

TAPE

RECORDING
AND HI-FI MAGAZINE



BRITAIN'S LEADING PUBLICATION IN THIS FIELD

1/6
AUGUST 1958

HERALDING.....

The WyndSOR Dauphin

CONSOLE TAPE RECORDER AND REPRODUCER



Here at last is a complete, self-contained transportable hi-fi unit. Now you can obtain superb reproduction with a single piece of equipment instead of having to connect up two or three separate items. The WyndSOR Dauphin console has been designed and developed as one instrument in which all the parts work together perfectly: the handsome bass reflex cabinet and 3 speaker assembly, professional type tape deck, and the high quality amplifiers.

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The WyndSOR Dauphin costs no more than you would pay for a high class portable tape recorder alone, but see all the extra features you get:—

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- ii. 3 matched speakers (10" circular, 9" x 5" elliptical and 4" tweeter.)
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- iv. Full tape monitoring through third head.
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- vi. Bass and Treble boost and cut controls.
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- viii. Provision for straight through amplification.
- ix. Attractive oak stand in contemporary design.
- x. A 1200' tape.
- xi. A high quality crystal microphone with gilt stand.

The WyndSOR Dauphin is a logical and up-to-date approach to the problem of getting hi-fi performance without the usual hi-fi paraphernalia. Be sure to see the WyndSOR Dauphin before you invest in a tape recorder. We'll be pleased to send you a leaflet giving you full particulars.

BRIEF TECHNICAL DATA :

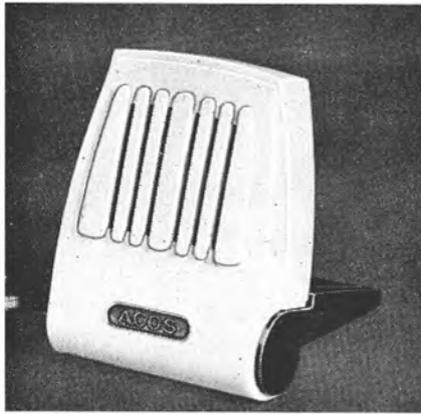
Tape speeds	...	...	7½ & 3½ ips
Frequency response	...	{	50—15 000 c/s ± 3dB @ 7½ ips 50— 8,000 c/s ± 3dB @ 3½ ips
Wow and Flutter	...	...	better than 0.1 of 1%
Signal/Noise Ratio	...	...	better than 40dB unweighted
Output	...	...	3 watts ultra-linear at 15 ohm

Magic Eye recording level indicator. Counter type position indicator

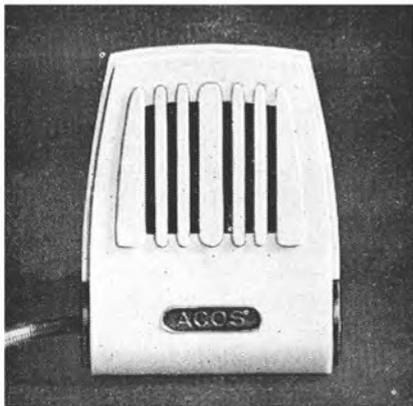
89 GNS.

Complete including Stand, Microphone and Tape

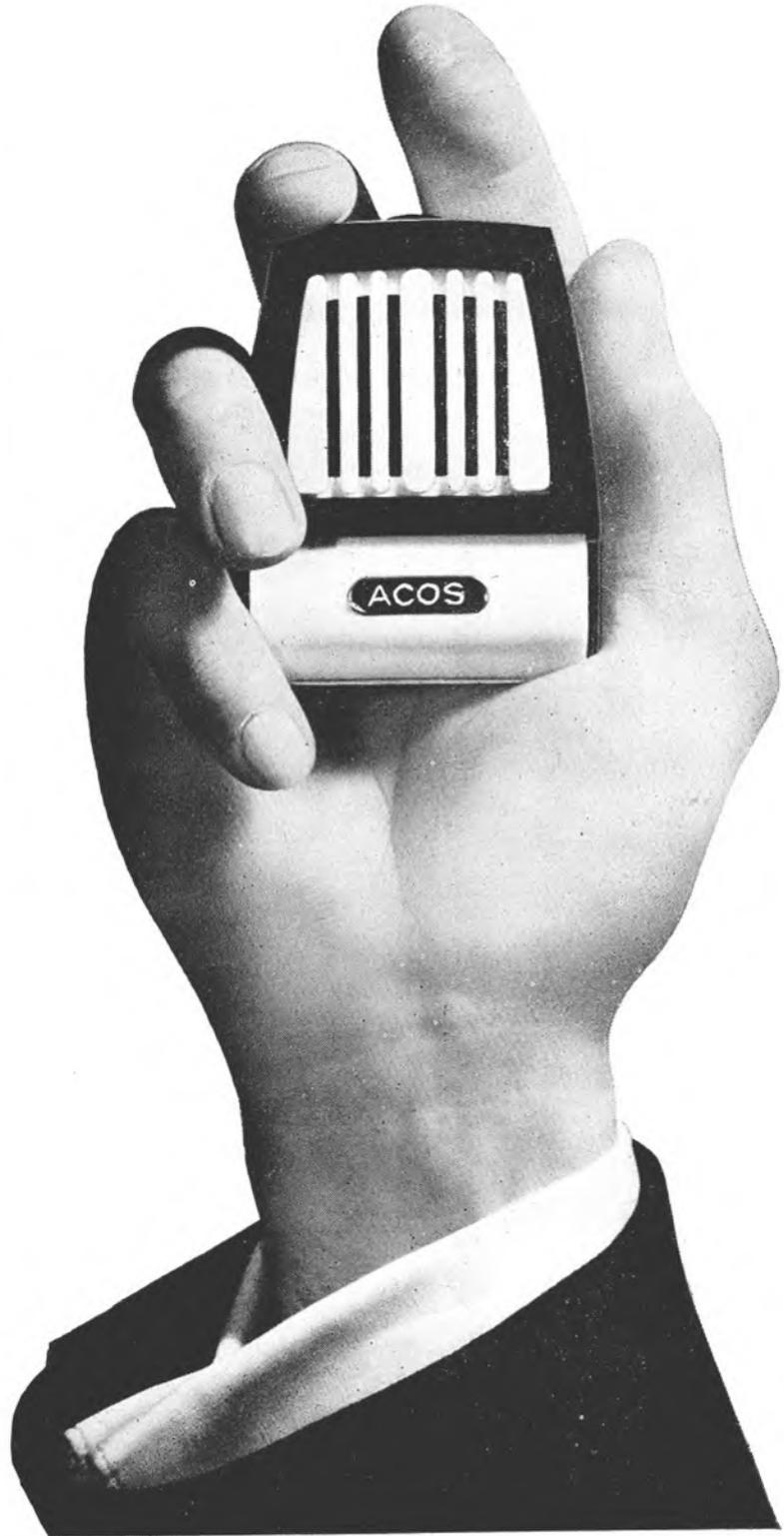
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or held in the hand



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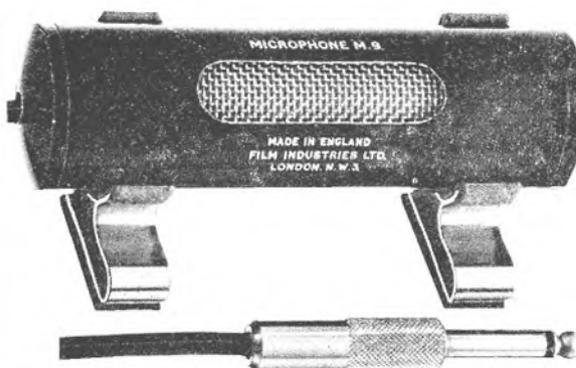
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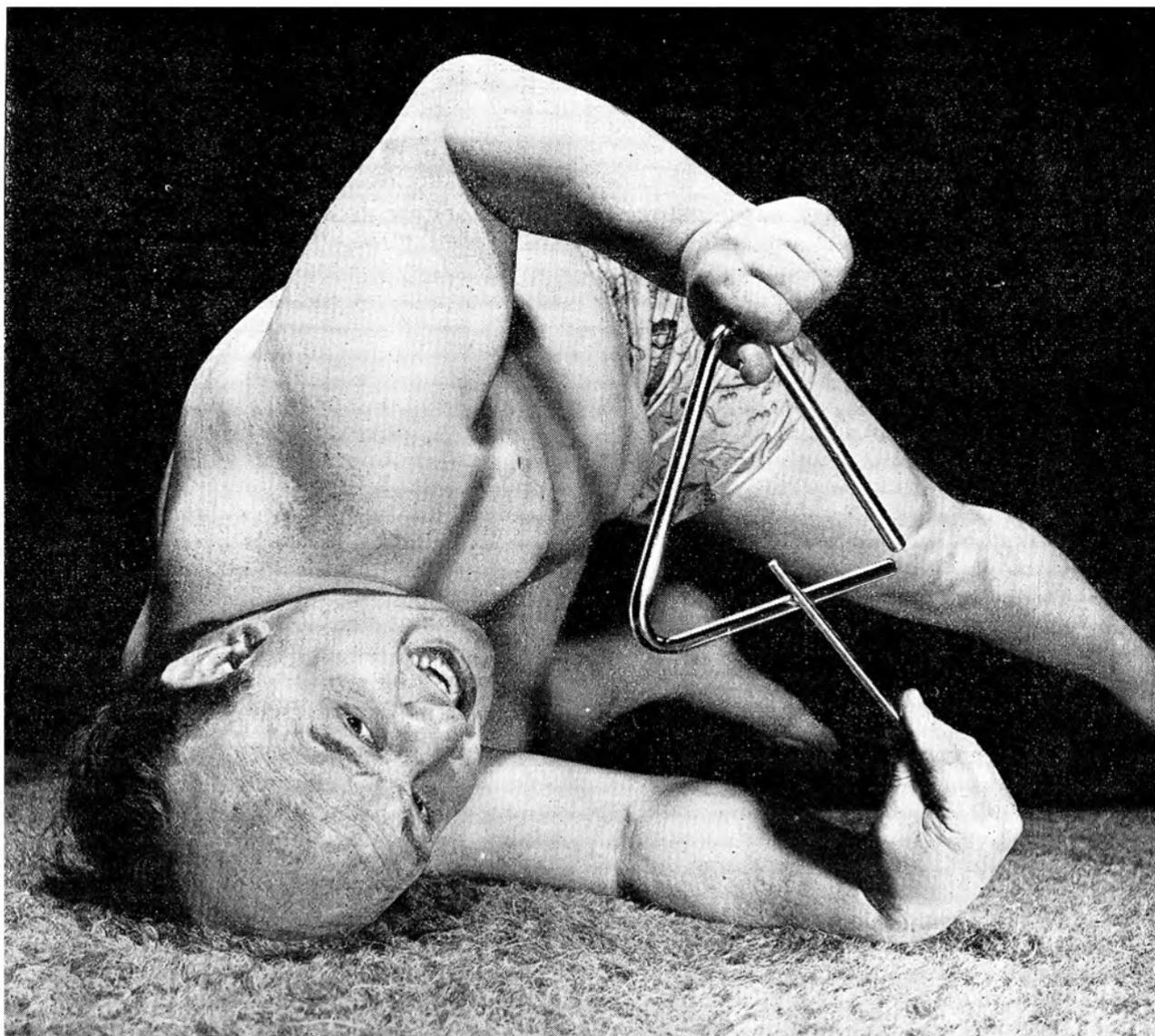
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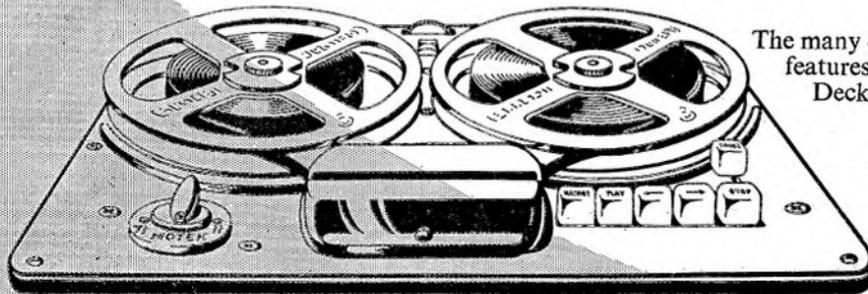
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Details on request
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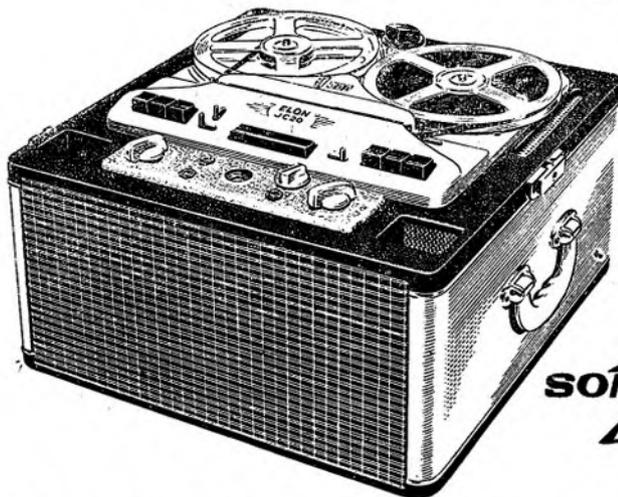
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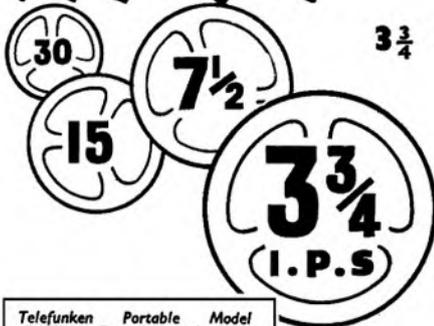
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3 3/4 I.P.S. CUTS YOUR TAPE COSTS BY HALF

