder and the other through the TV set? —Henry York, Portland, Maine.

Thank you for your suggestions—if any of our readers have built such a cabinet we'd be interested in hearing about it. Tape may be stored either way with safety, unlike records, which should be stored vertically. You can play one channel of the binaural tape through the TV set and the other through the recorder as you suggest. Ed.

To the Editor:

I wonder if your readers could suggest some device that would enable a blind person to detect the end of the tape before it runs through the machine and has to be rethreaded. I tapespond with several blind friends and I know they would be interested. —Paul H. Brobst, Reading, Pa.

To the Editor:

I saw your magazine in a photo store, bought a copy and liked it. I have a Webcor 2010 and an 80-1 wire recorder and am planning to buy another machine. I have a high school level program on stamps on station WTRM and would like to tapespond with anyone interested in stamps as a hobby. It is amazing how useful a recorder can be in the pursuit of other hobbies as well. —Roy Trumbell, Box 471, Corta Madera, Calif.

To the Editor:

I have just purchased a new tape recorder. I am a photographer and intend using this machine to record wedding ceremonies. However, I wish to get as much

as possible out of my investment and I think perhaps I could if I knew what to do with it, other than recording weddings.

It occurs to me that you might be able to advise me where I could purchase short skirts or plays that could be used by two or three couples. Any advice you might offer to help me enjoy my newly purchased recorder would certainly be appreciated. — R. J. Byrne, Birmingham, Alabama.

The uses to which a recorder can be put are so numerous that it would take a book to outline them all. In fact, Webster Electric, 1900 Clark Street, Racine, Wisconsin, has just issued a booklet on the subject, listing more than a hundred uses for a recorder. Copies are free and we suggest you write for one. As a photographer, you could put your time signals for developing film on tape and fill in the gaps between them with music, thus making the task of film developing more pleasant. Plays may be obtained from Webcor or from houses that specialize in plays for amateur groups. Ed.

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FREE 308-PAGE 1955 ALLIED CATALOG

Buying guide to everything in electronics, including all equipment for the tape recordist: complete recorders, basic mechanisms, amplifiers, mixers, microphones, head demagnetizers, telephone pickups, recording tape, splicers, leader and timing tape, patching tape, identification labels and accessories. Write for Free copy today.

ALLIED RADIO
 100 N. Western Ave., Dept. 83-B-5, Chicago 88, Ill.

QUESTIONS & ANSWERS

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

Q—When I read "Tapes to the Editor" and "Questions and Answers" in your last issue it said to send the question or message on tape. When I read this I was puzzled.

To send the message or question would I be expected to record my message, cut the tape and then have to pay postage? I would be grateful if you could straighten this out in my mind. I intend to read future issues of Tape Recording — F. M., Phila., Pa.

A—Most of the tapes which we receive are on the small 3" reels. These run a total of about 20 minutes when both tracks are used and are more than sufficient for a message or question. As they are small and light, it takes only 6 cents postage to send them first class mail or 12 cents air mail. When we receive the tape we listen to it and then record our message on the same tape and return it to the sender postpaid. The tapespondence clubs use the same method.

WEB BACKGROUND ORGAN MUSIC TAPES

Each tape is 1200' 7½ ips • FULL HOUR • dual track. Each contains 20 numbers ALL brand NEW possible future "hits" (new Web Polley enables WEB TAPE OWNERS to "preview" all its NEW numbers (standard and popular) on WEB BACKGROUND ORGAN MUSIC TAPES before release to radio, TV and public performance).

Enjoy, relaxing, soothing, (and occasionally a little lively) strains of the ORGAN while dining, at gatherings and on other occasions where the use of background music is desirable.

May also be used by Restaurants, Hotels, Motels, Doctors or Dentists Offices, factories, plants, stores, etc., for there are no ASCAP or BMI fees to be considered. This music is licensed for YOUR use. Tape player only is required (with suitable amplifier if establishments are noisy)—and in many places a tape player can be fed directly into the record player input of your radio and give you sufficient volume for the room or hall, etc.

We now have two 1200' tapes—each with different numbers (20 on each tape). These are our stock Nos. 102 & 101. These two tapes may be supplied by those who use 2400' reels, giving a two hour show. Each is priced at \$9.85. We also have our 102R, a 600' reel of religious numbers (10) a 30 minute program of Organ & Chimes for use by Churches, Religious Groups, Funeral Parlors, at \$6.85. All three tapes are 7½ ips, dual tracks. Start your collection of WEB BACKGROUND ORGAN MUSIC TAPES now with one, two or all three of the above tapes and follow up with each future release as announced, periodically.

At all leading electronic, photographic, department, music or record stores. If not available in your locality we will ship postpaid on receipt of remittance (NYC please add 3% tax).

WEB MUSIC PUBLISHING CO.

149 W. 48th St., New York 36, N. Y.

JOBBERS: A FEW MORE TERRITORIES OPEN

Q—I understand that for best reproduction results, a tape should be played back on the same machine on which it was recorded.

I do not see how this rule can be followed when using recorded tapes available on the market. Most positively these tapes have been recorded on machines of entirely different types from the one we have at home.

Some recorded tape producers give some advice as for instance Livingston Electronics Corp. I quote from an ad in your magazine, "the above tapes are recorded to exacting professional standards for standard Ampex playback equalization." Does that mean the tapes offered are for use on Ampex recorders only?—C. C., Schenectady, N. Y.

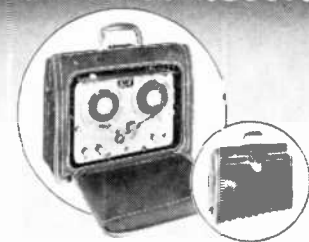
A—To answer your last question first. All tapes offered by the various companies such as A-V Tape Libraries, Hack Swain, Livingston, Amercord, Audiosphere, etc. will play on any brand of recorder. The important point is not the brand of machine but whether or not the head is as it should be, in perfect alignment. The gap in the magnet in the playback head should be vertical. If it is you will then get the full range from the pre-recorded tape. If the playback head on the machine is slightly askew it will not be too noticeable on a tape recorded and played on the same machine but it will affect the quality of reproduction of a tape made with a machine with a head in perfect alignment, as all the commercial recording machines have.

The other point that is sometimes confusing is the matter of equalization. Most recorder manufacturers, including Ampex, follow the NARTB standard playback curve. Therefore a pre-recorded tape will sound exactly as it should on any brand of recorder that also follows the standard.

Q—Tape suppliers list type A and B but none of the component ads, reviews nor descriptions state the type required. Is type A, inside coated, used so much that it is to be assumed unless otherwise expressly stated? I do not notice that ads for pre-recorded tapes indicate the type either. G. E. G., New Britain, Conn.

A—Most of the tapes supplied today by the manufacturers and pre-recorded tape libraries are "A" wind with the coating inside. "B" wind tape is not as widely used and any references to tape assume that it is Type A as you state. There is no need to make a twist in the tape, although that can be done. If you get a reel of "B" wind, unrecorded, simply run it onto another reel so that the coating is inside and you will have "A" wind. We do not know of any pre-recorded tape that is furnished in "B" wind unless on special order.

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Now you can easily and inconspicuously record natural customer reactions, legal evidence, personnel interviews, verbal contracts, criminal confessions, personal data and other highly confidential matter in utmost secrecy with maximum intelligibility.

This new reliable seven pound tape recorder, perfectly camouflaged in a genuine leather briefcase operates noiselessly on long-life batteries and is instantly activated by a clever combination slide-lock and switch. A recently developed, highly effective automatic volume control circuit eliminates level adjustments. Clear pick-up with sensitive built-in microphone at a distance up to 100 ft.

Provides uninterrupted recording for 1½ hours at a tape speed of 1½ ips. A 5" reel records for three hours. Tapes play back faultlessly on all professional and home recorders. All models guaranteed for One Full Year.

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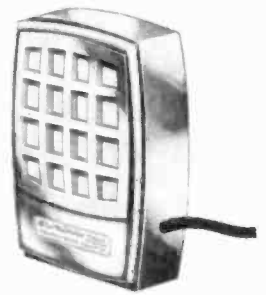
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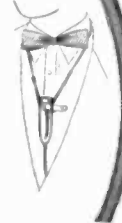
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Most popular microphone ever produced! Stands by itself. Fits in hand or on stand. Smooth response 60-7000 cps. Output —50 db. AC-DC insulated. Moisture-sealed crystal. Satin Chromium finish. Hi-Z.

Model 915. List Price \$11.25
Model 915-S. With switch.
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**E-V QUALITY, AT LOW COST
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The "926" crystal microphone combines handsome new styling with E-V quality features! Designed for public address, tape recording and communications. Frequency response is smooth, peak-free 70-8000 cps. Output level—60 db. Omnidirectional. Hi-Z. Moisture-sealed crystal. 5/16"-27 thread stand coupler. Die cast case, finished in Satin Chromium. Size 1 3/16 x 6 3/4" including swivel mount. 18 ft. cable. Net wt. 11 oz.

Model 926. List Price \$24.50

With two brand new models, *E-V* again sets the pace in crystal microphones! This 1954 line makes selection easier, more complete...assures top performance...provides maximum value. Each has the advantage of E-V research-engineering, precision manufacturing and quality control. Each is styled to suit individual taste and purpose. Each offers smooth, clear reproduction of voice and music—and high output—for public address and paging, for amateur communications, for improved home tape recording. Write for full information.

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All-direction pick-up for round-table conferences, home recording and public address. Response 60-7000 cps. Output level —50 db. Omnidirectional. Acoustic filter protects against wind and breath blasts. Moisture-sealed crystal. Hi-Z. Satin Chromium finish.

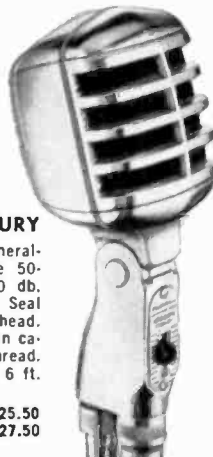
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Model 911-8. List \$25.50
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Model 950 CARDAX

World's favorite high level crystal cardioid* with dual frequency response for high fidelity sound pick-up or for extra crispness of speech. Reduces feedback and background noise. Metal Seal Crystal. Hi-Z. "On-Off" switch. 5/16"-27 thread. Tilttable head. Satin Chromium finish. 18 ft. cable.

Model 950. List \$42.50



* E-V Pat. 2,627,558



SOUNDORAMA: an experiment

*... Washington, D. C., audience treated to dramatic proof
that tape provides maximum natural sound*

by

Mark Mooney, Jr.

HOWARD Mitchell and the National Symphony Orchestra, in combination with WGMS, the Washington, D.C. good music station came up with a conspicuously successful "first" with the "Soundorama" presented on November 13, 1954.

Played to a capacity house, the concert featured a tape recording of parts of the symphony music and an immediate playback so that the audience could compare the live and taped music.

According to Howard Mitchell, conductor of the orchestra who thought of the unusual concert, its purpose was to give the listeners a direct comparison between live and recorded music, to demonstrate the improvements that have been made in recording techniques and to give the audience an opportunity to see recording in action.

The tremendous Constitution Hall was filled to the farthest seats and more than 4000 people, including audio

engineers, professional newspaper and magazine critics, musicians and diplomats witnessed the performance.

Al Preisman, vice president in charge of engineering for the Capital Radio Engineering Institute and Irwin Stein, physicist, formerly of the National Bureau of Standards supervised the technical production. Both are past presidents of the Washington Audio Society and their main objective was to recreate, with the utmost naturalness, the full range of sound and color produced by the 90 piece orchestra.

