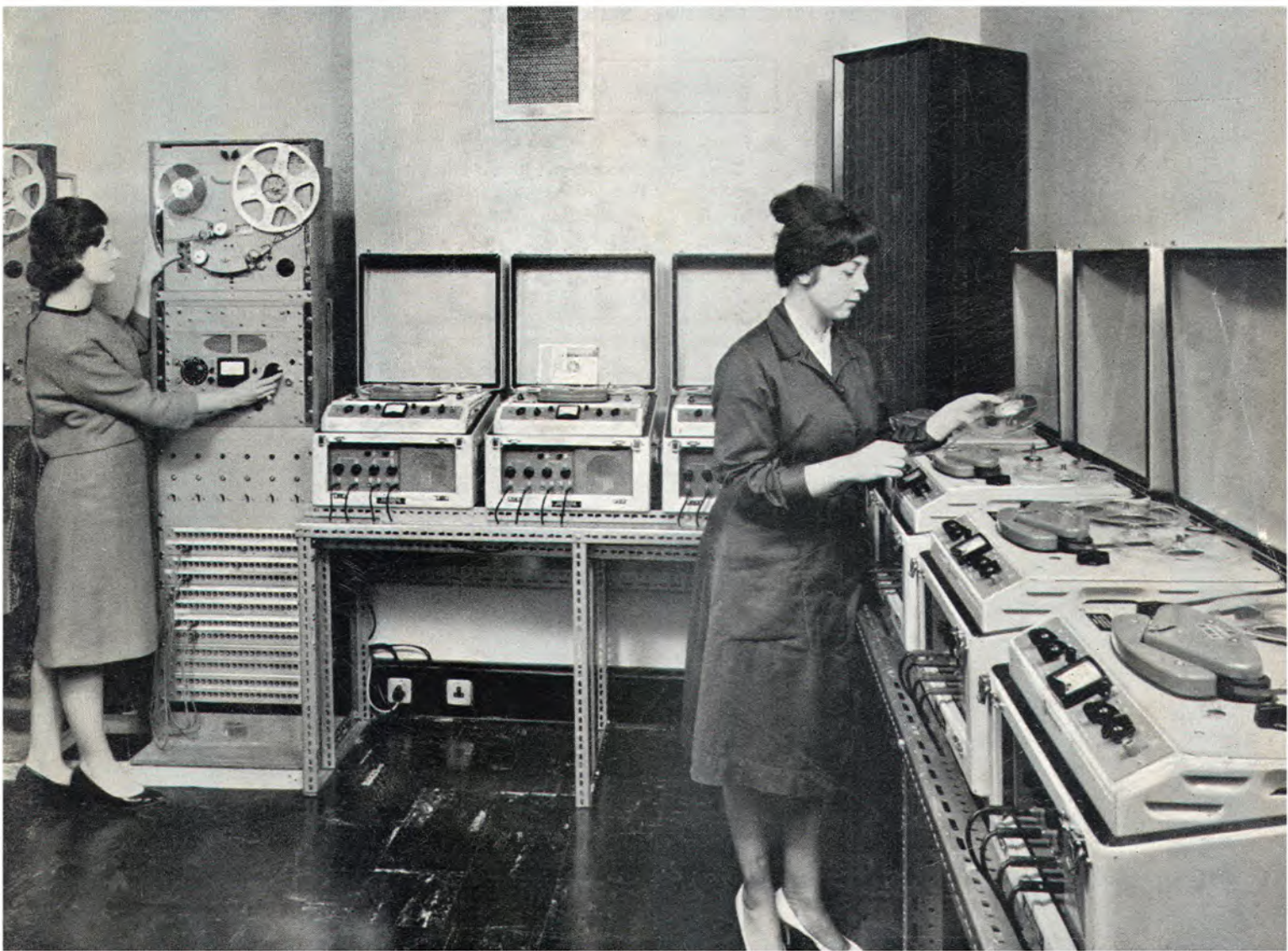


TAPE

RECORDING MAGAZINE

FEBRUARY 1963

1/6



FIRST AND FOREMOST IN THIS FIELD

**British Amateur
Tape Recording
Contest 1963
(See page 13)**

WHEN IT'S NEW FROM BRENELL IT'S NEWS!

When Brenell introduce a new development in the tape recorder field you can be sure that it's worthy of your attention. As you well know the development of a new machine takes time but below are a few details to whet the appetite.

THE STB I

A four speed deck with twin recording and twin replay pre-amplifiers.

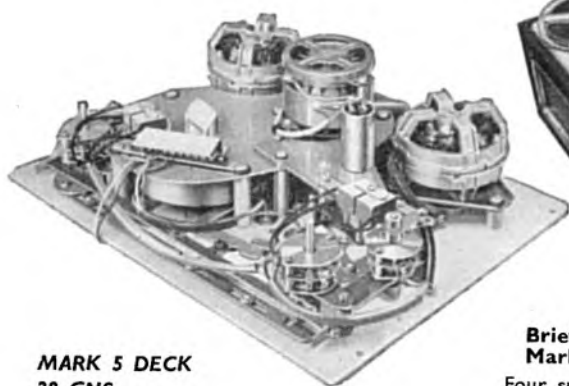
In addition to Stereophonic recordings, with or without tape monitoring facilities, different recordings may be made simultaneously or either track may be used for recording purposes (with tape monitoring if desired) whilst the other track is replaying.

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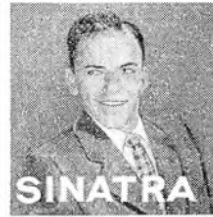
31. Rimsky-Korsakov: Scheherazade. Sir Eugene Goossens conducts the LSO in a breathtaking performance of this rich and exotic masterpiece. Also on disc: mono/stereo



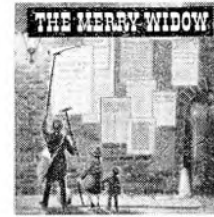
32. Star cast and orchestra stage all the famous songs: Getting to Know You, Hello Young Lovers, I Whistle a Happy Tune, Shall We Dance, etc. Also on disc: mono/stereo



53. These two suites, containing some of Bizet's most thrilling music, are given magnificent performances by the Sinfonia of London under Muir Mathieson. Also on disc: mono/stereo



19. Look Over Your Shoulder, My Lean Baby, White Christmas, Don't Worry About Me, Melody of Love. 12 top numbers sung by the fabulous Sinatra. Also on disc: mono only



56. All the magic of old Vienna! starring Jacqueline Delman, John Larsen, Linden Singers and Sinfonia of London conducted by John Hollingsworth. Also on disc: mono/stereo



33. Beethoven 5th, plus Egmont, Josef Krips and LSO in a titanic interpretation which matches the tremendous power of this celebrated music. Also on disc: mono/stereo



30. Ian Carmichael, Joyce Blair, star cast/orchestra. As Long as He Needs Me, Consider Yourself, all the hit numbers from Lionel Bart's great show. Also on disc: mono/stereo



39. Great ballet conductor John Hollingsworth and the Sinfonia of London in a sparklingly fresh interpretation of Tchaikovsky's famous Ballet. Also on disc: mono/stereo



20. Answer Me, Nature Boy, Ruby and the Pearl, these plus 8 more favourites sung especially for you by the unique Nat King Cole. Also on disc: mono only



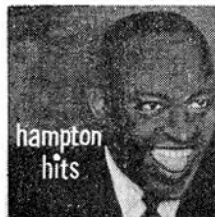
40. Superb singing by Bruna Rizzi and Giuseppe Savio with the chorus of the Teatro Nuovo di Milano and orchestra conducted by Napoleone Annovazzi. Also on disc: mono only



29. Me and My Shadow, Among My Souvenirs, Mean to Me, How About Me... the fabulous Judy Garland sings 11 of her greatest songs. Also on disc: mono only



25. Ian Wallace, Joyce Blair and chorus. Some Enchanted Evening, I'm In Love With a Wonderful Guy, and all the unforgettable songs from this great musical. Also on disc: mono/stereo



34. Stardust, How High the Moon, Nearness of You, 'Round Midnight, King David—eight numbers by the vibraphone genius, Lionel Hampton. Also on disc: mono/stereo



48. Deep in My Heart, Drinking Song, Serenade—all the old favourites fresher than ever with Marion Grimaldi, Linden Singers and Orchestra. Also on disc: mono/stereo



37. Revolutionary Study, Polonaises A and A flat, Fantaisie-Impromptu—12 favourites in all played by the pianist of Dirk Bogard's 'Song Without End'. Also on disc: mono only



22. 12th St. Rag, Isle of Capri, Smile, Blue Moon, Bunny Hop Mambo, Satin Doll. 12 top numbers played in characteristic style by the Duke and his band. Also on disc: mono only



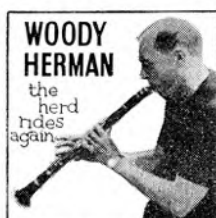
2. Grieg Piano Concerto. Alexander Jenner in an electrifying performance with the Bavarian State Radio Orchestra conducted by Odd Gruner-Hegge. Also on disc: mono only



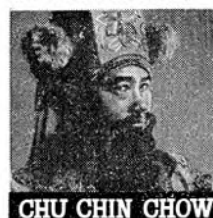
35. Ol' Man River, Bill, Make Believe, many more well-loved numbers from this famous musical memorably sung and played by full star cast. Also on disc: mono/stereo



44. Leopold Ludwig and LSO combine brilliantly in an exciting 'double': two of the world's greatest symphonies receive vivid new interpretations. Also on disc: mono/stereo



45. Crazy Rhythm, Bijou, I Cover the Waterfront, Northwest Passage, Blowin' Up a Storm, etc. The master clarinetist plays 12 numbers in great style. Also on disc: mono/stereo



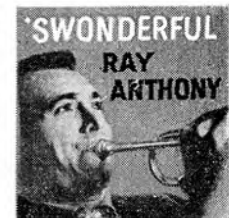
38. Hervey Alan, Ian Wallace, Marion Grimaldi and chorus sing the immortal favourites: Cobbler's Song, Robbers' Chorus, Chu Chin Chow, etc. Also on disc: mono/stereo



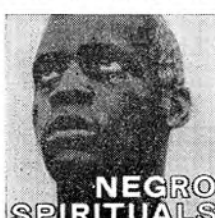
14. Tchaikovsky Symphony No. 5. Sir Malcolm Sargent and LSO combine to give this famous symphony a dramatic and colourful rendering. Also on disc: mono/stereo



43. Andy Cole, Barbara Leigh, Mike Sammes singers: High Society, Three Coins, Harry Lime, Gigi, The High and the Mighty. 11 top film hits. Also on disc: mono/stereo



41. Night and Day, King Porter Stomp, Pennies from Heaven, Christopher Columbus, Don't Be That Way, with his top American bandleader/trumpeter. Also on disc: mono only



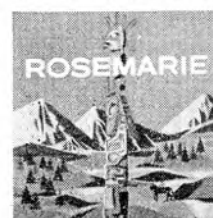
42. Jericho, Swing Low, Shadrak... 12 of the best loved Negro Spirituals movingly sung by George Brown, Isabelle Lucas and Linden Singers. Also on disc: mono/stereo



36. Beale Street Blues, After You've Gone, The Sheik of Araby, My Kind of Love, 12 tremendous hits by one of the world's greatest jazz trombonists. Also on disc: mono only



49. Beethoven's Fidelio Overture, Brahms' St. Anthony Vars, Mendelssohn's Hebrides, Wagner's Siegfried Idyll. All under Britain's greatest young conductor. Also on disc: mono/stereo



50. David Hughes, Barbara Leigh, Andy Cole and chorus sing Indian Love Call, Rose Marie, and all the other tunes from Friml's well-loved musical. Also on disc: mono/stereo



47. Brahms Violin Concerto. Superb playing by Endre Wolf and Sinfonia of London under the baton of Anthony Collins makes this a truly memorable performance. Also on disc: mono/stereo



46. Elizabeth Larner, Andy Cole, Peter Knight singers. Exciting 'double' featuring highlights from two famous shows by Frederick Loewe and Cole Porter. Also on disc: mono/stereo

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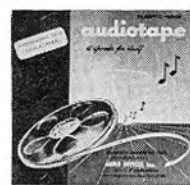
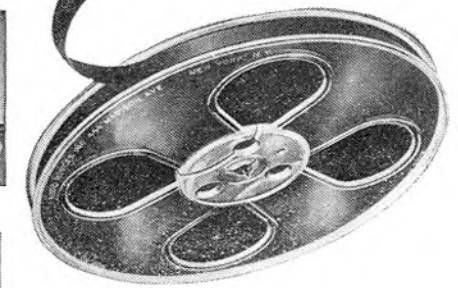
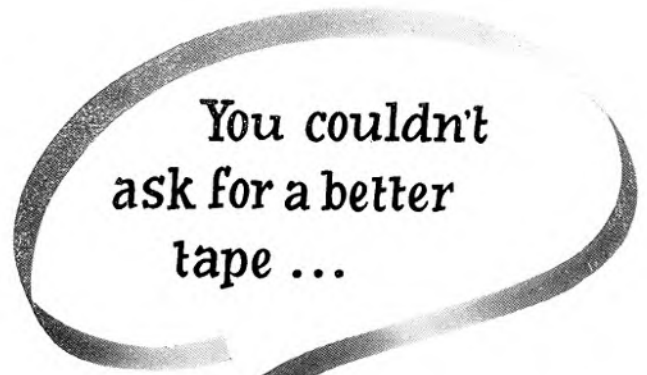
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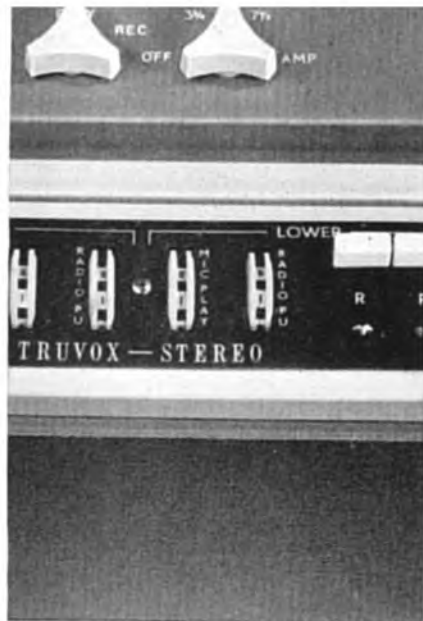
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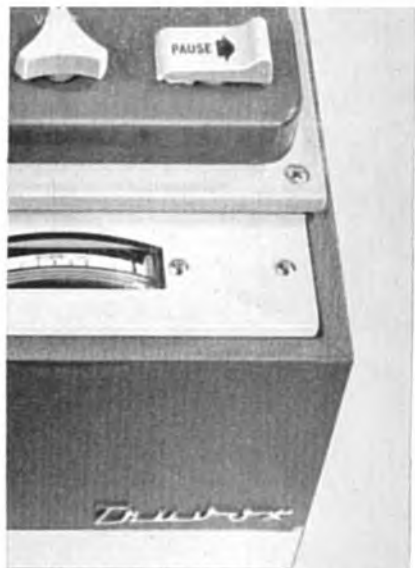
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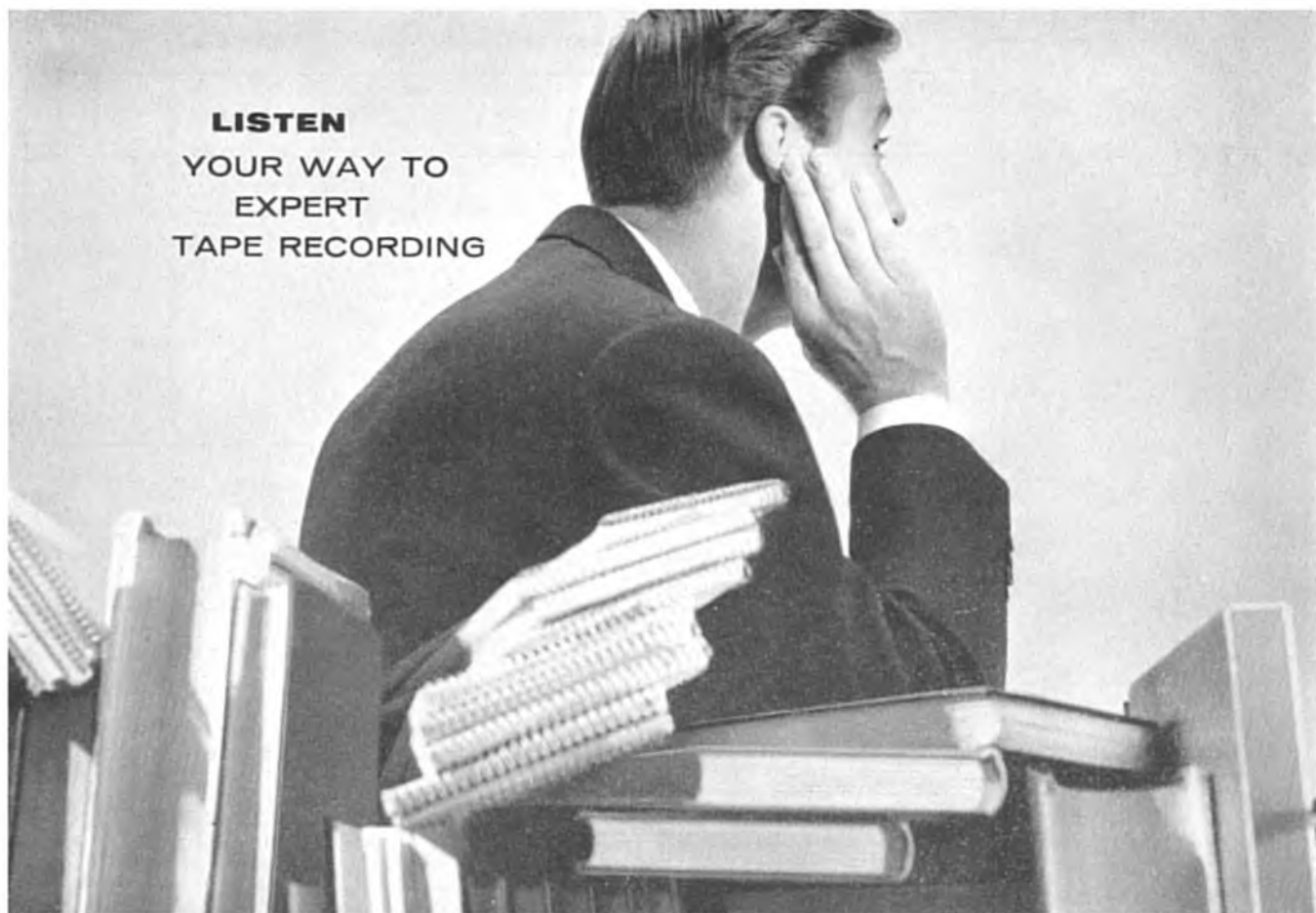
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TAPE