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THE STUZZI 'MAGNETTE'**



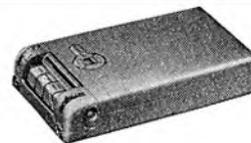
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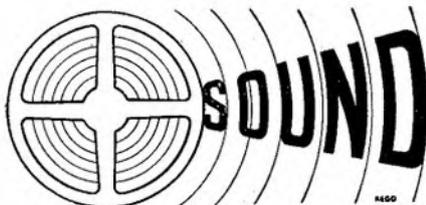
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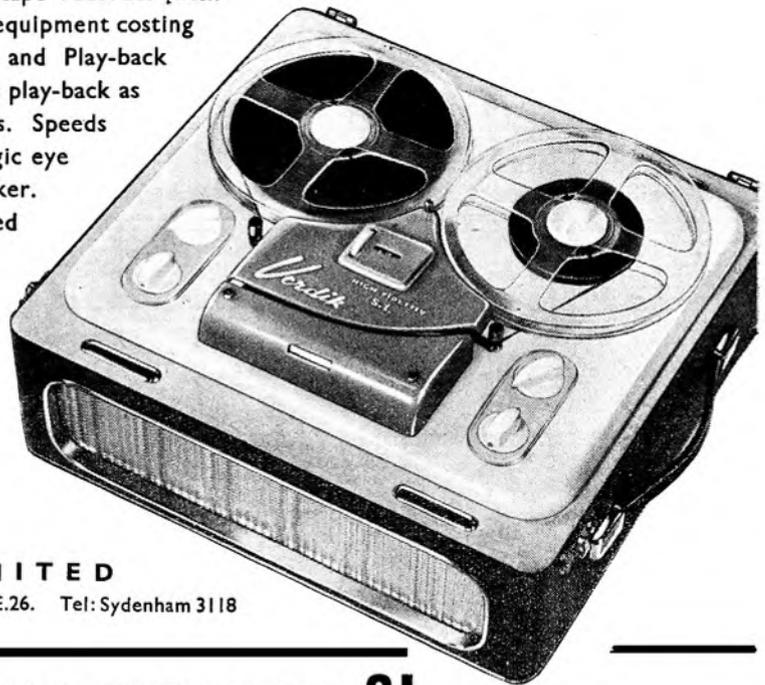


'I'm using this instrument myself'—says

Felix Ruz

'As you know, tape recording is used a lot these days in my profession, particularly when trying out new numbers, and excellence of reproduction is, of course, essential. That's why I have chosen the Verdik S1 to help me in my work.'

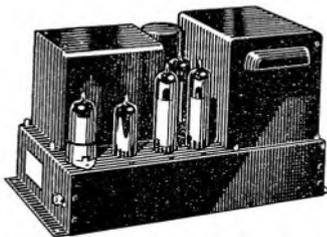
A fully monitored QUALITY tape recorder with features hitherto unobtainable only in equipment costing double the price. Separate Record and Play-back amplifiers and a 3 head system allows play-back as you record—no more ruined recordings. Speeds $3\frac{3}{4}$ " /sec., $7\frac{1}{2}$ " /sec. Five valves plus magic eye level indicator. High flux internal speaker. Frequency 40 c/s to 12 kcs. Corrected out-put for play-back through your Hi-Fi amplifier. Provision for 15ohm external speaker. Complete with 1200 ft. tape and microphone. **45 gns**



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Verdik "Quality Ten" 10 watt push pull, ultra-linear amplifier. 14 gns.



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No. 7

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THE EDITORS' VIEW

Hold tight

HOLD TIGHT TO YOUR SEATS, take a deep breath, and keep your eyes open. We're just off on a rollicking new phase of tape development that promises to be the fastest and most exciting thing we've seen so far.

Most significant news of the month comes from the United States, where one of the record companies is now issuing tape records contained in cassettes; so that all threading of loose ends is avoided. The cassette is placed on the machine and the button depressed—it is easier to handle than a gramophone. For our part, we have never understood all this fuss about threading tape; with the better-designed spools it takes only seconds and presents no difficulty. But the experts are agreed that the customer finds the average tape deck more formidable than a gramophone. So, as we suggested in this page several months ago, the appearance of cassettes will mark a giant stride forward.

We are not over-enthusiastic, however, about some of the characteristics of the new American product. It reduces track width by half and, at the same time, cuts speed from $7\frac{1}{2}$ to $3\frac{1}{2}$ ips. New equipment to play four-track tapes is, therefore, called for.

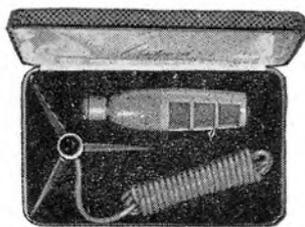
It is inevitable, when a technical revolution is under way, that improved designs must supplant earlier ones, and so outmode pioneer equipment. But the customer must be considered, and we believe there would be no joy here if all the existing twin-track tapes and equipment were quickly to become obsolete.

If an acceptable quality of reproduction can be achieved at $3\frac{1}{2}$ ips, so much the better; everyone will be delighted. That will provide seventy minutes stereo reproduction from a seven-inch spool of long-play tape, and with that we may be satisfied. It compares well with the average forty-five minutes playing-time of the L.P. disc.

Other problems may arise. It will be easier to design simple reproducers to play back the tapes-in-cassettes, and lacking recording facilities. In the long-run, this might be no bad thing. When we have really high-grade battery-operated portable recorders in sufficient numbers and at reasonable prices, they will be the ideal recording medium. All play back, dubbing, etc., will be done with the heavier console-type reproducers built into the home.

Before that stage is reached, most of us will have to manage with a single all-purpose machine, and we hope that some standardisation of basic design will be maintained. In particular, we hope that it will be possible to produce machines that will handle cassettes, yet will remain dual-purpose (recorders and reproducers); and that, for domestic purposes, we can concentrate on the familiar two-track system.

In any case, developments in the industry are likely to come thick and fast in the next few years. We have no doubt that a great future lies with stereo, which already shows all the signs of an impending boom.



the
perfectionist's
microphone

The thrilling acoustic quality of the Cadenza Ribbon Microphone is something that every recording enthusiast has wished for. This is no microphone for the mediocre—the Cadenza is a superb instrument that will do full justice to the finest performers and the best of recording equipment alike. With a virtually flat output over the entire 50 - 12,000 cps range, gems of tone and clarity that make the original performance sparkle are caught and held by the wonderful Cadenza ribbon microphone. Yet it is not in the 'expensive' price class; its moderate cost places it within the reach of every discriminating devotee of recorded sound.

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REGD.

ribbon microphone

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Microphone with dual impedance head, in presentation case, 8½ gns.

Microphone (dual impedance head) and tripod desk stand, with 11 ft. of cable, 10 gns.



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Telephone: WELbeck 2371



THE Schools section of the British Amateur Tape Recording Contest is now attracting widespread attention among teachers and schools in many parts of the British Isles.

The winning tape on the theme of "Discovering the World" will be presented with the **GRUNDIG CHALLENGE CUP** by Miss Nancy Spain at the Contest function at Earls Court Radio Show on Saturday, 30th August, together with a year's supply of tape by Messrs. Philips Electrical Ltd.

In addition the organiser or producer of the winning tape will be invited to the functions on Saturday, 30th August in London.

Messrs. Grundig (Great Britain) Ltd. will be entertaining the winners of the section at a social function either in London or in the area in which the school is situated.

THE GRUNDIG CHALLENGE CUP



THE PROGRAMME

THE provisional programme for the prize winners on Saturday 30th August is as follows:—

12.15 p.m.—Winners will join the National and Technical Press at the Savoy Hotel, London, for a reception by E.M.I. Sales and Service Ltd.

1 p.m.—The Emitape Luncheon at the Savoy Hotel for prize winners, judges, Press and organisers.

3 p.m.—Tea at the Radio Show, Earls Court and afternoon free.

5-30 p.m.—A reception by Messrs. Lustraphone Ltd. for members of the recording industry to meet the winners.

7.30 p.m.—South Restaurant, Earls Court—presentation of prizes by Miss Nancy Spain and playback of winning tapes, together with a commentary on behalf of the judges by Mr. Tony Gibson.

Big prizes—a thrilling programme—and now WINNER GETS SWISS TRIP

The winner of the British Amateur Tape Recording Contest this year will get, in addition to the EMITAPE Challenge Cup, a free trip to Switzerland. He—or she—will travel to Berne in October to attend the finals of the International Contest, in which the best of the British Tapes will be entered.

Arrangements for the trip are now being made through the generosity of Messrs. E.M.I. Sales and Service Ltd.

They have also provided the Cup, illustrated on this page to be awarded for the *Tape of the Year*.

This is the title to be given to the best tape entered in any of the four individual categories in the Contest.

The prizes to be won in each of these classes are set out below. The closing date for all entries is July 31. So, if you have not already sent in your entry, you have just ten days left.

On Saturday, 30th August, winners of all classes will be invited to London to attend the EMITAPE luncheon at the Savoy Hotel, at which famous figures in the entertainment and sound recording worlds will be present. The same evening they will be guests at a cocktail party at the Radio Show, given by Messrs. Lustraphone Ltd., which will be followed by the presentation of prizes and playback of winning tapes.

We anticipate an overwhelming demand for tickets for the presentations and play-backs. Applications should be sent in immediately. There is no charge, but a stamped addressed envelope should be sent with all applications. Clubs are invited to apply for blocks of tickets for their members.

The Schools Section of the British Contest, which is being organised separately, promises an equal degree of success. Fuller details, with a photograph of the Grundig Cup, will be found on the opposite page.

JUDGES



Left to right:

Jo Douglas

Tony Gibson

Charles Mason

Douglas Gardner



THE EMITAPE CHALLENGE CUP



FOR
The Tape of the Year

I. Compositions

(Plays, drama, sketches, etc.)

ELIZABETHAN TAPE RECORDER

(Presented by Messrs. E.A.P. Tape Recorders Ltd.)

RADIO JACK

(Presented by Messrs. Truvox Ltd.)

II. Documentaries and Reportage

FI-CORD BATTERY PORTABLE TAPE RECORDER

(Presented by Messrs. Fi-Cord Ltd.)

RADIO JACK

(Presented by Messrs. Truvox Ltd.)

III. Music or Speech

(Solo singer or player, orchestras, choruses, poems, imitations, monologues, etc.)

RIBBON MICROPHONE

(Presented by Simon Sound Service Ltd.)

RADIO JACK

(Presented by Messrs. Truvox Ltd.)

IV. Actuality Recordings

(Unusual voices, historic moments, etc.)

RIBBON MICROPHONE

(Presented by Messrs. Film Industries Ltd.)

RADIO JACK

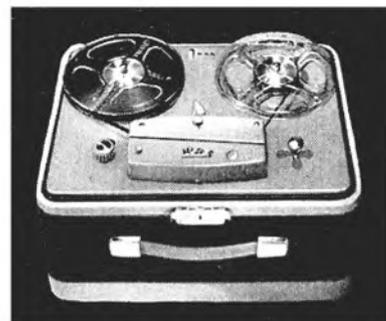
(Presented by Messrs. Truvox Ltd.)

SUPPLY OF MAGNETIC TAPE

(Presented by Messrs. Olympia Sound)

These NEW WALTER tape recorders are going places!

Look in at the Walter stands at the Radio Show and you'll see what we mean. Compare the '505' High Fidelity or the competitively-priced '303' De Luxe with any other instrument in the same bracket.



The new Walter 303 de luxe

Sure to appeal strongly to the enthusiast who wants all the regular tape recorder features in an elegant, high-quality machine at the lowest possible price. Incorporates Mk II deck, 2 speeds, and 3 watt amplifier for only **42 gns.**



Walter 505 High Fidelity

The all star specification of the '505' speaks for itself, but wait till you hear the superb quality and see the handsome, up-to-the-minute styling and finish!

- Latest Walter Mk II Tape Deck
- Famous Walter 'Joystick' Control
- Built-in Mixing
- Superimpose Button
- Instant Start/Stop Control
- 'Straight Through' Amplifier
- Drive for Walter Cine synchronising attachment.
- Two Speeds; Two Speakers; Two Inputs; Two Outputs
- PRICE Including high fidelity microphone, Radio/Gram recording lead and plugs, extension speaker plug, instruction book and 12 month guarantee.

57 gns.

The Walter Stands We're all set to show you our new models on Stand 115 and there will be plenty to interest you in the adjacent Demonstration Room where we are arranging demonstrations of all the Walter tape recorders and the Walter Cine Synchronisation Attachment. On Stand 429 in the Audio Hall we shall be demonstrating continuously the Walter 1000 Console Tape Recorder.

See Hear Try them at the RADIO SHOW

**STAND 115 AND DEMONSTRATION ROOM Z12
AND STAND 429 in the Audio Hall**

or write for full details and literature

WALTER INSTRUMENTS LIMITED, MORDEN, SURREY

CRC 22

U.S. GETS 4-TRACK TAPE RECORDS IN CASSETTES

R.C.A. has just released in America the first thirty-two stereo-tape cartridges (cassettes)—the result of four-and-a-half years' research.

