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VIDEO & HI-FI

December 1965 Vol 7 No 5 2/6

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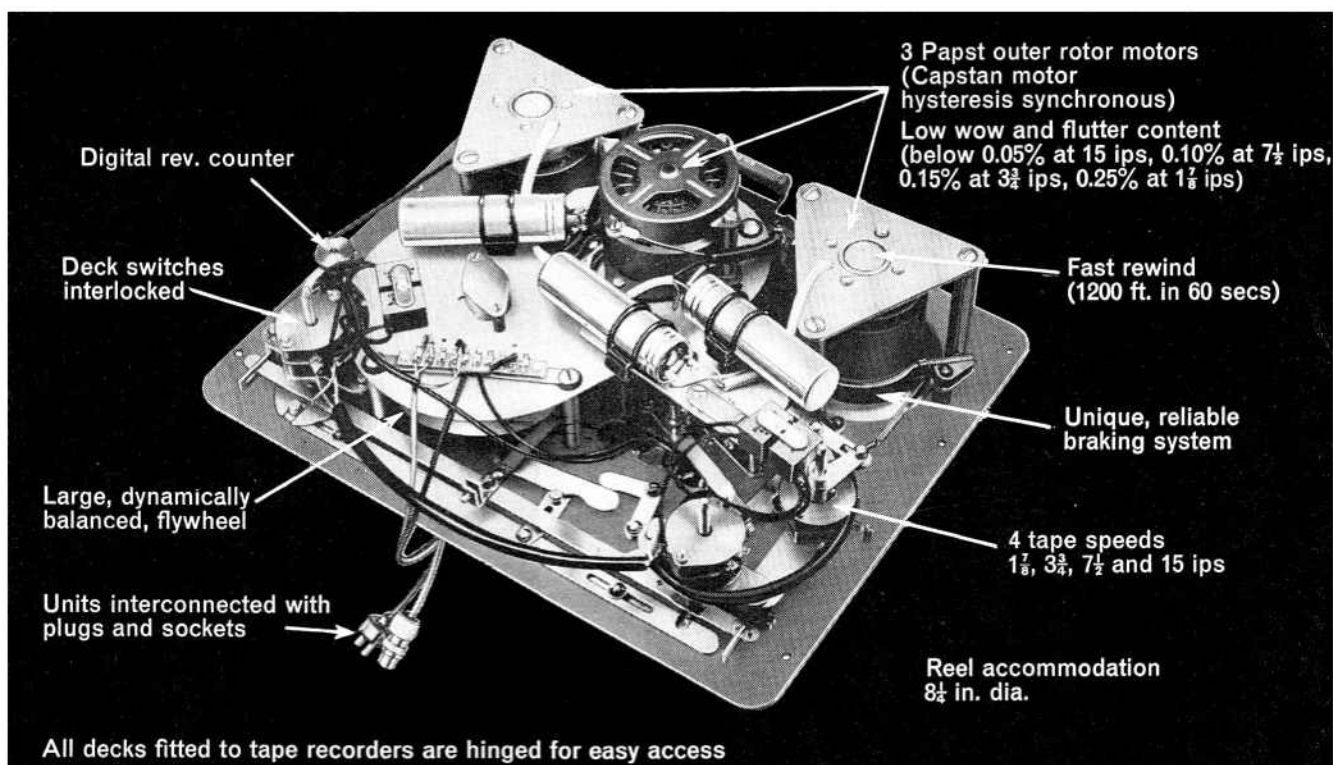


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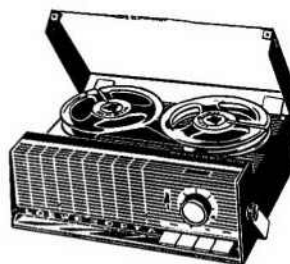
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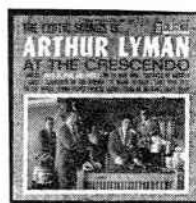
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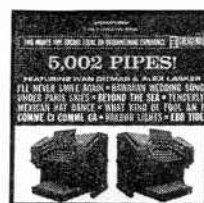
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Give up? Turn to the small ads on Page 49 and read the one headed 'Series 40'. And then head smartly for your nearest Truvox dealer!

The new Truvox

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Amateur Tape Recording

Vol 7 Number 5
December 1965



Front cover:
Our Christmas scene front cover this month features the new Ferguson tape recorder and home-constructed hi-fi equipment assembled into the neat alcove cabinets. Prominent too are the latest Scotch tape albums which are mentioned in our cover story this month on page 23.

Feature	Author	Page
Tape Recorder Service	Gordon J. King	12
Things You Say	ATR Readers	15
Sound Scene	ATR	16
The New Sound	F. C. Judd	20
Front Cover Story	ATR	23
Audioview New Products	ATR	24
International Contest Results	ATR	26
Tape Reviews	Russ Allen	27
On Test: Philips EL3301	Gordon J. King	28
Producing a Programme	Clive Moore	33
Buying a Tape Recorder	A. Lester Rands	34
Good Evening - Where's the Fuse Box?	David Lazell	37
Tape Club News	Kim Cook	39
Tape Directory	ATR	44
Classified Advertisements		49
Postal Bookshop	ATR	50

Editor's comment: Within a few weeks Christmas 1965 will have gone and a new year will be with us; so may I take this opportunity of wishing all ATR readers everywhere a very happy Christmas and a new year full of fresh ventures into the world of recorded sound. Whilst there is plenty to look forward to, there are one or two things worth remembering. For instance, the number one copy of ATR the first ever, quoted:

Although the first issue of Amateur Tape Recording has appeared on schedule it has been produced under the most incredible conditions created by the dispute in the printing industry.

Well it has appeared on time ever since, but in that same issue was an article 'Sound for the Suffering' which pointed out that taped programmes, news and messages for folk in hospital could do much to pass the time and help speed recovery. So don't forget those who may have to spend Christmas in hospital. Also in that first issue of ATR Pat Copinger coined a new word; 'Tapespondence,' he said, 'comes into its own when one wants to span continents'. So make that tape now for someone far away who would like to hear from home at Christmas time.

As to the future, well who can tell?

Video recording, for example, still seems to be playing hide and seek. We found it once in the shape of the Westgrove video tape recorder kit, then we thought we were getting warm again when Sony and a few others peeped out (briefly) from their hiding places, but since then it has remained elusive. Perhaps before the year is out we shall hear of more developments, but meanwhile the cine camera still offers the best visual addition to tape recording. Peter Dean, Editor of our sister magazine, *8mm*, will be starting the New Year for you with the first part of a new feature on adding cine to tape, so don't miss it. FCJ

TAPE RECORDER SERVICE

Part one troubles and remedies

A new series of articles by Gordon J. King designed to help you service your own equipment

A tape recorder is composed of four primary electrical sections – the record amplifier, the playback amplifier, the hf oscillator and the drive motor – and when trouble occurs a process of logical elimination will speedily bring to light the defective section.

A few elementary tests and simple servicing techniques in and around this section should then reveal the defective part, circuit or system responsible for the trouble.

In this series of articles it is proposed to show the enthusiast how to investigate some of the troubles that befall the domestic tape recorder and how these can be remedied without too much know-how. It will be understood, of course, that some really complicated troubles will demand the use of rather specialized test equipment and a service manual of the machine. These are often best left to the specialist to remedy, but on the whole there are quite a few troubles that the amateur will be able to deal with himself quite safely and successfully.

Some troubles and remedies could take a full article to explore in detail, while others of less complex origin will need only a few paragraphs. Both types will be dealt with here, and where specialized treatment is required, the reader will be informed.

Let us start first with a relatively simple, though common trouble.

No record or playback, motor dead

These symptoms tell almost definitely that a fault somewhere is stopping the power from reaching the machine. With mains-powered recorders, this could simply mean that the supply socket has gone dead (fused) or that a fuse has blown in the machine itself. The first thing to do, therefore, is to ensure that the mains supply socket is delivering power. The quickest way is to connect some other appliance which is known to be working to the supply. If this leads to no reaction, the domestic fuse or wiring should be attended to. Now it may happen that when the supply is restored the fuse immediately blows again when the recorder is connected. This effect would indicate that there is a short in the mains input circuit of the recorder. Usually, in this case, the live and neutral conductors near the terminals of the mains plug will be found to be shorting.

Mains circuit colour code

With three-pin plugs, remember that the *green* power wire from the recorder is 'earth' and should be connected to the 'earth terminal' of the plug, that the black wire is 'neutral' and should be connected to the 'neutral terminal' of the plug and that the red wire is 'live' and should be connected to the 'live terminal' of the plug. Sometimes these terminals are indicated by capital letters 'E', 'N' and 'L' respectively. If there is no indication, then with the plug ends pointing away from the operator (that is, with the operator looking down on to the terminals) and with the largest earth plug uppermost, the right-hand terminal is 'live' and the left-hand one 'neutral'.

Some early imported recorders may feature a mains lead that does not conform to this colour code. In this event, the wires should be traced back into the recorder to discover where they connect. The important one is the 'earth', assuming a three-core mains cable. It will be found that this connects to the metal chassis of the recorder. The 'live' and 'neutral' conductors are less important, and in ac mains equipment it is not usually of great importance which way round they are connected to the mains plug.

There is a point here however: it is sometimes possible to eliminate a 'hum-loop' when other mains-operated equipment is used with and connected to the recorder simply by changing over the 'live' and 'neutral' wires on the mains plug. On no account, however, must the *green* 'earth' wire ever be connected to either the 'live' or the 'neutral' terminal. By putting the green wire on the live circuit the whole of the metal frame and case of the recorder would be 'live' to earth, and anyone touching the recorder while making a good connection to earth would almost certainly be killed!

A condition for excessive hum

If the green wire is incorrectly connected to the 'neutral' terminal and the black wire to the 'earth' terminal the machine may still work. This would put the neutral side of the mains supply to the metal parts of the recorder and while neutral mains is not at true earth it is fairly near to earth and a few ac volts relative to true earth may be present. A dangerous condition may not exist therefore, but the recorder would fail to operate properly and excessive hum may be troublesome. Such incorrect connections must be righted as soon as they are detected.

Fig.1 shows the basic mains supply circuit to many recorders. Here it will be seen that the 'earth' conductor of the mains lead is connected to the metal chassis (which, incidentally, in circuit is generally *ht* negative) and that the 'neutral' and 'live' wires are connected to the poles of a double-pole single-throw mains on/off switch. Sometimes (not always) one of the actual power leads – usually the 'live' lead – is connected to the switch through a fuse, as shown in Fig.1. The other side of each pole of the on/off switch connects to the primary of the mains transformer, one to the voltage tapping switch or lead (often via a plug and voltage indicator panel). The drive motor (or motors) also connects in parallel here. Thus, if the mains supply fails to get to the mains transformer primary it will almost always certainly fail to get to the motor. Hence the symptoms mentioned at the start of this article.