RECORDING
MAGAZINE

Vol. 7 No. 2 February 1963

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COVER PHOTOGRAPH: News flashed across Europe to London before breakfast is edited, recorded and transmitted by direct line to New York via the recording studios of Stagesound Ltd. This company also supplies tailored sound effects to theatres, and records radio programmes in 63 languages for world-wide transmission. Our photograph shows part of the studios which uses some fifty recorders to consume three quarters of a million feet of Emitape every week.

"TAPE Recording Magazine" is published on the third Wednesday in the month, by Print and Press Services Ltd., from 7, Tudor Street, London, E.C.4.

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EDITORIAL

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THE EDITORIAL VIEW

THERE has been a sharp increase in the cost of printing from January 1, and many magazines have increased their selling prices in order to cover it.

The additional costs impose a heavy burden upon all publishers. The directors of *TAPE Recording Magazine* have decided, however, to try to absorb the whole of the additional cost and neither our selling price nor our advertising rates are being increased.

We shall now be the only British tape recording magazine on sale at 1s. 6d. We plan to maintain our service to readers unimpaired.

We shall hold out against the tide of rising prices as long as possible. We are able to do this because of the loyalty of an ever-increasing readership and the support of all the leading advertisers in the field.

NEXT Sunday's edition of the BBC Network Three Programme "Sound" will be the last. The BBC programme planners have decided to discard it—not for the customary summer "rest" but, so far as can be seen at present, for good.

It is sad to see the programme disappear after its run of four years. Recording amateurs are well catered for with printed material, but the subject obviously demands regular coverage in the medium of sound.

During the run of "Sound" most of the best-known personalities in the world of audio have taken part in the programme and many amateurs as well. In the last programme John Borwick, who has been a leading member of the "Sound" team throughout its run, and who was its first compere, will team with Peter Walker, another regular contributor, in a final Questions and Answers session.

Ironically, the news that "Sound" was to disappear reached me on the same day as a letter from Jean Thevenot, who comperes the equivalent French radio programme, "Aux Quatre Vents," telling me that it is about to celebrate its fifteenth anniversary. It was introduced in February 1948 and regularly since then it has been broadcasting not only advice to amateurs and news about amateur recording activity, but also a selection of amateur work.

In the anniversary edition Jean Thevenot plans to include messages from the comperes of similar programmes in six other European countries, describing how their programmes cater for amateur enthusiasts. It is a little difficult to know what I can say on behalf of Britain!

ON the opposite page we announce the details of the 1963 British Amateur Tape Recording Contest and it will be seen that it is now formally sponsored by the Federation of British Tape Recording Clubs and ourselves.

The contest was, of course, established by *TAPE Recording Magazine*, back in 1957, and we affiliated it to the International Recording Contest the following year. But the International event is organised by the International Federation of Sound Hunters and it is appropriate that the British Contest shall be organised by the British affiliate to the International Federation: that is, the Federation of British Tape Recording Clubs.

We are now discussing with the Federation and with other leading figures in the world of tape what measures can be taken to give the club movement and the contest a really big boost during 1963. Some very promising ideas are being explored.

Meanwhile, can I offer one piece of advice to readers? You do not need to be an expert in order to enter for

the contest. It is true that some of the prizewinning tapes in past years have been very ambitious and near to professional standards. But others have had great simplicity and have not, essentially, been difficult exercises in recording. In fact, there have been several competitors who walked off with first prizes after only a few months of recording experience.

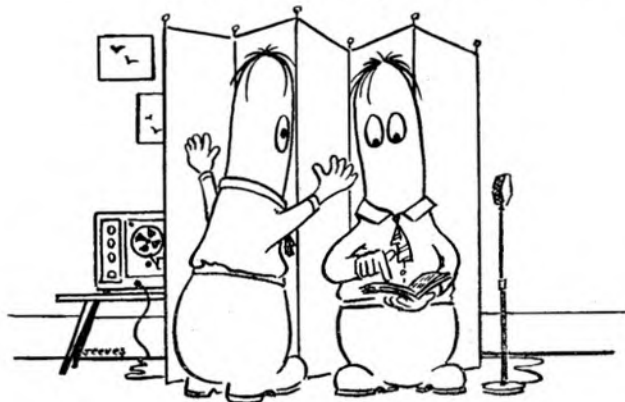
Do not be put off entering the contest, therefore, because your experience is limited. If you have a good idea, or if you are sufficiently diligent in seeking out good sound material, you can be a newcomer and a prizewinner.

GATHER that all the exhibition space available at this year's Audio Festival was quickly snapped up, so that we should see another first-class show. It is needed as a stimulus. There is at present a lot of uncertainty in business circles and the tape industry reflects the general trend. It has a good deal to do with Britain's Common Market prospects, of course.

I am encouraged to know that one or two firms have already lined up their sales literature in the various languages needed to attack the continental market more vigorously. The hope must be that the Audio Festival will introduce a new period of aggressive salesmanship and developing confidence.

THE EDITOR

LAUGH WITH JEEVES



"It says quite clearly, 'Keep the microphone lead well screened'."

BRITISH AMATEUR TAPE RECORDING CONTEST 1963

YOU HAVE SIX MONTHS TO DEVISE, PLAN, RECORD AND EDIT YOUR TAPE ENTRY

DO you fancy yourself as a recording engineer, a news commentator, a scriptwriter, a producer of documentary and drama features or as an artist in the manipulation of electronic sound? If so, this is your big chance.

Are you associated with a school group or a club which can produce a worthwhile team effort at production and recording? If so, the 1963 British Amateur Tape Recording Contest sponsored by the Federation of British Tape Recording Clubs and *TAPE Recording Magazine* gives you the opportunity to make a hit.

The best entries will be heard and studied by leading authorities in the world of recording, broadcasting and entertainment. They will be on the look-out for promising new talent. In addition, there are valuable prizes to be won.

The main part of the Contest will follow the same lines as in previous years. There will be five different sections for individuals, one for schools, and one for clubs. All of these will be concerned with recording technique. As in previous contests, the best entries in the appropriate sections of the British Contest will automatically

THE PRIZES TO BE WON . . .

THE best entry in the whole Contest will be selected as the "Tape of the Year" and will be awarded the *Emitape Challenge Cup*, to be held for one year, with a replica to be kept permanently.

The best Schools tape will win the *Grundig Challenge Cup*, with the Grundig Shield for permanent possession.

The best Club tape will win the *Amphlett Club Trophy*, awarded by the Federation of British Tape Recording Clubs.

The best entry in either Compositions or Music/Speech sections will win the *Acos Challenge Cup*.

The best in the Documentaries and "Reportage Class" will hold the *Irish Trophy* for one year, with a replica for permanent possession.

The best entry in the Technical Experiment section will win the *Wyndson Gold Medal*, to be kept permanently.

In addition to these awards, *TAPE Recording Magazine* offers prizes of ten guineas for the best tapes in each class.

Grundig (Great Britain) will organise a special social gathering for the pupils who help to produce the best Schools tape.

+++++ Federation to exhibit at Audio Fair +++++

THE preliminary list of exhibitors to this year's International Audio Festival and Fair again shows an increase on former numbers. Among newcomers this year will be the Federation of British Tape Recording Clubs. Members of the committee and member clubs will be in attendance throughout the four days of the show (April 18-21) to answer questions and advise on current problems.

Of the companies appearing for the first time the most recent addition is Audiocraft Ltd. who will be showing the Swiss "Revox" tape recorder, the instrument reviewed in our last issue.

Other manufacturers taking part are as follows:—

A.K.G.	Grampian	Scotch
Ampex	Grundig	Simon
Armstrong	K.E.F.	S.M.E.
BASF	Leak	Sony
Brenell	Lockwood	S.T.C.
Butoba	Loewe-Opta	Stuzzi
Chapman	Lowther	Sugden
Clarke & Smith	Lustraphone	Tandberg
Cosmocord	Mordaunt	Tannoy
Decca	M.S.S.	Telefunken
E.M.I.	Mullard	Truvox
Ferroglyph	Ortofon	Vitavox
Fi-Cord	Philips	Vortexion
Garrard	Planet	Wharfedale
Gevaert	Pye	Whiteley
Goldring	Rogers	Zonal
Goodmans	Rola Celestion	



Left: The automatic stereo tape cartridge unit recently announced in America by the 3M Company. The 3M Revere, described in our last issue, will hold up to twenty cartridges giving fifteen hours of virtually non-stop playback. Available only in America at approx. £161, it uses 1/7-inch wide tape.

become the official British entries in the International Amateur Recording Contest on the Continent, and will be eligible for further valuable prizes.

The closing date for entries is Friday, June 28, 1963. There is no entry fee, but all competitors must complete the entry form which is available on request. Fill in and return the form on page 41 of this issue, if you wish to receive the full details and entry form.

The Contest will be divided into the following classes:—

1. **Compositions**—Radio plays, dramas, sketches, etc., not exceeding 15 minutes.

2. **Documentaries and "Reportage"**—not exceeding ten minutes.

3. **Music or Speech**—not exceeding four minutes.

4. **Actuality**—unusual voices, historic moments, etc., not exceeding four minutes.

5. **Technical Experiment**—electronic music, etc., not exceeding four minutes.

6. **Schools**—features illustrating any aspect of school life or children's interests, made with the participation of groups of children, not exceeding 15 minutes' duration.

7. **Clubs**—feature tapes on any subject and of any type, not exceeding 15 minutes' duration.

The Contest is again being organised with the support of all the most important tape recording interests in Britain.

AMERICA'S ONLY TAPE RECORDING MAGAZINE

Since 1953, this magazine has totally been devoted to tape recording. In addition to its timely articles, our columns also feature:

- Tape Reviews
- New Products
- Industry News
- Questions and Answers
- Feedback (letters from readers)
- Crosstalk (an editorial)
- Club News (tape correspondence clubs)
- Tape in Education
- Book Reviews

A one year subscription, including overseas postage, \$4.75

TAPE RECORDING

SEVERNA PARK,
MARYLAND, U.S.A.

In this special feature "TAPE" takes a look at the manufacture of magnetic recording tape, describes the advantages of using polyester-based tape, and (on page 17) provides an up-to-date comparison chart of tape lengths and prices.

MODERN magnetic audio tape consists of a plastic base material either of cellulose acetate, P.V.C. (Polyvinyl-Chloride) or Polyester, coated to a critical thickness with a lacquer, the base of which is a magnetic iron oxide.

The first stage in the production of a reel of recording tape is the conversion of the raw iron oxide from a non-magnetic to a magnetic state in special kilns. This process, which takes approximately 24 hours, is one needing particularly fine control as several gases are passed through the rotating section of the kiln which is raised to a very high and accurately controlled temperature.

The controls associated with the operation of the kilns are all mechanically interlinked so as to ensure the correct cycle operation.

All the kilns and associated controls are housed some distance from the main plant to obviate any possible contamination of the finished product by the raw materials. At the completion of this process a number of samples is taken from each batch of converted oxide so that checks on the magnetic properties can be made. Seven measurements are taken of each sample to ensure conformity with the rigid standard specifications laid down.

After the raw oxide has been processed it is then mixed in ball mills with various other constituents to form the lacquer. These constituents comprise solvents, binders, wetting agents, plasticisers, etc.

The milling of these constituents is

THE MAKING OF TAPE

By **P. BURDEN**

(*M.S.S. Recording Co. Ltd.*)

carefully controlled in a three-stage process which, inclusive of the time in the ball mills, takes approximately 72 hours.

After this has been completed samples are checked for performance. If these are satisfactory the lacquer is then filtered by a special filter prior to passing into the coating head of the coating machine.

The overall length of the coating machine itself is 47 feet. It is heated by steam raised to a temperature of 165°C and is divided into a number of drying zones. Each zone is served with its own air drying system consisting of a fresh air supply, two stages of air filtration, heater battery, fan and air distribution systems. The temperatures and amounts of air used depend on the type of base being processed.

The coating head is situated at the front of the machine and consists of an unwinding device and automatic back tension controller, two types of coating head, a nucleonic gauge for checking the thickness of the uncoated base and two additional nucleonic gauges which measure the thickness of base plus lacquer by scanning the material as it progresses through the machine. The design of this part of the equipment is such that it guarantees that the coating thickness when dry is controlled to within \pm five per cent of 0.0004 inch.

Situated between the coating head and the drying tunnel is a pen recorder which constantly records any fluctuations of the nucleonic gauge so that for each batch processed there is a complete record of the coating deposited.

The maximum speed of this machine is 200 ft. per minute, believed to be the fastest of its kind in Europe.

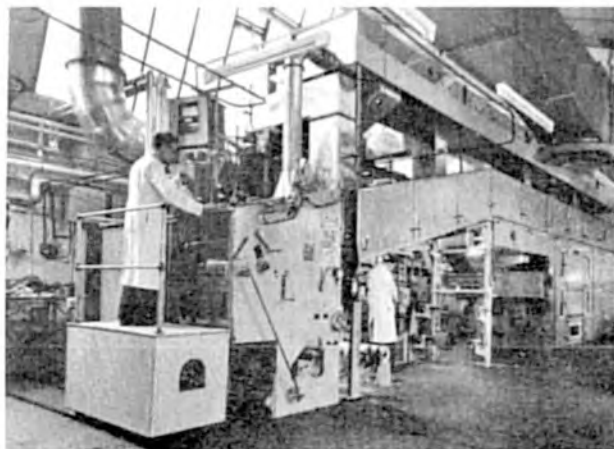
To link the various control circuits on the machine approximately 1½ miles of wire are used and there is a gas analyser which monitors the distribution of solvent vapours and records the percentage of solvents in each of the drying zones. Tension of the material throughout is automatically controlled whatever the speed, and lateral position is accurate to within 0.030 inch.

The machine is powered by ten DC and seven AC motors all controlled from an electronic cubicle housed just outside the coating room.

After coating the material is slit and spooled into different widths and lengths. Lengths up to 10,000 ft. can be slit and the widths most commonly used vary from ¼-inch up to two inches.

Up to sixty spools can be accommodated simultaneously in the spooling frame which can be seen on the left of the machine in the foreground. Tensioning throughout is automatically controlled irrespective of the

(Continued on facing page)



Left: The tape-coating machine, and (right) the tape-slitting process



Just as any big building needs good foundations to ensure lasting strength and stability, modern magnetic tapes need a firm foundation-backing to ensure lasting high-quality reproduction and great tenuous strength. A backing like the special polyester film, a feature of "SCOTCH" magnetic tapes — sound, video, instrumentation and computer. "SCOTCH" polyester-backed magnetic tapes are the expert's first choice. Leading disc makers use

them for master recordings. More than 90 per cent of the world's taped TV programmes are broadcast from "SCOTCH" Video Tape No: 379 with polyester backing.