Previous to the concert the engineers made careful sound level measurements in all points of the great hall and pronounced it one of the finest auditoriums in the nation, from an acoustical standpoint.

Their measurements also blasted a persistent rumor that Constitution Hall was not acoustically good. Some soloists playing with the orchestra have complained that they can-



Top: part of the capacity crowd that witnessed the first "Soundorama" in Constitution Hall. Many new faces were evident according to regular concert goers, indicating that the hi-fi fan and home music lovers were very much interested in the demonstration. Lower: Irwin Stein, physicist, operated one of the two Berlant Broadcast recorders used to record and playback the musical selections. Mr. Stein also made a careful check of the entire hall with a decibel-meter during rehearsals and pronounced it one of the finest auditoriums from an acoustical standpoint. During the tests it was discovered that the plush bottoms of the seats absorbed just about as much sound as a person so that levels could be established very closely with the hall empty.

not hear the orchestra very well on the stage, which may be true. However, the engineers with their decibel meter discovered that for the audience, and for recording, the hall is one of the finest.

To fill the 1,000,000 cubic foot auditorium with sound approximating the effect of the 90 piece orchestra took a bit of doing and the hi-fi fans in the audience were drooling at the sight of the equipment. For the recording, the engineers selected the Berlant BR-1 recorder, Fisher supplied the amplifiers, Audio Devices the tape and Jensen the speakers.

When it is realized that the average living room contains from 2,000 to 6,000 cubic feet of space, some idea of the magnitude of the problem can be grasped.

It was solved by the use of ten speakers, mounted behind the orchestra, each one fed with a 50 watt amplifier. This gave 5000 watts of audio output which was undistorted and did the job.

Other than the microphone used for the pickup, all the equipment used was standard and could be purchased by anyone for use in his own home.

The microphone was suspended about 20 feet above the stage and slightly back of the podium. The main mike was a Western Electric 640 AA condenser microphone which had been calibrated by the Bureau of Standards. According to the engineers, it is this mike that is used by the Bureau as a reference mike to check other microphones. In addition to the 640 AA two other mikes were also hung in the same spot to provide emergency facilities should there be any failure of the principal circuit.

In addition, a Telefunken condenser mike and several of the RCA 77-D mikes, were placed on the stage among the musicians. The purpose of these mikes was to pick up sound for the demonstration of how an improperly placed mike or mikes can distort orchestral balance.

In order to show how an orchestra is built Dr. Mitchell introduced the various sections one at a time and each performed a "solo" so that its tone color could be grasped by the audience. The first section to play was the brass which, according to M. Robert Rogers, president of WGMS who did the running commentary, "was like military brass—intended to be heard."

Few, if any of the 4000 people realized that what they had heard from the brass section was not the live musicians but a recording enhanced by the musicians merely making the motions. The illusion was perfect.

And when Mr. Rogers left his speaking stand and walked away with his voice continuing from the speakers, the audience was not only delighted but had begun to mistrust their own senses. To tell the difference between the recording and the live music or voice and the tape playback was next to impossible.

The acid test of the system came when the orchestra played Rimsky Korsakoff's Spanish Caprice. This was selected by Dr. Mitchell because its composer used every type of sound permissible, calling on the entire orchestra singly and together.

It lasted but a minute and some few seconds and many felt that it had been all too short to give a good comparison. By the time one had begun to listen, it was over.

The first playback of the Caprice was made from the tape fed by the incorrectly placed stage mikes. The imbalance of the recording was very obvious with the drums



crashing through and overriding the lighter sections.

Following this the tape was played that had been made with the 640 AA mike suspended above the stage. It demonstrated that the balance was good and the sound was realistic and natural.

Because the pickup and playback was monaural the exact feeling of the live orchestra was missing, although it came mighty close. We had the feeling that there is room for another try to be made except that this time the recording and playback should be done binaurally. We think that such a performance would lift the audience right out of their seats with its complete realism. It is evident from this Soundorama experiment that with tape and fine equipment the potential is there.

The size of the audience should be a good barometer to the popularity of such performances. Constitution Hall is larger than both Carnegie Hall and the Academy of Music in Philadelphia. That it was packed to the rafters attests to the interest.

According to one newspaper critic, those attending the concert were not, for the most part, the regular symphony audience but, instead there were a lot of new faces, folks who were primarily interested in hi-fi and home music.

As part of the demonstration, the manufacturers whose equipment was used in the show, had displays in the lobby and representatives were present to explain the functions of the equipment to the concert goers before and after the concert and during the intermissions.

Reaction of the music critics was good and some also expressed the feeling that the recorded portion of the show was so short that a fair comparison could not be made.

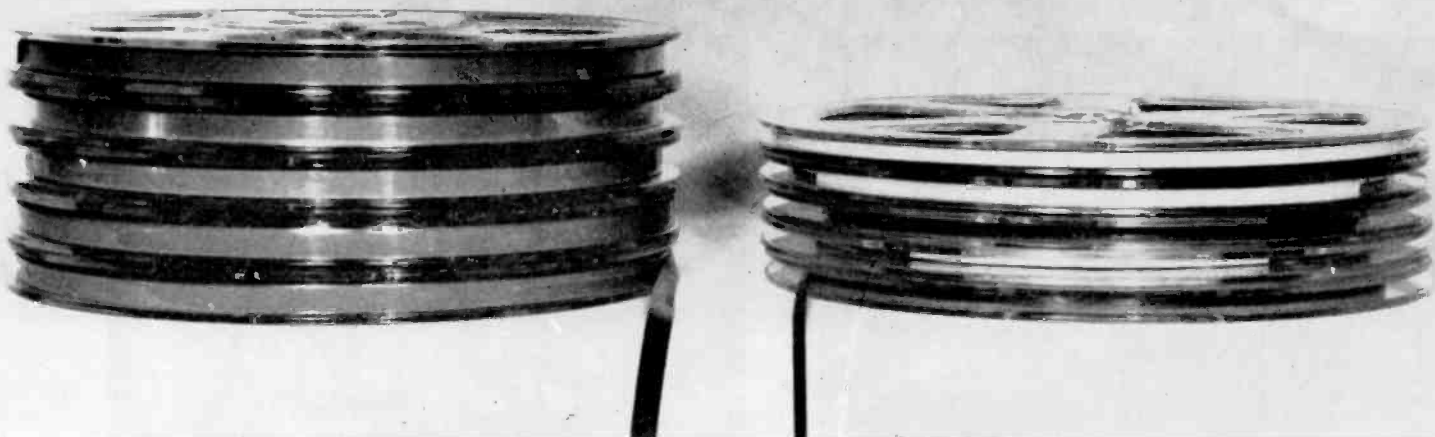
One engineer said, "'Soundorama' opens a new chapter in the adventure of capturing the emotions of sound. It is a great challenge to science as well as to music. Those who saw and heard this concert got the best possible demonstration of the progress we have made up to the present.

"We want to remove the aura of mystery and mumbo jumbo which surrounds the technique of high fidelity music reproduction. It is definitely not black magic but clean-cut engineering applied to a specific problem."

The first "Soundorama" concert was not preserved on the tape for by special agreement with the American Federation of Musicians, all tapes made had to be erased following the concert.



Upper left: the equipment used in the demonstration consisted of two recorders, ten 50 watt Fisher amplifiers and ten Jensen Imperial speakers. All the items were mounted in full view of the audience who were thus treated to an inside view of how recordings were made. Top right: the Western Electric 640 AA condenser microphone which made the orchestra pickup was suspended about 20 feet above the stage and slightly behind the podium. With it were rigged other mikes to provide a safety factor in case of failure. The 640 AA was calibrated by the Bureau of Standards. Center: the recorders and amplifiers were set up on the left side of the stage. This shot, made at rehearsal, shows the ten Jensen Imperial speakers lined up along the rear wall behind the musicians. Below: the principals in the production of "Soundorama." From left to right: Bert Berlant, president of Berlant Associates, Dr. Howard Mitchell, conductor of the National Symphony Orchestra, Harvey Fisher, president of the Fisher Radio Corporation, and Karl Kramer, manager of technical services of the Jensen Manufacturing Company.



Narrow tape that can be edited without waste also saves storage space and postage on voice letters. Five reels in each stack. Demi-tape is on the right.

New Width Planned for Magnetic Tape

... "Demi-tape," only one-eighth inch wide may set second standard. Will play on all recorders. Makes editing easy.

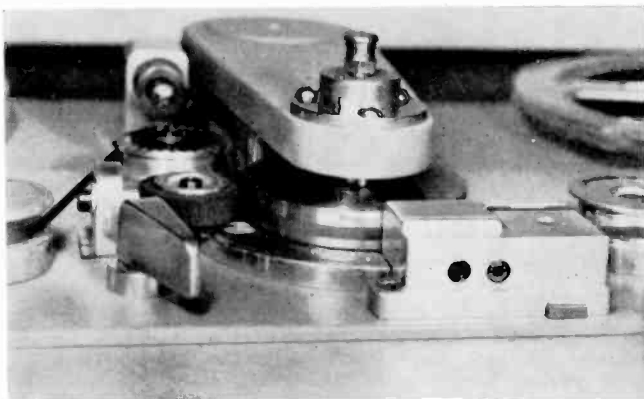
by

H. J. HASBROUCK

AT last something is going to be done about the editing problem on dual track tape. This extremely satisfying pastime, assembling one's own dressed-up program of favorite recordings, choice musical selections, baby's first words, and so forth does not fit in with the practice of duplexing or dual track on standard width quarter inch tape.

When there is a sound track down each edge of the tape it is obviously impossible to edit one without losing the other. Therefore if editing is done on a half track machine one side of the tape must be left blank. The normal margin which is provided to prevent cross talk on a dual track also represents wasted area and the result is, that if one decides to prepare material for editing he will waste more than half the surface area of the tape. An incredible amount is lost in this way every day, everywhere in the world.

Because a lot of folks like to edit their tapes just as they do their home movies, one manufacturer of long-playing records thinks the answer lies in a narrower tape and has decided to take the plunge and make it available by furnishing a high-quality plastic-base tape one-eighth inch wide.



Narrow tape running through a professional full-track recorder without the use of an auxiliary edge guide. On full-track machines there is a drop in signal output, on half track machines there is no difference in the output from the tape.

This will be called "Demi-tape" (after the midget sized cup of coffee).

Narrow gauge reels will also be provided as well as other accessories, including a home slitter to slit tapes already recorded. The new tape will operate in many machines without alteration but others may require an edge guide.

Demi-tape has many advantages and some disadvantages. It is felt that the former outnumber the latter. In some places where the tape was tried out, the recordists have switched to Demi-tape for keeps.

On recorders with heads especially designed for the new width, the signal to noise ratio is actually better than on standard half-track recordings. This is so because the full width of the tape is used.

When used on professional recorders with full track heads there is hardly a significant difference in performance between Demi-tape and regular quarter inch tape in S/N ratio. By halving the tape width there is a theoretical loss of 3 db in the ratio. A change of 2 db is generally acknowledged to be the smallest amount that the human ear can detect. In trials, any increase in noise when using the Demi-tape has not been noticeable, being masked by studio noise in most cases.

The signal output from the narrow tape on a full track machine is naturally half that of quarter inch tape. On a half track machine there is no difference. Any reduction in signal output voltage puts a burden on the preamp and when the gain is raised preamp noise may appear. However it is easy to design a playback system so low in its own noise that it is below that of even the narrow tape. This has been done and most high-quality professional preamps are already that good. Thus when Demi-tape is used on a professional machine with full width heads there is no audible noise even at gain settings which would be uncomfortable for music reproduction. The narrow tape exceeds considerably the signal-to-noise ratio of the best vinylite disc pressings. Copies of quarter inch tape have been made on narrow tape and copies of narrow tape copied back on

quarter inch tape, followed by A and B tests. It was almost impossible to distinguish one from the other.