A representative said that one of the chief problems with stereophonic tape recordings in the past had been the price and the difficulty of threading the machine. Tape cartridges, the firm believes, has solved both problems. They are low in price and easy to handle.

This has been made possible by the fact that less tape is used and it is recorded at a lower speed (3½ ips instead of the customary 7½ ips). In addition, the tape has four sound tracks instead of the usual two. The overall result is four times as much music on half the amount of tape.

It is enclosed in a plastic magazine and is not touched by the operator. It does not need to be threaded by hand or rewound after playing, and so can be inserted in the machine as easily as a record.

For stereophonic reproduction the tape travels about half an hour from the left spool to the right, using two of the sound tracks. It then reverses and plays the other half, from right to left, leaving the contents of the tape cartridge rewound and ready for replaying.

For single-track recordings the tape reverses direction four times, providing two hours of music.

The firm are beginning a national advertising campaign for both semi- and fully-automatic machines for the domestic user.

The Schure Company of America has perfected a new four-track magnetic head, for use with the new four-track tape. The track width has been reduced to .031 inches.

Associated Rediffusion is now operating an Ampex Video Recorder, to record black and white TV picture signals on 2-inch magnetic tape. The machine, made in the U.S., is modified to the British 405-line picture standard, and costs about £20,000.

Tape runs at 15 inches per second—compared with the 200 inches per second of the B.B.C.'s VERA (not feet, as stated in last month's Tape Hi-Fi Magazine). It costs about £100 per hour to record, but the tape can be re-used 100 times.

The quality of the recordings was demonstrated at a recent Press viewing in London. Mr. Paul Adorian, managing director of Associated-Rediffusion, explained the advantages of immediate playback, immediate availability for re-use, faithfulness of picture quality and cheapness.

The recent ceremony of Trooping the Colour was recorded on stereophonic equipment by film star Edmund Purdom and Simon Harcourt-Smith. They intend to produce an hour-long disc and tape. Mr. Purdom says that stereophonic recording "is far more interesting in every way than filming."

BBC record budgies

B.B.C. engineers will be calling at twelve homes in Britain to record twelve budgerigars reciting long lists of phrases taught them by their owners. The birds are finalists, from among 2,768 entries, entered in a B.B.C. "Home for the Day" programme competition. The three winning performances will be played on July 27.

Tape recordings of Sunday services are being taken to the homes of parishioners who cannot attend St. John's Church, Buckhurst Hill, Essex.

Ballroom chief Charles Amer is using a tape recorder and movie camera in an endeavour to beat Teddy boy gangs who cause trouble at the entrance to his dance hall.

Mr. Harry Buckley, Middlesex, Secretary of the National Farmers' Union is taking a tape recorder on an educational-holiday tour which seventeen Home Counties farmers are making to the U.S.A. They will study methods on twenty farms in the U.S. and Canada. It is the first such tour made by English farmers since the war.

A one-hour tape recording about Up-Helly-A—the fire festival which to Shetlanders is the celebration of the year—has gone off to the Shetland Society of Wellington, New Zealand. It will be played at a big gathering organised by the Society, and will bring back memories to many Shetlanders now living down under.

"History-on-tape is my hobby," says Mr. Reginald Allott, 65-year-old retired industrialist. He is to visit the homes of elderly people in Twickenham and Hampton to record their memories of the past for future historians. The recordings will be given to the Public Records Office in London, to be kept in their archives.

Mr. P. Towner was busy with tape recorder and camera at a recent spiritualist seance at Reading Spiritualist Church. Mr. Towner is a spiritualist and this is the first time that either a recorder or camera have been used in the Reading Church. The playback of the tape has caused considerable interest. Photographs when printed should add much to this.

Tape to Disc Services

TAPE TO DISC 78/L.P.

S.A.E. FOR DETAILS:

CHARLES A. ORMEROD

22, EVERARD ROAD,
SOUTHPORT, LANCs.

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78's or L.P.

QUEENSWAY RECORDING STUDIOS

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Tel.: BAYswater 4992

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Microgroove L.P. (30 mins.)

27/6, 78 rpm. 13/6

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78s and L.P.s from your own tapes.

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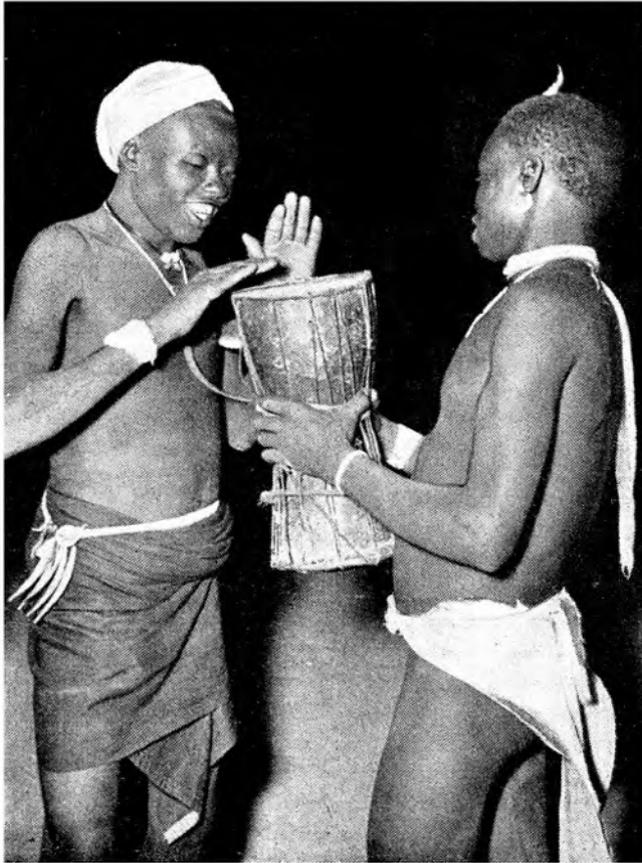
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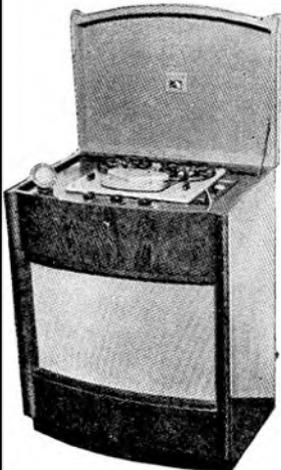
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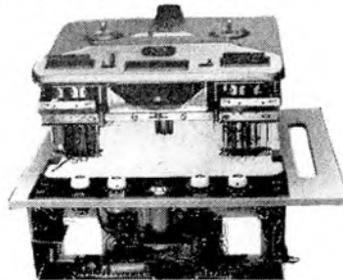
A tape recorder caused the simple people in the mountains of the Cameroons to go wild with excitement

RENÉ GARDI describes how they woke him at midnight with a terrific war-dance—so that they might hear the “sorcery” again

A SPECIAL OPPORTUNITY



The amplifier used in the “Tutor,” complete with power pack and ready-made wiring for Collaro Mark IV deck on grey rexine covered wooden framework. **Price £18 10s.** complete with instructions.



10 watt push-pull Hi-Fi Tape Recorder with 2 specially designed loud speakers. H.M.V. model

3033 fitted with our recording amplifier, separate recording and play-back channels, enabling recorded material to be instantly monitored on internal speaker system. In luxurious walnut cabinet. **Price £97 10s.** complete with Tape and microphone. Callers invited.

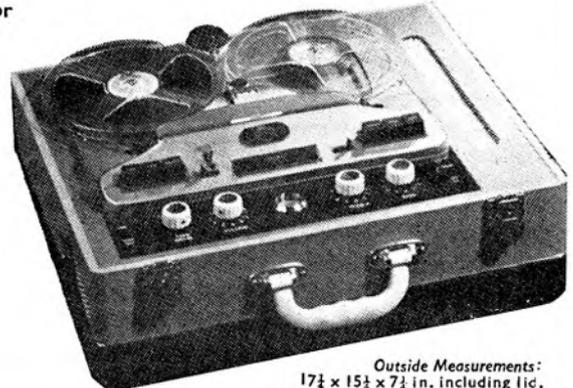
TUTOR-TAPE COMPANY

70 BREWER STREET, LONDON, W.1
CABLES: TUTAPE, LONDON. TEL: GERRARD 3376



TRY THE “TUTOR”

recorder, using the Mark IV Collaro tape deck with digital counter.



Outside Measurements:

17½ × 15½ × 7½ in. including lid.

Output: 5½ watts. Weight: 36 lbs.

In dual colours—Maroon and Grey.

Inputs: High impedance microphone and high/low impedance radio/gram.

Output: 3 ohm or 15 ohm (as ordered) for extension speaker, earphone monitoring.

PRICE **63 gns.** complete with Collaro ceramic crystal microphone and reel of tape.

EXPORT AND TRADE ENQUIRIES INVITED

LEARN LANGUAGES WITH A TAPE RECORDER

15-lesson course - - £3 3 0

72-lesson course - - £6 6 0

Complete with handbook

How I recorded “music” no European had ever heard before

SOUND-RECORDINGS have become as indispensable to the ethnographer as films and photographs. These photographs are from Mandara, a wild mountain district in the northern Cameroons, where the natives still live in blissful seclusion. The mountains are inhabited by a few uncivilised peoples living in remote, almost fortified, tribal villages.

As in Stanley's days, we travelled through the trackless country with a column of porters behind us, and reached valleys where the match was unknown and where, at least as far as the women and children were concerned, this was their first meeting with the white man. Among the Matakam and the Kapsiki, I attended moving funeral rites, I squatted with the blacksmith at the “blast furnace” in which iron is still produced from ore, and in those distant valleys I was certainly the first to record on a sound-track the wild songs, the rolls of drums, the shrill flutes, and the horns of a dance by moonlight.



My small recorder was a source of continual delight to all concerned, and my reputation as a “sorcerer” was greatly strengthened by the apparatus which enabled me “to pack up and take away voices.” I never omitted to allow all my “stars” to listen at once after they had sung or plucked the five-stringed harp or piped on their goat-horns for me. Then I pressed to their ears the microphone which, when plugged accordingly, also serves as a head-phone.

Their amazement knew no bounds. Sometimes one of them would become too excited to listen to the end when the music which he had just helped to produce sounded from the case. He would run to and fro.

They would clap each other on the shoulders, imitate their own voices and make fun of one another. It was wonderful to read the astonishment and delight in every face, and they would dance up and down—children of nature who, unlike us sophisticated Europeans, had none of them lost the power of wonder.

About midnight the next night, when I was sleeping peacefully in my camp-bed, shaded from the moonshine by a big cailcedra tree, I was awakened by the arrival of a



wild horde which was soon dancing round my bed. It consisted of about forty naked fellows, all armed with fearsome life-preservers of solid iron, sharpened throwing knives, and stout clubs, and they danced round my bed, almost overturning it. They sang and piped, drummed and harped, danced wildly, shouted, kicked up the dust, and refused to be turned away. They were playing at war with me, and the din was terrific.

So I fetched my sound-recorder, squatted on my camp-bed in my pyjamas among the dancers, my recorder on my knees, and held out the microphone towards them. Thus I recorded a war-dance that probably no one has ever heard in Europe.

But then these heroes, who had simply been singing me a serenade, wouldn't stop. So I stood up, shared out a few handfuls of tobacco, let the leader and a few others listen to their wild performance, clapped them paternally on their perspiring shoulders, and sent them home to bed. This time they really did go, I shook the dust and a few ants out of my sleeping-bag and crawled in again.

(Condensed from the BASF magazine.)

Chickens beat nightingales

THE art of recording holiday experiences is something well worth studying. On the coast of Provence and among its fascinating towns and villages I found an endless succession of things to record; but the ever-present problem was that of capturing some impression of the clear, calm intensity of the brilliant sunny days. I think I got closest to this essential mood by an accidental combination of the sublime and the ridiculous.

I was picking up an afternoon conversation between two nightingales among the pines adjoining the house where we were staying. It seemed to be going very nicely, with one voice quite near and one responding more faintly some distance away. And then a group of native chickens began to make noises and I thought the session was ruined. It turned out, however, that their slow, "deep contemplative" murmuring injected precisely the right commentary, conjuring up a perfect picture of the long, sun-drenched afternoon.

I hit on a useful method of making a record of a short excursion, such as a walk or a car trip. It requires the presence of at least one person who did not take part, and who is, in fact, eager to hear where the others went and what they did. All you have to do is to switch on the recorder while those who went on the trip describe the route and report on the things that pleased and impressed them. The advantage of this technique is that the story comes out naturally, with freshness and enthusiasm and with a strong, personal desire to convey to the listener a vivid account of what has taken place. This is much more valuable and effective than the most conscientious of efforts to "make a report" through an impersonal microphone.

Outside Interference

MR. BLAIKLEY of Messrs. Magnagraph tells a story about a recorder he sold recently to a spiritualist customer who promptly returned it saying that it would not work. He examined it, found that it was in perfect working order and returned it with more detailed instructions. Again the machine came back.

Again there was nothing wrong with it. Some time afterwards the lady customer reappeared with the machine and claimed it was still not working. In her presence Mr. Blaikley demonstrated the machine. She said, "Yes, I know that is the way it should work but unfortunately my mother-in-law will continue to interfere—even though she has been dead ten years."

Tape cures tantrums

THE familiar phenomenon of the horror many people feel when they first hear their own recorded voices is not especially significant, but there may be some practical value in the use of tape to reveal anti-social habits and mannerisms to their owners in their true light.

I heard a story the other day of a lady famed for her hot-tempered out-

bursts who was confronted with a taped sample of one of them at a time when she was in a reasonable frame of mind. She was, it appears utterly amazed and abashed.