But "SCOTCH" polyester-backed magnetic tapes are not strictly for the experts. The experienced enthusiast, who settles for nothing less than the very best in consistent high-quality reproduction, great tear resistance and temperature stability, chooses...

^{Trade Mark} Scotch Magnetic Tape

No. 102 Standard Play. 150 Extra Play. 200 Double Play.

3M MINNESOTA MINING & MANUFACTURING COMPANY LIMITED 3M HOUSE, WIGMORE STREET, LONDON, W.1. TEL: HUNTER 5522

MAGNETIC TAPE PRICE LIST

STANDARD	3 (150)	3 1/2 (175)	4 (300)	5 (600)	5 1/2 (850)	7 (1200)	8 1/2 (1800)
Reel size (inches) Tape Length (feet)							
AMPEX (Acetate and Mylar)	—	—	—	15/6, 21/-	22/6, 26/6, 32/6	—	—
AUDIOTAPE	6/-	10/6	18/-	24/6	30/-	—	—
B.A.S.F. (P.V.C.)	7/6	13/6	21/-	(900) 28/-	35/-	57/6	—
C.B.S. (Acetate and Mylar)	7/6	—	9/6, 12/-	17/6, 21/-, 23/-, 28/-	27/6, 35/-	—	—
ELECTRONICWORLD (Acetate and Polyester)	(175) 4/6	—	6/3	12/6	15/-	17/6, 22/6	—
EMITAPE (Acetate and P.V.C.)	(175) 7/6	6/9, 7/6	10/6	18/-, 21/-, 24/6, 28/-, 30/-, 35/-	(590) 18/-	(853) 24/6 (1181) 30/-	57/6
FERRANIA (Acetate)	(164) 5/6	(282) 8/6	—	—	—	—	—
FERRODYNAMICS (Acetate and Mylar Dupont)	—	—	10/6	16/-	(820) 23/6	30/-	—
GEVASONOR (Acetate)	—	—	—	—	—	—	—
IRISH (Acetate, Professional Mylar)	—	—	—	—	—	—	—
KODAK	4/11	—	—	17/6, 21/-, 23/-, 28/-	27/6, 35/-	—	—
MASTERTAPE (P.V.C.)	—	—	—	26/-	45/-	—	—
ORANGELINE (P.V.C.)	5/6	(250) 9/-	10/6	20/-	27/6	35/-	(1750) 50/-
PHILIPS (P.V.C.)	—	—	13/6	17/6	(820) 22/6	27/6	—
SCOTCH (Acetate, P.V.C., Polyester)	—	—	—	21/-	(900) 28/-	35/-	—
SONOCOLOR (P.V.C.)	8/-	(205) 9/6	13/6	17/-, 21/-, 24/6, 28/-, 30/-, 35/-	38/-	—	—
SOUNDCRAFT (Tri-Acetate)	5/-	—	—	21/-	(900) 28/-	35/-	—
TELEFUNKEN (P.V.C.)	—	—	—	—	—	—	—
ZONATAPE (Acetate and P.V.C.)	5/3, 5/9	—	—	18/-, 21/-, 24/6, 28/-, 30/-, 35/-	—	55/-	—

LONG PLAY	3 (225)	3 1/2 (250)	4 (450)	5 (900)	5 1/2 (1200)	7 (1800)	8 1/2 (2400)
Reel size (inches) Tape Length (feet)							
AGFA (Polyester)	—	—	—	28/-	35/-	50/-	—
AMPEX (Acetate and Mylar)	—	—	—	22/6, 26/6, 30/-, 33/6, 39/6, 45/-	—	—	—
AUDIOTAPE	8/6	—	14/6	28/-	33/6	50/-	72/6
B.A.S.F. (P.V.C.)	(210) 9/-	—	—	28/-	35/-	50/-	—
C.B.S. (Acetate and Mylar)	—	—	—	21/-, 25/-	25/-, 32/-, 35/-, 47/-	—	—
ELECTRONICWORLD (Polyester)	5/6	—	10/-	16/6	22/6	29/-	—
EMITAPE (P.V.C. or Polyester)	(250) 9/6	9/6	14/6	28/-	35/-	50/-	72/6
FERRANIA (Acetate and Polyester)	(246) 7/6, 8/6	(393) 12/6, 12/-	—	(853) 25/-, 28/-	(1181) 32/-, 35/-	(1739) 50/-, 50/-	—
FERRODYNAMICS (Acetate and Mylar Dupont)	—	—	—	18/6	23/6	35/3, 44/-	—
GEVASONOR (Acetate and Polyester)	7/6, 9/-	—	13/6, 16/-	24/-, 28/-	(1150) 28/6, 42/-, 50/-	—	—
GRUNDIG	—	—	—	—	35/-	—	—
ILFOTAPE (P.V.C.)	—	—	—	28/-	35/-	50/-	—
IRISH (Acetate and Mylar)	—	—	—	28/-	35/-	50/-	—
MASTERTAPE (Polyester)	8/6	(350) 11/-	14/6	24/6, 28/-	(1150) 27/-, 39/6, 50/-	—	70/-

LONG PLAY (Continued)	3 (225)	3 1/2 (250)	4 (450)	5 (900)	5 1/2 (1200)	7 (1800)	8 1/2 (2400)
Reel size (inches) Tape Length (feet)							
ORANGE LINE (P.V.C. or Polyester)	7/6	—	—	(883) 21/6	(1150) 28/6	36/6	—
PHILIPS (P.V.C.)	(210) 9/-	—	14/6	28/-	35/-	50/-	—
SCOTCH (Polyester)	—	(300) 9/6	—	28/-	35/-	50/-	72/6
SONOCOLOR (P.V.C.)	(210) 9/6	(340) 14/6	—	28/-	35/-	50/-	—
SOUNDCRAFT (Tri-Acetate and Mylar)	7/6, 9/6	—	—	24/-, 28/-	27/-, 35/-, 39/6, 35/-	—	—
TELEFUNKEN (P.V.C.)	—	—	—	28/-	35/-	50/-	—
ZONATAPE (Polyester)	9/-	—	—	28/-	35/-	50/-	72/6

DOUBLE PLAY	3 (300)	3 1/2 (400)	4 (600)	4 1/2 (900)	5 (1800)	5 1/2 (1650)	7 (2400)
Reel size (inches) Tape Length (feet)							
AGFA (Polyester)	13/9	—	—	—	—	—	—
AMPEX (Mylar)	—	—	—	—	—	—	—
AUDIOTAPE (Polyester and Mylar)	—	—	25/-	30/-	42/-	(1650) 56/-	72/6
B.A.S.F. (P.V.C.)	14/-	—	—	—	35/-, 45/-	—	65/-, 80/-
C.B.S. (Mylar and Mylar Double-Strength)	10/-	—	—	—	34/-, 42/-, 45/-, 55/-	56/-, 68/-	—
ELECTRONICWORLD (Polyester)	9/-	—	13/9	—	(1150) 25/-	(1750) 33/-	42/6
FERRANIA (Polyester)	—	17/-	25/-	—	45/-	57/6	80/-
EMITAPE (Polyester)	(328) 12/-	(590) 22/-	—	—	(1181) 57/6	(1700) 57/6	(3262) 80/-
FERRODYNAMICS (Mylar, Dupont and M.D. Tensilised)	—	—	—	—	37/6	—	60/-, 70/-
GEVASONOR (Tensilised Polyester)	14/-	—	25/-	—	45/-	(1650) 55/-	80/-
GRUNDIG	(400) 17/-	—	—	—	—	52/6	77/6
IRISH (Mylar)	13/9	—	25/-	—	45/-	(1650) 52/6	80/-
MASTERTAPE (Polyester)	10/6	—	—	—	45/-	(1700) 57/6	80/-
PHILIPS (P.V.C.)	14/-	—	25/-	—	42/-	52/6	77/6
SCOTCH (Tensilised Polyester)	—	17/-	—	—	45/-	(1700) 57/6	80/-
SONOCOLOR (P.V.C.)	14/-	(400) 21/-	25/-	31/6	42/-	52/6	77/6
TELEFUNKEN (P.V.C.)	—	—	—	—	40/-	50/-	75/-

TRIPLE PLAY	3 (450)	4 (900)	4 1/2 (1200)	5 (1800)
Reel size (inches) Tape Length (feet)				
AGFA (Polyester)	22/6	39/-	—	66/3
B.A.S.F. (Polyester)	23/9	42/-	52/-	—
GEVASONOR (Tensilised Polyester)	21/6	38/6	—	65/6

A NUMBER of manufacturers also provide tape on 10 1/2-inch spools. The tape lengths, price and types of base material are as follows:

- STANDARD (2,400 ft.); C.B.S.: 63s. 0d. (Acetate) and 84s. 0d. (Mylar); Gevasonor: 55s. 0d. (Acetate); and Zonatape: 79s. 6d. (P.V.C.).
- LONG PLAY (3,600 ft.): C.B.S.: 60s. 0d. (Acetate) and 105s. 0d. (Mylar); Gevasonor: 80s. 0d. (Acetate) and 95s. 0d. (Polyester); Zonatape: 108s. 6d. (Polyester).
- DOUBLE-PLAY (4,800 ft.): C.B.S.: 132s. 0d. (Mylar) and 143s. 0d. (Mylar Double-Strength).

Length of tape on a given spool size sometimes varies between manufacturers. The figure at the top of the columns is that common to the largest number of companies. Variations are given in brackets throughout the table.

In some cases, more than one price is given for a particular reel of tape. Where this is not a result of varying tape lengths, the lowest priced tape would have an Acetate base, the next P.V.C., and the highest priced, a Polyester base.

ONE of the most annoying things that can happen to a tapeworm on holiday is to find that one's portable recorder is no longer working. Normally, the solution is fairly simple. Nip into a repair shop and have it attended to.

But when one is in the heart of the Scottish Highlands, it can be quite a difficult business finding someone who has even *seen* a tape recorder—let alone be able to repair one.

So it was with Bill and me. We just couldn't get a thing out of our machine, yet we knew the trouble didn't lie in the supply. Anyway, we had a spare set of batteries with us just in case.

With only three days of our holiday remaining, this was an obstacle to our plans. We had wanted to spend at least one day on the shores of Loch Ness, which lay many, many miles to the north.

LATE that evening, we drove slowly through a fairly large village, and pulled up at a radio repair shop. The fact that tucked away in a corner of the window was a package of three-inch reels of tape, was enough for us. We booked in at the village hotel and shortly after nine o'clock the next morning presented ourselves at the door with the faulty recorder.

The old man scratched his head slowly and surprised us both by asking, "Well, what's wrong with it?"

"It's completely dead," I told him, and flicked the switch on. I tried the "fast rewind" but nothing happened. On "record" the magic eye didn't light up either.

"Well, now," he said, "that's a serious thing, is it not?"

"How long do you think it will take to repair?" Bill asked.

The man smiled. "I don't know anything about these new-fangled machines, but my son will be here this afternoon. He should be able to fix it for you."

My heart sank. "This afternoon?" I echoed.

He looked apologetic. "David's over in the next village just now. He won't be back until mid-day."

I looked at Bill, and Bill looked at me. "I suppose there's nothing else for it," I said.

"Are you going far?" the old man asked.

"We hope to reach Loch Ness before we turn back for home," Bill told him, "but we've only two more days left after today."

The man nodded understandingly. "I'll ask David to look at it as soon as he comes in. Will you come back about four o'clock?"

Bill nodded and we left.

THE day passed slowly but at last four o'clock came round and we made our way to the shop again. Our machine was still lying on the counter, but with a beaming smile, the old man

switched it on, and we saw right away that it was functioning perfectly again.

We paid him and returned to our car. Within minutes we had left the village and were heading north as fast as the twisting roads would allow us.

With the map spread across my knee, I followed our route out with my finger, ever on the look-out for landmarks, but one mountain looks very like another, and as the miles rolled past and the sun disappeared behind the clouds, it became alarmingly difficult to know just exactly where we were.

The only thing I could be sure of, was, that we were travelling in the general direction of Loch Ness. This meagre piece of information alone, kept my hopes alive, knowing that the loch is at least, large enough not to miss.

Then without any warning, a mist swirled down from the hills and completely enveloped us, reducing our visibility to no more than ten yards.

Bill gamely plodded on at a steady five miles per hour, as I kept peering into the mist in the hope that some recognisable landmark would suddenly appear, but all I could see was a few feet of roadway and a ditch. Beyond that, the gloom.

WE had been travelling "blind" for about an hour when the mist began to thin. Unfortunately, it was late in the day and beginning to get dark, which didn't really help matters any.

My finger still rested on the map at the last known point and with mounting anxiety I saw that only a short stretch of road lay between it and the loch, yet I imagined we must have covered at least twice that distance.

"I'm sorry," Bill said, driving carefully on to a grass verge, "I've had enough. I'm not moving another inch until this mist clears." He opened the car door and looked around. "I suppose you've no idea as to where we are?"

The implied slight on my navigation irked me. I cleared my throat and said a little hopelessly. "According to my calculations, we should be in the middle of the loch by now, bearing in mind the length of time we've been travelling."

Bill pointed out, however, that it was most difficult to estimate just how far we had travelled in the mist. He even tried to work it out from the speedometer reading of the mileage, but as neither of us could recall what it had been when we set out, this brought us no enlightenment.

I got out on to the springing turf, and shivered as I walked a few yards ahead. I saw nothing. Bill joined me and together we peered around and listened.

"Ssh!" Bill exclaimed. "Do you hear anything?"

"Yes, I think so," I told him. "It sounds like water lapping against the shore."

"That's what I thought." He looked around. "But in which direction?"

We turned slowly around again and both agreed that it sounded as if it was on our left. "You wait here by the car,

A MONSTROUS AND WET NIGHT

Jean," Bill told me, "while I go this way. There's no point in two of us getting lost. If you hear me call out, keep blowing the horn, so that I'll know how to find my way back."

I walked back to the car and Bill moved cautiously into the darkening gloom.

FOR the next ten minutes I heard and saw nothing. Napoleon jumped down from the car and sniffed around with a tentative puzzled air then clambered back into the rear seat again.

I turned when I heard a sound on my left, as Bill emerged from the mist.

"Did you find anything?" I asked him.

"Of course I did!" he snapped back at me. Then I saw that his shoes and socks, and the turnups of his trousers were soaking wet.

"Sort of put your feet into it, didn't you?" I asked, grinning.

"If you must have your little joke, I did."

"Are you sure it's Loch Ness? I mean, we might have taken a wrong turning in the mist, and —"

"What do you want me to do? Swim out and look for the monster? Come on, help me unpack!"

"Unpack?" I said with rising alarm. "Here?"

"Well, there probably isn't a hotel for miles around and I certainly don't fancy sleeping in the car."

That's one thing I'll say for the Rogers' family. I'm sure their motto is 'Always Prepared,' and believe me they certainly live up to it. From the depths of the boot came a tent, some blankets and a primus stove. The Rogers' Expeditionary Force is ready to cope with any emergency.

"What's the use in getting away from it all if you're not prepared to rough it now and again?" I muttered to myself, petrified at the thought of camping out in the lonely, damp darkness.

BUT camp we did, and we dined over a camp fire just like they do on TV Westerns, except that it was a darned sight colder.

A MONSTROUS AND WET NIGHT

Trying to clamber between the blankets was an effort in itself. No matter how I lay, the wind found a way to penetrate.

Bill took Napoleon for "walkies" before retiring. This struck me as a trifle silly—like taking coals to Newcastle, if you see what I mean.

The dog lay contentedly at the flap of the tent. In fact, he was so content, he wagged his tail incessantly. The thick bushy appendage slapping against the canvas was like listening to a distant cracked churchbell striking a hundred and twelve.

In short, I knew there would be no sleep for me that night. Even when I began to doze off, Bill and Napoleon held some kind of remote masculine conversation confined to grunts and snorts.

I dearly wished I was near enough the recorder to start it up. I doubt if Napoleon would have been impressed by the playback, but I'm sure Bill would have been surprised at the sounds he makes while asleep—and like all men, he says he doesn't snore.

But it was not to be. The recorder lay just out of reach and to grope around for it would have disturbed both Bill and Napoleon. So I just lay and listened to all that was going on around me—both inside and outside the tent.

I SUPPOSE I must have dropped off to sleep, because I remember coming to with a start. All was quiet save for the rustling noises of the night.

I shook Bill gently, but he snored on. Before I could shake him again, there came a terrible thrashing of water accompanied by the most eerie moaning and a burst of energetic barking.

Without any shadow of doubt the cause of the barking was Napoleon, and as I threw off the blankets and pushed myself out of the tent, I had visions of our labrador doing terrible battle with the Loch Ness monster.