Slitting at Home

Probably the lowest overall operating cost for the home recordist will be achieved if he slits his own tape on his own recorder. A slitter is attached between the supply reel and the entrance to the heads. It uses razor blades of the injector type and as a blade dulls it can be moved to a sharp spot very easily. A single position of the blade will last for at least one 1200 foot roll of tape. By shifting for each reel, one blade should be able to slit 20,000 feet of tape.

The procedure for slitting is a little amusing since part of the tape must be run off onto the floor. It appears to be a hopeless mess but if undisturbed will not tangle.

The operator places a full reel of standard tape on the supply spindle and threads up as usual except that slitting is started with the scissors for a few inches so the tape can lie in the slitter with a half on each side of the blade. Then a sufficient amount is pulled through by hand, the two strands kept side by side and threaded past the heads and over the capstan. The pressure roller is closed which keeps the strands in position. One strand is threaded on a narrow gauge reel and the other is allowed to fall by its own weight to the floor or into a shallow box. Make a test run for a bit and if everything goes right, run off the entire reel at normal speed. As the end of the tape comes through BE SURE to hold on to it!

The next step is to remove the filled narrow reel and place another on the takeup spindle. Attach the end to the reel and start winding up, allowing the tape to run between the fingers. Watch for tangles and stop immediately if one appears, however this seldom happens.

Collecting tape in a basket is a trick worth remembering. It has been used in making master recordings to eliminate flutter from takeup jerk.

Slitting After Recording

If one has a full track tape, it may be slit as described above to provide an original and a "carbon." This is a natural for voiceletters.

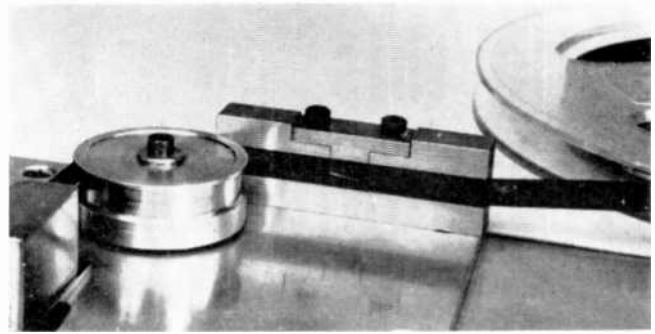
Factor of Head Wear

Uneven head wear is possible on a machine not designed for the narrow tape and may develop after a long time. The worst condition would occur if the recordist used narrow tape for a number of years and then decided to use full width tape. The heads probably would be slightly ridged but the soft pressure pads should take care of any irregularities.

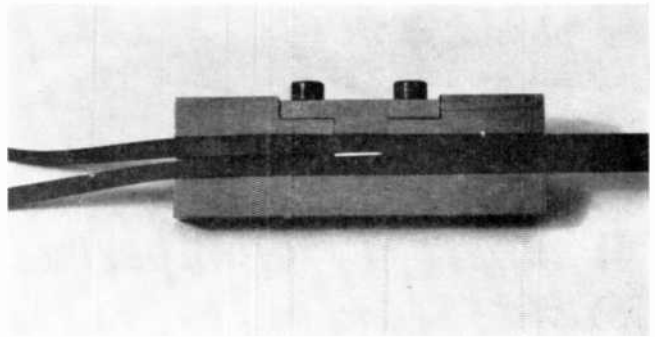
Higher Tape Speed Practical

For the hi-fi fan who is more interested in quality than in long playing time, the narrow tape is appealing. With Demi-tape he can run at 15 ips and get the same mileage that would be obtained from full width tape running at 7½. By halving width and doubling speed he can obtain a better balance of the factors which contribute to a good recording and the result is quieter than any LP record he can buy.

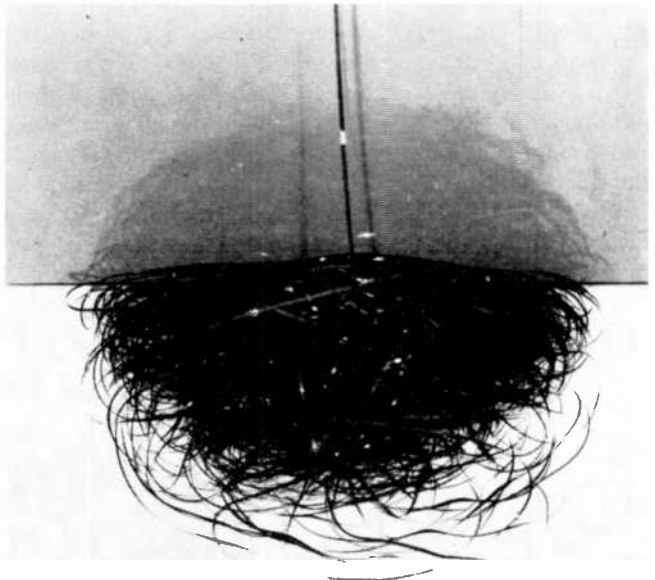
Hi-fi fans will shudder at this suggestion but it has already been made—dual tracks on Demi-tape! It would take two .040 inch tracks with the remainder used for margin. At the slower speeds it appears to be as far as one can go on economy.



Slitting tape on the recorder can be done before or after recording. If full track recordings are slit the result will be an "original" and a "carbon."



The home-type slitter uses injector-type razor blades which are inexpensive and can be easily changed when they become dull.



When slitting, one half of the tape is allowed to pile up on the floor or in a shallow box. It will not tangle if left undisturbed but be sure to catch the end as it comes through the slitter.

Demi-tape also preserves the identity of recorded material. With dual tracks, there is twice as much material to search through for a wanted recording. On narrow tape with only one recording it is much easier to locate a particular subject. This came to light during field tests of the new tape.

The new width also offers the opportunity for manufacturers to develop lower cost machines. The tape can be bulk erased instead of having erase heads in the machine and other things found on recorders could likewise be eliminated, such as high-speed forwards, rewinds, etc.

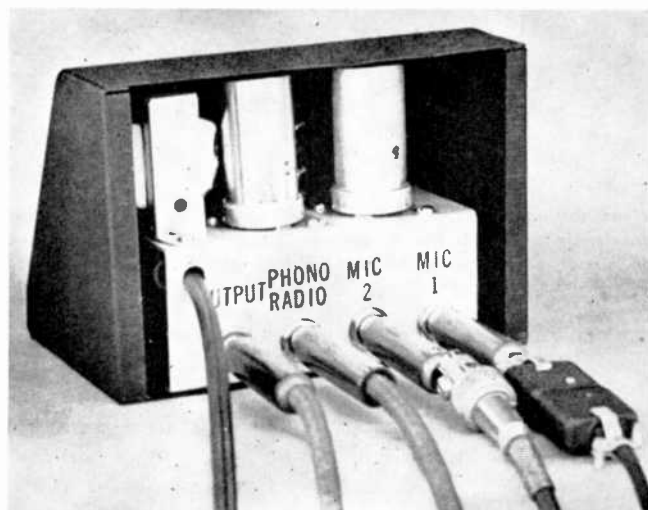
Build this ELECTRONIC MIXER

... 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.

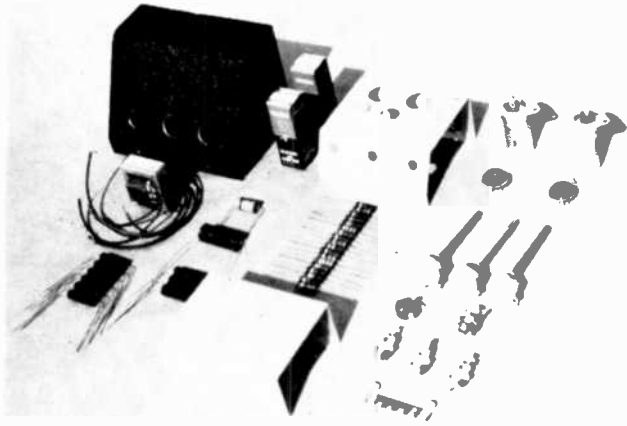
In keeping with the living room decor, an inconspicuous but attractive type cabinet is desirable. The one pictured is made by Bud Radio Company. It comes in black wrinkle finish but can be given a couple of coats of grey enamel or whatever other color blends with your particular color scheme. Individual 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 boosts the signals to overcome any losses or noise pickup in the output connecting cable.

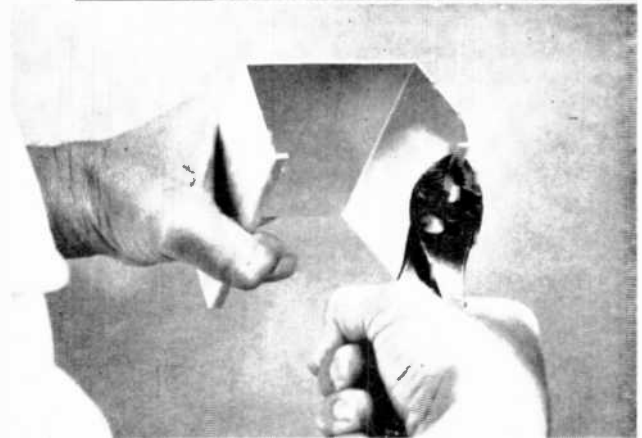
Proper labels can be obtained from suitable decal sets available at your radio parts supply house. You can also pick up some rubber feet or glue a felt pad on the bottom for furniture protection. Now let's get on with the building.

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 is 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.

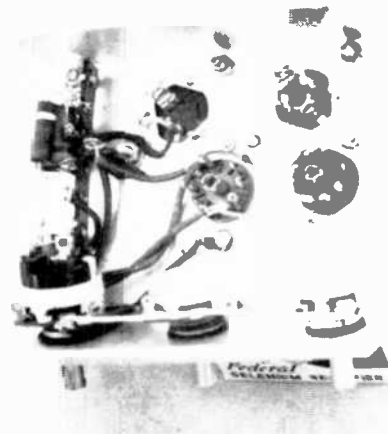


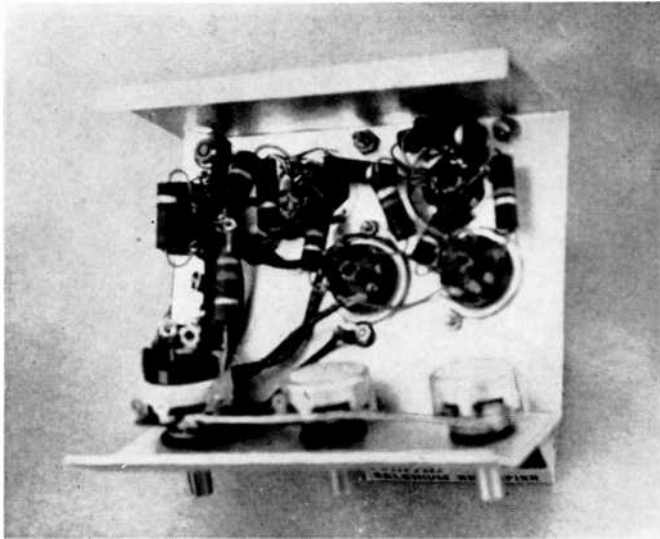
prescribed. Place the chassis upside down on a flat surface and place a short piece of 2 by 4 lumber or other hard block inside the U. Now by exerting pressure on the side piece while bearing down on the block, you can force the side piece out to the proper angle. This can be checked by aligning the 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.