Until then she had been secretly convinced that her performances were, in

than drama. She rarely loses her temper now.

I am not advocating this sort of treatment on a wholesale scale however, because I can foresee many dangers in it. For example a spouse discovered in the act of adjusting the volume control to cope with a larger than normal invective peak might well achieve nothing more than a larger than average repair bill.

HOMO TAPIENS

by

Douglas Gardner

their way, magnificent and impressive; and she would be harbouring the same fatal delusion still but for that salutary spool.

Her urge to fly off the handle is now permanently conditioned by what happened when somebody pressed the button. She has heard herself as others hear her and knows that her "fine frenzy" is compounded more of farce

Record record

SOMEWHERE, if logic is what I think it is, there must be a tape that holds the distinction of having travelled further than any other tape in the world; but we shall probably never know which one it is. A very formidable mileage has been established by a tape belonging to a London recorder owner who corresponds regularly with his mother in California. It has, he reports, travelled half a million miles so far. I'll put that down as a record to be going along with, and if anyone thinks he can beat it I shall be happy to record the fact.



10 points prove



BASF is the leading Magnetic Recording Tape!



- 1** Extra-smooth recording surface
- 2** Exceptional magnetic properties
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- 10** Standard and long play — for recorders of all types

BASF MAGNETIC RECORDING TAPE

The original... and still the Best

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The authors of this article set themselves a very difficult problem—and have come up with an ingenious idea that will fascinate all our readers.

By H. G. and D. A. EDE

COPYING TAPES with a single machine

IT is the usual practice to employ two recorders for the purpose of copying tapes. This work can be done with a single recorder, however, if its design allows an extra recording head to be slipped into a position not more than three inches from the capstan and on the same level as the existing head. Another necessary condition is that there must exist a clear run for the tape between the additional head and the capstan.

It is a fortunate fact that two tapes, one in front of the other, will go through the capstan drive without any injury either to themselves or to the motor. They do not "skid" on each other; their very nature causes a kind of "clinging" when the glossy surface of the rear one is against the oxide surface of the front one. This brings an incidental advantage when copying in accordance with the method about to be described; the copy will be at *exactly* the same playing speed as the original, without the fractional differences there may be when using two recorders.

The diagram shows the principles on which the method is based. A Philips type AG.8107 tape recorder is used in the example. For straightforward copying, there need be nothing screwed or fixed to the recorder nor any alteration to its circuit or components—with one minute exception: the clearance between the rubber pressure roller rim surface and the pressure arm itself has to be increased by a little careful treatment with a small flat file. This does not affect the normal working in any way but allows the second tape to be threaded through to the capstan gap.

MECHANICAL FEATURES

In the electrical circuit, the additional head is used as a playback head. It is connected by screened leads to a one-valve amplifier, the output of which is connected (again by screened leads) to the pickup/radio input sockets of the tape recorder itself. (The one-valve output should, of course, be isolated from any high tension voltage.) The recorder, switched to pickup record, then makes the copy on to tape T. 2 from tape T. 1. In the diagram H. 2 is the additional head and H. 1 the original head. H. 3 is the erasing head. The one-valve amplifier is necessary because the output from a playback head and a correctly recorded tape is less than that from a gramophone pickup.

The mechanical features of this copying process are fascinating to watch when in operation. The movements of the copy tape are simplest and will be dealt with first. A wooden structure is made to surround the tape recorder. This is fairly elaborate, but quite easy to construct. It is

more than 2 feet long and 1 foot wide, the size depending on the recorder. In the diagram it is shown surrounding the Philips AG. 8107. The structure is quite light in weight and can be ledged on the recorder after removal of the recorder's detachable lid. Four suitable wooden brackets, two fixed and two adjustable, need to be devised to adapt the new equipment to the particular recorder. The structure can then be lifted on and off the recorder in an instant.

Now to return to the copy tape. This runs from spool marked S. 1 to that marked S. 3. S. 1 and S. 4 both pay tape into the capstan so need no drive. The first essential is that they both run on the same level as those on the recorder, and the second that they both have slight friction or drag, to prevent spilling tape when the recorder stops or pauses.

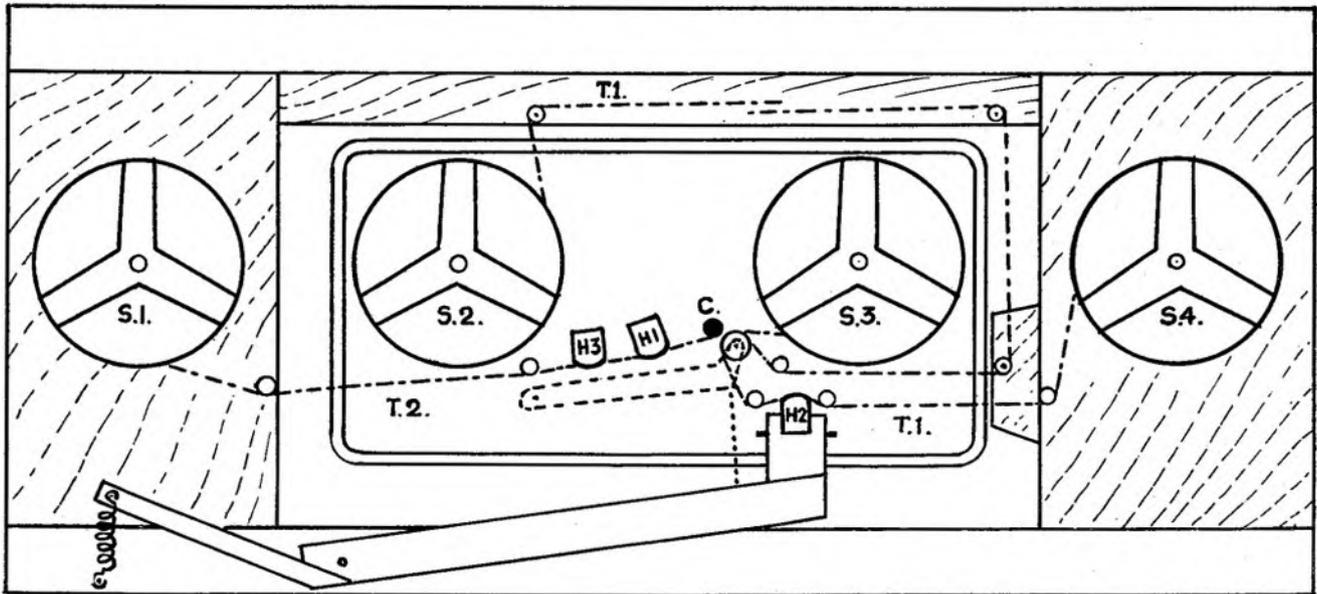
SEVEN-INCH SPOOL

Room should be provided for a seven-inch spool at S. 1 and S. 4, even if the recorder takes nothing over five inches. A very satisfactory mounting for these two spools is a two-inch length sawn off a standard size of round pencil and fitted tightly into a hole drilled in the wood. From an unwarped piece of three-ply wood a 3½-inch disc is cut and a 5/16-inch hole drilled centrally. This is slipped over the pencil rod, and over that is slipped a similar size disc cut from a good quality postcard. Then a second postcard disc of three-inch diameter is added and the mounting is complete; simple and effective. Repeat the method for the second spool.

With regard to the framework, the long pieces are about half an inch thick and up to three inches wide. The two wide cross-pieces are about three quarters of an inch thick and six inches wide. The wood marked in the diagram with a wavy grain is on approximately the same level as the top of the recorder deck, a final adjustment being made to level the four spools. This levelling can be incorporated in the design of the four ledging brackets referred to earlier.

When the copy tape leaves S. 1 it traverses the recorder in the standard way, but an additional tape guide pillar has to be fitted to keep it clear of S. 2. This can consist of another piece of round pencil, in this case one with a

** It will be sensible to remove this component during this operation for obvious reasons.—EDITOR.*



glossy enamel finish. Combined with the felt pad that several makers fit against the erasing head, it provides just that amount of drag on the tape that ensures high quality recording by avoiding air space between the face of the recording head and the tape.

The movements of the original tape are more involved, and more interesting. On leaving S.4 it has to be provided with a guide pillar. Another piece of the glossy pencil will do. Some constructors may prefer a polished brass rod, but iron or steel must be avoided unless it has a non-ferrous tube over it. The next two guide pillars are so mounted that the tape is just ready to engage the face of the additional head when that is moved forward on a rotating arm, shown in the diagram. This arm is provided with two stops, as shown. Two corresponding stops are fixed on a small thin platform which carries the two guide pillars just referred to. The next pillar is also arranged on this same platform; in the case of the Philips A.G.8107, there happens to be a vacant threaded hole conveniently located to screw this platform down with a suitable distance piece. On other makes this platform could be fixed on the woodwork and designed to overlap the recorder.

AN ADDITIONAL CONTROL

Between the second and third of this cluster of pillars the tape is threaded through the capstan and it is here that the individual constructor's ingenuity will come into play to contrive the most convenient arrangement for his particular model of recorder. There is a warning to be given here. If the distance between the additional head and the capstan is much more than two or three inches an almost uncanny kind of distortion will appear on the copy, due to longitudinal vibrations setting up in the tape itself. This rule applies in just the same way in the design of a standard recorder, without any question of copying.

The two pillars after the capstan are located to keep tape T.1 away from S.3. T.1 now changes direction through two separate right angles, keeping clear of both S.3 and S.4, even when that is seven inches in diameter. By this time T.1 has become "inside out." By giving it a complete half-turn between its last two guide pillars, it

becomes also upside-down, ready to feed on to S.2, which, in contrast to a normal take-up spool, is "upside-down" so far as rotation is concerned.

The last three guide pillars for T.1 need to rotate freely, with minimum friction. Instead of wooden or fixed metal spindles, short lengths of aluminium or alloy tubing cut from spare lengths of television aerial may be used. These are cleaned and burnished inside and out, and fitted over brass rods threaded into the wood. The rods are polished and the tubes should fit over them with an easy sliding fit. A brass washer should be put in place for the tube to rest and rotate on. If the fourth, and even the fifth, pillar from the end of T.1's journey are also of the rotating pattern it will be an improvement, but the two others should be fixed to provide the requisite drag. A trace of additional drag at the first pillar after leaving S.4, provided by means of a felt pad on a weak spring, may be an improvement.

The last step is to provide the additional control. The pressure arm carrying the rubber pressure roller is tied, by a short, strong piece of twine (such as double thickness cord drive, as used for radio tuning), to the rotating arm carrying the additional head. The length of this cord should be such that when the recorder is set to play or record it is just slack when the additional head is in operating position. Thus, when the H.2 arm is held back in an "off" position, on an A.G.8107 the pressure arm will follow it obediently, although with tension, and the whole equipment will be in "pause." The recorder's switch can be moved to any position while in pause.

COPYING PROCESS

When set to playback, either tape can be run forward or backward independently, but this is by hand operation. Most makes of tapes have a hole in the spool near the centre to make them suitable for hand operation. This hole is sometimes covered by a label, as normally it is rarely needed. For edited copying, the original tape can be monitored by switching to "Amplifier," and the copy tape by switching to playback. Then either or both can be brought to correct position after pausing. For copying

(Continued on page 39)



SUGGESTIONS

“THE LITTLE BROWN BIRD”

TO “fade out” a passage of previously recorded tape (W. P. Copinger, *May issue*), I use a small “horse-shoe” magnet (permanent type). After “curing” the tape, I start recorder in playback position and then slowly move magnet to oxide face of tape (before it passes the playback head). The recorded sound will gradually fade away to complete erasure when the magnet touches the tape and is in the same position as the erase head.

This works well with a single track recording and allows the tape to be monitored during the fading process and repeated until the desired effect is obtained. Simple but effective.

Last year, I wrote you about my experiences of taping a “little brown bird” who could be called by the playback of its song. Well, he and his family are back again this spring (Virginia Wrens) and I am once again taping sounds of nature with a thirty inch diameter spun aluminium reflector. The back is covered with glass cloth and sprayed with a plastic resin. This method “deadens” the reflector and prevents the “ringing” effect. The reflector is painted a dark green to blend with natural surroundings so as not to distract the birds. A low impedance mike is used to prevent “hum” pick-up and a pair of “hi-fi” headphones so as to hear and monitor the high frequency sounds of nature. The reflector is mounted on a “pan head” camera tripod.

The mike “holder” is a length of copper tubing, mounted in the centre of the reflector and extends to the focal point of the reflector. The flexibility of the copper tubing facilitates adjustments. Plumbing fittings and pipes reducers, etc., are used to mount the reflector to the tripod and a “T” fitting is used to extend a counter-weight from the reflector to give “balance.”

ED BUSH

Indiana, U.S.A.

THE IDEAS POOL

More and more readers are helping one another. If you have a problem, write to “The Ideas Pool” about it. And if you think you have an answer to any of the

queries, let other readers share your knowledge and your own experiences.

A STORAGE PROBLEM

WHAT type of container should one use for storing recorded tape? I first thought that tins (made of tin) would do, but then considered that they may harm the recordings. Or would they protect? The object seems to be to keep magnetic fields from reaching the tape. Is that right? What about aluminium tins—but they would allow a magnetic field to reach the tape? The same applies to plastic containers and polythene bags. I ask all this because I wish to send some tapes abroad by air.

Further, has anyone an idea for attaching a rev. counter to a Grundig 700L? Is the Wearite rev. counter a possibility?

Finally, could someone say if there is an equivalent microphone to the Grundig condenser type?