The picture was clear in my mind. Napoleon had gone off in the night and scented the great beast. Unaware of the monster's terrifying legend, Napoleon

was in mortal danger, bravely defying a survival from the prehistoric deeps.

I ran a few steps and stopped dead. The mist still hung heavy and I could see nothing. The barking and bellowing continued until I could stand it no longer.

Suddenly Bill was at my side, holding the recorder and fumbling with the controls.

"This must be the monster," he said jubilantly. "Let's try and get a good recording of it."

"Don't be so cold-blooded!" I shouted and grabbed the machine from him. "You don't understand! Napoleon is out there in the mist somewhere barking at the monster! You'll have to do something!"

The dog's whimpering cries came to us through the mist and Bill moved forward in their direction. I didn't know what to do. I was too scared to move.

* * *
MINUTES later Napoleon trotted happily back to me and nuzzled against my leg. I could still hear sounds of churning water and I called out Bill's name, but he didn't answer.

I ventured forward slowly and met Bill coming back. He smiled and

Short Story
by
JEAN ROGERS

patted Napoleon, and said, "There's absolutely nothing to be seen. Maybe we should . . ." He broke off. "Listen."

The bellowing started up again. While Bill held Napoleon by the collar, I switched on the recorder. I felt much happier now that we were all safe. I recorded all the noises we heard in the next five minutes, cautiously approaching the loch-side all the time.

The mist began to clear in patches and we were hopeful of seeing the monster as well as hearing it.

Then suddenly from behind us, came the most blood-curdling, soul-splitting screech. I jumped involuntarily, lost my balance and slithered into the loch up to my knees.

I clambered out and saw dimly a hideous face peering down at us through a break in the mist. I was thunderstruck and Bill just gaped at the thing high above us.

"What can it be?" I said in terror. "It's — I don't know! It must be —. Look! Its head is shaking from side to side!"

"Yes," I said shakily. "I hope you realise that that head is at least fifteen feet above the level of the water! What do you think it —?"

"Come on!" Bill grabbed me. "That thing, whatever it is, is in front of us. The loch is behind us. Get into the car. Quick!"

I still couldn't take my eyes off that awful face as it shook from side to side, as though in anger. What looked like long strands of hair as thick as rope hung from the huge horns sticking out above its head.

Even inside the car, I was still scared to death. From the position of its head it was only simple to imagine a body of enormous proportions, and one blow from one of its mighty feet could crush Bill, Napoleon, the recorder, the car and me.

Chattering with cold and fright, I clung closely to Bill.

Gradually the noises diminished until all was quiet again. It was still quite dark although the mist was beginning to clear.

Bill told me to get some sleep while the chance was going, but it was a long time before I drifted into anything resembling a restful sleep.

* * *
THE sun was rising when I ventured out of the car. I dried out and dressed knowing that I was in for the grandmother of all colds.

The full light of dawn brought its surprises. Fifty yards from us, in the loch, stood an isolated grass-covered rock.

And by the water's edge, placidly drinking breakfast, was a herd of the shaggy russet-coloured Highland cattle that are still to be found in this part of Scotland. A suspicious-looking bull kept one red eye on his harem, and the other threateningly on us.

In that brief moment we saw again, our "monster" of the previous night. He was no long-necked hideous creature. As if to prove the point, Napoleon woke up and ambled towards him. The bull lowed menacingly and at his warning, there was instant panic. Some of the cattle bolted into the shallows, two made for the rocky islet and the others scattered along the shore.

As we quickly packed our gear, the bull, with one eye still upon us, climbed to a ridge which I realised stood about fifteen feet above sea-level. Napoleon lay on the grass at the foot of the hill, content to watch the Highland beast. Minutes later, we continued our journey. I just stared straight ahead and tried to let my annoyance wear off. But the thought of the imagined terrors I had gone through the previous night, plus the fact that our recordings of the fabled monster turned out to be nothing more dramatic than the antics of a drove of unromantic cattle straight out of a Victorian drawingroom engraving, was too much for my already jagged nerves.

But worse was to follow. About a hundred yards along the road, we turned a corner and were faced by a brand-new, ultra-modern hotel. Even from the road the notice in the hall doorway was mockingly clear.

"Highland cheer," it read, "with up-to-date comfort. Accommodation available."

INSURING YOUR TAPE RECORDER

NORMALLY, a tape-recorder will be included with all one's other possessions under a "householder's" insurance policy which covers all the contents of the house. Although these policies often are known as "comprehensive" policies, this is a rather misleading term, for a considerable number of accidents are not covered by this kind of policy.

In general, this type of policy covers the risk of fire, burglary, house-breaking, theft, and storm damage. It will even pay if a flying saucer crashes on the house and it is damaged, and some cover is provided if the tape-recorder is out of the house. But the kind of claim which will *not* be covered is the theft of the tape-recorder from a car or train, any damage if it is dropped accidentally, or loss which cannot be accounted for.

"All Risks"

Much the best arrangement, therefore, is to insure the tape recorder separately on "all risks" terms, in much the same way as one can insure a valuable watch or jewellery. Although by no means every single hazard will be covered in this way, one does have very much wider cover than is provided by the normal form of comprehensive policy on the contents of a house.

It may be simplest for the "all risks" insurance to be arranged as an extension to the householder's policy, although there is no reason why it should not be arranged separately. In some cases this may be the easiest procedure, for there are certain insurance companies which specialise in this type of insurance, and generally quote lower rates.

Although it is possible to obtain insurance cover on a television set which provides for full maintenance, so that cleaning, overhaul, and the replacement of valves are paid for by the insurance company, the insurance cover on tape recorders has not developed along these lines, and it would be a mistake to think that the cover is all-embracing. It is

JOHN GASELEE gives advice on the financial protection of your tape recorder in case of loss, theft, or damage.

not, for usually it is not possible to cover what is described as electrical or mechanical breakdown.

Nor may the cover be quite so wide as it is in the case of an "all risks" policy on jewellery or clothes. In that type of policy, it is usual for the wording to state that the cover applies "whilst anywhere in the United Kingdom, including whilst in transit." So far as the insurance of a tape recorder is concerned, it is not unusual for the policy to give cover only while the recorder is in a club, hotel, or other premises (including, of course, one's home), or in transit.

Is this enough cover? Clearly, one is unlikely to use a recorder out of doors very often. Nevertheless, there may be the odd occasion for some special purpose and, since the likelihood of damage quite clearly is greater, it will be well worth trying to arrange to see if it can be covered. Given the reason as to why the insurance is to be extended, the insurance company may agree to extend the policy, and may not even require any more premium.

Reasonable Rates

On the whole, the premiums are quite reasonable. Of course the rate does vary between different companies, but there seems to be no need to pay more than 25s. per £100 of value, though the premium for lower values may not be strictly in proportion.

One difficulty is the question of value. It is all very well to insure a tape recorder for a certain sum, but unfortunately this does not guarantee that it will be paid in the event of theft, or if it is damaged to such an extent that it is a "write off." The principle adopted by the majority of the insurers is that the value for which the recorder is insured is only their limit of liability, and they will pay the market value of the recorder at the time of loss. Clearly there can be two views about what was a fair value!

Insurers do not merely pay the amount

that one would receive if one sold the recorder. On the other hand, it is not usual for them to pay for a brand new replacement if the recorder which was insured was two or three years old. The usual compromise is to take the value when it was new and to deduct a certain amount for the use one has had from the recorder. This may seem unfair when one is faced with buying a replacement without enough money to do so, but, in fact, it is reasonable.

Agreed Figure

Occasionally, if one can produce a valuation by a reputable dealer, insurers may be prepared to take this a stage further and "agree" on a figure for the year of insurance. This means that, if the tape recorder is a total loss at any time during the year, the "agreed value" will be paid without any argument. Unfortunately very few insurers are prepared to take this course, and so usually there is no means of telling how much one will be paid until after the loss!

Among the conditions in many of these policies is an exclusion where loss or damage is due to "mechanical and/or inherent defect, or the over-running, excessive pressure, short circuiting or self heating of any electrical machine or apparatus." In addition, a policy is unlikely to cover the breakage of valves and/or filaments or any other glass parts. Nevertheless, these are covered if the apparatus containing them is damaged at the same time. The point is that insurers do not want to cover the ordinary running repairs and maintenance expenses which are almost inevitable from time to time. It is the out-of-the-ordinary event such as theft or breakage which they are prepared to cover, and this is reasonable enough.

In just the same way, wear and tear and gradual deterioration are excluded from the cover. Watch out when a recorder is taken for repair, for there is no cover when a recorder is undergoing any process of cleaning or restoration.

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DO-IT-YOURSELF

By
R. E. STEELE

BUILDING A STEREO-MONO



MIXER UNIT

THIS is the concluding article of the first part of our special series on the construction of a unit designed to handle stereo channels for mixing. This unit, which is complete in itself, can also be used in conjunction

THE final stages of testing may bring to light a persistent hum, which may be due to the heater wiring. An easy method to check this is to disconnect the L.T. supply from the mixer and temporarily substitute a 6-volt lantern battery. If this cures the trouble then a "humdinger" can be fitted across the L.T. supply. A small 100 ohm potentiometer will serve the purpose and should be connected as shown in Fig. 12 (see page 22). This can be hidden inside the chassis as once it is set it need never be touched again.

Other sources of trouble may be the long bolts in the panel jacks touching one or more of the tags on the tag board. It is best to cut off the ends of these bolts—or

with a mono mixer unit for conversion to a ten-channel mono mixer. It is similar in construction, though somewhat simpler in circuitry. The first article will appear in our next issue.

alternatively to bend back the tags. A common fault in wiring is failure to complete earth returns. When testing is completed bundle all the various runs together and secure with thin cord.

THE PLASTIC PANEL

As received from H. J. Leak the panel is already drilled for the Point One stereo pre-amp., i.e. with $5\frac{1}{8}$ -inch diameter holes and $2\frac{3}{8}$ -inch diameter holes lower down.

These seven holes are all used (the two lower holes are actually at the top in the Stereo-Mono mixer panel). The hole for the "on-off" switch—top right—will have to be opened out to $7/16$ -inch diameter.

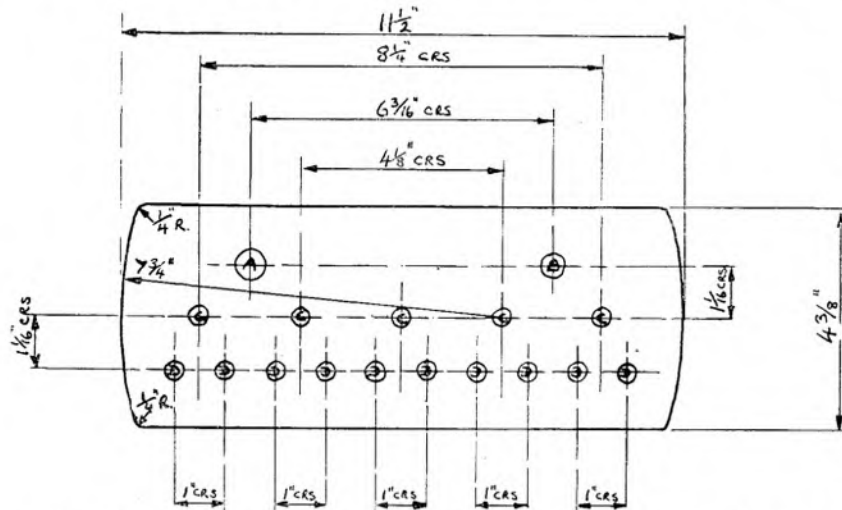


Fig. 13. Drilling of plastic panel. Full dimensions are given to facilitate construction of own panel from plastic sheet. Use sheet $\frac{1}{8}$ -inch or $5/32$ -inch thick. A: One hole open up to $\frac{3}{8}$ -inch dia. B: One hole open up to $7/16$ -inch dia. C: Five holes $\frac{3}{8}$ -inch dia. as received. D: Ten holes $\frac{3}{8}$ -inch dia.

The hole for the rotary switch should be left at $\frac{3}{8}$ -inch diameter but if the threaded part of the switch is not long enough (as found on the prototype) then the hole will have to be opened up to $\frac{7}{16}$ -inch diameter, to allow the panel nut to pass through. This nut should then be tightened up onto the aluminium panel without the plastic panel in position. Ten holes are drilled $\frac{3}{8}$ -inch diameter along the bottom of the panel for the panel jacks. These are best marked off the full size panel drawing, by laying the panel over the drawing in the correct position and marking with scribes. The plastic is quite soft and easy to drill. If a correct size drill is not at hand drill out the centre with a smaller drill and open up carefully with a round file.

(Continued on page 22)

BUILDING A STEREO-MONO MIXER UNIT

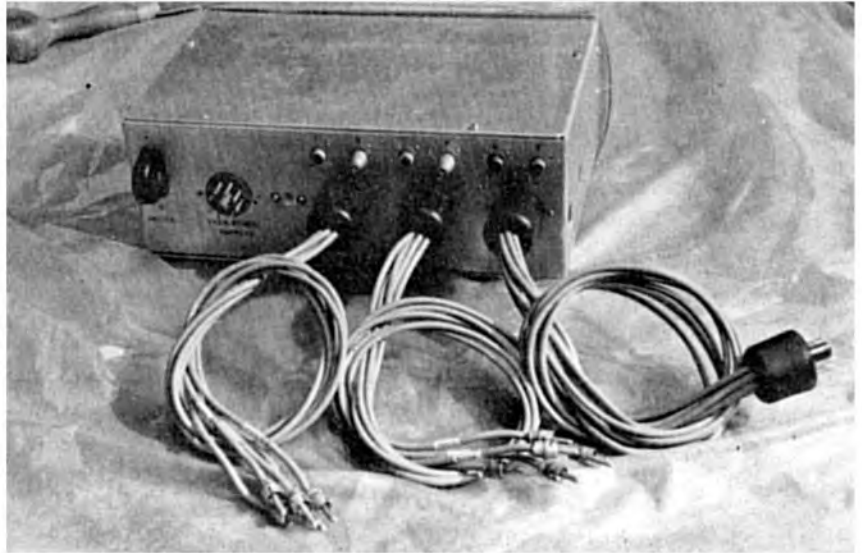
(Continued from page 21)

When drilling the panel, drill from the front and have the underside supported on a firm surface (covered with cloth to prevent scratching) to avoid splintering. Make sure that all fragments of swarf are cleaned off or these may become embedded in the decorative panel when the panel nuts are tightened. Fig. 13 shows all drilled holes.

THE DECORATIVE PANEL

The material required for the decorative panel includes transparent film 12 x 5 x .005 inches thick; three sheets— $\frac{1}{8}$ -inch (block letters) transfers—white; and white, gold and maroon paint.

The panel is made up by setting the white transfers on the front of the film, and the maroon and gold background is applied to the back afterwards. Before this is started draw the panel front full



Rear of mixer with leads to pre-amplifier and mono-mixer connected

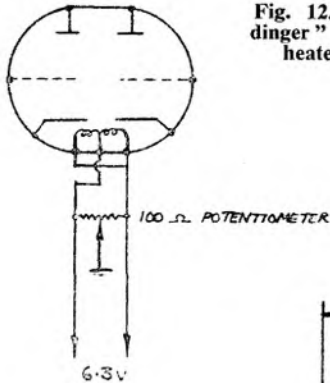


Fig. 12. "Hum-dinger" to cure heater hum.

size on cartridge paper, Fig. 14. If the reader does not wish to reproduce the panel front, a full size drawing of the panel is available. Please send a Postal Order for 2s. 6d. to the author at 7, Tudor Street, London, E.C.4. The 2s. 6d. will also cover the cost of a drawing of the Mono-Mixer Panel to be described in later issues.

Mount the panel drawing on to a board and attach the film over the top with masking tape. First mark all the hole centres and lightly scribe the hole without actually cutting through. This allows the holes to be found after painting, but prevents the paint from running on to the other face.