Assuming now that the supply is in order and that there are no problems over the blowing of the domestic fuse, then the connectors at the mains plug should be examined, if this has not already been done. It may also be necessary to check the conductors of the mains lead for electrical continuity,

for with continuous use one of them may fracture, resulting in an open-circuit or intermittent supply of power – with the machine stopping and starting as the cable is moved about.

Check the fuse

If the mains cable, power plug and socket are in order, the recorder's fuse should be checked. This can be achieved with a simple battery and flashlamp bulb circuit or with an ohmmeter or by changing the fuse. Not all recorders are endowed with a fuse protection, however. Most of the Grundig range have one, while others may embody a thermal fuse or cut-out of some kind.

There are two chief versions of 'thermal protection'. One

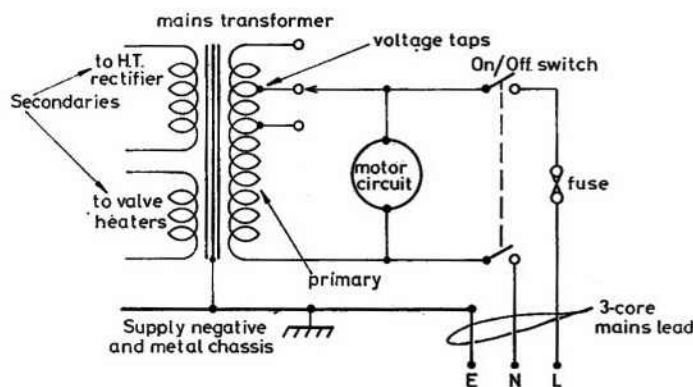


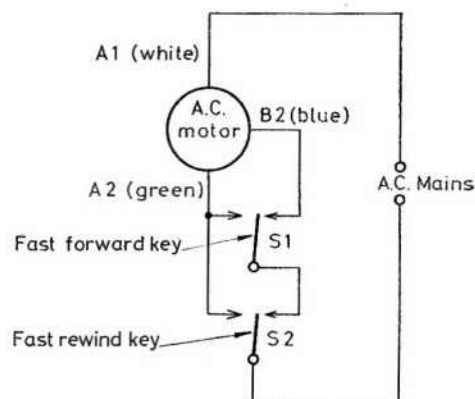
Fig.1. The mains supply circuit of a typical recorder (see text).

is nothing more than a blob of low-temperature solder in thermal contact with the mains transformer or a resistor carrying the mains current. The solder secures a mains contact against the pressure of a spring, so that in the event of an overload the solder softens and the contact releases, thereby cutting off the mains supply before the equipment can suffer damage.

The other version has a small coil of resistance wire in series with the supply and a spring-load contact latched to provide mains continuity. An overload causes the resistance wire to heat which releases the contact latch and opens the mains circuit. The former version is reset by soldering the contact back under its spring pressure. With the latter it is simply a matter of relatching the spring-loaded contact to restore the supply current.

After a thermal cut-out has been reset or a fuse replaced, the recorder should be carefully observed when the mains is reapplied, looking out for signs of smoke or overheating. Anything abnormal in this respect should lead to an immediate switch-off. The motor should work once the power has been restored, of course, since this is usually connected right across the supply circuit, but after the on/off switch. If there is a tendency for the fuse to fail or the thermal device to cut-out again, the machine must be switched off and removed from the power supply, as this is definitely indicative of a motor short circuit or insulation collapse somewhere after the mains transformer. This trouble is dealt with later. Assuming that the fuse and the factors mentioned earlier are in order and yet the machine remains 'dead', about the only thing that then could be wrong is the on/off switch. One pole of this may have gone 'open-circuit'. This is not an uncommon fault. If the two poles on the switch can easily be located, each one in turn can be shorted across with a short length of wire (with the mains plug removed, of course!), and the machine tried again. If shorting one pole gets things going, the switch should be replaced, for it is not really

Fig.2. Grundig single-motor control system.



desirable to switch only one side of the mains supply of a tape recorder. A word of warning here: take care not to short from one pole to the other, as this is the same as putting a dead short across the mains supply. The on/off switch may suffer severe damage if this is done!

With an ohmmeter

Much of the testing detailed above can be avoided if one happens to be in possession of an ohmmeter (i.e., the 'ohms' ranges on a multirange testmeter are ideal). One then simply disconnects the recorder from the mains supply, after which the circuits may be checked from point-to-point until the open-circuit is established. The switch poles, the fuse, the

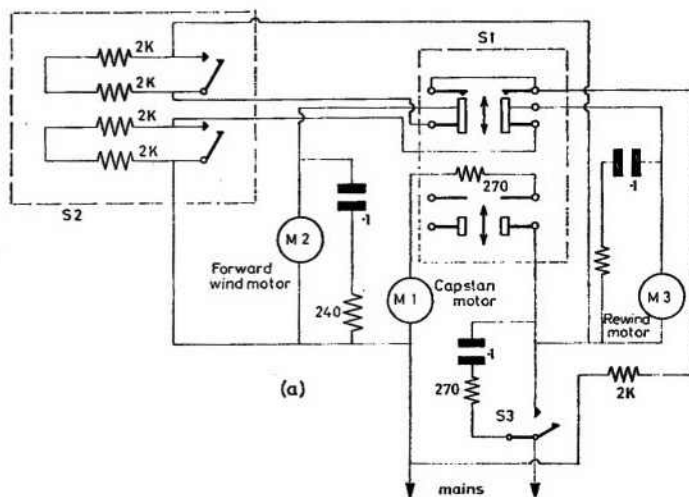


Fig.3a. Motor control of the three-motor Simon SP5 recorder in the 'off' position.

conductors of the mains cable, the primary of the mains transformer and the motor can all be checked quickly and easily with an ohmmeter.

Now let us suppose that the trouble was caused by fuse failure and that a replacement fuse also blows. What should we do then? This, of course, indicates a short-circuit somewhere after the fuse. On the mains side of the circuit in Fig.1 a short-circuit in the motor could cause the trouble, and this can be proved by disconnecting the mains from the deck and running just the amplifier as a test. If the fuse blows again, then the trouble is truly in the amplifier circuit. However, if the amplifier heats up normally this time, the short must be somewhere in the motor circuit.

The motor circuit

The motor circuit itself is switched by the deck controls. Some decks have one motor providing all the operations,

continued overleaf 13

Tape recorder service *continued*

while others have two or three. It is impossible to detail all the various kinds of drive motor systems and controls, but the single motor system and the control switching used in some of the Grundig models is shown in Fig.2.

In the 'record' and 'playback' conditions ac mains is applied to the motor circuit via a fuse, the main on/off switch and a tap on the primary of the mains transformer. Switches S1 and S2 (Fig.2) are then in the positions opposite to those shown on the circuit. Power thus flows to the motor proper through S2 and the green wire and out through the white wire back to the mains supply. The 'fast forward' key reverses the supply to the motor, in effect, by applying it this time through the blue wire. The conditions of the motor are thus set to suit the switched function. A short in the motor itself or in the switched circuits could thus be responsible for the trouble under investigation.

Unfortunately, motor control switches and circuits can appear to be extremely complicated when traced out contact to contact and wire to wire, but a breakdown circuit, such as that in Fig.2, can greatly simplify fault tracing in this section of the recorder. Usually, if a switch has blown or shorted, a clue to its whereabouts is given by a dirty, burnt or melted area round it or its wiring.

A typical deck employing three motors is that used in the Simon SP5. The switching here, of course, is far more complicated than in a one-motor deck. The four switched conditions – 'off', 'record and playback', 'wind' and 'rewind' – are given respectively at (a), (b), (c) and (d) in Fig.3. In the 'off' condition, of course, mains is switched from the motors. In the 'record and playback' condition, the mains switch S3 is closed, as also is the capstan motor switch S1. The capstan motor is thus fully energized. Switches S2 for the forward and rewind motors are open, but these motors are energized lightly for tape tensioning, etc., by switches S1 being closed and a small mains current flowing through the two sets of 2 Kohm series resistors.

In the 'wind' condition the capstan motor is de-energized by S1 opening, while the forward wind motor is fully energized by S2 closing and shorting out the two 2 Kohm series resistors in this circuit. The rewind motor is still lightly energized as before.

In the 'rewind' condition the capstan motor is de-energized and the rewind motor takes full current while the wind motor remains lightly energized this time. It will be appreciated that there is a diversity of methods of motor control, and that faults specific to a particular system are likely to develop.

Motors fail to work – amplifiers normal

One fault which could be common to all systems is failure of the motor or motors to operate. This trouble could be caused by an open-circuit almost anywhere in the motor circuit wiring, or by a broken conductor or a burnt-out control switch. Some ac motors require a special type of capacitor to make them work properly, and a fault in this can stop or impair the motor operation. Shorting turns in a winding of a motor can cause both fuse failure and overheating of the motor. If there is no fuse or cut-out in the recorder, the motor may be very slow in operation, and may not even start to rotate unless encouraged to do so. Eventually it will get very hot and start to smoke. The domestic fuse may then blow. This can be a rather dangerous condition, and one which could be responsible for failure of a motor control switch.

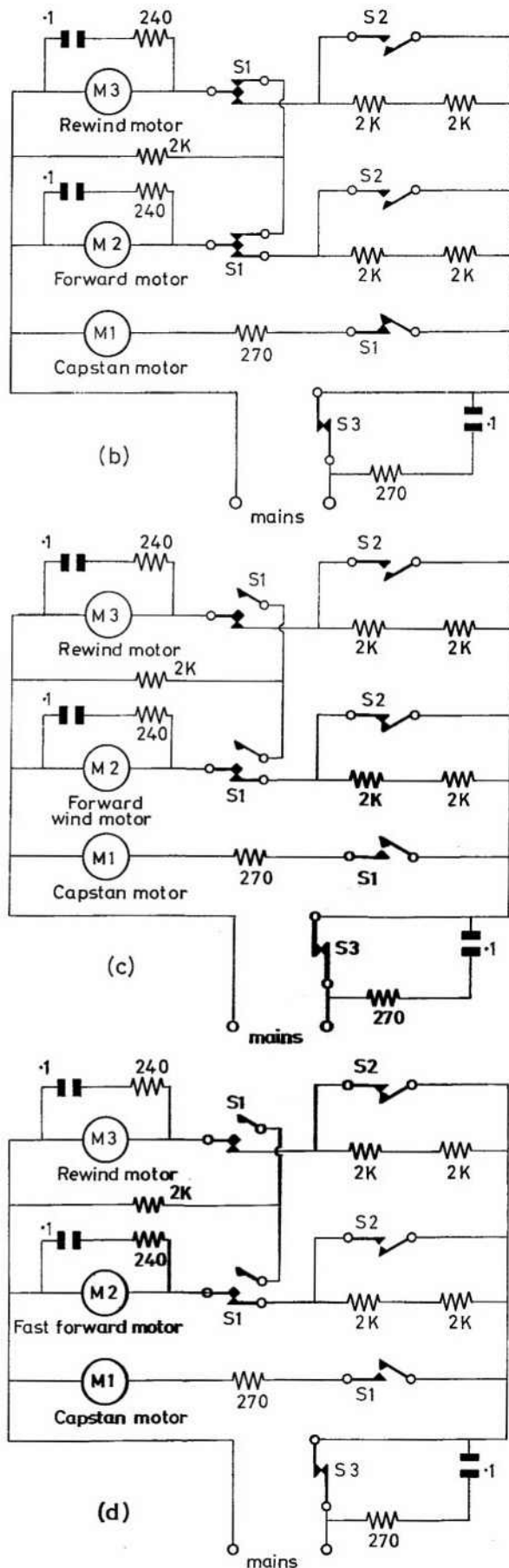


Fig.3 (cont). Other motor control conditions of the SP5: (b) 'record and replay'; (c) 'wind'; (d) 'rewind'.