Congratulations on your publication. I find it a great help.

C. L. COLLINS.

Pinner.

A LEVEL INDICATOR

I AM building a recorder and wish to use a meter programme level indicator, using an O-1 MA movement. I have been unable to trace a suitable circuit, though I believe they have been published in various magazines. Any assistance would be appreciated.

K. L. DEAN.

Launceston.

AND QUERIES

A METHOD OF GETTING SUPERIMPOSITION

SUPERIMPOSITION is a novelty which is always useful in recording. One of the best methods of blending a speaking voice with a singing one in the background simultaneously, is to mask the erase head with a strip of thin but substantial material, preferably plastic, when recording the second voice.

Personally, I use two triangular shaped “bones.” When they are held between the erase head and the tape in the recording process they produce quite a good result. Care should be taken that the plastic does not cover the recording head. Take care as well that the material used is not too thick or the springiness in the pressure pads will greatly decrease over a period of several months.

MICHAEL A. STOREY.

Wakefield, Yorks.

AUTOMATIC SPOOL

MY machine has no automatic spool brake to deal with the tape when the end is in sight.

I thought the “Ideas Pool” would be interested to learn of my simple solution to this problem because often while one’s back is turned the spools go racing round with a loose end of tape flapping against the head cover causing it to split badly.

Now I bind the end of the tape for about 1½ inches with ordinary commercial gummed tape. This prevents it from splitting, keeps the end tidy and saves having to trim the end away.

M. SCOTT-WORTHINGTON.

Enfield.

**Watch out for
next month’s
enlarged Radio
Show number—
out as usual on
August 20th**

||| Last month we reported the arrival of a new pocket-size battery recorder, the Fi-Cord. This article conveys the thrill experienced by one of the first owners.

Bird-song and pub-song —it's so easy now

BY NORAH
JARMAN

|||

THE portable battery-powered tape-recorder I have been waiting for has arrived at last. At the time of writing, my minuscule Fi-Cord is a little over two weeks old, and I wonder how I ever got along without it.

When bird-listening, for instance, instead of plugging-in my mains-operated recorder in the kitchen and putting the mike on the back door step, I can now sling the tiny 4½lb Fi-Cord over my shoulder at the first cheep of the dawn chorus, and go out into the garden and into the woods. The birds are quite unperturbed, being absorbed in their own performance, and I can record their best and earliest song with no trouble.

Human beings seem to be equally unafraid of the Fi-Cord. I find that people who would normally dry up completely when faced by recording equipment are more amused than alarmed when I produce the small mike from its wallet on the shoulder-strap.

In our own East Riding village pub and in another near Selby I have collected, in a few evenings, more completely natural and spontaneous material than I had managed to get in several years with a large recorder. (Since many words that are strictly non-B.B.C. are merely terms of emphasis or endearment in these parts, the effect is often lively to say the least).



One recent week-end in Filey, on the East Yorkshire coast the fishermen were much more than willing to tell tales over their pints. When the Salvation Army lassies came into the tap-room and broke into "The Old Rugged Cross," the men gradually joined in the chorus by ones and two's till the whole pub was singing. This is the only live "music" I have had the opportunity of recording up to now, and the reproduction was excellent. I look forward to experimenting with instrumental music when the chance arises.

Reproduction through Pye hi-fi equipment must be heard to be believed. I can play direct from Fi-Cord to amplified speaker, or I can transfer tape-to-tape through the amplifier system to my Kenton Truvox (three years old, and still the best mains-operated recorder I have come across).

Thus I can send any parts I wish in tape-letters to my son abroad, and still have the originals. Or I can make copy after copy back and forth, or dub recording on recording—in fact, the possibilities seem endless.

The Fi-Cord is exceedingly good-looking and well-made, and very simple to operate. For example, the method of threading tape is clearly indicated by a white guiding line.

When carried with the shoulder-strap, the tiny instrument panel is uppermost and can be easily manipulated with the left hand while the mike is in the right. Within a space of approximately 4½ins by 1½ins are found a record-playback switch, magic eye, volume control switch, input and output sockets, battery indicator lamp and tape-meter!

Recording by line from hi-fi radio or mains-operated tape-recorder is all that the makers claim. Hum was a worry at first, but a small resistance fitted in the recording-lead plug did away with it completely.



Speech is good on the slow speed, excellent for dictating and many other purposes; but when recording local voices I use the 7½ ips speed to bring out every shade of intonation and character.

I have just been lucky enough to record the rocket-assisted take-off of the Beverley freighter aircraft. The climax of the recording comes after the test-pilot's last signal over inter-com—"Five-four-three-two-one—Release!" Then all hell breaks loose as the rockets boost the giant plane in an ear-splitting upward rush.

On play-back, no one could believe such a tiny machine could register and give out so many decibels. When I played it back to the pilot, who had never heard the glorious din from outside the plane, he was highly impressed.

I intend to take the Fi-Cord on our annual cargo-boat cruise in the autumn, calling at many Mediterranean ports. As ships use D.C., the battery-charging is rather a problem.

There seem to be three alternatives: to have some device fitted to the charger, to find a friendly "sparks" aboard who will carefully blow up the little batteries to 50 milliamps and no further, or to take aboard as many batteries as one can afford or seems likely to need. (I have three sets in alternative use at present).

As for the sort of tape I hope to bring back, I can safely leave that to the imagination of readers of this magazine.

One last comment—the Fi-Cord is certainly a wow, but it hasn't any that I can detect.

Grundig plan big boost for tape

WHAT promises to be the largest party ever given by an individual firm in the radio trade will be held on Thursday, August 28. Grundig (Great Britain) Ltd. are acting as hosts to 2,400 of their dealers and wholesalers at the first Grundig Festival.

Business sessions will be held at the Royal Festival Hall in the morning and afternoon. The guests will learn of the latest Grundig plans. Between sessions they will hear such artists as Cyril Fletcher, Yana, Channing Pollock, The Max Jaffa Trio, Al Koran, Jon Pertwee, Eric Robinson and Vera Lynn.

The whole of the Festival Hall restaurant accommodation has been booked for lunch and nearly 2,000 more will eat at the Connaught Rooms. In addition, competitions with prizes are promised throughout the day. In the evening the whole party will be entertained at the London Palladium to the revue "Large as Life." Wholesalers will allot tickets for the Palladium to dealers, by ballot.

Planning of the Festival has taken the firm over nine months in conjunction with their advertising agents W. J. Southcombe Advertising Agency Ltd. The party is regarded by the firm as a "thank you" gesture and an indication of things to come.

A VERSATILE STEREO CONTROL

DESIGNED to answer every requirement relative to stereo reproduction from tape, records and radio, the R.D. Junior Stereo Control Unit is styled to match other RD Junior units; and a notable feature is the fact that dissimilar amplifiers may be used—for example, if one has a Junior amp and pre-amp, conversion to stereo can be effected by changing control units and adding a Cadet amplifier.

The new unit has a push-button input selector providing stereo on tape pick-up and radio, and single-channel on microphone. A tape record socket provides for single channel recording and the tape replay sockets give stereo replay direct from tape replay head, with CCIR 7½ ins. characteristics.

A dual concentric volume control is employed to eliminate balancing problems and permit the use of dissimilar main amplifiers, and a selector switch permits the immediate selection of stereo operation or both amplifiers in parallel on either channel. A microphone in-put is available on front panel or on the back of the unit. Record compensation is provided in conformation with RIAA LP characteristics. There are continuously variable bass and treble controls and a switched gauged low pass filter.

The frequency response (with controls level on radio in-put) is given as 30 to 20,000 cps ± 1dB, and cross-talk is given as 40-45dB. The price is £18 10s.



JO DOUGLAS ENJOYS RECORDING



Popular TV star Jo Douglas seems to be enjoying herself with her new Walter 505. The machine was presented to her recently by the firm as a mark of esteem for the work she has done in support of the British Amateur Tape Recording Contest

Philips tape recorders, operated at their slowest speeds (giving three hours uninterrupted recording on a single tape), have been used at recent traffic counts in Haarlem, Holland. Seventeen machines, each with an operator, were stationed at different points around the town. The system worked very effectively

SAFETY ON MOTEK

A NEW feature has been added to the Motek tape deck—a safety record button which makes accidental erasure quite impossible. Motek feel this to be particularly important, in view of the increasing number of pre-recorded tapes now on the market.

List price remains unchanged at 21 gns.

* * *

Cosmocord have set up a stereophonic sound testing unit to study the acoustical and electronic problems involved in the future development of such equipment. They have increased their laboratory staff for this purpose.

* * *

Simon Sound have recently completed the installation of a multi-channel recording unit for the Central Electricity Generating Board, Manchester. It gives eighteen hours uninterrupted recording on four channels simultaneously and incorporates the Simon TIU three time injection unit. This superimposes time identification by means of morse coded signals on all channels at one minute intervals.

* * *

Mr. W. J. Phillips has been appointed Works Manager of Perth Radios Ltd. Mr. A. W. Morris, London Sales Manager is extending his territory to cover the Home Counties, Sussex and Hampshire.

* * *

The price of the Fi-Cord portable battery recorder, including charger, has been reduced to 79 gns.

EASY SUPERIMPOSITION

The price of the Veritone Venus tape recorder described in our July issue is 66 gns. Veritone will be supplying an F.M. Tuner Unit which is self-powered at 16 gns., including tax.

A further feature of the new Venus recorder is that by virtue of three heads and separate record and playback amplifiers it is possible to monitor an existing recording on the tape while superimposing a second recording. The manufacturers claim that it is quite easy to accurately time the blending of two recordings. Monitoring can be affected either through speakers or by headphones into a jack socket. This avoids feedback while using the microphone.

AND STILL THEY COME

BIG RADIO FIRM TAKES TO TAPE

The flow of new tape recorders continues unabated. Here are four more medium-price models varying from forty-nine to sixty-five guineas.

Regentone R.T.50

NEWCOMERS to the field of tape recording manufacture are Regentone Ltd., Romford, Essex. They announce the Regentone RT 50 at 55 gns. This has bass and treble tone controls, mixing facilities for radio and microphone inputs, with the amplifier and input controls set on the side to allow operation while the lid is closed.

There is a pause control and extra fast reverse and forward. Speeds are $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips.

Printed circuit technique is used. There are three motors, a socket for external speaker, and claimed frequency response is 60 to 12,000 cps. The 7 x 4 in. speaker is front-mounted. The wooden case is covered in two-tone brown leatherette, and the total weight is 24 lbs. A storage compartment for two extra spools, microphone, etc., is incorporated, and the lid is detachable. Dimensions are 17 in. x $13\frac{1}{2}$ in. x $7\frac{1}{2}$ in. Six hundred feet of tape, two 7-inch spools, and a crystal microphone are included.

Perth-Saja

STYLING is an important aspect of the Perth-Saja tape recorder just announced. Three features to which the manufacturers draw attention are the trick effect button for superimposing speech on to recorded music; the automatic switch-off if the tape stops or breaks and automatic locking device to prevent accidental erasure.

Speeds are $3\frac{1}{2}$ ips and $7\frac{1}{2}$ ips and tape speed variations are claimed as below 0.5 per cent. There is international standard double track recording.

Frequency response is given as 50 to 12,000 cps at $3\frac{1}{2}$ ips and 50 to 16,000 cps

at $7\frac{1}{2}$ ips. Power output is 3 watts. Twin speakers (7-inch elliptical) and a 3-inch tweeter.

Price is 56 gns. with microphone and tape.

There are separate compensated inputs for microphone, gram pick-up and radio. An extension speaker socket with cut-out for built-in speakers. Dimensions are $15\frac{1}{2}$ " x $12\frac{1}{2}$ " x 7".

Perth Radios are at 39-47, East Road, London, N.1.

Sound 555

TAPE RECORDERS (ELECTRONICS) LTD. announce a deluxe version of their "Sound" tape recorder, the "Sound 555." It has automatic push button control, instantaneous track change, twin track recording, three speeds, two erase and two record heads, monitoring facilities, sockets for radio, microphone, external loudspeaker. Claimed frequency response is 90 to 11,000 cps at $7\frac{1}{2}$ ips \pm 3db's. The machine is housed in a contemporary cabinet with storage space and supplied with a "Sound" microphone.

A spool of long playing tape gives three hours at $3\frac{1}{2}$ ips. There are Stetho-set headphones for monitoring. A twelve months warranty with each machine. The price is 65 gns. Tape Recorders (Electronics) Ltd. are at 784-788 High Road, Tottenham, London, N.17.

WyndSOR Viscount

THE WYNSOR RECORDING CO. announce a successor to their well-known WyndSOR "Regent." This is the WyndSOR "Viscount." As our illustration shows, it has a contemporary appearance and uses the new Mark IV Collaro deck with push-button track change. This gives twin tracks, three speeds and takes up to 7 inch spools. The detachable lid houses a 10 inch Goodman elliptical speaker. Frequency response at $7\frac{1}{2}$ ips is 50 to 12,000 cps \pm 3db's.

Electronic controls are very simplified with a master gain control plus a tone control. On switching to "Record" the tone automatically becomes a volume control for monitoring through the speaker. There is an independent high impedance output socket for feeding into external amplifying equipment.

Frequency response at this point conforms to CCIR standards. Price 49 gns. complete with 7 in. spool of Emitape and a new crystal microphone in matching colours. Weight 35 lbs. Size $15\frac{1}{2}$ in. x $14\frac{1}{2}$ in. x $10\frac{1}{2}$ in. Manufacturers: WyndSOR Recording Co. Ltd., 2 Bellevue Road, London, N.11.