Commence by painting the words

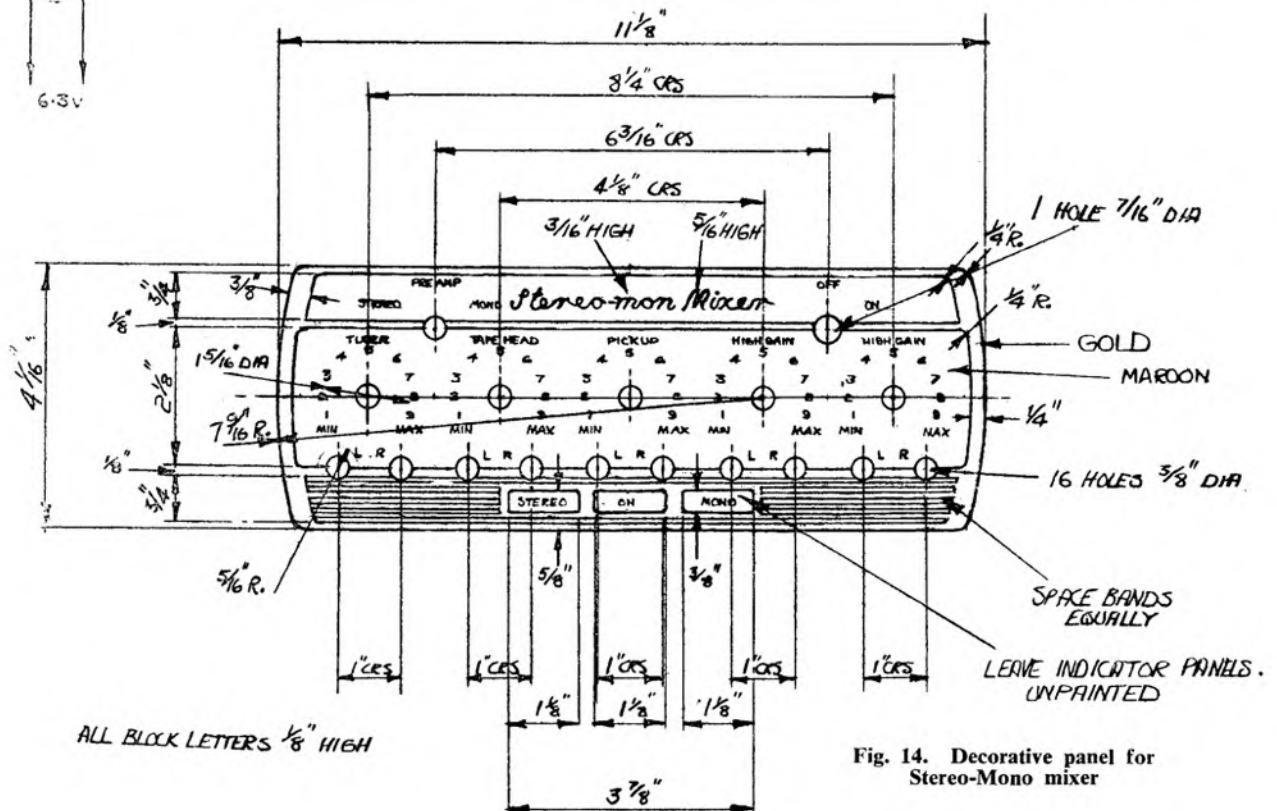


Fig. 14. Decorative panel for Stereo-Mono mixer

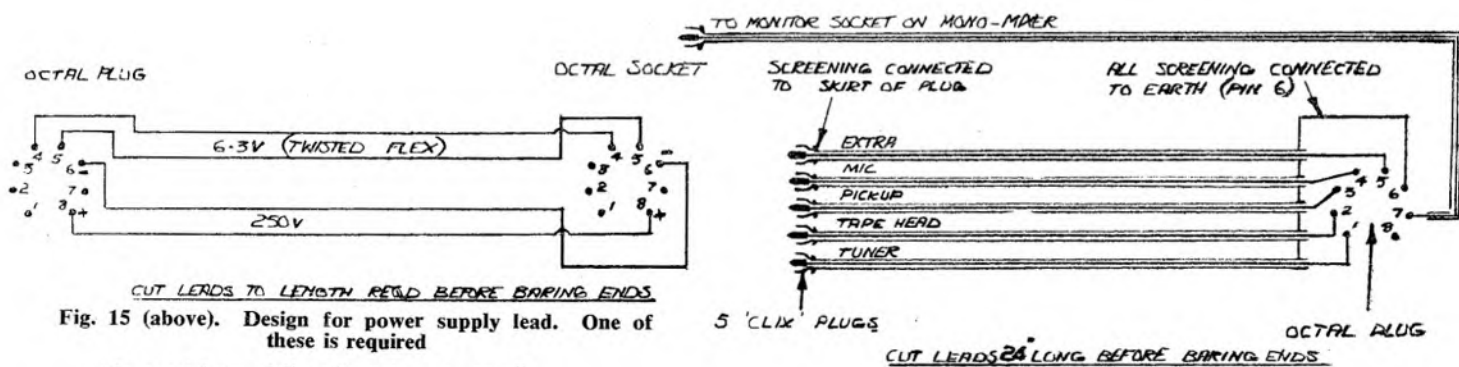


Fig. 15 (above). Design for power supply lead. One of these is required

"Stereo-Mono Mixer" using a small hair brush and the white paint. Paint a white dotted line round the border to enable it to be trimmed, after painting is complete. The transfers may be bought in sheets from model shops. A pair of tweezers, scissors, and a shallow dish of water are required for applying them. Work on one word at a time cutting out the individual letters and numbers and drop them into the water. After the transfers have soaked, slide off the paper backing, position the transfers and press out the water with a thin cloth. This may seem a tedious process but the final result will be a professional looking job that the owner will be proud to place alongside his bought equipment.

When the paint and transfers have dried, remove the film and reposition it over the layout with the lettering facing downwards. The film is now ready for painting. Brush marks will be prevented by painting from the back, also it eliminates the very tedious process of cutting in round the letters.

The gold border should be painted first. Leave the space surrounding the three indicator panels ("Stereo"—"On"—"Mono") blank. When the gold paint has dried paint the panel completely, except the indicator panels—with the maroon paint. There is no need to cut in between the gold lines as the maroon will be at the back of the gold when facing the right way up. When dry, cut round the white dotted line and remove the previously scribed holes.

Remove the panel nuts and place the decorative panel over the projecting components, slide a sheet of red transparent paper under the indicator panels, place the plastic panel on top and replace the panel nuts, and fit the knobs. The transfers on the rear of the mixer are 1/8-inch high blue letters. Mark the position of the letters with two pencil lines 1/8-inch apart.

THE CONNECTING LEADS

Connections are required for the four groups of outlets from the rear of mixer. The power supply leads, see Fig. 15, con-

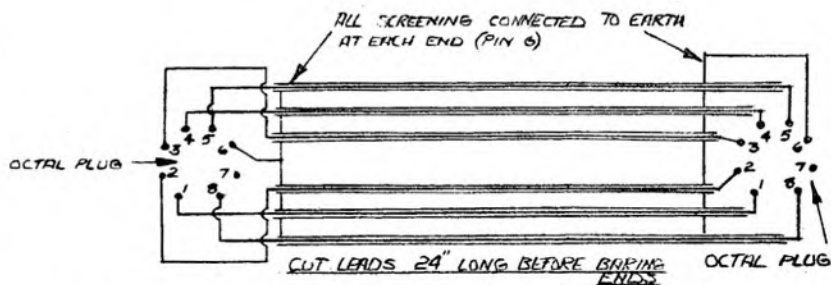


Fig. 16 (top). Leads from Stereo-Mono mixer to pre-amp. Two of these required for left and right. Fig. 17 (bottom). Leads from Stereo-Mono mixer. One only required

sist of one female and one male octal connectors. The "H.T.+" and "Earth" conductors are of twin cored flex. The heater conductors should be of twin-twisted flex.

Care should be taken to ensure that the correct pins are connected, as these will vary with different amplifiers' spare supplies. The pins as numbered are for the Leak TL 12. If the pins do vary, connect the ends of each conductor to the corresponding number on each con-

nection. Also, the connections to the power supply connector, on the chassis must correspond. The left and right sockets marked TO PRE AMP have identical sets of leads, see Fig. 16, therefore two of these must be made up. The leads are all of screened wire (not T.V. coaxial cable). The inner conductor of each wire is connected to the respective pin of an octal (male) connector.

(Continued on page 24)

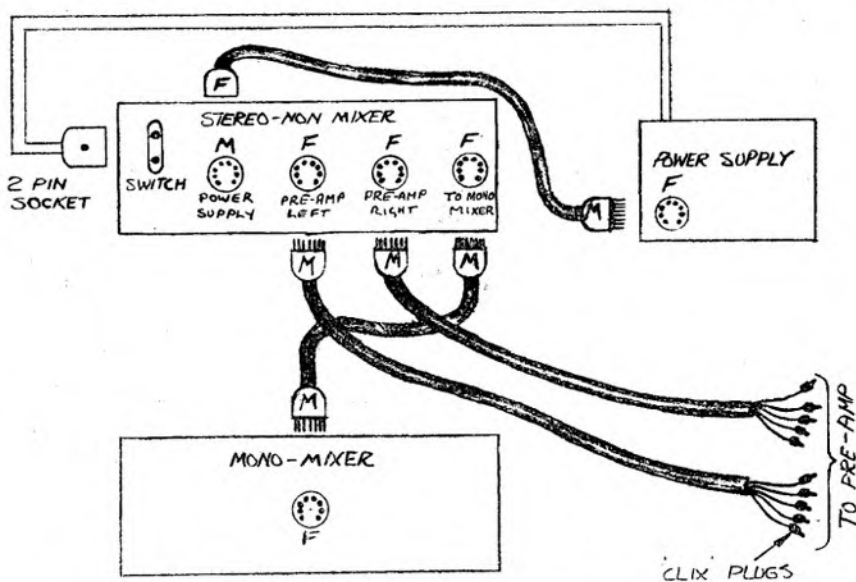


Fig. 18. Mixer connections. M: Male connector; F: Female connector

BUILDING A STEREO-MONO MIXER UNIT

(Continued from page 23)

The outer screening is all twisted together and forms the earth return from pre-amp to mixer. The twisted ends are soldered to a piece of single strand, bare wire, and connected to the "earth" pin of the octal connector. The free ends each have a "Clix" plug fitted, the outer screening being soldered to the cap of the plugs. To identify the free ends when plugging into the pre-amp small labels are attached close to the "Clix" plugs—with Sellotape.

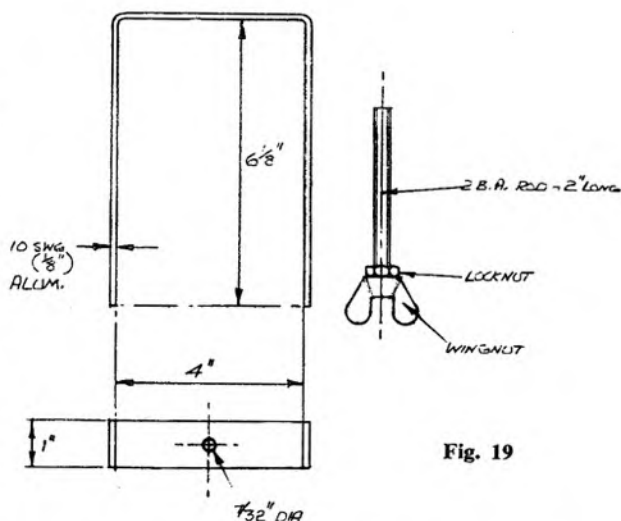
The outlet marked to mono-mixer will only require a lead if the mono-mixer is built. This is made up from screened wire, and one male and one female octal connectors, see Fig. 17.

The connectors are shown diagrammatically in Fig. 18.

CLAMPING BRACKET

A clamping bracket is required for fixing onto a panel or into a cabinet. This is made from a strip of

Fig. 19. The clamping bracket and fixing bolt for fixing mixer unit onto a panel or into a cabinet.



aluminium one inch wide x 10SWG ($\frac{1}{8}$ -inch thickness, and is bent and drilled as shown in Fig. 19). This will then allow fitting on to panels of any thickness up to $1\frac{1}{2}$ inches thick.

Also required is a fixing bolt (also shown in Fig. 19). This is made up from a length of 2BA rod, a 2BA lock nut and wing nut. The lock nut and wing nut are locked together at the end of the rod by turning against each other.

When fitting the unit into its cabinet, cut a hole $10\frac{3}{8}$ inches x $3\frac{3}{8}$ inches. Care should be taken when marking out the hole to ensure that the panel will be central when fitted. The reason for this is that the panel front is not symmetrically positioned on the chassis at the sides. It was found necessary to do this when designing the mixer, to accommodate the 24 pole switch.

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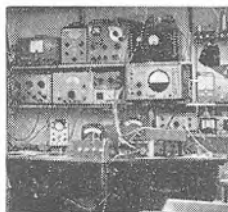
RAVensbourne 4000/4477

IF any reader has been searching for a really compact, mains-operated, four-track, mono/stereo recorder, this Telefunken model 97 could well be the answer.

Playback amplifiers and loudspeakers are incorporated for both channels, the only items not supplied being microphones, but although it contains a complete stereo system, the overall size of the recorder, in carrying order, is only 16 inches wide × 9 inches high × 11½ inches deep and the weight is 29 lbs.

The case, lid and deck cover are made of two-tone grey plastic, finished with chromium-plated trim and fittings and the machinery is designed to operate on A.C. mains voltages of 110, 200, 220, or 240, at 50 cycles, and is supplied set for 240v., the power consumption being approximately 65 watts.

Access to the mains voltage adjuster and the motor and amplifier fuses, which



TEST

BENCH

THE TELEFUNKEN 97

By

ALAN BEAUTEMENT

are separate, is obtained by undoing the four screws inside the rubber feet and removing the bottom cover, which also gives access to two of the valves. Two 9 × 3 inch elliptical p.m. loudspeakers are provided. One is sited in the recorder case and the other, with its connecting cable, is in a detachable, free-standing lid, allowing the two to be separated for stereo reproduction.

Tape Deck and Controls

The tape spools and capstan flywheel

are friction driven, through a system of rubber idler wheels, from a single motor. This motor also drives a cooling fan. Speeds of 7½, 3¼ or 1⅔ ips are selected by a control to the left of the head cover. The latter is in two sections, both removable, giving easy access to the heads for cleaning or azimuth adjustment. The rear portion is provided with a tape-width channel, in the top of the moulding, to facilitate tape splicing. Track sense is the usual one for four-track recorders, the reels being inverted to use the second pair of tracks.

A push-button control (centre front), is depressed to stop the recorder, the same control being pushed sideways, to left or right, to select fast re-wind or

NICODER 557

In the review of the Nicoder 557 stereo recorder, published in our December 1962 issue, Mr. H. Burrell Hadden remarked on the ability of the machine under test to be switched from "fast wind" directly to the "play" position or vice versa. Bearing in mind that some machines are designed to switch from "play" to "fast wind," the reviewer pointed out the disastrous results to the tape should the reverse occur.

The policy of this magazine, of not allowing manufacturers to see reviewers' comments before they are published, will not change, but we wish to clarify the position regarding this particular review. It has since been pointed out, and proved to our satisfaction, that the abilities criticised are not intended on this model, they were in fact peculiar to the machine tested which had developed a switching fault in transit.—EDITOR.

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fast forward, respectively. To the right of this is a "quick stop," (pause), control, which releases the pressure pads and pinch wheel. There is also a relay-operated automatic stop, which is activated when metal foil strips, on the ends of the tape, close a switch. This switch serves as the tape guide pillar to the right of the capstan spindle. The "start" control is a push-button to the right of the pause control. The remaining controls will be described in the "Amplifier" section.

A 5½ inch reel of tape is supplied, together with an empty 5½ inch spool, the maximum spool size accommodated is seven inches. In front of the take-up spool, and belt-driven from its spindle, is a digital tape position indicator.

* * *

Amplifiers and Controls

The amplifiers are identical and consist of an EF.86, a 12AT7 twin-triode, with the two halves in cascade and an EL.95 pentode output stage, giving about three watts of audio, per channel, on playback of stereo tapes.

Both output stages are paralleled on mono playback, the track one EL.95 doubling as bias oscillator on "record." In this mode the output signals for the record head are obtained from the 12AT7's.

Power for the valves is obtained from a transformer and metal rectifiers, which supply D.C. for the high tension voltage, and for the heaters of the early amplifier stages. The later stages are A.C. heat-d.

An EM.84 "magic-eye" record-level indicator is mounted below the stop button and operates in the usual way on mono; on stereo, the levels on both channels are indicated simultaneously, so that it can be seen at once if either channel is being overloaded.

Input sockets are provided for microphone and radio, the former requiring a signal of 2.0 mV, with an input impedance of 2.0 Megohms, the latter also requiring 2.0 mV, with an impedance of 47.0 Kilohms. Input selection is obtained by three push-buttons, situated below the speed control, the first two selecting tracks one or three, on mono, or both tracks for stereo when depressed together. The third button selects microphone or radio inputs.

To the right is the record-level control, which rotates gauged potentiometers, one for each amplifier, so that these are automatically set to the same level at all times. A tone control is situated behind the speed selector.

To the right of the "start" button are two more push-buttons which select tracks one or three on replay, or both together for stereo. If, however, neither button is depressed, both tracks are mixed through both amplifiers. The playback level control is above these selector buttons and normally controls both channels together, although depression of the knob adjusts channel two, to the internal loudspeaker only. If the knob is pulled upwards, the external loudspeaker channel can be varied. Full clock-or-anticlockwise rotation of the knob restores the tandem operation.