THE THINGS YOU SAY

... plays on tape ... after-sales service ... priceless boob ... praise for Brenell ... 100-year-old sounds

Service Information

The things I would say would include grateful thanks if I could receive from you or your readers any information as to where I could get a circuit, or is it a service sheet, for a 'Studio Vogue' tape recorder, manufactured by Ralldres Engineering Company.

This would end, I hope, two years of frustration after the suppliers had closed down leaving me with, to date, an unreparable machine.

Sharrow, Sheffield 7. L. GREEN
(Can anyone help?)

Plays for Tape Recording

Here at RAF Gutersloh are a few airmen interested in the art of creative tape recording. We would like to record some plays for our local radio network but find it difficult to find suitable material. I noticed in the Club News Section of the October Edition of *ATR* that Leeds and District T.R. Club were using a book of plays for tape to produce a Western saga.

Could you please furnish me with details of this or any other book that we might use to produce our plays.

RAF Gutersloh M. K. PALMER
(Can anyone help?)

After-sales Service

Your magazine undoubtedly performs a most valuable service to the tape recording public in pointing out the necessity for good after-sales service and the adequate provision of spare parts by distributors of tape recorders for the British market.

We, at Pullin Photographic Limited, have attached great importance to this aspect of our marketing efforts since we took over the distribution of Akai Tape Recorders in January of this year. A full complement of Akai spares is kept at all times at the Rank Service Dept, 52a Goldhawk Road,

Shepherds Bush, London W12 and the repair of Akai machines returned to this Department is averaging 7 days only.

Let us all try to keep our standards high.

Pullin Photographic Ltd. A. PRICE
Greenford. Product Manager

Tapespondence

As members of a Youth Club who have just started tapesponding, we are finding it very hard to get in touch with youth clubs in other countries. We have tried without success to get replies to letters sent abroad so please could you help by publishing this in *ATR*. Replies from overseas youth clubs direct to Gainsborough Youth Club, 220 Kingston Road, New Malden, Surrey, will be very much appreciated.

New Malden, Surrey. GAINSBOROUGH
YOUTH CLUB

Priceless!

Being currently interested in the addition of one of the new Truvox R102s for our studio work, we were delighted when we read the review on this machine to find that in this age of rising costs here at last was a firm really determined to keep the price down to rock-bottom!

At the end of the said review the price is quoted as £00 00s 0d! Fantastic! We are ordering a dozen right away, but would you be able to confirm that we will be allowed a discount or is this a strictly net figure?

Marston Green. MAURICE CHAMBERS
(And were our faces red after that one! Sorry to disappoint you, but an R102 will set you back 76 gns. Our apologies to readers, and, of course, to Truvox Ltd.)

Excellent service

So often are heard adverse criticisms of the products of, and services render-

ed by, British firms and one fears quite justifiably so in many cases (ref your editorial in August) that it is a very pleasant surprise to come across a company about which one can give only praise.

Such is my experience with the Brenell Engineering Co regarding my requests for odd spares and information, etc., for a 3 Star recorder (now out of production for some three years).

These could hardly have been profitable transactions considering the number of phone calls and time consumed, yet they could not have been more genuinely helpful and anxious to please in every way.

Congratulations to them and many thanks. Incidentally, the same to you for an excellent magazine.

Morden. E. T. PEGG

Hundred years ago

I wish to obtain, if possible, a recording of the ordinary street noises as they would have sounded about 100 years ago, to be used in conjunction with an exhibition of local history which is to take place early in 1966. I should be most obliged if you could help in this respect, perhaps by putting me in touch with a firm or other organization.

Rochdale. PAUL SYKES

Will Mr R. G. Jones who wrote to us giving his address as 441 Ball Avenue, Apt 3, Montreal 15, Quebec, Canada, but who has since moved, please write to this office giving his new address.

Will Mr L. Rowden, who wrote from 104 Babbacombe Road, Torquay, but who is no longer known at this address, also write giving his new address. Finally will Mr T. Hughes of 20 Avenue le Croix, Sea Point, please send us his complete address.

SOUND SCENE

Tuning you in to the latest audio news, including a report on the 1965 BTRC Prize Presentation

As one newspaper report quoted 'It's ideas that make a tape recorder work', and it was ideas that won awards in this 1965 British Tape Recording Contest. The presentation of prizes was held at the Criterion Hotel, Piccadilly, London, and for the first time all the winning tapes were played to those present. This was a great idea, for it allowed both the National press and BBC representatives to hear what enthusiastic amateurs can do with a tape recorder. Ray King's winning entry, 'The Nose', had already been played on a BBC programme only a few days before and there was news that a special programme of Contest tapes had been arranged for 3 November.

The press, too, were quick to report on the contest itself and on the tapes that had won awards, for they were undoubtedly greatly impressed by what they had heard at the Criterion. The faultless *Tape of the Year*, 'Mushrooms', by a group of students from Hertford College, Oxford, showed quite conclusively that the amateur can equal the professional in creativity and production technique.

Following the playing of the nine winning tapes, the appropriate trophies and certificates were presented to the winners by Miss Josephine Douglas, BBC television producer. Next year, will it be your tape that will win the applause and an award that each of the winners this year had so rightly earned?

The technical press, the BBC and sponsors of the British Recording Contest were very much in evidence and one had no trouble in identifying well-known personalities either by sight or by the various coloured badges worn by contest judges, winners and Press representatives. From the BBC came Timothy Eckersley, Assistant Head of Central Programmes Operations (Recording), and Jack de Manio, radio personality of 1965. From the technical press came Donald Aldous, *Audio and Record Review*, Douglas Brown, Editor of *Tape Recording*, John Crabbe, Editor of *Tape Recorder*, Jack Burrows *Radio Constructor*, F. C. Judd, Editor of *Amateur Tape Recording*, and well-known technical writers John Borwick and John Gilbert.

Among the judges and organizers were C. Rex-Hassan, Chairman of the BTR Contest, Eric Robinson, TV personality and conductor, and Alan Stableford, Chairman of the Federation of British Tape Recording Clubs. The photographs show some of those personalities and the prize winners.

Stereo broadcasting

Since Monday, 4 October 1965, the number of experimental pilot tone stereophonic transmissions from Wrotham on 91.3 Mc/s has been increased from two to three each week. These will be included in the 'Music' programme transmissions at the following times:

Monday	2.30 to 3.00 pm
Thursday	11.00 to 11.30 am
Friday	2.30 to 3.00 pm

These experimental transmissions are for the benefit of the radio industry but listeners who have suitable stereophonic



At the BTR Contest presentation of awards (left to right): Alan Freeman, winner of the novice section – Jack de Manio, 1965 radio personality of the year – Ray King, 1964 winner of the *Tape of the Year* – Douglas



R. K. Partridge, co-producer of the *Tape of the Year*, receives the Emitape Challenge Cup and the Amphlett Shield.



A teacher from the Grange County Secondary School receives the BASF Shield awarded to pupils for the best schools entry.

SOUND SCENE



Brown, Secretary BTR Contest – R. K. Partridge, representing Hertford College students, winners of the 1965 Tape of the Year—Timothy Eckersley, Assistant Head of Central Programme Operations, BBC.



Ray King, last year's winner of the Tape of the Year award, this time receives the Mastertape Trophy for the Humour section.



The Kodak Shield goes to Dr. Albert C. Watt, winner of the Documentary section.

receivers and live within the service area of the Wrotham station or the station at Swingate, near Dover (which picks up the Wrotham transmissions and re-radiates them on 92.4 Mc/s), may care to take part in the experiment by listening to them stereophonically. All other listeners to the music programme, whether on VHF or medium wave (including those using an ordinary VHF receiver tuned to Wrotham or Swingate) will be unaffected by this experiment and will hear the programme in the ordinary way.

Goodbye to tattie tape ends!

This was one of the comments in the winning entry in the recent Masterstik Leader Competition entered by more than 40 tape recording clubs throughout the country. Mastertape (Magnetic) Ltd, who developed the Masterstik leader for instant spool threading and tape retaining, the most effective method yet devised, invited tape recording clubs to test exhaustively the new Masterstik leader and submit their findings in the form of a competition to Mastertape. Clubs were unanimous in their praise of the new Masterstik leader which has immediately outdated all other systems currently in use. Mastertape provided 73 reels of their magnetic tape which were shared by the winners and others as consolation prizes. The winning entries were made by:

- 1st Hull and District Tape Recording Club
- 2nd Bromley Tape Recording Club
- 3rd Northern Tape Club
- 4th Urmston and District Tape Recording Club.

Warning to all readers

During the course of the past year there has been a gradual increase in the number of foreign-made tape recorders available in this country. Many of these are imported by bona-fide distributors who also guarantee adequate service and supplies of spares. On the other hand, we know there are some distributors who cannot give service (or will not) or who sell large quantities of equipment and then disappear from the scene altogether. There are also many dealers who handle foreign-made tape recorders and other audio equipment who cannot or will not give service. So, when you set out to buy a new tape recorder, make sure that either the dealer, the distributor or the manufacturer can give satisfactory service. If you are doubtful then write to the distributors or makers, but if you are not completely satisfied on the question of service and spares then don't buy the tape recorder. We strongly recommend that all manufacturers and distributors who guarantee proper service and spares give a clear indication of this in their advertisements and sales brochures. (See Things You Say on page 15.)

VU or Electronic Eye?

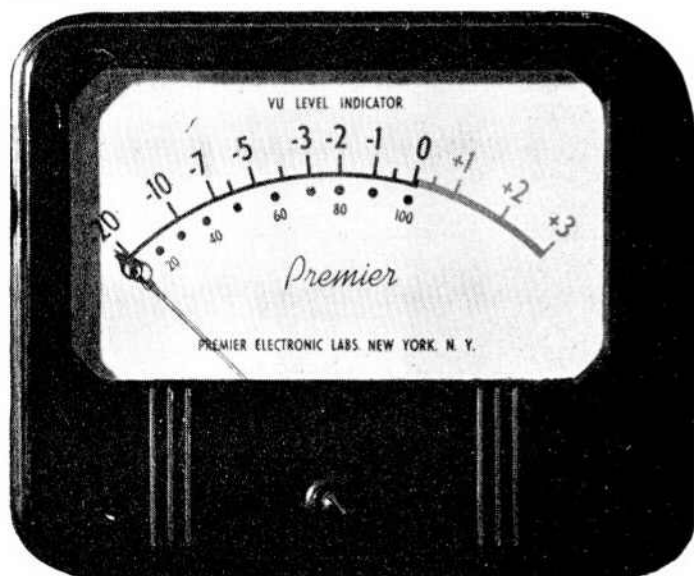
Why do some companies prefer the electronic eye to the VU-meter level indicator for domestic tape recorders?