Fi-Cord

hi-fi tape recorder



- weighs only 4½ lbs. ★
- 50 to 12,000 cps ± 3db. ★
- 7½ and 1⅞ ips. ★
- completely transistorised ★
- rechargeable batteries ★

Fi-Cord recorder complete with

- ★ dynamic microphone
- ★ long-play tape
- ★ batteries
- ★ and battery charger

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79
guineas
complete

NEARLY all portable tape recorders are sold with a microphone of some type. To get the best possible results, it is necessary to understand something about their characteristics. Three main types are generally available: crystal, moving coil and ribbon.

The crystal microphone is always of high impedance, but the moving coil and ribbon are fundamentally low impedance, and will require a matching (step-up) transformer to enable them to be used with the majority of portable tape impedance microphones. The microphone transformer may be incorporated within the case of the moving coil or ribbon microphone, so making it available for immediate use, but with a limited length of screened cable (approx. 9 ft. is supplied with the majority of types).

LOW IMPEDANCE

Should the low impedance type of moving coil or ribbon microphone be used, the matching transformer should be situated very near the recording amplifier, being connected by means of a short length (say 9 inches) of screened cable. The cable between the microphone and its transformer can now be much longer than the limited lead used with the high impedance type; in fact, one manufacturer claims that a length of 440 yards ($\frac{1}{4}$ mile) will not cause any appreciable losses from the microphone.

In practice, it is seldom that a cable of this length is required, and we recommend that a few leads of various lengths be prepared, so that a neat installation may be made without yards of surplus cable lying around for folk to trip over.

The co-axial cable as used for television aerial feeder cables is both inexpensive and eminently suitable for microphone screened cables. In addition, there are available plugs and sockets especially designed for use with this type of cable, giving neat, good coupling, with excellent electrical contacts.

The use of good quality co-axial cable enables extension cables to be used with many of the high impedance microphones (not, of course, to the great lengths possible with low impedance types).

CO-AXIAL CABLES

I recommend the following method of extending co-axial cables. Fit a co-axial "free" socket (Belling Lee 734J) to the cable already attached to the microphone, then on the extension cable fit one co-ax plug (Belling Lee L734) and one screened jack plug of a type to suit the input socket of your recording amplifier.

Should the cable attached to the microphone (on low impedance types a TWIN screened lead is sometimes used) be other than co-axial, use for an extension lead cable of similar type to that

TYPES OF MIKES

and how to use them

By **J. W. RAINE**

(Chief Engineer, Brenell Engineering Co.)

which is already used, with coupling plugs and sockets appropriate for that type.

With a high impedance microphone and a few cables of various lengths, some very useful experiments may be carried out. For instance, check for a reduction of overall gain and high frequency response as the length of the extension cable is increased. Note if the *hum* level increases with increase in length of cables. When the tape recorder is efficiently earthed or grounded (usually via the "E" pin of the mains plug), a cable can be extended without undue hum pick-up. Excessive hum will usually be indicated on the "magic eye"; the petals will tend to close even without sounds being received by the microphone.

At this juncture, it cannot be emphasised too strongly that the screening (outer mesh) of the cable must be connected to the "earth" or "ground" side of the plugs used, otherwise an exceedingly high hum level will be present. Quite a number of microphones are returned to manufacturers as being "unsatisfactory" when all that is wrong is that the leads to the jack plug are reversed, causing the external screening lead to be in contact with the highly sensitive grid of the first valve in the recording amplifier and introducing excessive hum.

EXPERIMENT

The recordist should now be ready for checking his microphone to find its limitations and possibilities.

Experiment with the microphone at varying distances from the person speaking, and note how the bass response increases the nearer the speaker is to the microphone; and how the sibilants are stressed if one speaks directly into the microphone rather than across it. When using a microphone very near the mouth, endeavour to cultivate the habit of speaking across the aperture. With the ribbon microphones it will be noticed that, as they are rotated, so their output varies. Maximum output is when the speaker is opposite the "front" or "back," with minimum output from the sides. (This characteristic can be very useful at

times, e.g. when a piano accompaniment is too loud, turn the microphone so that a minimum is received from the piano and maximum from the soloist.)

The crystal and moving coil microphones are termed "*omni-directional*," that is, they receive equally well from all directions. But of course, their output will vary according to the distance from the source of the sound.

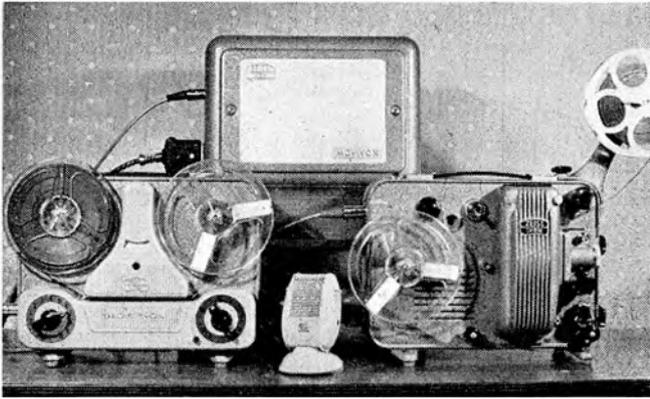
EXTRANEOUS NOISE

It is not advisable, except for special effects, to record from the radio via the microphone. Apart from the possibility of a microphone introducing distortion, it will certainly include each and every extraneous noise, such as the banging of a door, the telephone ringing, traffic passing, coughing, speaking, or even the clock ticking.

Some microphones, when handled, give rise to a high-level rumbling noise. This can be prevented by providing some form of sound insulation (foam rubber is very effective) between the hand and the microphone. Also, avoid standing a microphone near the vibrating motors of recorders and turntables, otherwise unwanted noises will be recorded.

NEXT MONTH: Next month we shall give details of some representative current models of microphones.

When writing to
advertisers
mention that
you "saw it
in Tape Hi-Fi
Magazine"



Designed for cine

AN excellent example of a tape recorder designed expressly for cine use is the Zeiss Moviphon, recently introduced to operate with the Zeiss Movilux 8 mm. projector.

The tape speed is 3½ ins. with the projector running at 16 frames per second and the drive is obtained by a mechanical coupling to the projector.

The Moviphon is designed to record two half tracks independent of each other and then play them both back simultaneously. In this way it is possible to make quite elaborate recordings without the need of any additional apparatus.

The Moviphon amplifier is fully transistorised and obtains its power supply from a tapping on the projector lamp transformer.

The amplifier has a signal noise ratio of better than 40 db. over a frequency range of 80 to 8,000 cps. Being a transistor amplifier the input impedance is low and unsuitable for a crystal microphone. The dynamic microphone supplied is of a suitable impedance to connect direct to the amplifier without any transformer. It has a cardoid pickup pattern which greatly reduces extraneous noises such as a projector noise.

When recording from a crystal pickup or other high impedance source an intermediate plug is required which is available as an accessory. The plug is not necessary when using the Movimix. This is a small three way mixing panel enabling two record players to be used together with a microphone. In this way a commentary and musical background can be recorded simultaneously on one half of the tape (or track one) and various sound effects added on track two during another run.

It is also possible to record just the commentary on track one and the music on track two. By careful cueing and watching the picture whilst recording track two, the music can be faded up and down in between the commentary.

There is also a superimposing device, known as the trick slide, which is simply a cover for the erase head.

The Moviphon will of course, play back a tape recorded at 3½ ins. on any other recorder. The CCIR standard track will play on position one and the older Continental standard on position two. Provision is made for the normal fast re-wind.

The output from the Moviphon is approximately two volts across 4K ohms which requires further amplification to loud speaker level. This is taken care of by the Movivox, a small compact amplifier and loudspeaker in a case to match the Moviphon. This is a valve amplifier and has its own volume and tone controls. But there is no reason why your normal amplifier should not be used instead; connection being made to normal tape replay input.

The Moviphon can only be operated from A.C. mains and its power consumption is extremely small, three watts for recording and two watts for playing back. It is becoming available at most cine dealers and the current prices are as follows: Movilux B Projector, £66; Moviphon Recorder, £77; Movivox Amplifier, £36 10s.; Dynamic Microphone, £9 11s.; Movimix Desk, £9 5s.; Intermediate Plug, £1 3s. 6d.; Trick Slide, 2s. 6d.

Agents are: Peeling & Komlosy, 181, Victoria Street, Dunstable, Beds.

JOHN ALDRED

THE THIRD IN OUR SERIES ABOUT THE UNITS IN A COMPLETE TAPE HI-FI SYSTEM

RECORD/PLAYBACK HEAD: Except in the more elaborate equipment, one magnetic head serves both record and playback purposes. Consideration of the following points will reveal why this is possible. As recording takes place just after the tape has passed out of the gap, the gap width is not very important, but it is essential to make the trailing edge of the gap as sharply defined as possible. On the other hand, the essential requirement of a playback head is that its gap should be as small as possible. Hence, if a magnetic head be designed with a small gap and straight trailing edge, it will be suitable for both record and playback.

IMPEDANCE OF HEAD: If the coil is wound with many turns of very fine wire, it is said to have a *high impedance*. Similarly, a *low impedance* head is wound with fewer turns of thicker wire. There is not much to choose between the two types of head, so long as the amplifier is designed accordingly, but it is extremely important to use the correct impedance head in conjunction with any given amplifier. Thus, an amplifier designed for a low impedance head will not work satisfactorily when connected to a high impedance head, and *vice-versa*. In general, a basic amplifier circuit requires a high impedance head, and if the designer wishes to use a low impedance head a transformer is fitted to "match" the head to the high impedance amplifier (figs. 1 and 2).

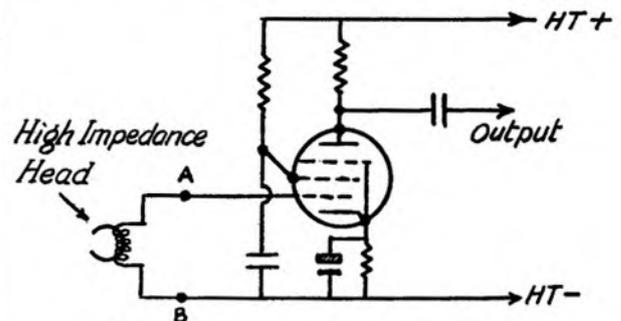


FIG 1

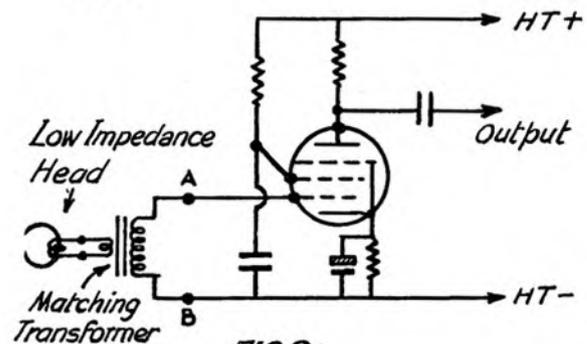


FIG 2

ESSENTIAL FACTS ABOUT MAGNETIC HEADS

By
CHARLES LANGTON
A.M. Brit. I.R.E.

FREQUENCY RESPONSE: A magnetic head has a frequency response which is quite different when recording than when playing back.

When recording, the head behaves very well as long as the frequency is less than about 5,000 cps. Above this, its output falls rapidly. For good quality it is necessary to record signals at least as high as 10,000 cps, and so the usual procedure is to "compensate" the recording amplifier so that the amplifier gives a greater gain at frequencies above 5,000 cps than at lower frequencies. The response curve of a recording amplifier is roughly shown in fig. 3.

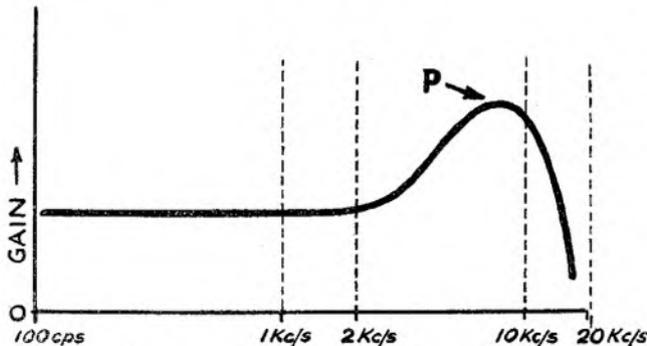


FIG 3

The maximum gain at the higher frequencies indicated by P must be about ten times that at the medium frequencies. Thus, if the compensation is correct, the strength of the tiny magnets recorded on the tape should be the same for musical notes of any pitch, but of equal intensity.

A "compensated" amplifier is also said to be corrected, equalised, or weighted.

PLAYBACK: Now consider the response of the head during playback. The output voltage from the head is proportional to the rate at which the tiny magnets on the tape pass across the gap. Now, although the tape itself moves (or should move) at a very constant speed past the head, the magnets themselves do not. This is because the physical size of each minute magnet depends upon the frequency of the note recorded; the higher the frequency the smaller the magnet, as shown in fig. 4.

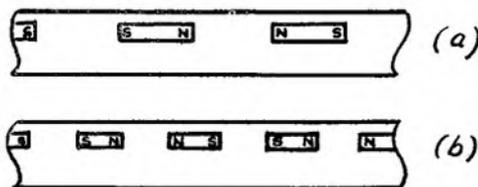


FIG 4

When a high frequency recorded note is being played back, therefore, the smaller magnets will be speeding across the playback gap much more quickly than if the note had been a low one. It becomes plain, then, that for a given tape speed the magnets representing the high notes will always cross the gap at a greater rate than those representing the low notes. Hence, it can be said that the output from a playback head is proportional to the frequency of the recorded signal. If a note is one octave higher than another, its frequency is twice as great, and therefore the output will be twice as much (assuming both notes to have equal intensity).