Output sockets are provided for two loudspeakers, and, when both are used, the internal loudspeaker can be silenced, or still used, depending upon the

orientation of the plug in socket two, which is reversible. The nominal output impedance for both is five ohms.

An output socket is also provided to enable the recorder to be used with external amplifiers, the signal available at these points being 1.0 volts (max.) at an impedance of 18.0 Kilohms. This is



sufficiently low to allow monitoring to be effected at the same points when high impedance headphones are used. The voltage then drops to 0.5 volts, due to the circuit loading.

The claimed frequency response is from 30 cps, at all speeds, to 9,000 cps at 1½ ips, 16,000 cps at 3¼ ips, and 18,000 cps at 7½ ips. The signal-to-noise ratio varies from 41 dB (min.) at the slowest speed to 50 dB (min.) at the highest.

* * *

Operation and Performance

After reading through the fully-illustrated handbook provided, no difficulty was experienced in operating the recorder. Once connected, it is very simple to use, and quiet in operation. The movement starts without "snatching" or "looping" and braking is quick

MANUFACTURER'S SPECIFICATION

Speeds: 7½, 3¼, and 1½ ips.

Spool size: Seven-inches.

Recording type: Mono or stereo.

Number of tracks: Four.

Frequency response: 30-18,000 cps at 7½ ips; 30-16,000 cps at 3¼ ips; and 30-9,000 cps at 1½ ips.

Signal/noise ratio: Better than 50 dB at 7½ ips; better than 46 dB at 3¼ ips; and better than 41 dB at 1½ ips.

Mains supply: A.C. 110 volts, 200 volts, 220 volts, 240 volts, 50 cycles.

Consumption: 65 watts (approx.).

Inputs: Microphone (twice) 2 mV at 2 megohms; and radio (twice) 2 mV at 47 Kilohms.

Outputs: Amplifiers (2) 1.0 volts at 18 Kilohms; and loudspeakers (2) 3 watts into 5 ohms (nominal).

Valves: 2 x EF 86, 2 x 12AT7, 2 x EL 95, 1 x EM 84.

Dimensions: Width 14½ in., height 9 in., depth 11½ in.

Weight: 29 lb.

Price: 95 guineas.