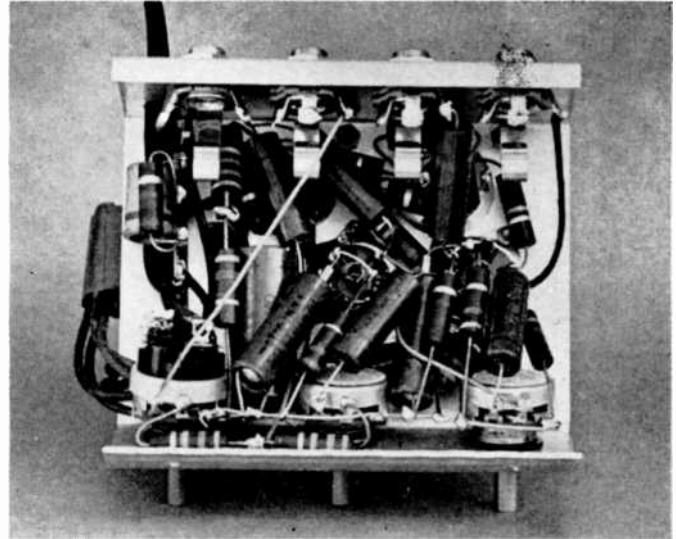
Laying Out Panel Holes

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 re-drill 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.

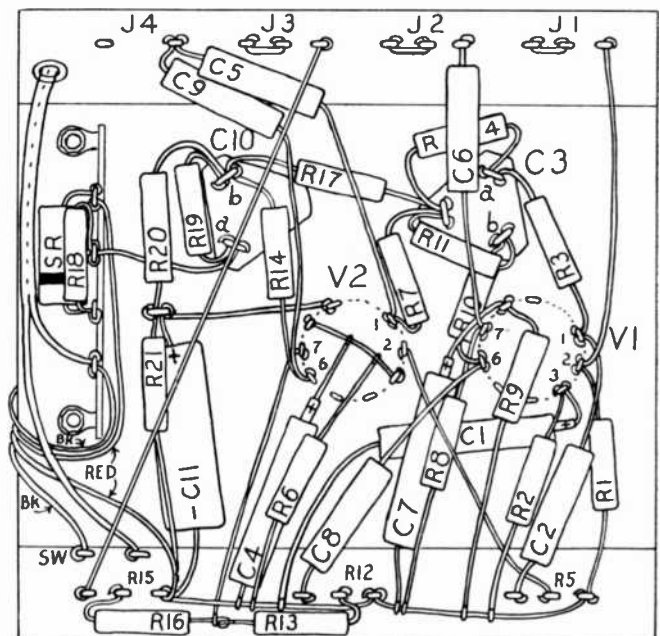
Slip the capacitor mounting plates into position on the capacitor cans and twist the holding lugs a quarter turn or so to make the can secure on the plate. Position the capacitor cans over their respective holes and mark their mounting holes accordingly. Drill these with the #27 drill.

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.

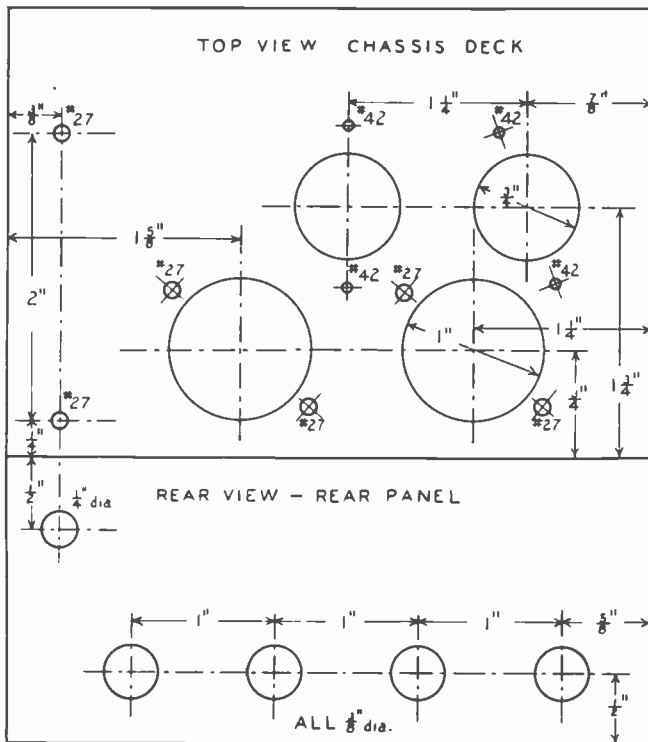
Mounting and Wiring

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

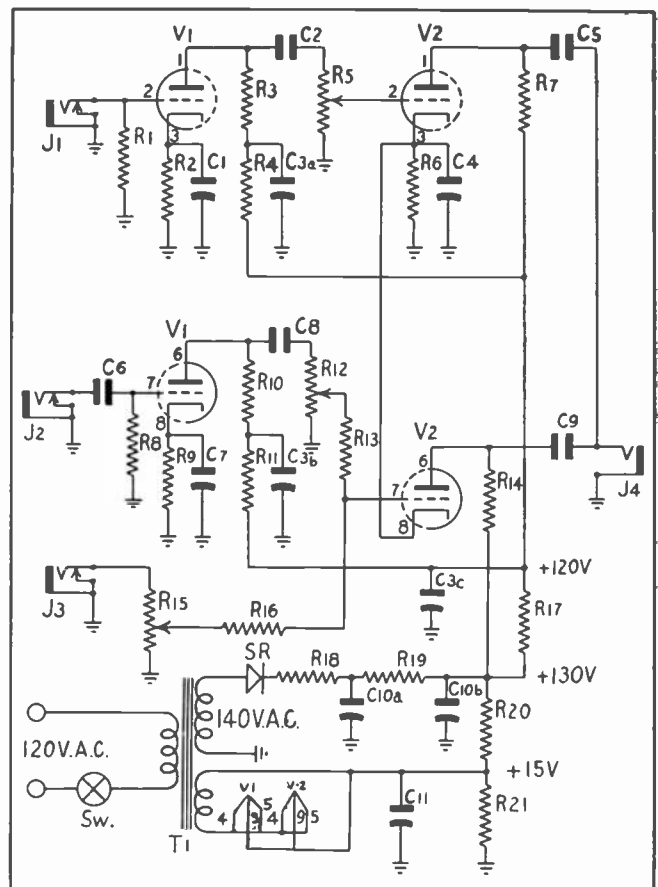
tube socket. Also place a single tie-point terminal lug under the forward mounting nut of the C10 capacitor mounting nut. The mounting lugs of the four-point terminal strip will have to be spread slightly to fit over the transformer mounting bolts. Lock washers should be used under all nuts. Size 6-32 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—terminal 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. Reinhart

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 such as this Atlec Lansing "Lipsik" 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.

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.

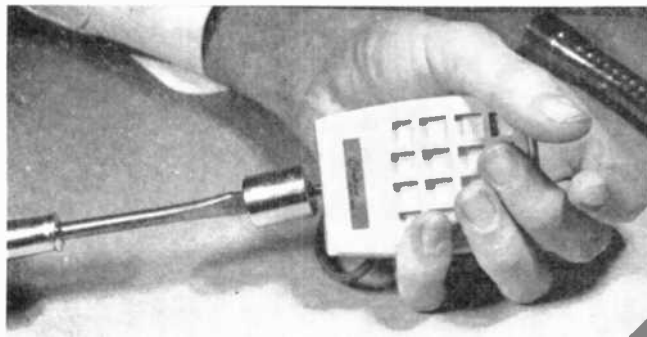
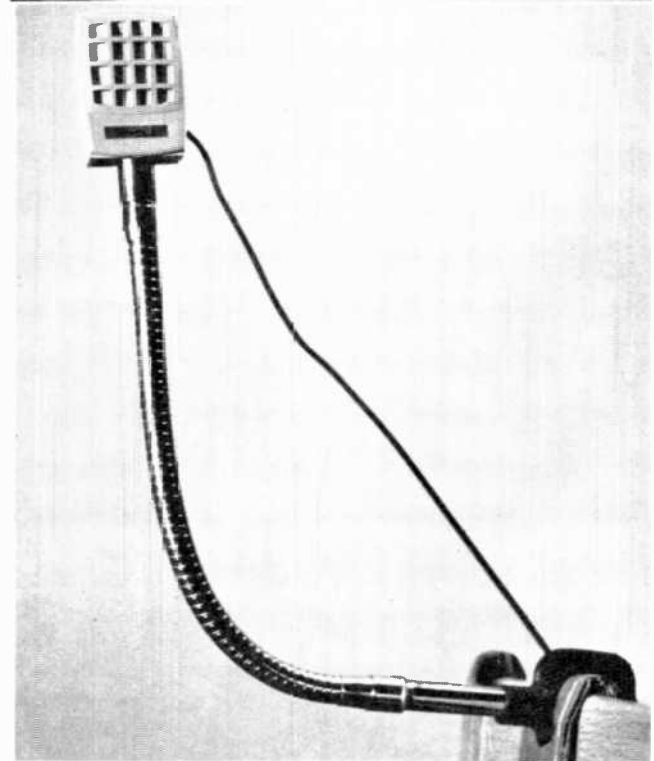
The telescoping mechanism as used in stand adjustment is of two types. The screw clutch or collet type lock is most generally used on floor stands. The other type is the automatic locking type of telescoping clutch mechanism. This automatic action feature, while adding to the cost of a stand, does offer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



Top: a portable, collapsible 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 as 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 6-32 screw is used; the adaptor has 5/8-27 threads.



Above, a desk attachment that will attach to a conventional mike stand to provide support for a speaker's notes. It also features dual mikes, especially useful to maintain the proper sound level when a speaker turns from side to side. The mikes are Electro-Voice Mercury Model. Lower, a boom mike stand must be used on a vocalist-piano pickup to keep the stand out of the way of the player's hands.

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 il-

lustrated, 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 castors 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".

A new item, which has recently been released permits the use of two mikes on a single stand (floor or banquet type) and also includes a small desk to hold notes or other reference material. A duplex mike mount of this type will properly space the mikes in front of the speaker and reduces the possibility of the user getting "off mike" when turning the head from side to side. This same device can be used with a single mike if one extension arm is removed. The desk may also be quickly removed or attached as desired.

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. See page 26 (*Ed.*).

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.

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.



Mark Warnow directing a variety orchestra. A ribbon mike is used set for close perspective. Here saxophones and woodwinds are used at the same time. There are two solo mikes, one up front and one just barely visible near the piano to pick up that instrument.

Recording the Orchestra

Part 1 of three parts

... microphone placement is often critical in the recording of an orchestra. Here are some helpful tips.

by Leslie L. Farkas

“WHY doesn't the orchestra sound better? What happened to the strings? How come I can hear nothing but bass?”

These are questions often voiced when an orchestra recording is played back. And nine times out of ten the answer is:

“The orchestra was not set up correctly for recording.”

Now in order to insure a good set-up, you must decide first upon the kind of pick-up that you want. Should all the instruments playing be heard solidly and sound very close? Or would you prefer a distant effect in which the individual voices are no longer distinct but blended to produce full and more pervasive tones?

Generally the size of the orchestra dictates the kind of pick-up required. For instance, a five piece band could hardly be recorded to advantage with a distant pick-up. Nor would a large symphony sound best when recorded at close range.

In most cases the small orchestra or band is set up to produce a close intimate pick-up so that full use can be made of its few instruments, while a larger organization, which usually has volume to spare, utilizes the distant perspective.