The electronic eye is indicating the peak value of the signal, practically without any time delay. The VU-meter is indicating the mean value of the signal, integrated over a certain time given by a specified time constant.

continued overleaf 17

To secure the best possible signal to noise ratio, and at the same time to avoid overload of the tape, there will always be installed either a VU-meter or an electronic eye in every tape recorder. The best recording will be obtained when the peaks of the programme are just under the limit where the overload starts. There is no exact relation between the indication on the VU-meter and the actual peak value of the signal. Recent investigations into this matter are showing that the peak value of the signal may vary from +3 to +12 dB for the same reading on the VU-meter depending on the kind of music recorded.

If a customer tries to control the peaks of recording by means of a VU-meter he will meet the following two problems:



Typical VU-meter calibrated to give the mean value of the programme level.

1. To make sure that the VU-meter is indicating the peaks with sufficient safety margin, he will tend to under-record his tape and consequently come out with an inferior signal to noise ratio.

2. To increase the signal to noise ratio the customer will tend to turn up the volume to a higher indication of the VU-meter. In this case he will be apt to overload the tape, having only his own estimation to rely on when calculating the margin for overload on the meter.

The VU-meter is mainly used in professional broadcasting to set the mean value of the programme level securing for the listener a constant mean sound level in his living room. With limiters in the broadcast amplifiers, the danger of overloading is eliminated and peak indicators are no longer necessary. In tape recorders it is a completely different matter. There are normally no limiters and the peak value is the deciding factor in distortion and signal to noise ratio. Consequently for this purpose the electronic eye is very much preferred. The ideal solution would be both a VU-meter and an electronic eye which would provide both mean value level

and peak value level indication. As only one can normally be provided, the peak value indicator (the electronic eye) is by far the most important.

In Tandberg tape recorders the electronic eye has an extra refinement. The rise movement is extremely fast, while the return movement is slow. In practice this means that the indication on the eye is 'riding' on the peaks of the programme without flickering. This makes the setting of the recording level easier and makes the picture on the electronic eye clearer.

New style by Ferrograph

In recent times there has arisen a demand whereby the requirement for portability in tape recorders has given way in some degree to a need for installation in existing cabinets, shelf fixtures, etc., where the recorder itself is planned to occupy a more or less permanent home.

In response to this requirement, a Ferrograph in teak sided housing is now available and whilst being to standard specification in all respects it is designed particularly as one component of a hi-fi installation.

At the same time, its appearance is such as to make it equally suitable for free standing as a complete unit on tables or other convenient pieces of furniture, whilst its clean lines and lack of ostentation render the new concept by no means out of place in laboratories and research establishments. (See photograph below.)

All current Ferrograph models can be supplied in the new concept and are distinguished from standard types by the addition of the suffix 'T' to the model number.

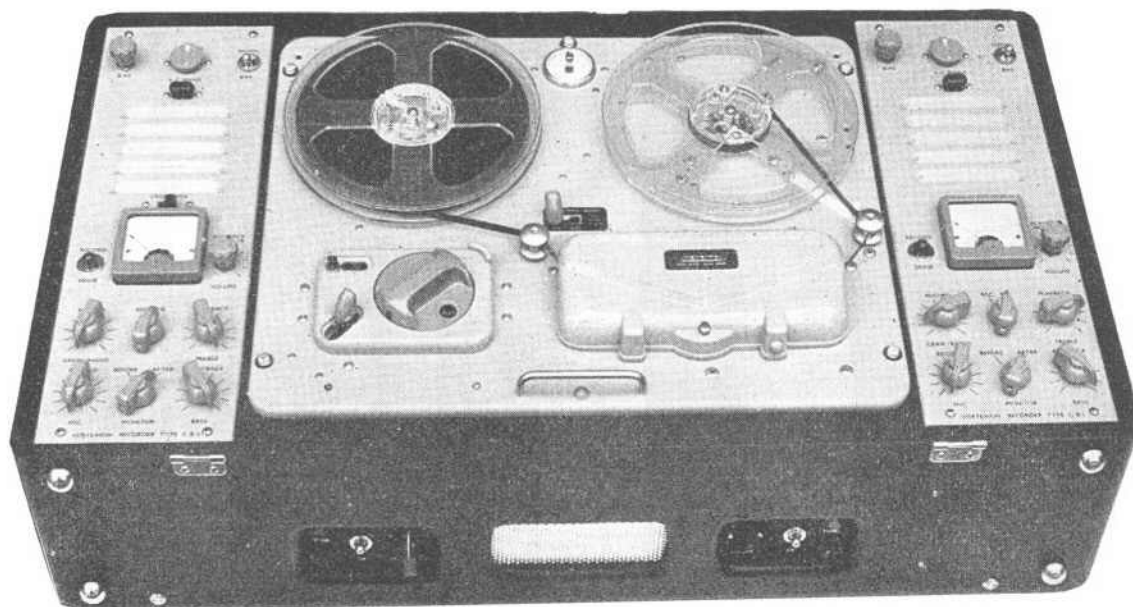
Each Model 'T' Ferrograph costs the same as its standard counterpart.



A new look for Ferrograph tape recorders. Teak sides still retain the professional appearance of Ferrograph recorders intended for fixed installation in cabinets, etc.

Vortexion
quality equipment

TYPE C.B.L. TAPE RECORDER



Here is a versatile Stereophonic Recorder which has no equal in its price group.

IT CAN record monaurally or stereophonically with its own mixed inputs from Gram., Radio or other sources and from high grade low impedance balanced line microphones. With good microphones, etc., the result is a suitable master for disc manufacturers. "Before and After" monitoring is provided, together with adjustable metered bias for perfection.

IT CAN also make a recording on one track and then transfer it to the other track while measuring and listening to it and adding one or two more signals also metered.

IT CAN repeat the process and transfer this combined signal to the first track with one or two more signals. Composers use it for this purpose. One track may have music or commentary and the other cueing signals or commentary, and either may be altered without the other.

IT CAN play back stereophonically or monaurally with its own amplifiers of $3\frac{1}{2}$ watts each. Price £160 0s. 0d.

The **Vortexion W.V.B.** is a high quality monaural machine with "Before and After" monitoring. The recording inputs are a high sensitivity socket for moving coil or ribbon microphone and a high impedance socket for radio, etc., either of which can be selected by a switch. Superimposing and echo work can be done, and the playback has reserve gain for abnormal requirements. This model cannot be converted for stereo playback, but it is a thoroughly reliable machine for the engineer specialising on monaural work. Price £110 3s. 0d.

The **Vortexion W.V.A.** is a monaural machine which has a performance equal in sound quality to the other models. It possesses all the features of the W.V.B. except for "Before and After" monitoring, Dubbing and Echoes. The recording being made can be heard on the internal loudspeaker, as in the W.V.B. and C.B.L. The controls are uncomplicated. Price £93 13s. 0d.

All tape recorders have adjustable bias controls, low impedance mic. inputs for unlimited lengths of cable, highly accurate position indicators and meters to measure recording level and bias.

International Audio Festival and Fair. Hotel Russell, London, W.1.
DEMONSTRATION ROOM 204. BOOTH 27

VORTEXION LIMITED, 257-263 The Broadway, Wimbledon S.W.19

Telephone: LIberty 2814 and 6242-3-4

Telegrams: "Vortexion London, S.W.19"

Amateur Tape Recording Video & Hi-Fi

THE NEW SOUND

Among the changing fashions in musical noises, one recent innovation seems to be here to stay – that of sound-on-sound recording, particularly with electric and electronic instruments. F. C. Judd discusses this musical development and the recording possibilities to which it lends itself



Fig.1. A modern electric guitar by Burns



Fig.2. Multi-recording guitarist Wout Steenhuls at work in his studio.

Some years ago an American guitarist, Les Paul, started a new vogue in instrumental music by making multi-track recordings with an electric guitar. Since then many other artistes have tried to emulate this master of both the guitar and multi-recording techniques. The development of the domestic tape recorder with track-to-track re-recording facilities has, of course, made it possible for amateur musicians to produce their own multi-recordings too; particularly in view of the parallel development of so-called electric and electronic musical instruments such as the electric guitar and, more recently, the electronic organ. For those who are only slightly talented as musicians, the electronic organ has great possibilities as a home entertainment musical instrument or as a music source for multi-track recording. For example, the Philicorda organ will play chords from single keys enabling the player to provide the

correct chord accompaniment to almost any popular tune played by ear or from music. Philips even include an instruction book showing how this can be done by anyone without musical knowledge or ability.

Almost all electronic organs have an output socket suitable for direct connection to a tape recorder. The Philicorda has this facility too and will also accept an output from the tape recorder so that the main amplifier of the organ can be used for replay of both tape and the organ itself. For instance, a chord accompaniment, or a complete piece for that matter, can be recorded directly from the keyboard output. This part can then be replayed over the organ main amplifier whilst a melody or second harmony part is being played in time with it. With a track-to-track tape recorder both parts can be simultaneously re-recorded on to another track.

The great feature of this arrangement

is that no microphones are necessary because the *electronic sound* is fed directly to the recorder. The quality of the recording is therefore extremely high. Most of these small organs also have a built-in reverberation unit which can be switched in as required to enhance the overall sound. In addition, all the usual tape recording techniques can be applied – for example, speed changes, tape echo, alteration to tonal quality, use of tape loop rhythms and so on.

The Electric Guitar

However, I am forgetting those who play the electric guitar and I know that many *ATR* readers do play this very modern but often mis-used instrument. One has only to listen to some of the strangled sounds produced by overloaded pop group amplifiers to understand this last comment. Any electric guitar is capable of producing an extremely beautiful tone when

properly played in conjunction with a suitable amplifier. Various electronic effects such as vibrato and echo are possible, although both are often overdone. However, with a track-to-track tape recorder one has the advantage again of direct transfer of the *electronic sound* to the tape recorder and three or four dubbings are quite possible without loss of quality. Incidentally, the term 'electronic sound' refers to the electrical signals coming directly from the instrument, for example from magnetic pick-ups in the case of guitars, or from the keyboard output in the case of electronic organs. Some electric guitars have a solid body but these are essentially 'electric' instruments and require an amplifier to reproduce the sound. One can, of course, fit a suitable magnetic pick-up to an acoustic guitar but either way both are suitable for direct connection to a tape recorder. A modern electric guitar with tone controls, volume controls, mechanical vibrato and three magnetic pick-ups is shown in Fig.1. Most magnetic guitar pick-ups have a medium to high impedance and can be connected directly to the radio or microphone socket of the average tape recorder. Don't make too many dubbings because every re-recording will reduce the quality of the first, and amplifier tape noise may become excessive. A combination of three lends itself for good quality recording e.g., lay down the chords on the first

recording, a bass line on the second and the melody on the third. If the quality and overall noise level is then still acceptable, some counterpoint might be added on a fourth recording. One final point on multi-track guitar recording – make sure that your first recording, i.e., chords, goes on at full recording level. Do, however, adjust for balance against the bass part on re-record, at the same time keeping both at a fairly high recording level. On the final or melody line track, transfer the bass and chord track at appropriate level. The idea of keeping the initial levels fairly high is to help reduce hum and noise on the final recording. Make sure that your guitar pick-ups are not introducing hum from nearby mains transformers or

tape motors, etc. Keep the guitar as far away as possible from the recorder or amplifiers whilst recording. Guitarist Wout Steenhuis (Fig.2) has produced some excellent examples of multi-recording on Columbia records and for interesting stereo and multi-recording Tommy Garrett offers 50 guitars (?) on EMI Liberty records.