The output from a playback head, then, increases two-fold per octave, or, expressed in decibels, "6 db per octave." This rise does not continue indefinitely, and for frequencies greater than about 3,000 cps the output begins to fall again, due to the effect of the gap width, and stray capacitance across the coil.

PLAYBACK AMPLIFIER: If a simple amplifier is used with a playback head the result will be a very poor bass response, and it becomes necessary to use an amplifier that has been suitably compensated. Such an amplifier must have a much greater gain to low frequencies than medium frequencies, and a suitable response curve is shown in fig. 5.

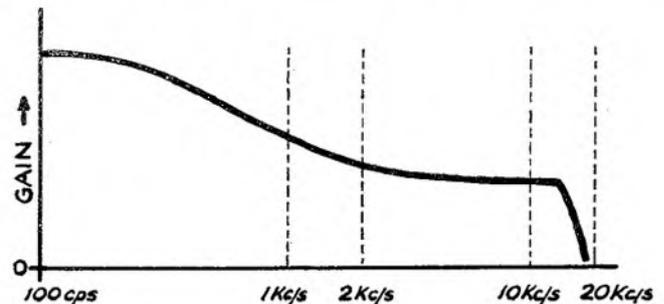


FIG 5

It is apparent, then, that an amplifier can only be used both for recording and playback as long as an appropriate compensating circuit is switched into use when changing over. Thus, when used for recording, the high frequency boost (or treble boost) should be automatically switched in, but this should be switched out and a bass boost brought in when playing-back.

KNOW YOUR RECORDER

No. 7

DISMANTLING

TO obtain access to the chassis, the front and rear portions of the cabinet must be removed. To accomplish this, first unscrew and remove the four fixing screws near the top corners of the case, then (with the clear plastic top closed), place the TR 175 upside down on a resilient surface (sorbo rubber, etc.) and remove the two fixing screws at the centre sides of the base of the cabinet. Lift away the rear portion of the cabinet, taking care to disengage the mains lead grommet. The front half which contains the loudspeaker may then be lifted clear. If complete removal is required then it will be necessary to disconnect the loudspeaker plug and socket.

All valves and switches, etc., are now available for inspection, as are the voltage test points, without further dismantling. If, however, it is found necessary to investigate the tape transport mechanism, then the top of the cabinet must be removed. To accomplish this, first remove the volume control knob and place the TR 175 upside down (with the cover closed as before) and remove the four screws holding the main chassis to the top cover. They are situated one in each corner; the chassis can then be lifted clear of the top cover, care being taken, so that the DM 70 is slid gently from its retaining clip to avoid damage. The tape drive mechanism will now be completely exposed.

DESIGN

THE tape transport mechanism is powered by one motor only, which is coupled through a rubber-tyred idler pulley to the fly-wheel. This in turn, transfers (via a rubber driving belt) the drive to the lower half of the take-up spool holder, upon which is mounted a cork friction disc, which, in turn, is held in contact with the upper half of the take-up spool holder, so providing the variable take-up drive.

REWIND MECHANISM: When the yellow button is depressed, the friction drive on the take-up spool holder is released (so allowing it to rotate freely), the pinch wheel and pressure pads are held open (to allow free passage of the tape), and an additional drive is engaged, so causing the rewind spool holder to rotate rapidly in the reverse direction.

TAPE ENGAGEMENT MECHANISM: When either the red or green buttons are depressed, the pressure pads



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and pinch wheel bring the tape into contact with the head faces and the capstan. Upon operation of the fast forward lever situated at the left front-hand corner of the cabinet, the pressure pad and pinch wheel mechanism is released, so allowing free forward passage of the tape.

SPEED CHANGE MECHANISM: The speed change knob has three positions. White spot to the front, Slow Speed; red spot to the front, High Speed; and with the white and red spots in line across the cabinet a neutral position. In this position the skirt of the knob itself bears upon the rubber-tyred idler pulley, so holding it clear from the motor drive, firstly in order to prevent damage to the rubber tyre whilst speed changing is being effected, and secondly to prevent the formation of flat spots on the rubber tyre when the machine is not being used.

With the red spot to the front, the cord attached to the speed change knob spindle is wound-on, the other end being attached to a lever situated at the bottom of the driving motor which engages with the bottom of the armature spindle; as this lever is drawn upwards by the winding-on action, the armature is also raised so bringing the large diameter pulley into contact with the rubber-tyred idler wheel. With the white spot to the front the reverse applies, the cord being unwound, the armature dropped to its lower position and so engaging the smaller diameter pulley.

RECORD HEAD AZIMUTH ADJUSTMENT: The record head is fitted with an adjusting screw situated at its right-hand side, access to which can be obtained by removal of the head cover. It should not, however, be adjusted unless a test tape and valve-volt meter are available to ascertain its correct positioning. This will not normally need adjusting unless the heads have been changed or dismantled.

MAINTENANCE

THE mechanism has been designed to give long life with the minimum of maintenance and to this end "Oilite" bearings are used for all bearing surfaces. At only infrequent intervals should the correct oil be applied sparingly, one drop being sufficient. In extreme instances, where partial seizure

has occurred, remove the offending portion and thoroughly clean, ensuring that any high spots are taken down. Apply oil to the bearing surface and allow to soak; replace, checking for freedom of action, and then apply a further single drop of oil.

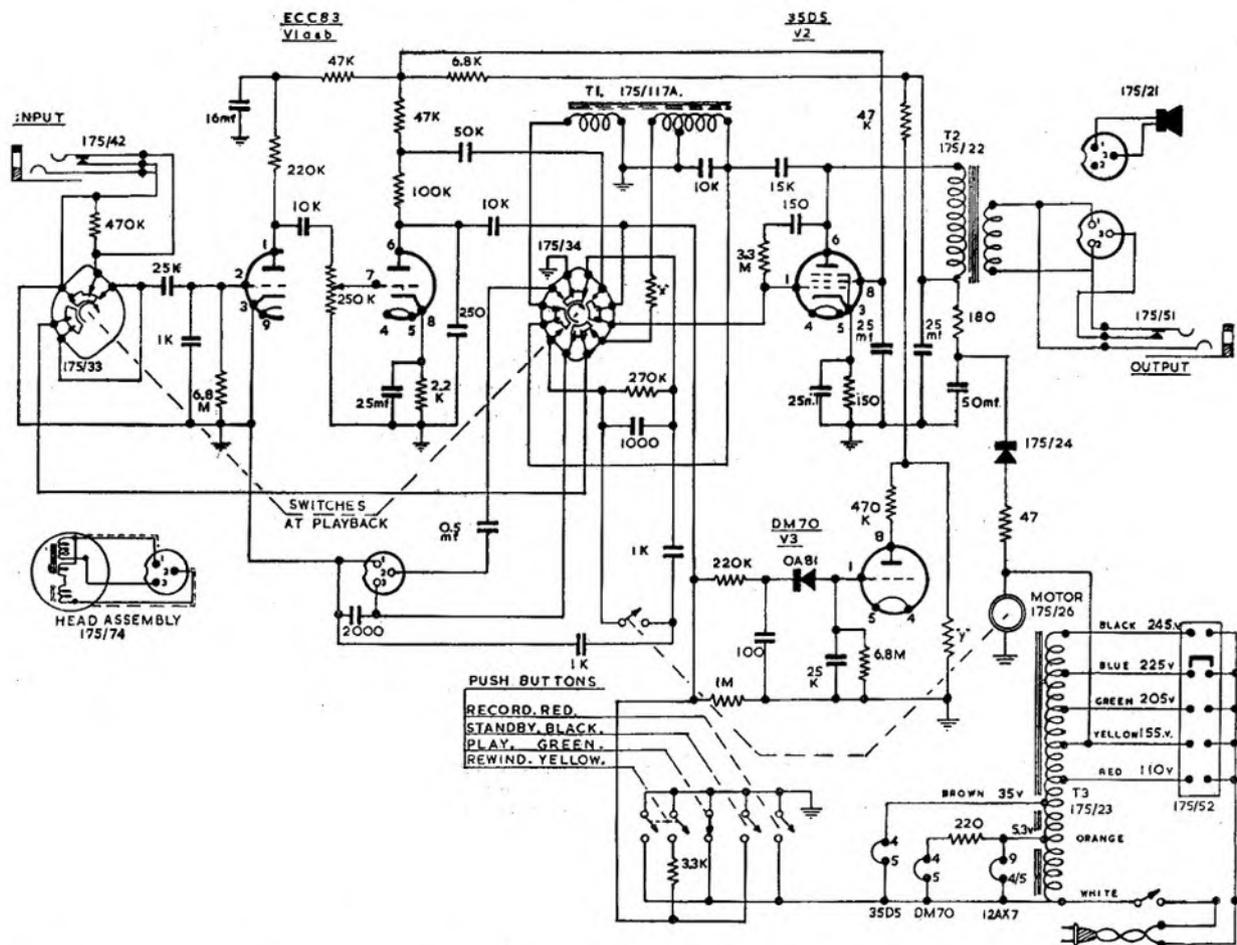
Extreme care must be taken not to let oil come in contact with the rubber tyres of the idler wheels; if it does so, however, clean off immediately with carbon tetrachloride. The recommended oil is Elpico special tape recorder oil.

Cleanliness of the head faces and pad assemblies is most essential; dirt, dust and tape residue causing abrasion of the tape, incorrect running and poor quality. To remove this residue, etc., apply Elpico head and pad cleaning fluid with the soft brush provided. In extreme instances it may be necessary to dampen a soft pad with the fluid for heavier application to the head faces, etc. On no account should any magnetic object be brought into contact with the head faces.

CIRCUIT DESCRIPTION

WITH the TR 175 in the record position (red button depressed) the circuit is as shown, V1A control grid being switched to the microphone input jack. The audio voltage appearing across its anode load R3 being transferred to the grid of V1B, via C4, R7 is the volume control. The cathode is biased conventionally, the anode load, however, being split. One audio feed is taken to the signal level indicator V3, the audio output to the record/playback head being taken via the switching and frequency selective networks. The super-sonic bias and erase voltages are provided by V2, acting as a parallel-fed Hartley oscillator and it will be noted that the erase winding and the bias winding on the record/playback head are in series, therefore the feed is common.

In the playback position the function of V1 is identical, the first grid however now being fed from the record/playback head, the microphone jack being disconnected and short-circuited by the switching and the audio output fed via the switching to the control grid of V2 now acting as an audio output valve. The secondary of the output transformer is taken to the internal loudspeaker via a contact on the extension loudspeaker jack



socket and upon insertion of a jack plug the internal loudspeaker is disconnected. The HT supply is from the metal rectifier which is fed from the 155v tap on the mains auto transformer.

Note :—The universal type of circuit employed with direct connection to the mains can render the chassis "live"; similar precautions must be adopted as with all AC/DC equipment.

There are four push buttons, but it will be seen that the change-over switch has only two positions, "record" and "play-back." Upon depression of the red button, this switch, which is of the multi-wafer rotary type, is placed in the "record" position. On depression of either the green or the yellow buttons, the switch is placed in the "playback" position, the black button, however, not actuating it at all, but only serving to disconnect the supply to the motor, so leaving the amplifier standing-by ready for immediate operation.

FAULT FINDING

CHECK that the mains selector panel is set correctly and that immediately upon switching on, the DM70 becomes illuminated. If this occurs, then HT and LT voltages are present; if not, remove the rear half of the cabinet and check HT and LT as per the voltage table. Check the action of the push buttons, observing that the

mechanical functioning of the instrument is correct; if this is not so, then remove the front half and top of the cabinet and inspect the tape transport mechanisms.

Next, check the playback of the machine (green button depressed) with a known pre-recorded tape. If this is not satisfactory, then check for cleanliness of the head faces and that the pressure pads are bringing the tape into contact with the head faces correctly. If this is as it should be, then check the circuit voltages and valves, care should be taken when removing the ECC83 to ensure that the anti-microphonic valve holder is not damaged.

If the playback is satisfactory, then depress the red button, insert the microphone into the microphone jack, and, with the volume at maximum, check that the signal level indicator fluctuates in accordance with the microphone input. If it does not, then check the ECC83 circuitry and voltages, etc. If possible, check the microphone by the substitution of a known unit. Make a short test recording, with the signal level indicator just blacking out on peaks. If the quality on playback is unsatisfactory, then check the 35D5 and its voltages. If these are correct, check the head faces and pressure pads, as previously indicated. If, when the test recording is made, existing material on the tape is erased but no further material recorded, then check the circuit from the anode of V1B through C6, the switching, etc., to the head itself.

VOLTAGE CHART

VALVE	35D5		ECC 83	
	Record	Play	Record	Play
Pin Nos.				
1	—	—	70v DC	70v DC
3	7.6v DC	7v DC	—	—
4	35v AC	35v AC	—	—
6	150v DC	150v DC	70v DC	90v DC
8	110v DC	135v DC	.7v DC	.65v DC
9	—	—	6v AC	—

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THE SPECTONE



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EDWARD GREENFIELD

REVIEWS CLASSICS ON TAPE

STEREO, I predict, is here to stay. The stereophonic disc record is a remarkable achievement. Even the first results are impressive, and standards will certainly improve, but the basic problem of engraving two separate channels in a microgroove will always bring its difficulties.

Tape enthusiasts will not be alone in asking why if we must have stereophony it cannot be in the medium best-suited to cope with it—tape.