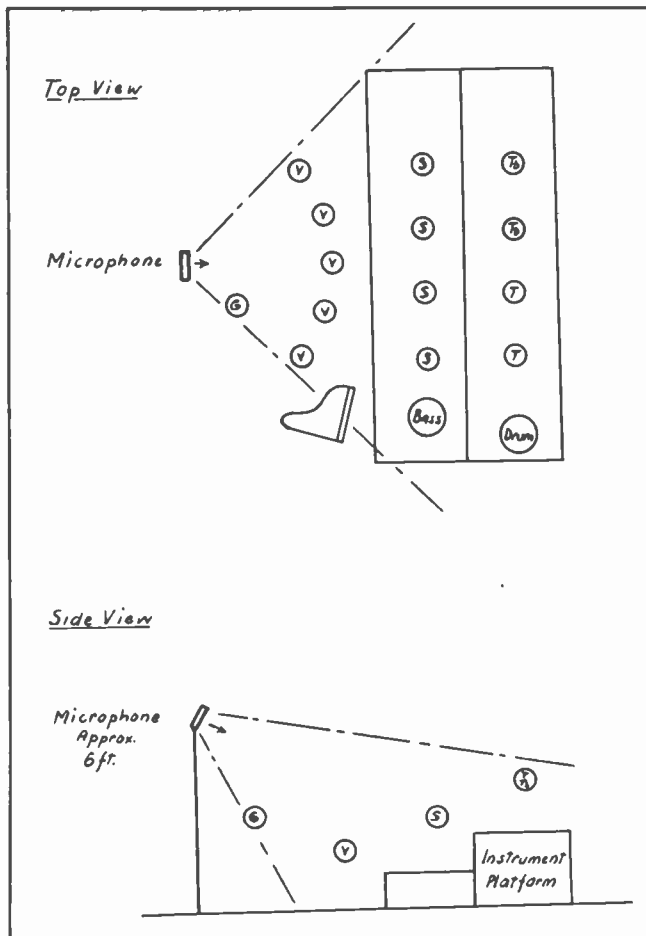
Let us assume that you want to set up a small orchestra for a close pick-up. Two types of set-ups may be used:

the straight conventional set-up in which the instruments are placed on one side of the microphone; or the split set-up, with a duo-directional microphone like the ribbon type, where the instruments are bunched within the two pick-up beams. In practice the straight set-up is generally used. The split set-up is reserved for orchestras that are too large to fit within a single pick-up beam or where there is insufficient space to permit arranging the instruments in a straight set-up.

Once you have decided upon a straight set-up, where do you place the various instruments? A full ensemble might consist of a guitar, five violins or strings, four saxophones or woodwinds—generally the musicians play both instruments, two trumpets, two trombones, a bass viol and drums. All these must be grouped in front of the microphone so that their tones not only form a solid blend, but also sound as though they originate from a single close source. To do this all instruments must be located in positions *tonally equidistant* from the microphone.

Starting with the microphone, place it in the liveliest end of the room—that is to say, in the portion which has the most echo. Raise this unit to a height of approximately five to six feet and tilt it down about forty-five degrees toward the instruments.

Closest to the microphone should be the guitar player.



This shows a straight orchestra setup for close perspective. G—Guitar, V—Violin, S—Saxophone, T—Trombone, T—Trumpet. The instruments must be balanced individually and together to provide the proper sound level for each at the mike position.

Place him on a high stool, about two feet away and slightly to one side of the microphone. This permits the tones of the guitar to have a close perspective and also be heard when the other instruments are playing.

The string section is set up to form a close-knit arc about three to four feet in front of the microphone. Make sure that the violin playing the lead is placed directly in the beam of the microphone. In this way its tones will predominate slightly over the other strings.

Locate the piano to the left of the violins. Its lid should be raised on the short stick and the piano turned so that the open part of the sounding board faces the microphone. At such close range the tones of the instrument should have enough volume without further opening the lid.

The saxophones or woodwinds should be set directly behind the strings. And, to prevent their tones from being blocked by the musicians in the front row, the saxophone players should be raised on a platform six to eight inches high. The bass viol or tuba (whichever one is used) can be located on one end of the same platform. Should the bass tones be too loud, you can then always move the instrument down to the floor.

Now place the trumpets, trombones and other brass instruments on a platform behind the saxophones. The remaining portion of the orchestra: the percussion group consisting of drums and other forms of tympani, can be kept on the side of the brass section, preferably in back

of the bass viol or tuba where their tones will reinforce those of the bass.

As soon as the instruments have been set up, their location must be checked musically on a trial recording. By making the string section play a few chords or a phrase and then listening to the recording, you can tell with a little practice, whether any one of the violins is too loud or seems to be closer than its neighbor. Then you can adjust its position, either by moving it slightly back or to the side, until the correct balance for both volume and perspective is obtained.

Your next step is to vary the height of the microphone until the recorded strings have a solid singing quality. The definition of the tones should remain good, even when the microphone is tilted so that its line of pick-up is approximately halfway between the violin and saxophone sections. If the definition is poor then you must lower the microphone until the violin tones are once more clear. This may affect their brilliance slightly but in such cases you have to compromise. You will probably also have to tilt the microphone toward the strings to prevent the saxophones from sounding too loud, for with the lowered microphone, they have a more direct pick-up angle.

The saxophones are then balanced by having them play the same set of chords, checking the recording, and adjusting the position of each instrument for the correct volume and perspective. Once this is done, you can check the balance between the string and saxophone sections. The two groups of instruments should have equal volume on their test chords. If not, either tilt the microphone to favor the section with the lower level, or move the instruments of one or the other section until the volume of the two groups is approximately equal.

While checking this initial balance watch the perspective of the various instruments. Should there be any drastic change in the tone focus, return the offending pieces to their original position and then try to adjust the differences in volume by moving the microphone toward or away from the orchestra. If this still does not produce the desired volume balance without affecting the relative perspective of the two sections, then the only recourse you have is to make the louder group play softly enough to equalize any difference in intensity.

When a woodwind section replaces the saxophones, the height or tilt of the microphone should be changed to compensate for the lower volume of the clarinets, oboes, piccolos, and flutes. If the woodwinds and saxophones are interchangeable—that is, the same musicians play both instruments at various times during one selection, then the best way to maintain a good balance between strings and woodwinds is to have the musicians raise the bell of their instruments while playing. This should not change the perspective of the woodwinds appreciably; yet it should increase their volume enough to maintain the desired balance.

With the strings and saxophones, or woodwinds, set up in the right relationship, you can now check the brass instruments. Here again a balance is obtained within the section—the volume and perspective of the trumpets and trombones being equalized; then the whole section is compared to the other parts of the orchestra. While doing this you will probably discover that unmuted brass instruments can project their tones quite a way without producing any change in perspective, losing any of their

volume, or reducing their definition. This characteristic will give you more freedom in locating the instruments and balancing the section. Nevertheless the volume from the brass section playing the test chord should be no higher than the level obtained from either the strings or saxophones, otherwise the whole orchestra will have a tendency to sound brassy. This means that trumpets and trombones so predominate that they drown out the other sections. The result is orchestral distortion, an evil which can readily be prevented by pushing back the brass section until the desired volume and perspective are attained.

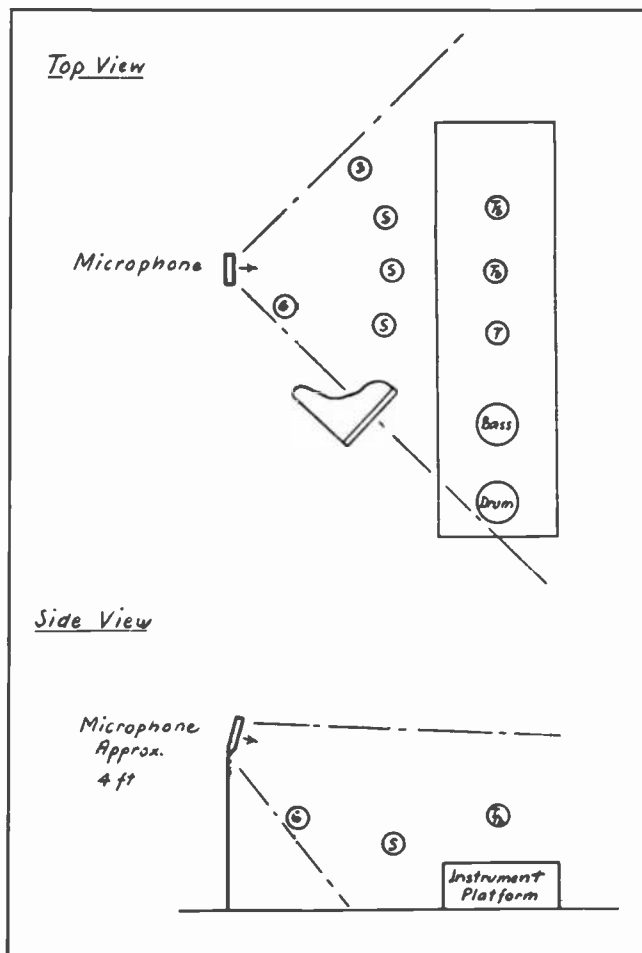
The next instrument that should be checked is the piano. Here again you have a wide margin in positioning the instrument since a fairly large move is required to cause a change in perspective. Comparing the notes of the piano with those from a saxophone or trumpet should indicate whether or not the piano must be moved in or out to keep it at the correct focus.

As for volume, this must be determined with the full orchestra playing for only thus can a realistic check be made. Then you can gauge the effect of the other instruments upon the tones of the piano; you can tell more easily if these tones are being drowned out—a frequent occurrence in some orchestra pick-ups—even when the score does not call for a crescendo. And since large changes in the piano location will not correspondingly change the perspective of the tones, you can push the piano around until you have the desired volume. Ideally, with the full orchestra playing, the notes of the piano should be discernible—that is, you should be able to distinguish them by listening for them, but they should not boom out or predominate.

Now we come to the bass. This instrument must also be checked with the full orchestra, for whether a bass viol or a tuba is used, enough of its tones should be heard to form a foundation for the other voices of the orchestra. This means first that the bass notes must have the same perspective as the other instruments to preclude their attracting undue attention. Moving the bass toward or away from the microphone will set this perspective. Then the volume of the tones must be checked, and again it is best accomplished with a full orchestra.

If the bass notes are too low, the orchestra recording will sound thin: the tones of the instruments will lack body. If the bass notes are too loud, then they will tend to cover up some of the weaker tones; they may also distort sufficiently to make the playback speaker rattle. Turning the "f" holes of the viol or the bell of the tuba away from the microphone will cut down the volume of the bass notes; conversely, turning the sounding board or bell of the instrument back toward the microphone will increase the level of the tones. Thus it should be fairly simple to adjust the level of the bass notes for a correct blend with the rest of the orchestra.

Sometimes you may find that moving or turning the bass away from the microphone increases rather than decreases its volume. This occurs quite frequently when the instrument is positioned so that its tones flow directly into the open part of the piano. The piano top and sounding board act as a combination resonator and reflector for the bass notes, sending them booming toward the microphone. To remedy this condition you must either aim the bass in a different direction, change its location, or close the piano top. In practice a slight shift in the relative position



This shows a band setup for close perspective. G—Guitar, S—Saxophone, Tb—Trombone and T—Trumpet. The microphone should be placed at a height of four feet and inclined toward the middle part of the band. A single mike pickup is best if it can be made.

of the two instruments readily prevents the occurrence of these sympathetic sound vibrations.