The electronic organ

As I said earlier, nearly all the small modern electronic organs have an output suitable for direct connection to a tape recorder. The Philicorda which I am using at the moment for multi-track recording experiments (see front cover November *ATR*) has in fact three available outputs with or without reverberation and will also take a high level output (external amplifier) signal from a tape recorder. Such an arrangement readily provides a monitoring system and allows one to play the organ with the tape recording through the same amplifier. I don't think there is any need for me to describe all the different combinations of tonal effects that are possible with these instruments, but I will deal briefly with some actual types of electronic organs now available. I need hardly add that they are rather expensive but are nevertheless very complete and versatile instruments. The smaller types suitable for home use are extremely compact and some include

continued overleaf



Fig.3. (right). Rosemary Nicols and Jeremy Wilkin, the co-stars of ABC Television's thriller series, 'Undermind' relaxed between rehearsals by playing a wide range of their favourite music on the Philicords, a new electronic keyboard instrument by Philips.

Fig.4 (above). The Vox Continental – a four-octave chord organ.

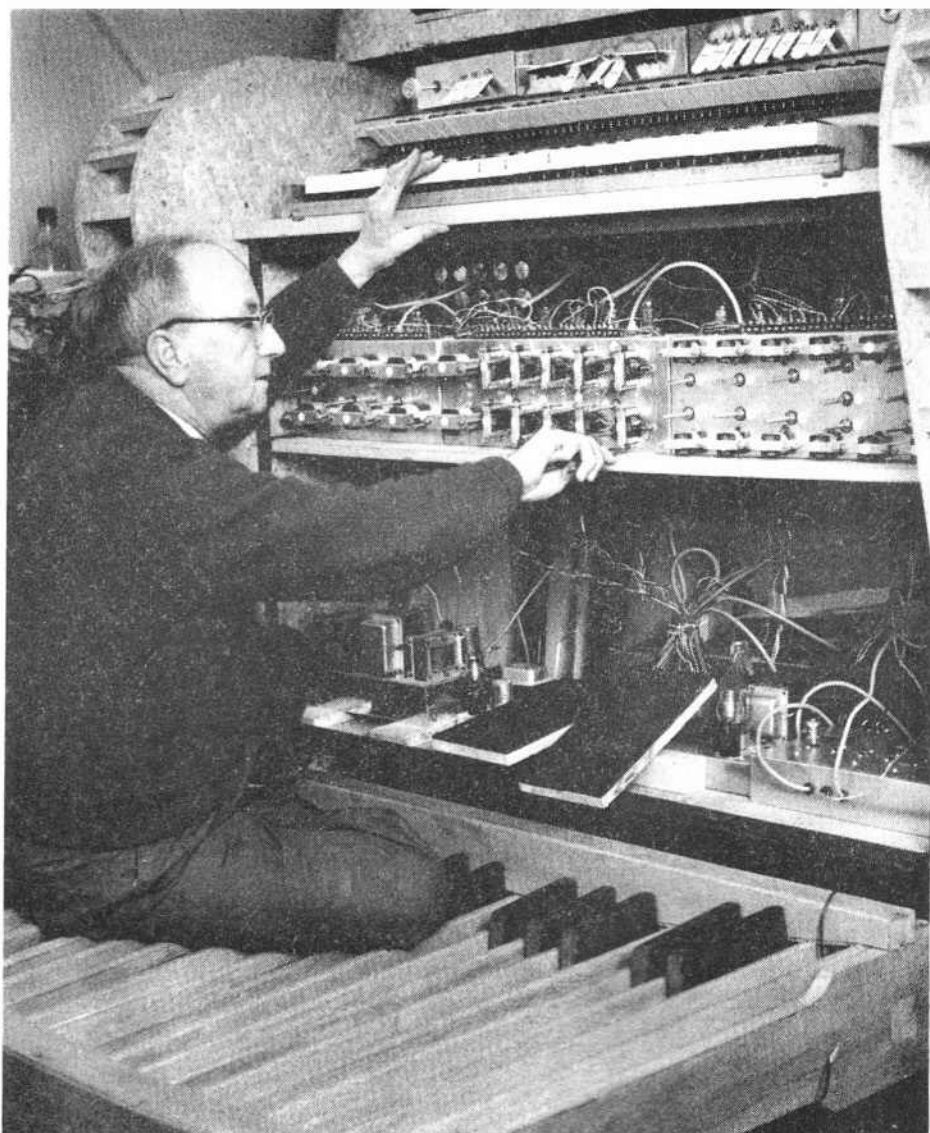
Fig.5 (above right). The Hohner Symphonic 3 ON multitone chord organ.



Fig.6 (below). The *Farsifa Foyer*, a single manual console organ which, despite its size, incorporates two 12-in speakers and therefore gives the richness of sound comparable with larger models.



Fig.7 (right). ATR reader Fred Rickers at work building a Stern-Clyne electronic organ.



the main amplifier. Like the Philicorda, most of them can be dismantled in a matter of seconds and easily transported in the boot of a car.

The Philicorda is shown in Fig.3 and comprises a keyboard console with a power amplifier and loudspeaker built into matching cabinets. These assemble into the complete organ and occupy only a quarter of the space required for an ordinary upright piano. The Philicorda has a total range of six octaves and a great variety of tone colours. The sound level can be controlled by a foot pedal and the built-in reverberation unit can be adjusted to provide the illusion of playing in a large hall. A switch on the control panel makes it possible to bring in seventeen chords, each being played by a single key as I described at the beginning of this article. Quiet practice via headphones is available and there are, of course, the tape recording and amplifier facilities.

Most of the electronic organs now on the market have a similar wide tonal range, adaptability to tape recording, etc., but for those who already possess a hi-fi amplifier with, say, 10 watts or so output there are also complete keyboard units such as the Vox Continental shown in Fig.4. This has all the usual pitch and tone ranges, vibrato and so on, but is intended for connection to any suitable amplifier or, of course, a tape recorder. This instrument has a folding stand, is quite portable and has a four-octave pitch range. (Note: All modern electronic organs are chord playing and should not be confused with single-note organs which are intended as attachments to a piano.)

Another similar instrument is the Hohner Symphonic 30N, which, as most electronic organs, is transistorized. Again an external amplifier and speakers are required for normal playing, although the instrument itself is quite

portable. It has a range of four octaves (F to E), twelve stop switches, vibrato and foot pedal volume control. The Hohner Symphonic 30N is shown in Fig.5.

For those who desire an electronic organ with amplifiers and loudspeakers there are models such as the Farfisa Foyer which is a single manual console incorporating two 12 in loudspeakers and appropriate amplifiers (Fig.6). This one features a headphone socket for quiet practice, an external amplifier connection, a four-octave keyboard (C to C), three true organ voices (dolce, principale and strings) each available in 16, 8 and 4 ft. Vibrato and treble boost controls are included as well as various other special effects.

For constructors

Well, so far I have covered but briefly four types of 'home use' electronic organs. There are dozens of others to choose from, including full organs

with up to three manuals and pedal bass, etc., but how about building one? Take a look at Fig.7 which shows tape recording enthusiast and *ATR* reader Fred Rickers at work on the building of a Stern-Clyne organ. This two-manual organ was built from a kit of parts and I believe is now a going concern. Fred Rickers is also the UK representative for the Australian Tape Recordists Association, and for attempting this vast project at around the age of 57 fully deserves a real Aussie 'Good on yer sport'. Building an electronic organ is not an impossible task for those with a knowledge of electronic circuitry, and various technical publications have from time to time given circuits and plans. There are also a number of books devoted to the subject. Keyboards and special organ note contacts, etc., are also available from such firms as Stern-Clyne Ltd.

Recording organs

Aside from the possibilities of multi-track recording with modern electronic musical instruments such as I have described, all electronic, steam and wind organs are excellent subjects for straight recording. There is a good deal of

interest in this field and many tape recording enthusiasts do little else but collect recordings of organ music. On a recent continental tour I managed to capture some excellent recordings of two unusual electro-mechanical orchestral organs. There are large numbers of these in Belgium and Holland and most of them are made by two brothers in a factory in Antwerp. In addition to the organ, such instruments as piano accordions and drums, etc., are also included and all operated by an electro-mechanical system and punched paper rolls. For instance, at the Dierentuin Bar at Lokeren on the road between Ghent and Antwerp is the 'Flamingo Organ' built by the Decap brothers. This one is shown in Fig.8 and features a blow pipe organ, two piano accordions and percussion. Next door in the 'Tavern American' is another which incorporates an electronic organ, two piano accordions, a trombone, a saxophone and percussion (Fig.9). These monster orchestral organs cost around £6,000 each, but are a tremendous attraction to tourists. Incidentally, one of the winning tapes in this year's British Tape Recording Contest was a recording of a Thomas Mortier organ which is a Belgian fairground steam organ.



Fig.8. One of the famous Decap organs at Lokeren, Belgium.



Fig.9. Another Decap orchestral organ featuring six musical instruments.



FRONT COVER STORY

Our front cover this month depicts a typical Christmas setting and it features the new Scotch magnetic tape albums, built like books to contain two tapes on either 5, 5½ or 7½ in spools. The tape books are sold complete with one tape on the appropriate size of spool and included are self-adhesive labels for the spine of the case and for spool identification. Altogether a wonderfully neat and tidy way of storing tapes and, incidentally, there is space inside the book for indexing the recordings on your tapes.