Manufacturers: Welmec Corporation Limited, 147, Strand, London, W.C.2.

~~~~~

and positive, without "spillage". Although the fast wind is not furiously so, it does wind evenly and firmly, which is more desirable.

No figures are quoted for wow and flutter by the manufacturers. This is presumably because what there is, is so minute that it can be ignored. Certainly there is absolutely no trace of either on playback—at least on the recorder under review. Rubber pulleys are viewed with reservations by this reviewer as they are inclined to develop irregularities over a period of time. However, they are disengaged when the machine is off, so they could last indefinitely.

The quality of reproduction through external loudspeakers and the internal amplifiers, is good; but through the internal loudspeaker and the one supplied in the lid, it is unimpressive. There is a noticeable lack of bass and the treble is inclined to be harsh. However, in plastic cases, one cannot expect much anyway; and no quality fan would expect them to be more than good monitor speakers.

Through external amplifiers and loudspeakers, the reproduction is very fine and satisfying and the recorder does full justice to any high-quality sound source one cares to use. Even with very low output microphones, the hum level is virtually inaudible. This is due largely, no doubt, to the d.c. heater supplies on the critical amplifiers stages, which gives the added advantage of reduced a.c. fields inside the recorder wiring, part of which consists of printed circuitry, the whole being well laid out and carefully and securely finished.

With the appropriate external equipment, therefore, your reviewer has no hesitation in recommending this recorder as being capable of producing excellent results, sufficient to satisfy the discriminating listener or the semi-professional recorder.

\* \* \*

### Comments (adverse!) Department

Unfortunately, the machine supplied had an intermittent contact on the "start" switch and, on occasions, the tape could only be persuaded to move by putting a momentary pressure on the speed control. Moral—when buying recorders, try them out before forking out! Probably only a minor defect, but it could have been a nuisance to a purchaser.

The only other comment concerns the instruction book. Throughout its length, the instructions are based on the assumption that all the user's accessories are made by the recorder's manufacturer. One is therefore requested to fit "cable, type?" and "plug, type?", with no indication given of which pins connect to what, if the user wishes to wire plugs to his own accessories.

Admittedly, a circuit diagram (of the continental pattern), is provided, but I think it is safe to assume that a lot of users, who can handle a soldering iron, are not necessarily at home with a complex tape recorder diagram. I feel that a simple pictorial diagram of the plugs, with the pin connections indicated, would be a great help to purchasers.

Having got that off my chest, I can now wish good luck and pleasant listening to all future purchasers of an otherwise very fine piece of tape recorder!

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TAPE AND CINE

John Aldred  
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HOW TO RECORD WEDDINGS

Paul Addinsell  
3/- (post free)

## NEW POPULAR MUSIC ON TAPE



**IVOR NOVELLO.** *King's Rhapsody and The Dancing Years.* World Record Club (TT-185), 3½ ips, mono. 29s.

Ivor Novello was a man who brought great happiness and melody to many people. But even at the time of his premature death, he was writing in an out-dated style, still perpetuating the Ruritanian world of the early century operettas.

If you care to reminisce you will enjoy this record made up of the principal numbers from two of his most successful shows.

World Record Club—or rather its FCM Productions recording branch—has developed a high standard in this sort of concert treatment of stage musicals. Technically this reaches a high level. But it is really for those who were born not so much yesterday, as the day before.

**RICHARD RODGERS SPECTACULAR.** *Ray Ellington and His Quartet with Sandra Gale.* World Record Club (TT-184), 3½ ips, mono. 29s.

This is an ambitious record to come from a British company of any size and World Record Club can be proud of it. It is unusual in being aimed at a broad pop music audience, but is more suitable for big room listening rather than as intimate background music.

In fact, a lot of it would be lost unless it is played loudly. Ellington is a very stylised performer. He gets brassy, modern big band accompaniment from an orchestra conducted by Bobby Richards, who also did the excellent arrangements.

Ellington has the kind of delivery you either like or hate, and this is particularly evident in the first track, *People Will Say We're In Love*. His rasping delivery and forceful manner is difficult to take on such a delicate love song.

**HI-FI HARRY** by Rich

"I first started weight-lifting ten years ago . . ."

### By DON WEDGE

of "New Musical Express"

He is much better here with an exciting Latin accompaniment on *Surrey With the Fringe on Top*.

Sandra Gale is a very good recording singer and makes the best of her two solos, the very pretty *My Romance* and the charming, neglected song *I Want a Man*, which Rodgers wrote with Lorenz Hart in 1931 for "America's Sweetheart."

But best of all are the two duets—a form too neglected in current pop music—where Ellington and the girl singer combine for *He Took Advantage of Me* and *Blue Room*.

In the former particularly, Ellington's forceful delivery has played off well. He seems most relaxed and winning. There is a beautiful trombone passage in it, too.

Only fault is that three of the twelve numbers are purely orchestral. There is nothing wrong with the performance—*March of the Siamese Children* is brilliant—but surely a vocal record should be a vocal record.

### and EDWARD GREENFIELD



Recorded music critic  
of "The Guardian"

**SHOSTAKOVICH: Symphony No. 6.** *London Philharmonic Orchestra conducted by Sir Adrian Boult.* World Record Club (CM28), mono, 3½ ips, 29s.

This is one of Shostakovich's greatest symphonies, still too little appreciated, perhaps because of the often austere slow movement with which it begins. In fact, it is as closely argued as any first movement of any Russian symphony and the spare two-part counterpoint contrasts effectively with massive, strong climaxes.

Boult, alas, takes it slower than Shostakovich marked and the argument is not so compelling as it can be, but in the other two movements—a lightweight, Mendelssohnian scherzo and a hectic moto perpetuo leading to a rumbustious circus march—Boult is splendid and his players begin to sound like Russians.

The Everest recording is impressive with good atmosphere, but it is not quite so brilliant a sound as is provided on the companion tape with Shostakovich's Ninth.

**T**HE tapes reviewed this month are all available from the World Record Club, Box 11, Parkbridge House, The Little Green, Richmond, Surrey.

## MUSIC ON TAPE

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this month*

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### SPECIAL ANNOUNCEMENT

The attention of all music-lovers is drawn to a new series of tape records of Concert Music to be issued by Music On Tape Ltd. commencing shortly with performances of:

*Scheherazade (Rimsky-Korsakov)*  
*L'Arlesienne Suite (Bizet)*  
*Symphony No. 3 (Bruckner)*

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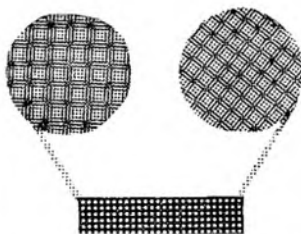
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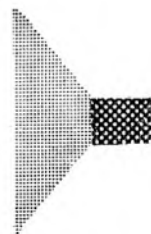
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## MAGNEGRAPH

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## NEW PRODUCTS



## ANOTHER PHILIPS MODEL

THE trend in Philips towards all-transistor mains tape recorders in their higher priced models is extended by the introduction of their latest four-speed four-track machine, model EL3549. The successor to the EL3542, this new machine has the added attraction of a new low speed for speech recording and a larger loudspeaker.

As with other new Philips recorders the superimposition feature has been dropped. This is now considered inferior to the parallel track replay switch of the new models which enables two recordings on separate tracks to be played back simultaneously. The all-transistor amplifier gives many advantages, including the elimination of warm-up time.

Other changes include a moving coil recording level meter which replaces the magic eye indicator, and the four-digit rev. counter is now illuminated to indicate on/off position.

The quoted frequency responses, all  $\pm 3$ dB, are 60-16,000 cps at  $7\frac{1}{2}$  ips, with the top response being reduced to 13,000, 10,000, and 4,500 respectively at  $3\frac{1}{2}$ ,  $1\frac{1}{2}$ , and  $15/16$ ths ips. Signal-to-noise ratio is given as better than 40dB, and wow and



flutter as less than 0.6 per cent "peak to peak" at  $3\frac{1}{2}$  ips. The rated power output is  $2\frac{1}{2}$  watts through the 7 x 5-inch elliptical loudspeaker.

It will accommodate up to seven-inch spools, providing a playing time of  $4\frac{1}{2}$  hours per track using standard-play tape at the slowest speed. Rewind, for 1,800 ft. of long-play tape, is accomplished within three minutes.

The valve line-up includes two OC58 or AC107, two OC75, and an OC44, OC74, OC26, OC79, OA70 and a selenium rectifier. The mains voltage is for 110-127, 200-250v AC, 50 cycles, or it can be modified for 60 cycles.

Among the many features are a stereo socket for connecting the Philips pre-amplifier EL3787, and a second channel for stereo playback through the radio. Inputs are provided for microphone (1mV 1 K ohms) pick-up (150mV 500 K ohms), and diode (3mV 20 K ohms). Outputs are incorporated for external loudspeaker (2.5W 3-7 ohms), diode (1v 20 K ohms), headphones (200mV 1.5 K ohms), stereo (0.4mV 200 ohms approx), and the voltage supply for the pre-amplifier is 23V DC.

The EL3549 measures  $16\frac{1}{2}$  x  $15\frac{1}{2}$  x 8 $\frac{1}{2}$  inches, and weighs 26 lb.

A moving coil microphone with speech/music switch, a seven-inch reel of long-play tape, take-up reel, and radio connecting leads are included in the price of 62 guineas.

Philips Electrical Limited, Century House, Shaftesbury Avenue, London, W.C.2.

## VERSATILE PRE-AMP

EXPERT Gramophones announce the introduction of their new Model '62 pre-amplifier featuring "Audiorama." Described as one of the most versatile pre-amps ever produced, it provides a



wide range of input sensitivity, impedance and characteristics matching all makes of tape heads, tuners, and microphones.

The "Audiorama" feature provides a spread-sound effect from mono sources. The unit costs 35 guineas and matches the range of Expert amplifiers. The manufacturers will also match the Model '62 free of charge to any make of amplifier.

Expert Gramophones Limited, Audio Works, 197, Laleham Road, Staines, Middlesex.

## ULTRA ANNOUNCE "OWN DECK" RECORDER

A TWO-SPEED four-track tape recorder incorporating its own design deck is announced by Ultra. Their new model, 6200, incorporates playing speeds of  $3\frac{1}{2}$  and  $1\frac{1}{2}$  ips, and designed to accommodate up to  $5\frac{1}{2}$ -inch spools, will provide a playing time of just over one hour per track using long-play tape at  $3\frac{1}{2}$  ips.

It has a quoted frequency response of 60-12,000 cps at  $3\frac{1}{2}$  ips, and 60-6,000 cps at  $1\frac{1}{2}$  ips. Three watts output is available through the 7 x  $3\frac{1}{2}$ -inch permanent magnet elliptical loudspeaker.

Inputs are provided for microphone (1.5 mV into 10 M ohms), radio 1.5 mV into 22 K ohms, and pick-up (75 mV into 1 M ohm). Output sockets include external loudspeaker 3 W at 3 ohms, or to radio or amplifier (500 mV into 22 K ohms). Accessories available provides power for transistor-operated units, and accessories sockets are provided for playback of stereo tape records, automatic control by signal, and telephone pick-up coil. Film slide projectors may be operated by commentary recorded on tape.

Facilities are also provided for recording on one track whilst recording on another track, for eventual simultaneous playback. Other features include pause control, combined tone and "on/off" switch, remote stop-start switch on microphone, facilities for tape inching in either direction, superimposition, and straight-through amplification, a digital rev-



The Ultra 6200

counter, finger-tip piano key control tape drive, and a neon recording-level indicator.

The Ultra 6200 measures 14 x  $12\frac{1}{2}$  x 7 inches and weighs 19 lb. It will retail at 33 guineas.

Ultra Radio & Television, Television House, Eastcote, Ruislip, Middlesex.

## GERMAN STEREO RECORDER INTRODUCED

PRELIMINARY information concerning a new tape recorder is received from T.A.K. Continental Importers who have announced the availability of the German manufactured Normende tape recorder, the Dual TG12SK.

This is a three-speed four-track machine with a complete stereo system comprising two separate loudspeakers and a two-channel amplifier. The quoted frequency response,  $\pm 3$  dB, are 40-20,000 cps at  $7\frac{1}{2}$  ips, 40-16,000 cps at  $3\frac{1}{2}$  ips, and 40-8,000 cps at  $1\frac{1}{2}$  ips. The signals-to-noise ratio is given as better than 42, 45 and 46 dB respectively, and wow and flutter as within 0.5, 0.25 and

0.15 per cent respectively. Channel separation is better than 40 dB. It will accommodate seven-inch spools providing a playing time of  $4\frac{1}{2}$  hours per track (mono) using standard-play tape at the slower speed. Rewind is accomplished within two minutes for a 1,200 ft. reel of tape.

The stereo power stage produces  $2\frac{1}{2}$  watts output per channel, or five watts if both outputs are paralleled for mono use. The valve line-up includes two EF86, two ECC81, three EL95, one ECC83, an EM84, and three selenium rectifiers.

The identical speaker systems are housed in both lids of the carrying case, which also can be used to store two microphones, tape and accessories. Other features include an automatic tape-end shut-off switch, a digital rev. counter, volume controls operating both stereo channels simultaneously, and a tone control, effective on playback only, labelled Bass, Orchestra, Soft, and Jazz. Also featured is a recording level indicator, and facilities for monitoring on both channels.

Inputs are provided for both mono and stereo microphones, radio, and pick-up. The output signal is stated to be greater than two volts. It may be used in connection with slide or cine projectors by recording control impulses on one of the two playback tracks.

Housed in a rigid and vibration-free steel cabinet measuring approx.  $15\frac{1}{2}$  x  $13$  x  $6\frac{1}{2}$  inches, it weighs 32 lb.

T.A.K. Continental Importers, Stone, Staffordshire.

(More New Products on page 32)

## Languages on Tape

MORE language courses on tape are now available following the introduction by the Linguaphone Institute of their language courses in French, German, Spanish, Italian and Russian.

The courses, on two five-inch spools, are recorded at  $3\frac{1}{2}$  ips. They are contained in a neat carrying case which also holds the books accompanying the recordings.

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## NEW PRODUCTS *(Continued from page 31)*

### LATEST MODEL ANNOUNCED BY WYNSOR

WYNSOR have announced their latest recorder, the "Trident", which is to be marketed in the medium-price range, and is described as having a performance usually associated with equipment twice its price.

Three speeds are incorporated,  $7\frac{1}{2}$ ,  $3\frac{3}{4}$ ,  $1\frac{1}{8}$  ips, and it will accommodate seven-inch spools. The maximum playing time for each of its two tracks is just over two

hours at the slowest speed using standard-play tape.

The "Trident" has a quoted frequency response of 50-15,000 cps at  $7\frac{1}{2}$  ips, 50-9,000 cps at  $3\frac{3}{4}$  ips, and 50-7,000 cps at  $1\frac{1}{8}$  ips. The power output is rated at four watts through the 7 x 4 built-in loud-speaker unit.

Among the features are facilities for superimposition, a magic eye recording level indicator, tone control, pause control, digital rev. counter, safety button to prevent accidental erasure, and facilities to monitor the radio input by using the microphone as a headphone.

Inputs are provided for microphone and radio, and output sockets are incorporated for an extension speaker, and for headphones or external amplifier.

Housed in a robust wooden case covered in leathercloth with a quilted lid, the "Trident" measures  $15\frac{1}{2}$  x  $14\frac{1}{2}$  x  $7\frac{1}{2}$  inches and weighs 27 lbs.

A crystal microphone and 1,200 ft. of PVC tape is included in the price of 33 guineas.

WyndSOR Recording Company Limited, 2 Bellevue Road, Friern Barnet, London, N.11.

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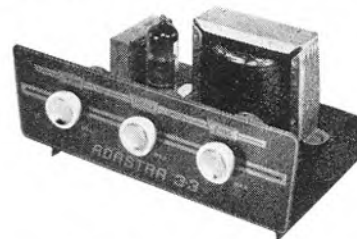
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## TWO NEWCOMERS TO TAPE MARKET

### (1) 3-watt Amplifier

NEWCOMER to the tape field, Adastra Electronics Ltd., recently announced the introduction of their Adastra 3.3 audio amplifier.

Designed for domestic systems it is intended for operation on 200-250 volts, AC mains. The unit, illustrated below, measures 8 x  $5\frac{1}{4}$  x  $3\frac{1}{2}$  inches, uses Mullard valves EZ80 and ECL86, and has a



The Adastra 3.3

rated power output of three watts, or four watts maximum, with 200 mV sensitivity.

Hand-wired on a rigid chassis with a two-colour front panel, the Adastra 3.3 can be used for panel mounting in cabinets or as a free-standing unit. The controls include volume, treble, bass, and mains on/off. The retail price is £4 19s. 6d.

The output impedance is 3-5 ohms, and the claimed frequency response is 75 to 20,000 cps with hum and noise level -70 dB and negative feed-back 10 dB.

Adastra Electronics Limited, 167, Finchley Road, London, N.W.3.

### (2) Japanese Models

ANOTHER newcomer to the tape field is Auriema Ltd. who have recently announced three domestic tape recorders made in Japan.

The first of these is the Cipher V, a two-track mains recorder operating at  $3\frac{3}{4}$  and  $1\frac{1}{8}$  ips. Preliminary specifications quote a frequency response of 70-8,000 cps at the top speed, and 70-4,000 at  $1\frac{1}{8}$  ips. Signal-to-noise ratio is given as 48dB.

It is supplied complete with a dynamic microphone, earphone, spare spools, jack and plugs, splicing tape, and a leatherette carrying case and costs 29½ guineas.

Among the features are a neon-eye recording level indicator, and facilities for accommodating five-inch spools, providing a maximum playing time of 4½ hours using double-play tape at the slower speed. The power source required is 117 volts, AC 60 cycles.

The two other machines also announced are the Cipher I and Cipher III. The first is a three-speed mains machine selling at 49 guineas, and the Cipher III is a two-speed battery operated recorder, price 45 guineas. Both prices include the accessories as for the Cipher V. Further specifications will be published when available.

AD Auriema Limited, Empire House, 414, Chiswick High Road, London, W.4.

### NEW KIT FROM WESTREX

A "Pack up and Go" public address equipment comprising a fully-transistorised amplifier, a loudspeaker, a cardioid dynamic microphone, power supplies and interconnecting cables is the latest unit issued by Westrex.

These items pack together to form a convenient attractively styled carrying case.

The ten-watt amplifier, in its own grey enamelled metal case is mounted on the backboard of the carrying case, and can be completely separate in use from the microphone, loudspeaker and power supplies. It contains two microphone inputs and one high impedance auxiliary input, each input with its own volume controls to provide mixing facilities. The loudspeaker assembly comprises three high efficiency five-inch units mounted on a



Westrex "Pack-up-and-Go" kit

half-inch baffle board. This unit can be switched off and the amplifier used to drive any other 4-16 ohms unit. Power supplies, housed in the speaker cabinet can consist of either two 6V lantern dry batteries; two 6V unspillable rechargeable accumulators; or a mains power unit which can also act as a battery charger.

The equipment including microphone, costs £48. The power unit costs £9 18s., and the extension speaker costs £13 19s.

Westrex Company Limited, Coles Green Road, London, N.W.2.



# CHAMP!

# CHAMP!



# CHAMP!

# CHAMP!

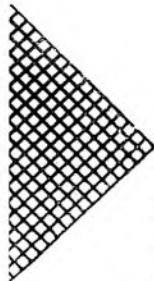
**New Philips hi-fi tape recorder has 4 tape speeds, long playing time, parallel track facility and no warm-up time!** Warm-up time is a thing of the past with the new Philips hi-fi tape recorder: just press the button and the all-transistor amplifier ensures you can record or play back *immediately*. The fourth tape speed of 15/16 ips gives you extra long playing time—up to 34 hours on one 7" reel D.P. tape. Amongst the many other interesting features of this fine instrument are parallel-track facilities that let you play back two tracks simultaneously; monitoring and mixing facilities; and brilliant four-track mono recording and playback. If you want to own a good tape recorder, a real champion, you really must hear this one. It's at your dealer's, now.

PHILIPS NEW DE LUXE HI-FI  
TAPE RECORDER Model EL3549  
Made in Holland

## 62 GNS

*complete with moving-coil microphone, 7" reel of LP tape, empty take-up spool and connecting leads.*

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# News from the Clubs

## ACTON

When Dave Wiseman, secretary of the Acton tape club first sought tape exchange contacts in the United States, he could have had little idea of the steps he was taking to make history.

Bill Orman from Tennessee was his first contact, and as both had an additional hobby of 35mm colour photography it was not long before they began exchanging shots of their two home countries. Later Bill's friends in the Columbia Rotary Club began sending messages in the tapes and eventually the Acton Secretary was receiving messages from over 200 persons including State Governors, Senators, and Congressmen.

Soon Dave enlisted the assistance of his club members, and slide-travelogues and cine films with taped commentaries were being shown to the Columbians.

At this point a suggestion was made for a transatlantic call to be made to England to talk to the Acton members. One of the Columbians was concerned with the Telstar project and he mentioned the possibility of bouncing the call from the satellite. Being America, red tape was slashed unmercifully to make the call possible. In England, meanwhile, arrangements were being made to record the call, and Lasky's Radio, the London hi-fi dealers, loaned some equipment for the occasion.

The big day was August 16, and the Wiseman household was filled with nine club members, friends, and some local reporters. Throughout the afternoon the phone continued to ring with the national press asking for permission to send photographers and reporters. By 5 p.m. the room was pretty tense with those present chain-smoking like mad. The press representatives were making the room pretty crowded, the Tandberg Series 6 recorder was on and held against the recording lock, a Roger's amplifier was connected to two Aco's telephone adaptors, and other machines were fixed up as emergency substitutes.