Next the drums must be checked with the full orchestra playing. Then, the drum tones, forming the rhythm as well as acting as foundation for the other instruments, reinforce the bass notes in their background function. Should you find that the drums have a tendency to predominate, set a rug under them. This will cut down their resonance and therefore their volume. As to their perspective, that is not very critical. As long as the tones do not sound incongruously out of focus, the overall balance of the orchestra will not be marred. Nevertheless this perspective should always be checked. You can do this by comparing the sound of the drums, preferably the snare drums, with any one of the other instruments already balanced. If you have difficulty in determining the focus required, try using the cymbals. Their high frequency tones will make any perspective distortion more evident.

The final instrument to check is the guitar. Located so close to the microphone and yet on the edge of its beam, the guitar occupies a fairly critical position. It can easily fall in or out of perspective; it may suddenly become annoyingly loud; or it may just as readily drop out completely. For that reason, once the correct perspective has been set, with the instrument located at a certain distance and angle from the microphone, the guitar player should

carefully observe and then try to maintain this position.

The perspective of the guitar should correspond to that of the other instruments. Regardless of its physical proximity to the microphone, on the recording its tones should sound no nearer than a saxophone or trumpet. If it seems too close, move the instrument slightly to the side, out of the microphone beam. Sometime, when the microphone is set low, you can obtain the same effect by pushing the guitar back; however in this case, with the microphone raised fairly high, moving the guitar back would actually set it more in the beam and therefore make it sound closer rather than farther away.

In practice when the perspective is being set, the volume which also depends upon the position of the guitar should also be adjusted. Generally this volume can be varied without changing the perspective by making the guitar player either turn slightly on his stool or by raising the height of his seat. For each change of position check both the volume and perspective to make sure that one or the other has not been distorted. Since the guitar is normally used for rhythm, its tones must act like those of the bass and drums, as background for the rest of the instruments. And yet they should not be so integrated into these background tones that their characteristic twang is not easily discernible when the full orchestra is playing. This does not mean that they should predominate, only that they give the rhythm tones of the bass and drums a high singing quality.

With the orchestra fully balanced all the instruments should sound directly on mike—that is, they should all have presence. Now it is important that this perspective be maintained. To do this on solos raises a problem. The instrument being featured must predominate in volume but should not change perspective. Unfortunately this rule is frequently disregarded. You undoubtedly have heard recordings and broadcasts where the solo sounded very loud and close while the rest of the orchestra seemed to be located in a different room. Such distortion of perspective may be permissible for special effects, but for good orchestra recordings, it should definitely be avoided.

One way to solve the problem is to place the solo instrument on a separate microphone. Thus it can be positioned for the correct perspective and all that is needed to make it predominate for its solo spot is to increase the volume of its particular microphone. Of course this assumes that you have a mixer and more than one microphone at your disposal. If not, acceptable reproduction can still be obtained even with only one microphone by having the musician playing the featured part do one of two things. When he is normally located below the center of the microphone beam, he should stand up for his solo. If he is set in a position above the center of the pick-up beam, then he should not only stand up, but move slightly forward of his music stand. In both cases the action brings the solo instrument more directly into the beam of the microphone and thus increases its volume without appreciably changing the perspective.

This method can also be used when whole sections have a featured part, as when the voices of the violins must be accentuated. Then the musicians of the whole section must stand up. It is also useful for picking up violin passages on low strings or pizzicato parts which have much lower volume than the normal mid-frequency tones yet whose perspective in relation to the rest of the orches-

tra also must not be changed.

By checking your recording you will be able to tell easily when musicians must stand up for their part. The need will be indicated by a decided drop in the volume and fullness of the orchestra whenever the featured passage is reached. It is further emphasized by loss of the melody since the tones of the instrument or section carrying the lead are below their required level. The correct technique is reflected by smooth transitions, without abrupt and unnecessary drops in volume or changes of perspective, from one set of instruments to another and from solo parts to the full orchestra.

One item not considered thus far which may affect the balance of the orchestra is the music stand. Since it is a commonplace necessity, it is generally placed in front of the musician and forgotten. Now if it happens to be set between the bell of the instrument—such as a saxophone or clarinet—and the microphone, the stand acts as a screen and blocks the sound emanating from the instrument, preventing it from reaching the microphone directly. Not only will this affect the recorded volume of the instrument, but it may also change its perspective. For that reason it is always good practice either to set the music stands fairly low, so that the tones can travel over them on their way to the microphone, or to place them slightly to one side, leaving an unobstructed path for the sound waves.

The orchestras considered thus far have included strings in their set up, but there are many instrumental groups today, outside of military bands, which do not have string sections. With this kind of orchestra the first section will be either saxophones or woodwinds. These should be placed on the lower level while the brass section, immediately behind them, can be raised on a platform. The microphone remains at approximately the same distance—three to four feet—from the first row of instruments as was used when the strings were present, but its height must be dropped to about four and a half feet. The reason for this change is that wind instruments can be picked up at a closer range than violins without affecting the quality of their tones. And although now the brass section is closer by one row, the reduced height of the microphone gives the tones of the trumpets and trombones a less direct shot at the pick-up element and thus helps to equalize the respective volumes of the saxophones and brass. Should the brass section prove too loud, you can push it back, and even set it down on the floor so that it becomes partly masked by the first row of instruments. However, as with the previous set-up, the exact position of each instrument then each section must be checked on a test recording in order to balance the volume and perspective of all components. While doing this it will also be advantageous to include solos and full orchestral selections so that the transitions can also be checked. This attention to details may increase the preparation time, but the immediate results may well be worth the additional efforts.

One last thing you should bear in mind regarding orchestral balance: while you should always try to maintain the same perspective for all the instruments, this does not mean that the volume of the sections must also remain equal. Removing volume differences would mean wiping out all musical expression in the orchestration. So once the tones of the instruments are balanced initially, they should be left free to vary in volume according to the dictates of the musical score.

TAPE CLUB NEWS



As a result of an interview with the fire chief of Pietermaritzburg, South Africa by Voicespondence member Max Nicholls, which was recorded and played for the firemen of Waycross, Georgia, several exchanges have now taken place between the two fire departments. A general view of the front of the Pietermaritzburg station is shown. Chief Wilkinson is seen on the left.

Smoke-eaters halfway round the world have been linked through voicespondence. Voicespondence member Max Nicholls of Pietermaritzburg, South Africa, who is well known throughout the Club for his interesting and unusual recordings, recently took his portable recorder to interview the local fire chief. This interview he copies onto a regular tape for Roscoe McIntosh, Waycross, Georgia.

McIntosh, realizing the potentialities of the tape, took it to the local fire department, played it for the firemen, and recorded their greetings and reply to their South African counterparts.

Several exchanges have now taken place discussing similarities and differences in fire-fighting methods in the two hemispheres, and a bond of friendship has been forged—by tape—between the two departments. They are now exchanging photographs of personnel and equipment.

SCHIRMER RESIGNS POST

The Voicespondence Club was sorry to learn of the resignation of John W. Schirmer as secretary, effective June 30, 1955. Mr. Schirmer expresses his regret and states that his resignation will not affect his interest in furthering the growth and activities of the club. Melva and Charles Owen of Noel, Virginia will continue the management and operation of the club.

CLEARING CUSTOMS

For Canadian citizens Canada has waived import duty on correspondence tapes provided the tapes are properly marked "Conforming to Canadian Customs requirements I hereby certify that this tape is my own property and was exported from Canada to be subsequently returned." . . . Your local postmaster also has customs stickers which may be attached to tapes for foreign shipment. On these it should be noted that the tape is a personal message and that it has no commercial value, to be returned to the sender. . . .

TAPES FROM RIO

Tapes directly from Rio de Janeiro are now available to World Tape Pals members thanks to Tape Pal William (Woody)

Woodruff. Woody is attached to the U. S. Naval Delegation in Rio and is not under Brazilian government restrictions, but receives his mail through an APO number.

CHECKERS ON TAPE

World Tape Pal Stan Ulbrich plays checkers by mean of tape. He has made several photostatic copies of a checker board which he keeps tacked on the wall. By means of red and green thumbtacks he keeps track of the various "moves" made by his adversaries and himself. Stan doesn't know exactly how long a game will take, but it provides lots of fun.

NEW CLUB TO BE FORMED

Clyde Wenneston, Jr., of 6746 Schofield Place, St. Louis 14, Missouri is starting a club that is called Universal Recording Pals. Anyone interested in tape recording and corresponding who would like to join can write to above address for details.

ROSTER OF CLUBS

Write to the club of your choice for full details and dues. Corresponding via tape is a heartwarming experience. Try it.

The secretaries of the tape correspondence clubs will deeply appreciate receiving a self-addressed stamped envelope from those making inquiries about membership. As most of the clubs' expenses are caused by postage anything that will lessen the burden will be helpful. So when writing, slip in some extra stamps.

TAPE RESPONDENTS INTERNATIONAL

Fred Goetz, Secretary

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

THE VOICESPONDENCE CLUB

Charles Owen, Secretary

Noel, Virginia

WORLD TAPE PALS

Harry Matthews, Secretary

P. O. Box 9211, Dallas, Texas

TAPEWORMS INTERNATIONAL

Art Rubin, Secretary

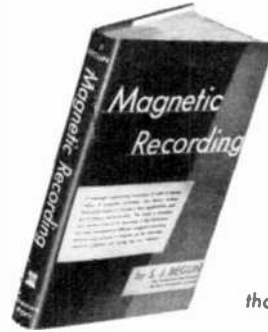
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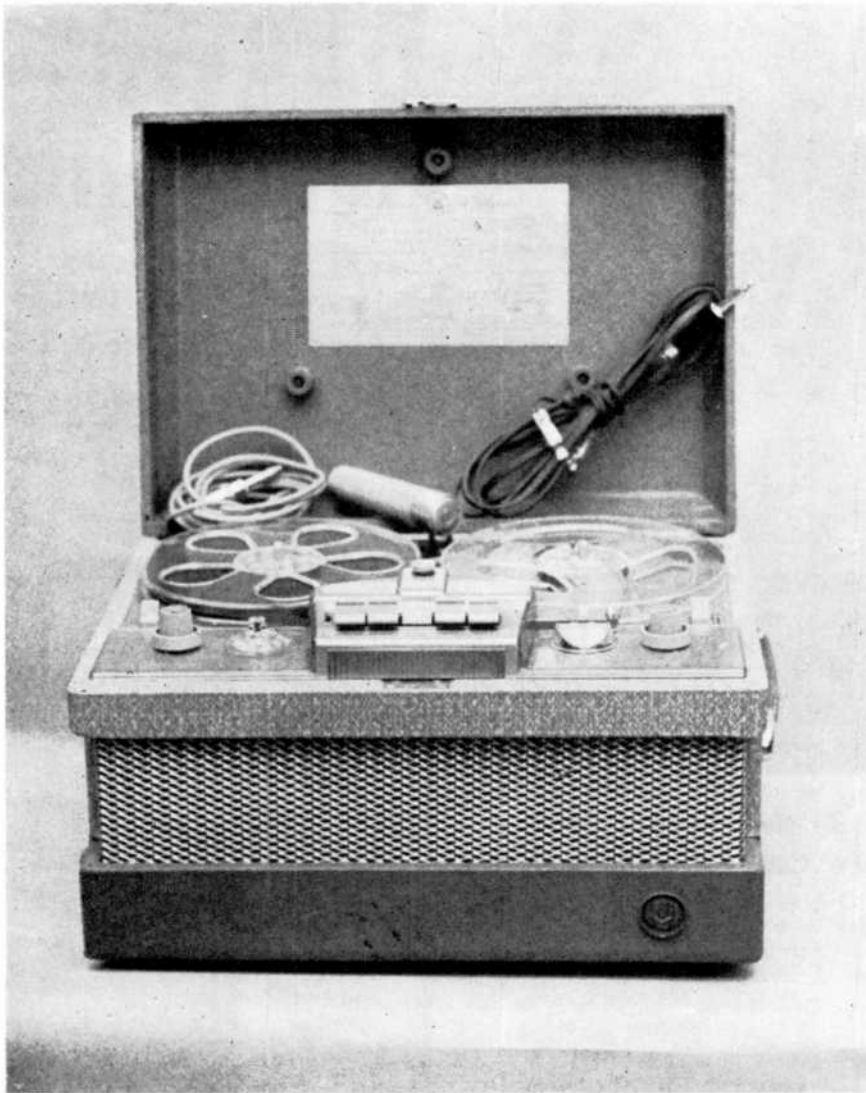
NEW PRODUCT REPORT

STAFKSTED

Product: V-M Tape-o-matic recorder

Manufacturer: V-M Corporation, Benton Harbor, Michigan

Price: \$179.95 including microphone, cords, reel of tape and empty reel



V-M "700" TAPE-O-MATIC

... features automatic cut-off, timer, two speakers, monitor switch.