Now this leads to the problem of tape storage which readers often ask about. Well, the Scotch tape albums take care of having somewhere to keep the tapes and of identifying both tapes and recordings. All tapes should be stored in boxes of some kind and preferably in polythene bags inside the box. Reason

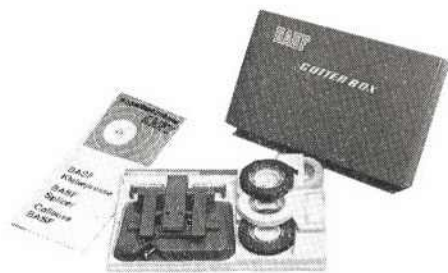
— to keep out dust which can creep down between layers of tape and which can have an abrasive action on both the tape and the tape recorder heads. Some tape recorders have little felt pads which clean dust off the tape before it gets to the heads. Failing this, an occasional run through at re-wind speed with a soft clean cloth held lightly against both sides of the tape won't do any harm. Remember, too, that tape heads and guides should be kept clean because minute particles of the magnetic coating on tape do come off and in time can clog up the heads.

The problem of 'print through' is one that rarely arises these days and it is unlikely with modern tapes. Playing and re-winding in the normal course of usage will prevent print through, which is the magnetic transference of signals on one layer of tape through on to the

next. Always have leaders on your tapes at beginning and end. Leaders can be replaced if they become 'tatty' or damaged. It is not important that the tape winds up tightly on a spool so long as it winds fairly evenly. Don't handle or place tapes near a strong magnetic field such as that from an electric motor, or a loudspeaker or any kind of magnet. Recordings on magnetic tape do not deteriorate so long as they are not exposed to excessive heat or magnetic fields. Finally, do not use adhesive cellulose tape for splicing broken tape or leaders or when editing. It is not designed for this purpose and eventually the adhesive will squeeze out and is liable to clog the tape heads and cause the tape to stick on the guides. Use only white splicing tape designed for the purpose and which can be purchased in small quantities and ¼ in or ½ in in width.

AUDIOVIEW NEW PRODUCTS

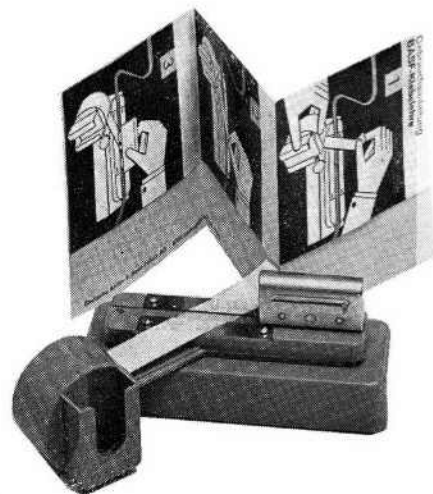
A look at audio products that make excellent Christmas gifts for recording enthusiasts



SPLICING OUTFITS FROM BASE

This unique splicing set includes full instructions on how to make tape joints and contains three reels of coloured leader tape, a roll of splicing tape, spool labels, metal foil auto-stop tapes, a tape marking pencil, and tape spool clips. The great feature of this outfit is the semi-automatic splicing tool which holds the tape whilst the join is made and trimmed. The outfit is shown above and costs £2 12s 6d.

For the perfectionist there is also a BASF professional splicer at 6 gns, which is a precision-made device with a splicing tape holder attached. The tape can be cut diagonally ready for the join, after which the splicing tape is fixed as shown below. A roller cutter (to the left) then cuts and trims the join.



For those who only make the occasional joint or who need to repair a broken tape the 5s BASF outfit contains splicing tape only, but is sold in a box with a tape-holding channel on the back. All available from regular tape stockists.

DRY SPLICE

This is an ingeniously simple tape splicing outfit which contains two strips of 12 ready-made and pre-cut splices. The 'backing' in each packet is a stiff cardboard applicator with appropriate cut-outs for lining up tape at 45° for cutting. 'Dry Splice' can be used with any conventional tape splicer or with the applicator supplied. Price 4s 11d.

TAPE RECORDING INDEX

This unique index by Thistleboon Enterprises Ltd allows for detailed yet easy-to-find information about your tape recordings. It contains three indexes, covering permanent recordings, titles, tapesponding, edited recordings, sound effects, etc., and includes extra cards for new recordings to be entered into the index system. The complete index

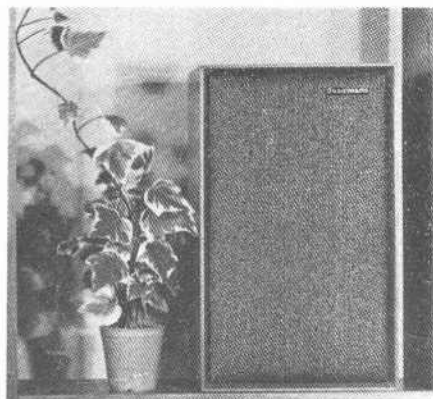
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is contained in a folder 8 in x 6 in and costs 25s plus 1s 6d postage and packing from Thistleboon Enterprises Ltd, 13 Thistleboon Road, Mumbles, Nr Swansea, Glam. A sample of one of the index cards is shown above.

MOOD MUSIC AND FX RECORD

We have just received a sample of a new 12 in LP record of mood music and sound effects marketed by C.D.C. Ltd (Photographic Division), 460 Holloway Road, London N7. This record, which retails at 49s 6d inc. tax, is undoubtedly the answer to all requirements for mood music for it contains 38 tracks of moods, themes and effects. There are three opening pieces—ceremonial, soft and mellow, drama and mystery. Closing pieces include grand finale, movie type finale, sweet and gentle. Then follow fourteen themes, happy and exhilarating,

holidays in the sun, gay and light-hearted occasions, travel, locomotion, birthday party, pomp and circumstance, fair ground, circus, etc. Sound effects include train, baby crying, crowd, traffic, dog barking, rain, ships, etc. Each of the 38 separate tracks is timed and can be easily selected. This record is a must for all tape recording and cine enthusiasts. The quality of reproduction is excellent and the music right up to professional standard. It is free of copyright to all amateur users. The full title of the record is Album No.1 C.D.C. Custom Music for 8-MM.

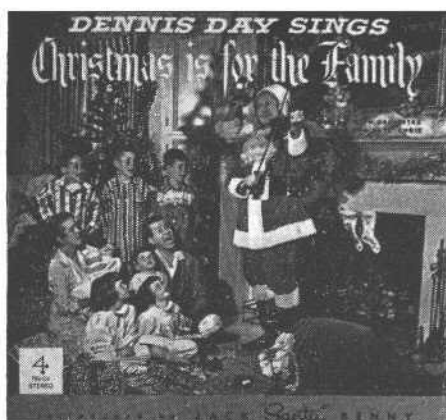


**GOODMANS
MEZZO LOUDSPEAKER**

An extra loudspeaker makes a useful gift and Goodmans have just announced one intended for regular hi-fi or as an addition to a tape recorder. The Mezzo is a generous 15 watt two-speaker system, measuring $10\frac{3}{4}$ in \times $18\frac{1}{4}$ in \times only 8 in deep and is shown above. The frequency range is a clear, clean 40–20,000 c/s with an enviable control and smoothness achieved by the use of two new specially developed and patented loudspeakers; a robust 8 in long-throw bass and mid-range unit and a sealed-back 3 in treble unit. The l.c. crossover network operates at 2,200 c/s. The 8 in bass unit is of very advanced design, notable for its very low distortion and extraordinary smoothness. The treble unit matches it in quality, giving an overall performance for the Mezzo unrivalled for its size. The distortion figures for this remarkable system are less than 1% total harmonic at 55 c/s and above, for sound pressure level of 80 dB at 6 ft. Price is 25 gns including purchase tax.

MUSIC TAPES (above right)

Pre-recorded tapes of all kinds make excellent Christmas gifts, but two special recordings by Transatlantic Music Tapes Ltd are worthy of mention here. These are **Christmas Day for the Family** (P4T-X-1) and **Christmas Drummer Boy** (P4T-X-2). They are available in two-track and four-track stereo at 3½ ips and 7½ ips and each contains a full selection of Christmas tunes. We advise you to write direct to Transatlantic Music



Tapes Ltd, 250 Grand Buildings, 1 Strand, London WC2, for full details and their catalogue of pre-recorded tapes. The two special Christmas tapes feature guest star Jack Benny with the Vail Choir Boys (P4T-X-1) and Don Janse and his 60-voice children's choir (P4T-X-2), both worth putting into your library.

ACCESSORIES

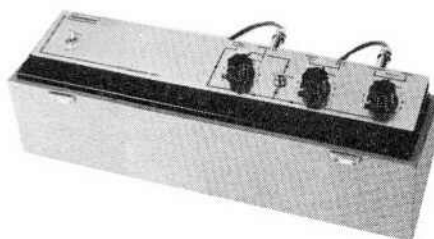
There are, of course, hundreds of accessories to tape recording and we have space for only a few. However, every tape recordist eventually gets around to discovering that all-important device known as a mixer and there are plenty to choose from (see *ATR* September/65 issue which contained a complete list and prices, etc.). Representative of these is the Grampian Mike 3 which is a transistorized three-channel mixer intended for the serious amateur (below). There are two inputs for moving coil or ribbon microphones, the third being for high-level signals from another tape recorder or

crystal gramophone pick-up, or, of course, a radio tuner. The Mike 3 mixers are available as follows:

Mike 3/L for 25 to 30 ohm microphones, Mike 3/M for 600 ohm microphones and Mike 3/H for high impedance microphones. A leaflet on this mixer containing full technical details, etc., is available from Grampian Reproducers Ltd, Hanworth Trading Estate, Feltham, Middlesex.

REVERBERATION UNIT

A reverberation unit is perhaps a somewhat expensive gift but one which every keen tape recording enthusiast would like to possess. The instrument shown below is intended for amateur or professional use and employs a pair of mechanical (spring) delay lines with electro-magnetic transducers to simulate the reverberant effect of a large hall. The total reverberation time is two seconds. Two separate input channels are provided for microphone and high-level signals and the reverberated signal can be independently controlled. The unit operates from internal batteries, thus eliminating 'hum' problems when used with mains equipment. It should be stressed that a reverberation unit of this kind is intended for improving acoustic



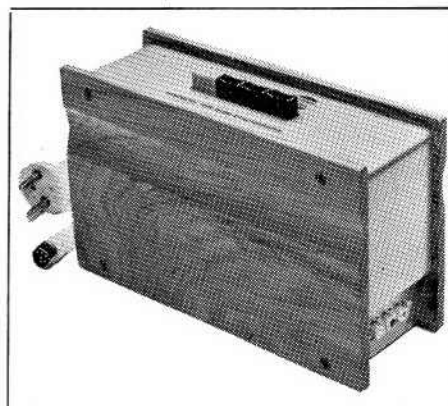
effect and conditions and not the quality of reproduction. A leaflet giving full technical details is available from Grampian Reproducers Ltd (address above). Price is £52 0s 0d.

MORE ACCESSORIES

Headphones, bulk erasers, microphones, tape-slide synchronizers, carrying cases, microphone stands, tape speed indicators, head de-magnetizers, cleaning outfits, tape albums, spare spools—all these are possible Christmas gifts and a glance through the advertisements of the last few issues of *ATR* may help you to make your choice. We have selected a few for you and continue now with some items from Tandberg.