Then at 6.25 precisely the call arrived. Dave heard the operator announce its impending arrival, and finally the voice of Bill's son Buster boomed across: "Hi, Dave, are you getting us loud and clear?" Clear yes, but not loud yet, but getting steadily stronger as the satellite came closer to the Goonhilly scanner.

Then after Dave had spoken to State Governor Frank Clements, who had shown great interest in the tape exchanges, Rusty spoke to Frank



Dave and Rusty Wiseman of the Acton club talk to their tape contact via the Telstar satellite

DePriest, the man responsible for the call. Sandy, their little girl was asked to speak, then Dave was again listening and shouting "goodbye" to a voice that was getting fainter and fainter each second, and then the call was over.

For a few minutes nobody moved, just sat staring at each other. Then the hubbub broke. Everyone spoke at once, some checked the recordings, while others filled glasses, switched off equipment, and reporters asked questions. Even more chaotic than before the call, but without the tension. The call itself? Clear, easily understood, and good recordings were made.

And so the club made history, and Dave became the first person to receive a private phone-call to be bounced off a satellite.

Contact with the Columbians was firmly established, and as a result of the phone call, Dave and Rusty have been invited to spend a holiday in Tennessee as a guest of the Columbians.

The latest production of the club, a cine film of Acton complete with synchronised stereo soundtrack, has since been sent to America, and extracts from the film shown on American television.

Secretary: Dave Wiseman, 8, Woodhurst Road, Acton, London, W.3.

## COVENTRY

For the first time since the formation of the club in 1957, the Coventry members have assisted with sound effects for a local dramatic show. Although not being called upon to create their own effects, Messrs. Cryer, Payne and Warden acquitted themselves well by re-recording and editing established sound effects, and organising playback for the three performances of the Brooklands Little Theatre Group's production of *Crime Passionel*.

Since this project the club has again been invited to assist the drama group for the February production of *Under Milk Wood*.

The third annual event at the Herbert Lecture Theatre saw members welcoming Mr. Guest of Geveart Ltd., who presented a tape-slide show *A Symphony of Colour*. An audience of just over a hundred saw the show, including representatives from the South Birmingham and Leicester tape clubs, three local photographic societies, and the Coventry Film Unit.

For the October 24 meeting, when the proposed programme *The History of Coventry* was unavoidably postponed, Henry Hopfinger stepped in to provide a talk on the problems of making a television commercial. His lecture covered lighting, camera angles, scripts, timing, dialogue, and jingles. Afterwards Mike Payne presented his tape contribution, a skit on police dogs and commercials.

For their November 7 meeting Mr. G. Pontzen, Technical Manager of Lustraphone Ltd., visited to give a demonstration of his company's microphones. He had a wide selection with him, ranging from the cheaper general purpose models, to the specialised instruments used for measuring heart beats, and spent almost the entire evening describing the various functions of microphones. Members of the Rugby club attended the talk.

Their following meeting on November 21 was devoted to demonstrations of members' equipment. Among the machines seen and tested were Roy Reynold's Ferrograph 4A/N, his home constructed four-channel mixer unit, and a Nusound Monitor unit; Stan Day's Fi-Cord 1A, battery portable; and Len Lucas's Grundig. Harry Elcock also exhibited his own design for a digital rev. counter that he had incorporated in his Philips recorder.

Future events lined up for members include visits to the *Coventry Evening Telegraph* and the Central Fire Station, and two tape/slide shows which are on their way from America and Canada.

Their own Christmas Dinner was held on December 7, and 26 members and their wives had an enjoyable time thanks to the work of Peter Warden who acted as M.C., Henry Hopfinger who organised the various competition prizes, and to Mrs. Adkins who provided an excellent meal.

Secretary: L. S. Day, 41, Moseley Avenue, Coventry, Warwickshire.

## LEEDS

A change of secretary is announced for the Leeds club, with Mr. L. F. Turner replacing the former official R. Crossley. Mr. Crossley has held the post since the club's formation in early 1959.

An increase in membership has led the club also to seek larger premises, and the club now meets on alternate Fridays at the YMCA, Albion Place, Leeds 1. The next scheduled meeting is on January 18.

Most recent of their meetings saw the presentation of a recorded quiz compiled by Mr. Plant. The first part concerned microphone positioning, and the second gave the members some tricky sound effects to recognise. Later during the same evening, Mr. Pape spoke about the practical side of recording. He was followed by Mr. Eagle who discussed the technical aspects.

On November 23 the members attended their Annual Dinner, and the later meetings consisted of a maintenance session in the hands of Mr. Eagle, the club's technical expert, and an informal meeting on December 21.

Secretary: L. F. Turner, 70, Cross Lane, Halton, Leeds 15.

## NORTH LONDON

Three new tape recorders have been purchased by the North London tape club members for use in the production of the society's tape-news service for the blind, "Enfield Microphone," which was started in September. The recorders, bought with funds raised by local organisations, will be used by members to record local events for the 45-minute fortnightly programme.

To date programmes have been prepared from recordings made at a public meeting presided over by the Mayor of Enfield to discuss the Green Belt problem; at Enfield Preservation Society's annual dinner attended by actor Henry Oscar; and interviews with local personalities including 14-year-old author Neil Jones.

At their AGM held in December, members planned to encourage "do-it-yourself" in tape recording. More lectures by members themselves, more location recording, and an emphasis on



The Mayor of Enfield presents the North London club's "Tape of the Year" award to Richard Collinson. Centre is the club chairman Sinclair Scott

building equipment are the main features of the club's programme for 1963. On top of these activities, the members are to fill a classroom for three days in April at Cheshunt Hobbies Exhibition. Individual members are to swap up on specialised tape subjects to lecture the rest of the club at meetings—an idea cribbed from the Walthamstow members.

Recalling the past year continuing secretary Richard Collinson spoke of the increase in membership which had nearly doubled to a total of 26. Average attendance at meetings was 16. As well as weekly meetings, their ventures included the running of exhibition stands at two local shows, and the recording and playback of hymns for a weekly hospital service.

At a previous meeting their "Tape of the Year" competition was judged. Richard Collinson's short tape, entitled *Gurjincrat*, a narrative on the beauty of a Mediterranean island won first prize. He was presented with a cup by Alderman E. T. Hendrick, Mayor of Enfield, during the club's Christmas party.

Secretary: Richard Collinson, 30, Ridler Road, Forty Hill, Enfield, Middlesex.

## WALTHAMSTOW

Hailed by its members as a great success, the new style newsletter of the Walthamstow society entitled WAD (the initials of the club) devotes its front page to a cartoon by "SKREP" which depicts a tape enthusiast sitting astride a high-flying Guy Fawkes rocket. The comment, being recorded into the battery portable strapped to his back reads: "This is the last time I go in for an initiative test!"

Latest venture of the club is their Overseas Circle, originated by founder-member W. J. Tomlinson. The idea is for members to introduce an overseas enthusiast to the group for general discussions.

Recently received in this office was a copy of their twenty-minute promotional tape for prospective members. Recorded at 3½ ips, this is designed to give newcomers an idea of the various activities enjoyed by club members.

Snippets from some of the documentary programmes produced by the club are included, together with extracts from tape play productions, recordings made on the foot-plate of a steam train engine, at a fete, and during the annual carnival procession. Also featured is part of the programmes provided by the members in conjunction with the League of Friends of Connaught Hospital. The narrator also details many other of their activities including tape exchanges, visits to and by manufacturers, quizzes, brains trusts, competition tapes, and the recently introduced tape magazine.

The whole is deftly compiled between musical introductions and should see the club well for an increase of their forty-odd membership.

Further publicity for the club was achieved with a news item in the *Daily Express* concerning their plans for a talking newspaper for the blind. The group intend to produce a regular weekly summary of the local press, and distribute tapes to the blind in the surrounding district.

The Borough Council have already promised support by fitting premises suitable for a permanent studio and control room, the service being regarded

locally as a serious welfare amenity. Financial support is promised and it is expected that a local motor-cycle and scooter club will handle the distribution.

The club is building itself a fine reputation for public service and reliability. Recently members recorded an anniversary service of "The League of Three," a local boys' club, which local dignitaries attended. Discs are to be cut of the recording, and copies sent to the Commonwealth territories where League of Three old boys now reside.

Secretary: Ken Perks, 9, Third Avenue, Walthamstow, London, E.17.

## WEST HERTS.

As a result of their successful programme on the dangers of water in the home and on holiday, produced at the request of the local council, the members of the West Herts club are to compile a tape on firework safety. At one of their recent meetings, under the direction of Mr. E. Sargent, the members began the task. Some read the narrative and took various cameo parts, while others produced sound effects both live and simulated.

They returned to the production of sound effects on November 14 when Mr. Sargent again led a team to produce spot effects for the production of their play *Cues and Effects*. On December 12 they were visited by representatives of Messrs. Truvox, who exhibited and operated that company's range of recorders.

## Lecture / Demonstrations

CLUBS wishing to invite demonstrations and/or lectures are invited to contact the following companies who have offered their services:—

BASF Chemicals Ltd., 5a Gillespie Road, London, N.5.  
Fi-Cord Ltd., 40a, Dover Street, London, W.1.

Grundig (Great Britain) Ltd., Newlands Park, Sydenham, S.E.26.

Lustraphone Ltd., St. George's Works, Regent's Park Road, London, N.W.1.

Truvox Ltd., Neasden Lane, London, N.W.10.

Further names will be added as received.

Another recent visit of the club concerned an evening spent with the members of the local cine society. Nine films all with taped commentary, were shown, including a film of the August Carnival for which the tape members had provided the sound. A Stuzzi Magnette had been used for the majority of the sounds, except for the actual commentary of the procession which had been recorded on a mains machine situated on a vantage point atop the local cinema.

Secretary: Peter Holloway, 29, Fishery Road, Boxmoor, Hemel Hempstead, Herts.

# CLUB MEETING DIARY

**ABERDARE:** Alternate Wednesdays at Cwman Institute, Cwmanan. (Jan. 23.)

**ABERDEEN:** 1st Tuesday in every month at 8, Deer Road, Woodside.

**AYLESBURY:** Monthly at Hazell's Club, Britannia Street.

**BARNSELEY:** Every Tuesday at YMCA, Eldon Street.

**BATH:** Every Wednesday at 24, Green Park.

**BATH (2):** Alternate Wednesdays at 41, Herbert Road, Oldfield Park.

**BEDFORD:** Final Tuesday in month at 131, London Road.

**BELFAST:** Every Thursday at 44, Dublin Road, Belfast 2.

**BIRMINGHAM:** Every Monday at the Chapel Tavern, Ludgate Hill.

**BIRMINGHAM (SOUTH):** Alternate Mondays at Brecon Cross Hotel, Pershore Road. (Jan. 21.)

**BLACKBURN:** 1st and 3rd Tuesdays at Blackburn YMCA.

**BLACKPOOL:** Alternate Wednesdays at the Albert Hotel, Lytham Road. (Jan. 16.)

**BOSTON:** 2nd and 4th Tuesdays at Pilgrim College, South Square.

**BOURNEMOUTH:** Alternate Tuesdays at the Pembroke Hotel, Poole Hill. (Jan. 22.)

**BRIDGWATER:** Every Tuesday at Evis' Radio Shop, West Street.

**BRIGHTON:** Every Wednesday at the Downside School, Ditchling Road.

**BRISTOL:** Alternate Wednesdays at 6, Royal York Crescent, Clifton, Bristol 8. (Jan. 23.)

**BROMLEY:** 2nd and 4th Thursdays at St. Mary's Church Hall, College Road.

**CAMBRIDGE:** Every Wednesday at the Mire Hotel, Bridge Street.

**CARDIFF:** 1st and 3rd Tuesdays at 46, Caroline Street.

**CHESTERFIELD:** Every 3rd Monday at the Yellow Lion Inn, Saltergate. (Jan. 21.)

**CLACTON:** Every Monday at Ebor Lodge Hotel.

**COVENTRY:** Alternate Wednesdays at the Holyhead Hotel, Holyhead Road. (Jan. 16.)

**COTSWOLD:** Fortnightly, alternating Monday and Thursday at Bayhill Hall, Royal Well Lane, Cheltenham. (Jan. 24.)

**COVENTRY** (audio and cine): Alternate Tuesdays at the Liberal Club, Union Street. (Jan. 29.)

**CRAWLEY:** 1st and 3rd Mondays at Southgate Community Hut.

**DARTFORD:** Every Thursday at 41, Winsor Drive.

**DERBY:** Alternate Wednesdays at Osmaston Park Hotel. (Jan. 16.)

**DONCASTER:** Alternate Thursdays at Lancaster House, Westlathie Gate. (Jan. 17.)

**DOVER:** Alternate Mondays at the Priory Hotel, Dover. (Jan. 21.)

**DUBLIN:** 1st Monday at "Hardy House," 6, Capel Street.

**DUNDEE:** Alternate Mondays at the Salvation Army Hostel, 31, Ward Road. (Jan. 28.)

**EASTBOURNE:** Alternate Saturdays at Hartington Hall, Bolton Road. (Jan. 19.)

**EAST HERTS:** Alternate Mondays at 3, Chadwell, Ware. (Jan. 21.)

**EDINBURGH:** 1st and 3rd Wednesdays at 82, Newbattle Terrace, Edinburgh 10.

**GLASGOW:** Alternate Mondays at 91, North Frederick Street, Glasgow, C.2. (Jan. 28.)

**GRIMSBY:** First Monday at 21, Langton Drive, Nunthorpe Grimsby.

**HARROGATE:** Every Wednesday at 4, Belford Road.

**HASTINGS:** Every Thursday at The Rising Sun, East Parade.

**HINCKLEY:** Alternate Wednesdays at The Wharf Inn, Coventry Road. (Jan. 23.)

**HOVE:** Every Thursday at 44, Hogarth Road, Hove.

**HUDDERSFIELD:** 1st and 3rd Wednesday and last Monday at the Public Library, Ramsden Street.

**HULL:** Every Tuesday at 592, Hesse Road.

**ILFORD:** Alternate Fridays at the Gants Hill Library, Cranbrook Road. (Jan. 25.)

**IPSWICH:** Alternate Thursdays at the "Cock and Pye" Inn, Upper Brook Street. (Jan. 17.)

**JARROW:** Alternate Mondays at Jarrow Central School. (Jan. 21.)

**JERSEY:** 1st and 3rd Mondays at "Santa Barbaba" 1st, St. Saviour.

**KEIGHLEY:** Alternate Wednesdays at the Spencer Street School Rooms. (Jan. 23.)

**KETTERING:** 2nd and 4th Wednesdays at the Rising Sun, Silver Street.

**KIDDERMINSTER:** Alternate Wednesdays at the NFU Meeting Room. (Jan. 16.)

**LEEDS:** Alternate Fridays at the YMCA, Albion Place, Leeds 1. (Jan. 18.)

**LEICESTER:** Alternate Thursdays at the Leicester Museum. (Jan. 24.)

**LUTON:** 2nd and 4th Tuesdays at Flowers Recreation Club, Park West, Luton.

**MAIDSTONE:** Every Wednesday at the Ex-Services Club, Ashford Road.

**MANCHESTER:** Every Saturday, 6 p.m., at 20, Naylor Street, Hulme, Manchester 15.

**MEDWAY:** Every Monday at 23, Edward's Close, Wigmore, Gillingham.

**MIDDLESBROUGH:** Every Friday at 130, Newport Road.

**MIDDLETON:** Every Thursday at Tonge School, Oldham Road.

**MILLOM:** Every Wednesday at Millom Centre.

**NORTHAMPTON:** Every Tuesday at Studio One, Cross Keys Hotel, Sheep Street.

**NOTTINGHAM:** Alternate Thursdays at the Co-operative Educational Centre, Heathcote Street. (Jan. 24.)

**NORWICH:** 4th Tuesday at "Lady Chamberlin Hall," 38a, St. Giles' Street.

**PETERBOROUGH:** Alternate Thursdays at The Youth Centre.

**PONTYPOOL:** Every Monday at the Hospitality Inn, Crumlin Road.

**PLYMOUTH:** Alternate Wednesdays at Virginia House, Plymouth. (Jan. 23.)

**READING:** Every Monday at Abbey Gateway.

**REDDITCH:** 4th Thursday at The White Hart Hotel, Headless Cross.

**RHYL:** Alternate Tuesdays at Studio A, Bedford Street. (Jan. 29.)

**ROTHERHAM:** Alternate Thursdays at St. John's Church Hall, Masbros'. (Jan. 24.)

**RUGBY:** Alternate Thursdays at the Red Lion, Sheep Street. (Jan. 17.)

**SHEERNESS:** Alternate Fridays at Arthur Gisby's, 136, High Street. (Jan. 18.)

**SOUTHALL:** Every Monday at Southall Community Centre.

**SOUTHAMPTON:** Alternate Mondays at Prospect House, 8, Manchester Street. (Jan. 28.)

**SOUTH DEVON:** Alternate Wednesdays at the YMCA, Castle Circus, Torquay. (Jan. 16.)

**STAFFORD:** Alternate Tuesdays at The Grapes Bridge Street. (Jan. 22.)

**STEVENAGE:** 1st and 3rd Tuesdays at the Tenants' Meeting Room, Marymead.

**STOCKPORT:** 1st and 3rd Fridays at Stockport Boys' Club, Hemphaw Lane.

**SWANSEA:** Every Thursday at the YMCA Buildings, St. Helen's Road.

**TAUNTON:** 2nd and 4th Wednesdays at the Priory Senior School, Cranmer Road.

**TRURO:** Last Wednesday at the London Inn, Pydar Street.

**URMSTON:** Contact Keith Alker, 26, Hayewater Road.

**WALSALL:** Every Wednesday at the New Inn, John Street.

**WARWICK & LEAMINGTON:** 1st and 3rd Wednesdays in Room 18 of the Royal Leamington Spa Town Hall.

**WEST HERTS:** Fortnightly, alternating at the Cookery Nook, High Street, Watford. (Feb. 6.)

Heath Park Hotel, Hemel Hempstead. (Jan. 23.)

**WEST MIDDLESEX:** 2nd and 4th Thursdays at Dormers Wells Primary School, Dormers Wells Lane, Southall.

**WEST WALES:** 1st and 3rd Fridays at The Meeting House, New Street, Aberystwyth.

**WEYMOUTH:** Alternate Wednesdays at The Waverley Hotel, Abbotsbury Road. (Jan. 23.)

**WHITSTABLE:** Alternate Mondays at The Record Centre, Oxford Street. (Jan. 28.)

**WINDSOR:** Every Thursday at 57, St. Leonard's Road.

**YEovil:** Alternate Thursdays at the Mermaid Hotel, Princess Street. (Jan. 24.)

**YORK:** Every Thursday at 62, Micklegate.

## LONDON

**ACTON:** Contact Dave Wiseman, 8, Woodhurst Road, Acton, W.3.

**BETHNAL GREEN:** Every Wednesday at Bethnal Green Town Hall, Cambridge Heath Road, E.2.

**BRIXTON:** Every Tuesday at The White Horse, 94, Brixton Hill, S.W.2.

**CATFORD:** Every Thursday at the Black Horse, Rushey Green, Catford, S.E.6.

**FRIERN BARNET:** 2nd Friday at 7, Hams-worth Way, N.20; and 4th Thursday at 146, Friern Barnet Lane.

**LEYTONSTONE:** Alternate Wednesdays at Harrow Green Library, London, E.11. (Jan. 23.)

**LONDON:** 2nd Thursday at the Marquis of Granby, Chandos Place, Charing Cross, W.C.2.

**NORTH LONDON:** Every Wednesday at Bush Hill Park School, Main Avenue, Enfield, Middx.

**SOUTH-WEST LONDON:** Every Wednesday at Mayfield School, West Hill, S.W.15.

**STOKE NEWINGTON:** Every Wednesday at 53, Londesborough Road, N.16.

**TUFNELL PARK:** Details of meetings from G. Wilgrove, 38, Highgate Road, N.W.5.

**WALTHAMSTOW:** Alternate Fridays at 22, Orford Road, E.17. (Jan. 18.)

**WOOLWICH:** Alternate Mondays at the North Kent Tavern, Spray Street, Woolwich. (Jan. 28.)

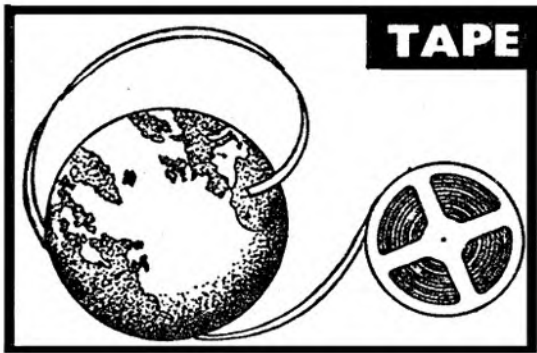
Unless otherwise stated, meetings start between 7 and 8 p.m.

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# TAPE EXCHANGES

**Tape goes round the world! There is no comparable means—except costly travel—to form friendships with men and women in other countries and continents. Every month, in this feature, we list enthusiasts who are seeking tape contacts.**

**Anand Kirat (23).** 89, Gloucester Place, London, W.1. Sports, jazz, travel German language. 3½ ips. 5½-inch spool. Grundig TK23.

**Attenborough, Eddie (37).** 20, Warwick Road, Worthing, Sussex. Theatre, music, singing. 3½ ips. 7-inch spool. Philips EL3541. U.K., Canada and U.S.A.

**Barker, J. H. (30).** 48, Mead Court, Buck Lane, Kingsbury, London, N.W.9. Travel, music photography, adventure. 15, 7½, 3½, 1½ ips. 8¼-inch spool. Brenell Mk 5 and EAP Essex.

**Batt, George (42).** 119, Blandford Road, Hamworthy, Poole, Dorset. Photography, sport, music, reading. 7½, 3½, 1½ ips. 7-inch spool. Robuk RK3. U.K., Europe and U.S.A.

**Belling, H. E. (32).** 31, St. Assams Park, Raheny, Dublin, Eire. Photography, chess, music, philology. 3½ ips. 5½-inch spool. Grundig TK14. Overseas contacts required, German spoken.

**Blakeley, Jim (41).** 10, Kenn Road, Clevedon, Somerset. 8 mm. cine and 35 mm. photography, music, travel. 3½, 1½ ips. 5½-inch spool. Optacord 403, Grundig TK20 and TK1.

**Brinkley, Bertram George (30).** 93, Sandford Road, Chelmsford, Essex. Photography, campanology, church music. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan 56 and Geloso G255-S.

**Bryson, James M. (33).** 15, Langlee Avenue, Galashiels, Selkirkshire. Pipe-bands, motoring, jazz. 3½ ips. 5½-inch spool. Grundig TK20, and Stuzzi Magnette.

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**Confino, Barbara (18).** 1561, Sheridan Avenue Bronx 57, New York, U.S.A. Opera tapes. 7½, 3½ ips. 7-inch spool. Revere T-2000.

**Hawkins, Ray (17).** 20, Lyndhurst Drive, Hornchurch, Essex. Films, TV, pop music. 15, 7½, 3½ ips. 7-inch spool. Spectone 161. Letters not required, female contacts preferred.

**Herzberg, Michael (13).** 35, Thornfield Road, Thornton, Liverpool 23, Lancashire. Electronics, pop music. 3½ ips. 3-inch spools. Grundig TK1. Contacts in France required. (Calais and Paris areas).

**Lund, Barrie (18).** 31, Lloyd Street, South Manchester 14. Pop music. 3½ ips. 5½-inch spools. Grundig TK23 and TK14 (2- or 4-track).

**Maynard, Jeff (18).** 2, Anfield Court, Liverpool 4, Lanashire. Electronics, music and general interests. 7½, 3½ ips. 8¼-inch spools. Ferrograph 4A/N. Letters not needed.

**Stenson, Michael (18).** 38, Coopers Lane, Bramley, Basingstoke, Hampshire. People, music. 3½ ips. 5½-inch spools. Pakasound Enthusiast recorder. Female contacts preferred, same age, in U.K. and U.S.A.

**Ward, J. (15).** 12, Dongda Road, Bristol 7, Gloucestershire. Philately, films, aero modelling. 3½, 1½ ips. 7-inch spools. France, Germany and U.S.A.

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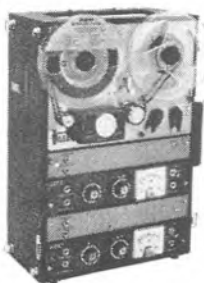
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| Stuzzi Mulette              | 6 | 4  | 0 | 4 | 12 | 11 |
| Butoba MT5                  | 7 | 0  | 0 | 5 | 3  | 10 |
| Ficord 202                  | 7 | 0  | 0 | 5 | 3  | 10 |

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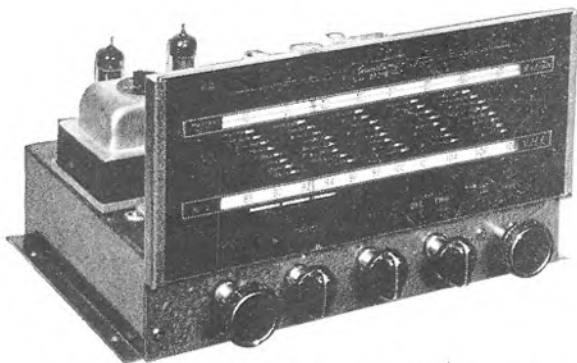
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| <b>TWIN-TRACK</b> |   |    |   |   |    |   |
| PD.82 Standard    | 4 | 4  | 0 | 3 | 3  | 0 |
| PD.87 Stereo      | 6 | 6  | 0 | 4 | 14 | 6 |
| <b>4-TRACK</b>    |   |    |   |   |    |   |
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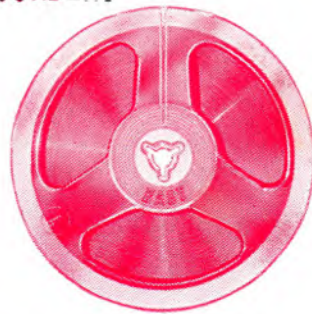
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