THE V-M 700 Tape-o-matic recorder is a compact and versatile machine, tastefully and attractively encased, light in weight (30 lbs.) and priced in the medium low-price field.

Many interesting functions are incorporated in the unit and some technical adjustments formerly requiring the services of an expert are brought to the surface and can be made by the layman with a bit of study and preparation from the instruction sheet.

Notable among the many features is the automatic stop switch. This is op-

erated when the tape breaks or runs out when it shuts off the machine.

The erase frequency and bias oscillator of from 50 to 70 Kc gives greater frequency response, and greater signal to noise ratio. Machines in this price range do not usually have such a high frequency erase, which is a very desirable feature.

Other more conventional features, such as the push button controls for fast forward, rewind, record, play and stop are provided. An unusual feature on this price machine is a tape timer by means

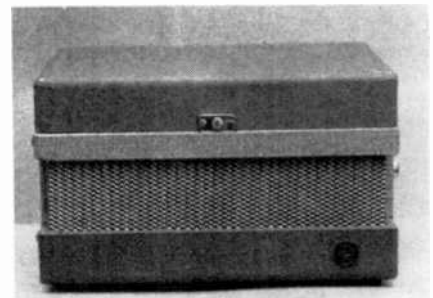
of which selections can be located within reels. It is only necessary to set both dials to zero when the tape is threaded.

The pause button, which may be locked in position, provides a means of cutting commercials when recording from the radio or TV or it can be used to hold the tape still during pauses in a conversation. The on-and-off switching of the button does not make any sound on the tape when it is shifted from one to the other.

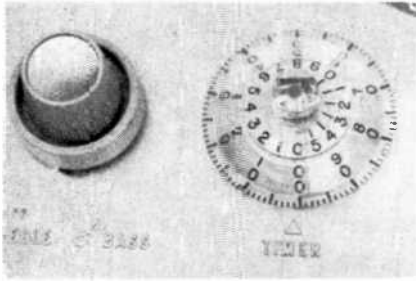
For recording level the Tape-o-matic has the conventional neon recording light but something new has been added in the form of a purplish erase-bias ready light which glows when the machine is ready for recording. This serves as a warning that when the tape is put in motion, the erase head will function. This serves as an additional check against accidental erasure in addition to showing that the bias oscillator is functioning.

The machine has two speeds, $3\frac{3}{4}$ and $7\frac{1}{2}$ inches a second, which are changed by turning a knurled button. It is dual track and the reels are turned over manually to use the second track.

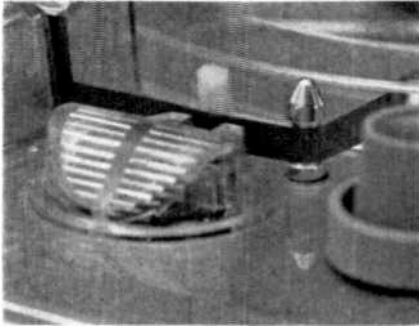
Technically the electronics section is well laid out and at $7\frac{1}{2}$ ips the "AA"



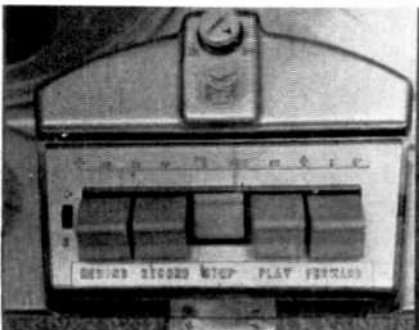
The recorder in closed position. A snap lock holds the removable lid and reels may be left on the machine with the lid closed.



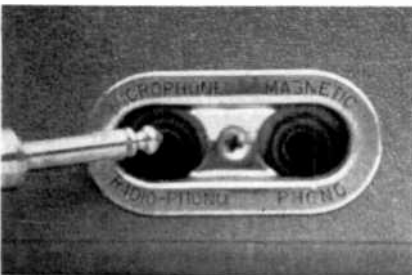
The timer is located on the left hand side of the recorder and can be used to locate selections within the reel. It should be re-set to zero when the tape is threaded.



One of the unusual features is the automatic shutoff. The tape is threaded through the switch as shown. Should it break, or the end of the tape run through, the plastic finger falls forward and shuts off the machine. The switch also includes the ready and record indicators.



The control deck of the recorder. At the top can be seen the speed change button and to the left of the push buttons the safety switch for recording.



Dual outputs are a feature. An external speaker connected in one jack will operate along with the recorder's speakers. In the other jack, it cuts out the recorder speakers. A meter may also be connected to the jack for precision monitoring of recording volume. The No. 1 jack is also controlled by the monitor switch for optional operation during recording.

program requirements are met (with some adjustment of the tone controls).

With the treble control on full, response up to 13,000 cycles per second was recorded before nominal cutoff. However, the linearity of the overall response was irregular in that position.

The amplifier provides approximately 3 watts of audio at less than 3% distortion to a compensated pair of speakers (L-C combination) in series. They consist of a 5 x 7" oval woofer and a 3 1/2" tweeter.

Quite an array of outputs may be arranged in which a parallel speaker jack provides for using an external speaker by itself or in combination with the speakers in the recorder. One of the jacks also provides a means for connecting an output meter and input meter when used as a monitor.

A slim, hand-type microphone of good quality is furnished and the input jacks will accommodate a magnetic pickup and also the microphone, tuner, radio or phono.

The recorder also has a monitor switch which enables the recordist to hear the program being recorded from a radio or it is employed when using the recorder as a phonograph amplifier or P-A system.

The recorder is very attractive. The case is covered with rose and gray scuff and water-resistant leatherette and has a golden expanded metal grill across the front. The cover plate on top is gold with the accessories, push buttons, etc. in a soft gray. It will fit in with most decorating schemes.

The V-M nameplate on the lower part of the recorder lights when the machine is turned on serves as an indicator of that fact.

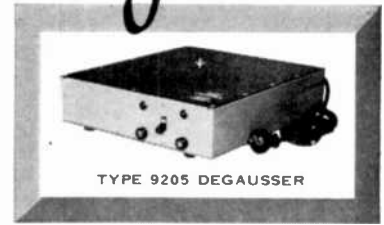
In using the unit in normal home and field use over a period of two months no difficulties in operation were encountered nor was their failure of any part. Recordings made with it were very satisfactory and pre-recorded tapes played on it sounded very well.

There are few precautions that need be observed. One is to see that the line cord is out of the way of the reels by hooking it in the U-shaped clip provided on the back of the case.

All in all we found this machine to be an exceptionally good recorder in its price range and the results obtained should more than exceed the expectations of an amateur, home or business recordist. We think it well worth your consideration if you are planning to purchase a machine.

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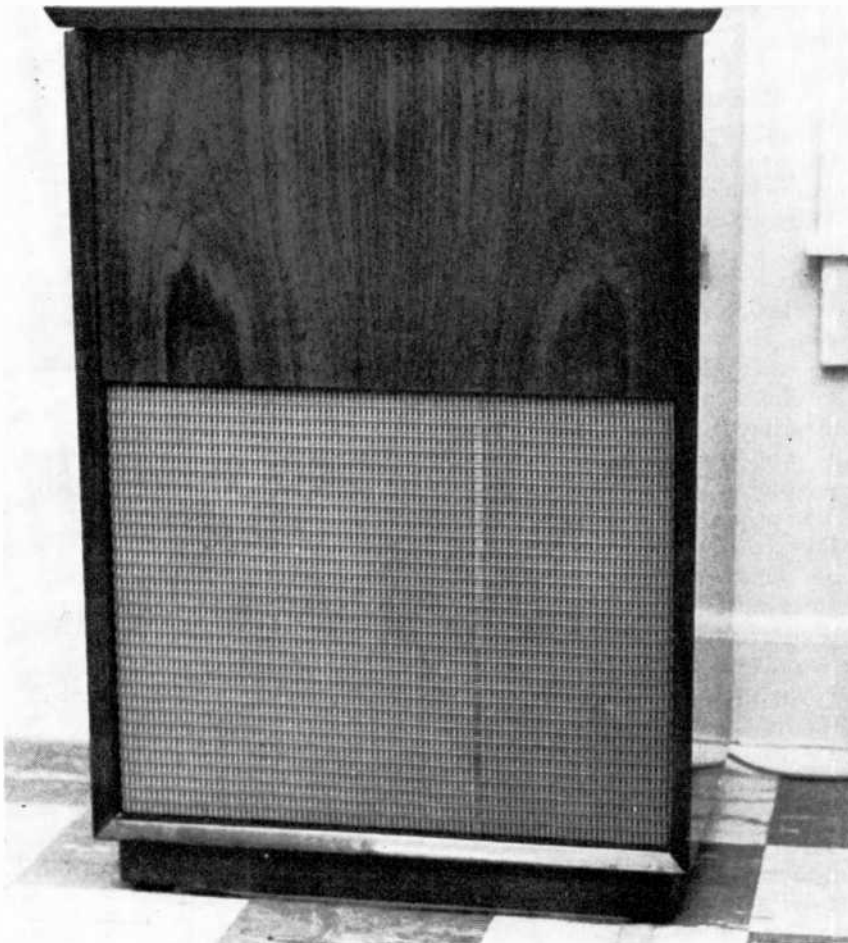
NEW PRODUCT REPORT

STA **OK** STED

Product: Crestwood Console
Model 310

Manufacturers: Daystrom Electric
Corp., 753 Main Street, Pough-
keepsie, N. Y.

Price: \$299.50 including cord,
microphone, connecting cable
and empty reel.



CRESTWOOD "310" CONSOLE

... a recorder housed in a beautiful cabinet, resonant cavity speaker, push-button controls, pause position, Brush "Red-heads," two speed, dual track.

THERE has been a crying need for a good recorder mounted in an attractive floor console and we think that this one fills the bill.

While the portable or "suitcase" type of recorder has filled a real need and still does, the lady-of-the-house would prefer one of these fine pieces of furniture in her living room.

The cabinetry is beautiful and the finish excellent. The recorder is attractive enough to fit in any surroundings and can hold its own with the best.

Fortunately the internal workings are

just as good as the outside appearance. Crestwood has made the most of the opportunity of having more space for a speaker and has built a resonant chamber that provides a superb tone quality.

The recorder mechanism itself is the Crestwood 303 model housed in the console cabinet. It is dual track, two speed, feeding from right to left. The recorder is equipped with Brush "Red-heads" which do an exceptional job of recording and playback for this type of machine. Printed circuits are used in the recorder for trouble-free operation.

All connections are on the back panel and include an output jack for an external speaker, microphone input jack, input jack for phono or radio and a "phones" jack for monitoring.