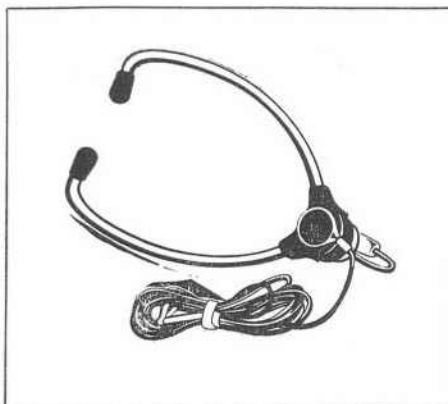
All Tandberg owners may be interested in a plastic deck cover which is available for Tandberg models 62, 64, 72B, 74B, 823 and 843. Price 28s each and available from the address given below.

Next comes the Tandberg Tape-Slide synchronizer (shown top right) which may be used with any stereo recorder or with the Tandberg model 8, four-track recorder. Music and commentary go on



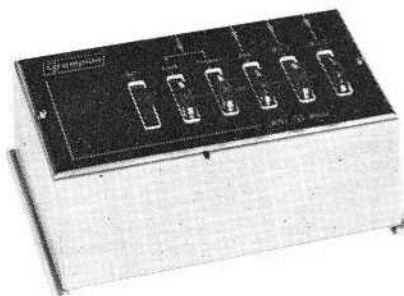
one track with a synchronizing impulse for the slide change on the other. This synchronizer has provision for *hold*, i.e., holding a picture beyond the time allocated, or *shift* for a quick change to catch up with synchronization. The complete synchronizer costs 24 gns including tax.

Also available from Tandberg are a number of other useful accessories including the Walgain bulk eraser, a handsome carry-case for all Tandberg recorders, Shure and Reslo microphones, microphone stands and monitoring headphones. The Tandberg Stetset headphones are shown below and are suitable for mono or stereo listening or, of course, sound-on-sound recording with Tandberg recorders. These cost £2 17s 6d. For full details of their complete range of accessories why not write to Tandberg (GB) Ltd, Edward Street, Templar Street, Leeds 2.



Metrosound also produce a good range of accessories that make excellent Christmas gifts. First, the 'Metrostrobe' for checking the accuracy of tape recorder speeds. It caters for speeds of 3½, 7½ and 15 ips and has a reversible dial for 50 or 60 cycle mains. Price is 12s 6d. From the same manufacturer comes the exclusive Klenzotape, an approved tape head cleaning outfit which includes special impregnated tape for cleaning guides and heads and head cleaning fluid. Klenzotape costs 13s 6d. Both these items are available from Metrosound Manufacturing Co Ltd, Bridge Works, Wallace Road, London N1.

continued overleaf 25



TAPE RECORDER COVERS

A. Brown & Son produce a large range of smart waterproof covers to give complete protection to your tape recorder. Made in rubberized canvas in navy, wine, tan and bottle green with white contrasting piping, these covers have a reinforced base, handy zip microphone pocket and name panel. They are available for Grundig, Telefunken, Philips, Cossor, Stella, Saba, Elizabethan, Brenell, Robuk, Sony, Ferrograph, Revox, Truvox, Tandberg and Loewe-Opta tape recorders. Write for list to A. Brown & Sons, 24-28 George Street, Hull.

TAPE 70

This is a new medium-priced recording tape on a PVC base. Every spool of tape is guaranteed. Tape 70 can be obtained either through dealers or direct from Leda Tapes, 30 Baker Street, London W1. Tapes are available as follows:

Retail Prices					
Standard Play			Double Play		
3"	150'	3/3	3"	300'	6/6
4"	300'	6/6	4"	600'	12/-
5"	600'	11/6	5"	1,200'	22/6
5½"	900'	14/6	5½"	1,800'	29/6
7"	1,200'	17/6	7"	2,400'	37/6
Long Play			Triple Play		
3"	225'	4/3	3"	600'	13/-
4"	450'	7/6	4"	900'	17/6
5"	900'	14/6	5"	1,800'	35/-
5½"	1,200'	17/6	5½"	2,400'	48/6
7"	1,800'	25/-	7"	3,600'	62/6

PRE-RECORDED TAPES

A final reminder that pre-recorded tapes are now marketed by:

World Record Club Ltd 39, PO Box 18, Richmond, Surrey

Teletape Ltd, 33 Edgware Road, London W2.

Recotape - Transatlantic Music Tapes Ltd, 250 Grand Buildings, 1 Strand, London WC2.

Tempotapes - A. C. Farnell Ltd, 81 Kirkstall Road, Leeds 3.

SFX DISCS OR BOOKS

Still not decided? Then how about a set of sound effects records. These make an ideal gift and are available from Haymarket Press (see page 46).

Another source of welcome gifts for the audio enthusiast is the ATR Postal bookshop, through which a variety of audio guides and handbooks may be obtained. (See page 50 of this issue.)

CONTEST TAPES AVAILABLE

Copies of tapes entered in this year's International Amateur Recording Contest are available from the Federation of British Recording Clubs, on free loan to Federation Members, or as outright purchase, price 1 *gn* per mono reel.

International Contest

Mono Grand Prix goes to Germany

For only the second time in its history the International Amateur Recording Contest was staged in London. The International jury consisted of delegates from Belgium, France, Germany, Netherlands, Switzerland and Austria as well as from the UK, and judging took place in a studio specially made available for the purpose by the BBC. More than fifty entries were received from fifteen different countries, including Czechoslovakia, South Africa, Tunisia and Turkey, but British tapes failed to carry off any of the major prizes. Our own National winner, 'Mushrooms', was beaten into second place in the mono Compositions section by a piece entitled 'Rue Madame, Rue de Bussy', entered jointly by Jean Claude Gigon and Pierre Denervand of Switzerland.

In the Documentary and Reportage section, top marks went to Derek Worman of South Africa for his tape of a Khai Concert, and in the battle for second place Ray King of Oxford ('The Nose') lost by two hundredths of a mark to Hans Buchi of Switzerland ('Tuneischer Bilderbogen').

In the third mono section, Music or Speech, Britain had no entry. Easily the winner in this section was 'Russische Impressionen' by Wilhelm Glückert of Germany.

France had her first win of the contest with 'La Côte des Appels' by Mm Crayon and Durer, placed first in the mono Actuality class. Here Britain came back into the picture, with second place being taken by John Bradley with his tape 'The Real Thing'. Not unnaturally the best technical recordings came from the Technical Performance section, which also yielded the Mono Grand Prix winner. This was one of the shorter tapes in the contest (only two minutes long), and came from German entrant Jürgen Sprötte. His 'Guitarra Rapida' was, exactly as the title suggests, rapid guitar music. As this tape was awarded the Grand Prix, the second tape in this section came forward for the section prize. This was a Swiss entry from Fernand Paillard, entitled 'Magnetophobie' which was awarded a mere two-tenths of a mark less than 'Guitarra Rapida'.

Last of the mono sections was Category Scholaire, and here by far the best was 'The Correction-puter', entered by the pupils of the Willem de Zinger School of the Netherlands. France took second place in this section with 'Naufrage' entered on behalf of pupils by Noelle Gloaguen, and our own Grange County Secondary School came third with their tape 'A Day at Grange School'.

Entries in the Stereo section were vastly up (in number) on previous years, being double the amount entered three years ago. This turning towards stereo was very marked among the other participating countries, but Britain rather let the side down with only one stereo entry. Winner in the Composition section was A. A. Naaktgeboren of the Netherlands, whose entry illustrated 'A Disturbed Night's Rest', and the Documentary and Reportage award went to Lucien C. Wasmer's 'Musique Religieuse Armenienne'. In each of these classes the winning tape was outstanding, far above the other entries.

The third stereo section, Music or Speech, contained the only British stereo entry, P. Lawson-Smith's recording of 'A Thos. Mortier Organ', which was placed fifth. Winner in this category was J. L. Koning of the Netherlands with 'Ankloeng Orchester'. In the next two stereo sections, both winners topped their rivals by quite a large margin. Winner in the Actuality section was 'Psalterion' by Kurt Felix of Switzerland, and the Technical Performance prize was awarded to Ralph

Lundsten of South Africa for his electronic music composition 'Pipsy'.

However, the judges had to wait until the final category was judged to hear what was certainly the finest tape of the whole contest. This was the only entry in the stereo Category Scholaire, and was entered by Kurt Felix on behalf of his pupils at the 4th Primarschool of Frauenfeld. Their tape was entitled 'The Music Machine', and depicted the use of a large organ-like instrument in teaching a child music. To give you an indication of how highly this tape was rated by all the judges (and there were about thirty of them), each judge had to allocate marks out of 20 for every tape. 'The Music Machine' averaged 17.50 out of 20. Next highest marks went to 'Guitarra Rapida', which gained an average of 15.42, and the majority of entries came within the 10- to 13-mark range. Of the twelve contest sections (six mono, six stereo) eight were won by tapes consisting entirely, or almost entirely, of music recording. In addition, marks awarded in the two Actuality sections were considerably lower than those awarded in other sections. Top mark in the mono Actuality was only 11.60, and in the stereo Actuality 12.90. Does this mean that the musicians are greater perfectionists? Or is it that the speech recording is less highly regarded? Two further comments on our own British entries were that their technical quality was not as high as it might have been, and that our interest in stereo appears to be virtually nil. These observations, coupled by the fact that we failed to win any of the major awards, would suggest that with considerably more attention given to technical quality in our recordings, and a much greater interest in the correct use of stereo, we could do much better in next year's International, which is to be held in Amsterdam.

Grand Prix - Mono Guitarra Rapida, Jürgen Sprötte (Ger.), EMI L4 battery recorder with ten reels of double-play tape, given by EMI Ltd, England

Category A - Mono Rue Madame, rue de Bussy, J. C. Gigon and P. Denervand (Switz.), 5000Bfr given by RTB French Service

Category B - Mono Khai Concert, D. Worman (S.A.), 1000Sfr given by the Société Suisse de Radiodiffusion & Télévision

Category C - Mono Russische Impressionen, W. Glückert (Ger.), 5000Bfr given by RTB Flemish Service

Category E - Mono Magnetophobie, F. Paillard (Switz.), Cup and stereo recorder given by Philips

Category Scholaire The Correction-puter, W. de Zinger School (Ned.), 250Sfr given by Radio Lausanne

Naufrage, N. Cloaguen (Fr.), Cow Bell given by Association Suisse des Chasseurs des Sons.

Grand Prix - Stereo The Music Machine, K. Felix (Switz.), Gold-plated Sennheiser microphone given by Germany

Category A - Stereo Disturbed Night's Rest, A. Naaktgeboren (Ned.), 250Sfr given by Radio Berne

Category B - Stereo Musique Religieuse Armenienne, L. C. Wasmer (Turk.), 250Bfr given by Les amis de Radio-Hainaut

Category C - Stereo Ankloeng Orchester, J. L. Koning (Ned.), 250Sfr given by Radio St. Gallen

Category E - Stereo Pipsy, R. Lundsten (S.A.), 1250Bfr given by les Amis de Radio-Hainaut

Best Nation Selection Switzerland: Cup given by the Dutch Sound Hunters Club

UMVF Prize for International Understanding Ordination d'un Moine Bouddhiste, J. de Ryck (Belg.)