With stereo discs the separation of the two channels is by no means complete. By the simple experiment of turning off one of the channels I have found that the second amplifier still receives and amplifies quite a sizeable signal. With tape the separation can be as complete as the recording engineers want. The practical result of this seems to be that the stereophony on tape is much firmer. In one of the latest stereo tapes—Michelangelo's coupling of the Ravel piano concerto with the Rachmaninov fourth concerto—the piano is firmly half-left of the listener. It stands out clearly, yet, as in the concert hall, it blends with the full orchestra. This is perhaps the most impressive stereo tape I have yet heard.

But what of the cost? That so far has been the prohibiting factor for many tape enthusiasts against pre-recorded tape. Last time I reported on the point I said that while E.M.I.'s single-channel tapes were roughly twice the cost of equivalent L.P.s (84 shillings to 41s. 8½d.), stereo tapes were about three times the cost on L.P. E.M.I. have now radically changed this position. The latest stereo issues in fact work out much cheaper than the latest single-channel issues—absurd as that may seem. In my latest batch for example the single channel tapes of Victoria de los Angeles in Puccini's "Suor Angelica" on H.M.V. HTA 36 and von Karajan's "Irresistible Strauss" on Columbia CAT 294 both cost twice as much as their L.P. equivalents. On the other hand the latest stereo issues contain full L.P. equivalents on tapes costing only half as much again (63 shillings against 41s. 8½d.).



Expensive enough, you may say. That is true but I am coming to think that the benefits of good stereophony are well worth some extra cost. I have not yet got a stereo tape-deck in my home, but having lived with the sound from a stereo disc gramophone in the house for some weeks now I report that the result is remarkably easy on the ear. When all the stunt effects of train noises and supersonic jets have been gone through, the benefits of having orchestras playing panoramically from one side of the room instead of from one corner are considerable. An experienced stereo engineer tells me that most musicians in his experience prefer the sound of medium-fi stereo to hi-fi monaural, and speaking for myself I would endorse that. Somehow the spaciousness of stereo is worth the extra kilocycle or so one might have had. On the question of spacing loudspeakers in a small room and finding good listening positions there is a much wider range of tolerance than I expected.

Among the new tape issues the stereo recording on four tapes (BTA 126-9) of Richard Strauss's opera "Der Rosenkavalier" is the most valuable, for this, in my view, is a really great performance. Of all opera sets it is perhaps the one I should least like to be without. Karajan lingers more

Mr. Greenfield is the recorded music critic of the "Manchester Guardian"



than most conductors over the great emotional high-spots— notably the presentation of the silver rose in Act 2 and the great final trio in which the Marschallin gives her blessing to the love of Sophie and Octavian. This I now feel is right, for the emotion is underlined. To avoid a cloying sweetness Karajan's approach outside these climaxes has a tingling directness. The soloists are all outstanding. Elisabeth Schwarzkopf as the Marschallin brings out the full meaning of every word in a way not usually possible in the opera house. I find her emphasis on the lover-figure rather than the mother-figure in the Marschallin most convincing—and refreshing too. Teresa Stich-Randall as Sophie, Christa Ludwig as Octavian and Otto Edelmann as Baron Ochs all come near to my ideal. Their singing is exact without ever losing the effect of being spontaneous.



A superb set, and one which gains enormously from stereo. The engineers have not emphasised directional effects. One is not irritated by the singer's every movement. Instead it is space rather than movement that one notices, and in this richest of opera scores the result is breathtaking. Of the other stereo issues I have already mentioned Michelangeli's coupling of the Ravel and Rachmaninov fourth concertos. Michelangeli is a temperamental artist, but when he is on form—as here—there are few pianists more exciting. Another attractive stereo tape is of the Philharmonia Orchestra under Charles Mackerras playing a selection of Russian pieces including the overture to "Russian and Ludmila," the Dance of the Tumblers, the Flight of the Bumble Bee and one of Ippolitov-Ivanov's Caucasian Sketches (SCT 1524). This, like the equivalent disc, is cheaper than the celebrity series, but H.M.V. always manages to give him the most brilliant recording. Mackerras never fails to match this. His performances are splendidly vigorous.

Turning to the single-channel tapes one notices the lack of "top" compared with stereo. This is pure illusion for in spite of their spacious sound the stereo tapes range no higher in frequencies. I hope one day before long pre-recorded tapes at 7½ ips will be able to range as high as the 15 ips "masters" from which they are taken. As it is I should be surprised if the present pre-recorded tapes range very often above 10 kc. I also hope that E.M.I. will find a tape material that produces less of a background hiss. The effect, particularly if you are using a "tweeter," can be most distracting in quiet passages.

Musically the two latest issues could hardly be bettered. De los Angeles in Puccini's "Suor Angelica" is perfectly suited to the part of the nun driven to despair and suicide but forgiven in a vision of the Virgin. Such a story could easily be unbearably sentimental, but de los Angeles brings out all that is genuine and moving both in the music and the drama. I cannot think of another singer today who has such a magnificent range of tone-colour from the rich full-throated sound that we most remember her by to the piping, childish treble without vibrato that she uses here with great effect at one point in her big aria "Senza Mamma." Unfortunately the engineers in this very aria have overloaded the microphone to produce distortion noticeable both on tape and disc. More consistent recording is given to Karajan in his selection of "Irresistible Strauss"—the "other" Strauss, Johann, needless to say. This includes among other items the "Gypsy Baron" overture, the "Blue Danube" waltz and the Pizzicato Polka all immaculately played.



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NEWS FROM THE CLUBS

The Federation

JOHAN AMPHLETT, young schoolmaster chairman of the London Tape Recording Club, has been elected first chairman of the Federation of British Tape Recording Clubs.

This new name for the national organisation was decided at its inaugural meeting on Saturday, 5th July. The Hotel Leofric, Coventry, one of the country's most modern hotels, provided a suitable background for the assembly of delegates from tape recording clubs in many parts of the British Isles, including Ulster.

Alderman Winslow, Lord Mayor of Coventry, welcomed them and mentioned Coventry's place in many endeavours for international friendship. He felt that tape recording would assist the work.

A Constitution and Rules was agreed, subject to legal ratification. It was decided that the affiliation fee should be two guineas for each thirty members of an affiliated club. This point caused considerable discussion. BTRS and Midland Counties delegates left the meeting.

Three ordinary members of the Federation will form a Committee together with the Chairman, Secretary and Treasurer.

The following were elected to form the first Committee: Secretary, Roy Penfold (Coventry); Treasurer, Mr. M. Simmons (Coventry); Ordinary members, Mr. B. Race (Warwick and Leamington); Mr. Alan Stableford (London) and Mr. B. L. Spring (Glisterspring Network Association).

Members of Coventry Tape Club, together with the local Press, were among the interested spectators of the gathering. The B.B.C. also had a report for its Midland News Service.

All the proceedings were recorded on tape.

Address of the Secretary is Mr. Roy Penfold, 48, Holbrook Lane, Coventry.

World Tape Pals

WORLD TAPE PALS announce the formation of a new club within their framework to be known as the WTP Police Group. The club is open to anyone associated with law enforcement. Each member will at regular intervals circulate a three-inch tape recorded at 3½ ips dual track on any subject of common interest. All tapes will be in the English language. Membership of the club requires membership of W.T.P. Further information from Mr. G. Brooks, County Police Station, Bradfield, nr. Reading, Berks.

LEN WATKINS of World Tape Pals tells us that the "Gimps" now have another tape available for readers of *T.R. Magazine*. This is Dr. J. Tenbroek's presidential address to the National Federation of the Blind, San Francisco. It lasts for about forty minutes. Readers wishing to hear of it should send enough tape to Mr. Standen, 32, Paton House, Stockwell Road, London, S.W.9. He asks that readers record their name and address on the front of the tape, together with their recording instructions.

The BTRS

THE BTRS announces a prize raffle in aid of its funds and hospital, blind services.

The Society is holding a bi-monthly tape competition to be called "BTRS Discoveries."

Bill Rawle, Blind Service Secretary of the Society, has had to resign. A volunteer is needed for this office.

A duplicated supplement to the "Call Book" has been circulated to members.

F. K. Oliver of Birkenhead has been elected President. Ted Yates and Jack Talling continue as vice-president secretary, and deputy secretary respectively. Alan Lovell continues as hospital secretary; Frank Micallef, forces representative and auditor. Bill Rawle and R. Henry make up the Council. An early meeting is being arranged.

Address of Secretary Yates is 210, Stamford Road, Blacon, nr. Chester.

Midland Counties

THE Midland Counties Society has recently sent greetings on tape to the Auckland Tape Club, World Tape Pals, Dallas, Texas, and the Voicesspondence Club of America. Voices of many members were included, including excerpts from past Sound Magazines.

The Society is not issuing a Sound Magazine in August owing to the holiday period. A recruiting drive is under way and new members will be welcomed by Secretary J. Walters, 29, Pitt Street, Broadwaters, Kidderminster, Worcs.

Coventry

SIXTEEN members attended the last meeting. A tape voices identity contest was won by Mr. Peter Warden.

This contest is being continued at the next meeting.

Rugby

THIRTY people attended the inaugural meeting of the Rugby Society. Brian Race, of Leamington Society, played a tape demonstrating their hospital scheme. The meeting was recorded by Messrs. Lovett and Bannister. The meeting was reported in a local evening newspaper.

Secretary Mike Brown, 219, Clifton Road, Rugby.

Warwick and Leamington

WARWICK and Leamington recently visited the Birmingham studios of the B.B.C. A party of fifteen saw many demonstrations of equipment and a programme rehearsal. Messrs. Mullard supplied two educational films for a recent meeting.

The hospital scheme is proving extremely successful. A party attended the inaugural meeting of Rugby Society and they had a stand at the Midland Counties Fete at Leamington Spa.

Ulster

TAPE has arrived in Northern Ireland. Ulster Society held its inaugural meeting at Belfast recently. Officers elected: S. Mairs, Chairman; W. Scott, Secretary; E. Logan, Treasurer. Address: 41, Haypark Avenue, Ormeau Road, Belfast.

They are producing a monthly tape magazine to be known as "Tape Time." The first issue will be out on July 24th and will run for about twenty minutes. They have received a greetings tape from the West Middlesex Club.

Bournemouth

RECENT meetings of Bournemouth club have included stereophonic demonstrations and talks on the history of tape and magnetic heads. Members have heard a tape from New Westminster, British Columbia, thanking them for the recording they made of a service at St. Peter's Church, Bournemouth. It was played on a local Canadian radio station. Secretary Gaymer has received many letters of appreciation.

Tape Programmes for the Blind

THIS active club have built up contacts all over the country and are sending tapes regularly to America, Holland, Sweden, Denmark and Germany. They are building up a library of programmes for blind people.

Anyone who would like to assist in this worthwhile work should contact Maurice Chambers at 139, Goldthorne Avenue, Sheldon, Birmingham 26,

West Middlesex

THE second meeting of this recently formed club attracted 22 members who heard a demonstration of the Tandberg. Mr. Fred Gazeley gave a demonstration of the Grundig mixer. The club has received a tape from Ulster Society and is preparing a full and helpful reply for this new society.

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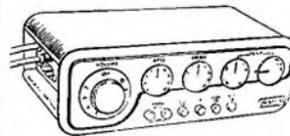
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YOUNG MAN, many interests, wishing to improve French, would like to correspond by tape and letter with French young lady (25-35). *Tape Recording Magazine*, Box No. 244, 1, Crane Court, Fleet Street, London, E.C.4.

SPECTONE, T/R, eleven months old, just received maker's overhaul including all latest modifications to the amplifier, perfect condition, mic and three tapes, £60. 48, Potters Lane, Barnet, Herts.

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COPYING TAPES *(Continued from page 23)*

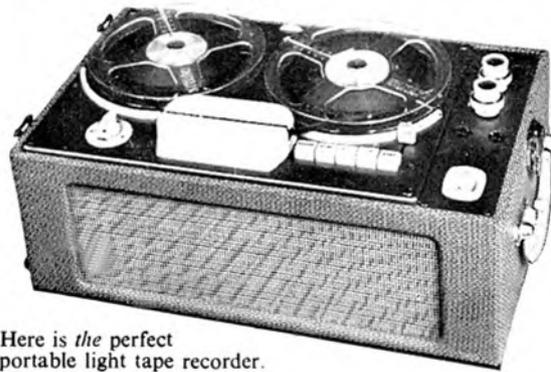
when both tapes are correctly set, switch to pickup record, and "unpause." By always "pausing" before switching, and by fitting an extra guide pillar for T. 2 near S. 3 to cause the tape to part contact with both H. 3 and H. 1 when paused, the "popping" noises that sometimes get recorded when switching will be avoided. They will not appear on any original tapes, either, if the recorder is similarly and invariably "paused" before switching.

The fidelity of copying by this process is better than that obtained by coupling the extra speaker terminals of one recorder to the input of another. It is distinctly better than copying by way of the speaker of one and the microphone of the other. If the additional one-valve amplifier is of good gain and hum-free, then under-recorded tapes taken from distant radio stations that sound thin and weak and probably can never be re-recorded direct can be copied to give added volume and depth of modulation by careful observation of the visual indicator and equally careful adjustment of the appropriate volume control.

The designers of the A.G.8107, have provided a very useful feature. The input sockets give a degree of amplified output when switched to playback. Some other models may also have this feature. If the user of two such recorders connects the two inputs in parallel, sets one to playback and the other to radio record, then he will get copies as good as obtained from our one-recorder process.

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