If the unit is to be used for playing a tuner through the excellent amplifier and speaker the unit contains, the tuner may be plugged into the "phones" jack.

When recording off the air, the cord is connected to the radio input jack and either headphones or an external speaker may be connected to the external speaker jack.

We would like to make one suggestion to the manufacturer at this point. That they incorporate a switch which will permit the program being recorded from radio or TV or tuner to be heard through the recorder speaker. This, of course, is not necessary when taking the input from the voice coils of the radio or TV set but it is necessary if a tuner is employed.

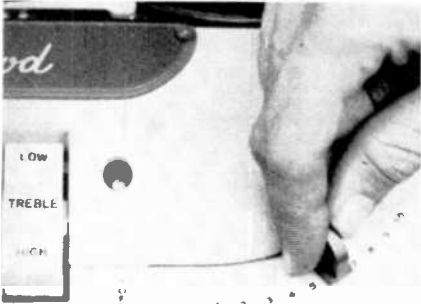
The push button control system is very complete. The usual record lock is present to prevent accidental erasure. All push buttons are hinged at the center and work two ways. The record-play button will automatically return to play



The recorder is exposed for use by lifting the lid of the cabinet. After the reel is threaded the top may be closed.



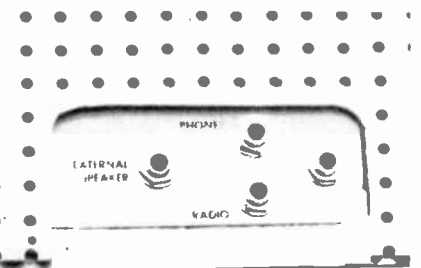
The top is held open by a regular offset arm. A well is provided alongside the machine for storage of tapes, microphone, patch cord and similar items.



The volume control is operated by this lever swinging over a numbered scale. A clever V slot arrangement inside the recorder swings the volume control through its complete circle while the lever moves only a short distance.



The push button controls are shown here. At the top may be seen the lever which controls the tape motion, forward, rewind and stop. The neon recording level lights are in wells at either side of the push buttons and can be seen clearly in a brightly lighted room.



All input and output jacks are located on the back of the panel. Microphone and radio input may be left connected at all times as they are controlled from the push button. The phones position can be used for a tuner or record player input to play through the unit's speaker.

position when the tape transport lever is put in rewind, a further safety precaution.

The mike and radio inputs may be left connected at all times, a worthwhile feature, as they are controlled with the second push button. When the button is in neutral neither is connected. When depressed in the desired direction either the mike or radio is connected as desired. The tone controls for bass and treble are also controlled with the push buttons.

The volume control is lever operated with volume positions marked in numbers. A neon record and overload light are provided. When recording, the record light should flash intermittently and the overload light only on extremely high peaks of sound. Because of the sensitivity of the Brush heads it is not necessary to run a high level on the tape.

The erase frequency is 70 Kc which does an excellent job and provides a signal to noise ratio of approximately 40 db below the recorded signal. The amplifier was good from 70 to 10,000 cps on the model tested and the record and playback response met AA program requirements. The response there was good from 50 to more than 10,000 cycles. The audio output of the speaker is about 5 watts at the required distortion level (less than 3%). The amplifier is rated at 10 watts.

The speaker cabinet design is one of the best we have found on any recorder and produces the finest response we have heard from a recorder in this price range. The 8 inch extended range speaker in a correctly constructed and properly sized resonant cavity is primarily responsible for the fine results.

Fast forward and rewind have a 20 to 1 ratio over the speed setting. There is provision for head alignment should it become necessary.

The left hand lever, which controls the fast forward, also has a pause station for cutting commercials or holding the tape still.

We feel that we can unhesitatingly recommend this recorder, not only for the beauty of the console cabinet but for the fine audio performance which it demonstrates.

For home use, and as a musical instrument, you couldn't do much better without a considerably greater expenditure of money. For the amateur, hi-fi enthusiast and home recordist this is a nice machine that fulfills all requirements.

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- Plastic base
- Extended Frequency Range
- FM broadcast quality
- Also available in 1/4 inch.

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DEMI-TAPE will operate with many half track and all full track recorders without auxiliary edge guide. If one is needed it can be added without tools.

DEMI-TAPE has fidelity limited only by the equipment used with it. Smooth oxide lies closer to the head.

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DEMI-TAPE's oxide coating contains the newest and most advanced formulation known to science and may be as much as two grades higher in quality than tape you are now using.

Let us tell you how you can use this tape in your recorder. We furnish narrow reels. A postal card will bring the information. Give make and model. No obligation. It will pay you to get on our mailing list even if you intend to order nothing. We can keep you posted on new developments.

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SHOP OR SWAP

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

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

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

NEWEST ACCESSORIES on the market. Developed by Le Roi. **TAPE MONITOR:** complete with head, amplifier, power supply and earphone, \$37.50. **AUTOMATIC SHUT-OFF:** turns off recorder at predetermined spot on tape or end of reel, \$17.50. **ELECTRIC FOOT CONTROL:** use when dictating or editing, \$15.00. Instructions for making 10 1/2" reel adapters, \$1.00. Accessories fit all recorders. Satisfaction guaranteed. Le Roi Engineering, Box 251, Elmhurst, Illinois.

HOME RECORDING Exchange Directory, \$2.00. Davis Enterprises, Dept. T, Box 604, Hawthorne, California.

WANTED: To swap tapes with persons skilled, studying or interested in hypnosis. Herman Bargy, 136 S. Jackson Street, Glendale, California.

SYNCHRONIZER HOOKUP: Make sound movies with your tape recorder, \$10.00. Anderson, 2424 Phelps Street, Stockton, Cal.

FOR SALE: Used Webcor tape recorder, model 2010, dual track, 2 speeds (3 3/4 and 7 1/2 ips), with 7 inch reel for \$139.50 and model 2030 3 speakers for \$167.50. Used Eastman 16 MM projector. Bell and Howell 16 MM movie camera, Kodak Duaflex 111 camera flash with sound film of life taken in Africa, and 2 silent missionary films for \$600., a bargain. New Webcor, model 2110 for \$145., and model 2130 for \$175. Willing to exchange tapes or receive tape messages from you. Write Recording Ministry, 816 Madison Street N.W., Washington 11, D. C., or call RA. 3-3770.

FOR SALE: Recordgraph 35 MM percussion tape recorder with voice relay control, telephone hookup, suitable for detective agency, etc., with tapes. Price \$95.00 (Orig. cost \$1500.). Write P.O. Box 156, Wall Street Station, New York, N. Y.

FOR SALE: Brush "Sound-Mirror" tape recorder, dual-track, 7 1/2" speed, 7" reels, push-button controls, three motors, electrodynamic braking, electron-ray recording volume indicator, loudness control, 9 tube Williamson-type high fidelity amplifier, push-pull triode output, 8" speaker. Guaranteed excellent condition. \$150. FOB. V. R. Hein, 418 Gregory, Rockford, Ill.

FOR SALE: M-11 Altec-Lansing mike system of 21-B TV mike, 150-A base, power supply, 25 foot cable plus extra 25 foot multi-conductor static shielded cable extension. Value \$255, new. Seldom used in 16 months. Now \$175. Fred Zenk, Box 461, Sheboygan, Wisconsin.

FOR SALE: Used Webster and General Cement one-hour reels of recording wire \$1.75 each; also Webster wire recorder John Layman, Parklane, Wallingford, Conn.

FOR SALE: Webcor 2010 tape recorder, 1954 model. Excellent for home recording, parties, music off the radio. Accessories for radio taping supplied. Retail value \$210. Best offer accepted. M. Kaller, 67-18 Juno Street, Forest Hills, N. Y., BO. 8-8435.

PRE-RECORDED TAPES: "Petite Revue", only 99c. Catalog, Stone, Lunenburg 1 Mass.

SERVICE counts. Our years of experience with recording equipment and professional techniques are at your disposal. Let us help you select your new recorder. Write Boynton Studio, Dept. 301, 10 Pennsylvania, Tuckahoe, N. Y.

PRECISION MAGNETIC HEADS, Erase—Record—Playback. Stancil-Hoffman Corporation, Hollywood 38, California.

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WANTED: Junk or used Wilcox-Gay tape recorder. F. Barnett, 306 Smith Ave., East Alton, Ill.

FOR SALE: Selling out present tape library. Used Scotch plastic base tape #111, 1200 ft. reels. Recordings of live top-notch performances, dual track 7 1/2 ips. Symphony, concert, chamber music of all types, mixtures, all classical, none operatic; indexed. Indicate preferences. 1 for \$2.95, 12 for \$34.20, 100 for \$275.00. J. M. Davis, Rt. 1, Silver Spring, Md.

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FOR SALE: Webster Ekotape model 102-9 announcer, 500 ohm input—output, 7 1/2" full track. New, \$300.00. Write for details. Charles C. Vandervort, Laceyville, Pa.

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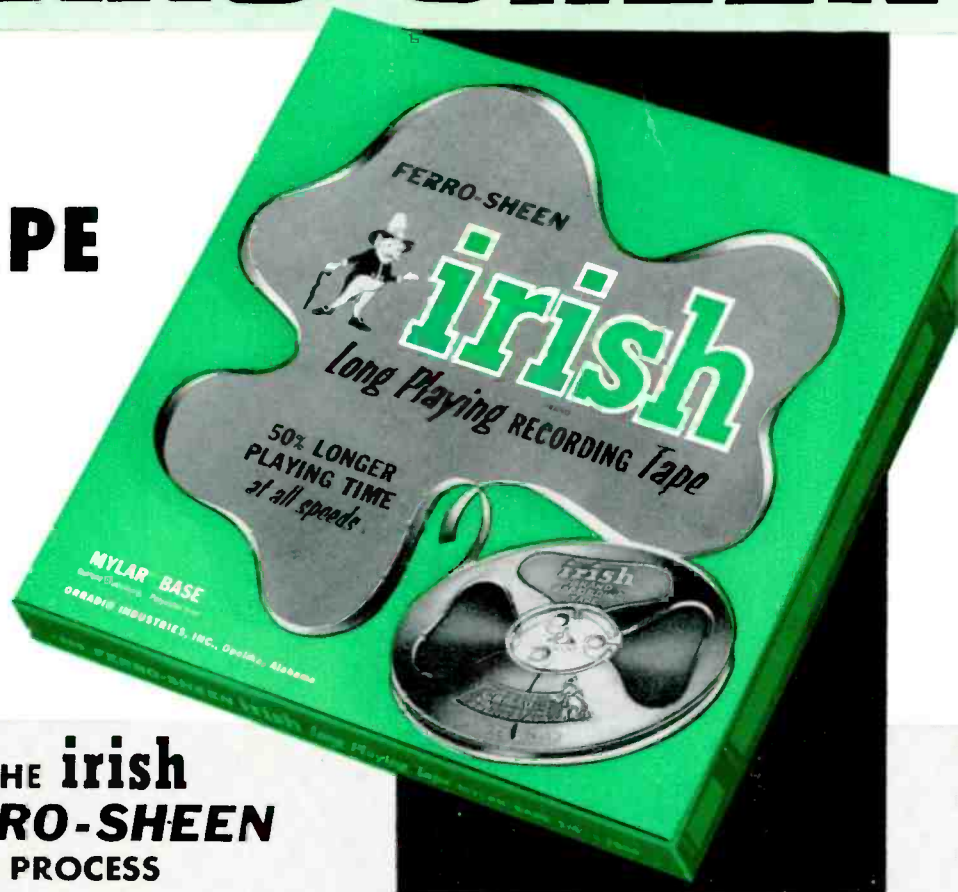
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