The Glen Miller Legend/World Record Club Ltd. TT252. £1 9s 6d

I'm sure that many of today's pop fans have never even heard of Major Glen Miller, but certainly to me and millions of others the name brings nostalgia. Mostly, people associate him with his superb wartime *American Forces Orchestra*, but of course he was famous long before the war and the music here recorded comes from the sound tracks of two of his early films, *Sun Valley Serenade* (1941) and *Orchestra Wives* (1942).

Both films I remember vividly, as I saw them several times. I was a Miller fan and hearing these tapes makes me realize why. They were a great team. Even today, nearly a quarter of a century later, the band sounds very little dated and I thrilled again to the vocals of Ray Eberle, Marion Hutton, Tex Beneke, Paula Kelly and the Modernaires.

It's interesting to note that the rank and file of the band contains Ray Anthony, Hal McIntyre and Billy May, who, plus Beneke, all became band-leaders in their own right. Beneke took over the Miller name and library after the mysterious disappearance of Glen Miller in an aircraft over the Channel during the latter part of the war. Enjoy yourself and re-live a legend.

Beatles for Sale. The Beatles/Parlophone TA-PMC 1240. £1 15s 0d

And so to a living legend and very interesting too. Normally I hear the Beatles in small doses, maybe two or three numbers at a time, and I wondered how I should survive after fourteen numbers. Would I be fed up after the first seven? The answer is a very definite 'no'. They held my interest throughout. Why? because they have variety. Different tempos, change of tone colour and, of course, first-rate original music and lyrics.

Lennon and McCartney compositions have become world renowned, recorded left right and centre, from the Boston Pops Orchestra to jazz singers and modern jazz groups.

TAPE REVIEWS

by Russ Allen

Anyone who still knocks the Beatles as being two-chord musical illiterates must be the squarest bigot of all time.

Peter and the Wolf - Prokofiev. Narrator - Michael Flanders.

Carnival of the Animals - Saint Saens/Philharmonia Orchestra conducted by Efrem Kurtz. WRC T381. £1 9s 6d

It's a long time since I'd heard Peter and the Wolf, and though knowing it quite well I had forgotten just how extremely charming it is. A fable put to music for children, it depends upon spoken lines to tell the story between and over the music. Flanders is superb, his voice tuneful, catching the excitement and giving characterization to the 'cast'.

The backing is Saint-Saens little joke. He 'borrowed' various bits from other composers and re-arranged them for his 'animals', which include 'cocks and hens', 'lions', 'kangaroos' and 'the pianists'. To give you some idea of the joke, the basic tune of the 'elephants', here, slow and ponderous, was originally a bright, light overture to a ballet (I think, the Coppelias). The 'tortoise' tune, (and I can picture them walking along to it) is an extremely decelerated version of the 'Can-Can' from 'Orpheus in the Underworld'. See what I mean. Perhaps the most famed of the pieces is the much-played cello solo - 'The Swan'.

Quite delightful and ideal for all child-

ren from two to one hundred and two.

Mozart Horn Concertos Nos. 1 to 4/ Dennis Brain and the Philharmonia Orchestra conducted by Herbert von Karajan. Columbia TA-33CX 1140. £2 Dennis Brain, who was killed in an inexplicable car accident just a few years ago, was a virtuoso horn player. The Mozarts are ideal vehicles for his fantastic talents and he plays here, as always, faultlessly.

There is a story of how, being interviewed by someone or other, he was asked 'Do you ever play a wrong note?', to which he replied 'Good gracious no, whatever for?'.

Notoriously a difficult instrument, the playing of the French horn has certainly improved in recent years, but there was much room for improvement and it has seemed commonplace to hear split and off notes emanating from the horn section. 'Ah,' they've said, in apology, 'it's a very difficult instrument to play you know.' So too are all the instruments in the symphony orchestra, yet we are not asked to forgive them.

Dennis Brain set a standard, an incredibly high one, to which I believe most self-respecting horn players have set their sights and he deserves, I'm sure, a lot of credit for the much-improved playing of the horn.

Mozart and Brain make excellent music.

Red Army Ensemble. Orchestra, Choir and Soloists/Columbia TA-33CX 1844. £1 15s 0d

For ever popular, no matter what the political situation, is this large group of 'stars in battledress'. Luckily, from the purely visual side this Red Army lot are most picturesquely attired.

Russians have a reputation for producing excellent voices. What I've heard of Russian opera makes a lot of other countries' operatic efforts sound crummy. This ensemble is no exception to the Russian rule. They are tremendous. The orchestra is fine, the singing really great, and a splendid Balalaika solo, 'Kamaarinskaya'.

Good listening for both Left and Right!

Ferrodynamics' "INTERNATIONAL" Tapes

Highest Quality ★ Cello Wrapped ★ Colour Coded ★ Guaranteed

Standard Play			Long Play		
5"	600'	Acetate 7/9	7"	1800'	Polyester 19/-
7"	1200'	Acetate 11/9	Double Play		
5"	900'	Acetate 9/9	5"	1200'	Polyester 14/-
5½"	1200'	Acetate 11/9	5½"	1800'	Polyester 20/-
7"	1800'	Acetate 13/9	7"	2400'	Polyester 22/6

Post & Packing 2/- per order

Also message & triple play tapes. SAE list. Special terms for clubs. Trade enquiries welcomed.

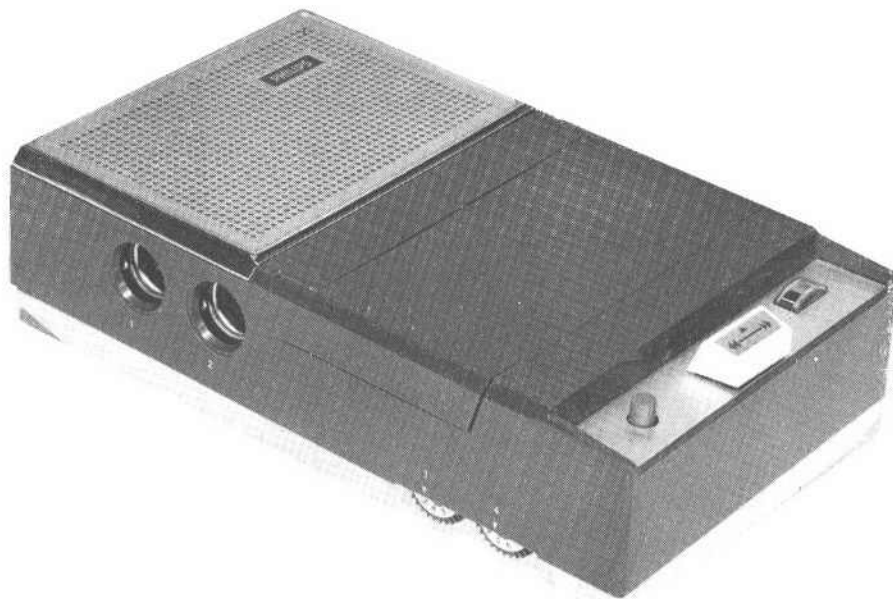
LEDA TAPES, 30 BAKER STREET, LONDON, W.1

SAVE 5/-

Binders for *Amateur Tape Recording* are now available at the bargain price of 10s. (normal price 15s.). Why not treat a friend (or yourself) to one for Christmas?

ATR, 86-88 Edgware Road, London W2

ON TEST: PHILIPS EL 3301



Gordon J. King examines the first cartridge machine to appear in Britain

Fig.1. The general appearance of the tape recorder removed from the leather carrying case.

The EL3301 is a follow-up on the EL3300, incorporating all its attributes plus improvements. Here we have a truly portable tape recorder designed for maximum ease of operation. Indeed, from the operating aspect, the instrument seems more like a transistor portable radio than a tape recorder, and a small one at that!

Could we ever have realized a few years back that a good quality tape recorder would be scaled down to fit snugly into a plastic case no larger than $7\frac{3}{4} \times 4\frac{1}{2} \times 2\frac{1}{4}$ in? This is just about the size of the EL3301. And with its five U11-type cells, delivering a total of $7\frac{1}{2}$ volts for powering, its weight is no more than 3 lb.

The recorder comes complete with a leather carrying case, a 450 ohm moving-coil hand microphone with a pocket or lapel clip and a removable small plastic stand, a remote control switch that can easily be attached to the side of the microphone and a tape-loaded cassette. Also supplied is a DIN plug terminated lead with an attenuator end that can be used for recording from a radio, records or other signal sources and for injecting the recorded signal back into a second tape recorder or into an external amplifier system for improved quality playback.

The leather carrying case features a shoulder-sling strap and a compartment for accommodating the microphone, its stand, the remote switch and the leads. It is of 'ever ready' design, incorporating a clipped flap and cut-outs enabling the recorder to be operated under all conditions without removing it from the case.

Tape cassette

A major refinement is the tape-loaded cassette. This contains the supply and take-up spools and it accommodates sufficient tape for an hour's recording. The tape is $\frac{1}{8}$ in wide and provides the equivalent of two quarter-track recording channels of standard width.

A lid at the top of the plastic case is lifted to expose the cassette, which clips in and out remarkably easily. A window on the front of the cassette reveals just how much tape remains on the supply spool against a calibrated scale. The plastic lid can be removed completely from the case when the machine is under portable conditions in the leather case, and a window in the latter coincides with that on the cassette.

The cassette, which measures $4 \times 2\frac{1}{2} \times \frac{1}{16}$ in, is depicted in Fig.2, and Fig.3 shows the cassette in position in the recorder with the plastic lid lifted.

The tape is secured to the spools and there is no danger of it releasing at the end of a tape wind. When the tape comes to the end, the motor works against an effective clutch mechanism.

The tape is exposed along the edge of the cassette and when the cassette is inserted into the machine the tape automatically locates between the capstan and the pressure roller.

Hf erase

This little recorder features a very effective hf erase system, as distinct from permanent magnet erase. When one track has been recorded, the cassette is simply removed and turned over to

record the other track. The tape mechanism is under the control of a single lever which is operated by an oblong knob at the centre of the control panel. This operates sideways in both directions for fast winds and up and down for record and playback. However, before the machine will record, a small button has to be depressed.

Associated with the electronics are two control knobs and two DIN sockets. One control knob sets the recording level while the other sets the playback volume. It is convenient having an independent record level control.

One DIN socket accepts the plug on the end of the microphone lead and the other the plug on the end of the remote control switch lead. The DIN plug terminated lead supplied with the machine can also be inserted into one of these DIN sockets to extract or inject signal as already mentioned.

The remote control switch, incidentally, is normally clipped on to the side of the microphone, and the lead from this switch and the microphone lead are held tidily together by plastic clips along the lengths of the leads. It is possible, however, to part the two leads when it is required to use the remote control switch away from the microphone as, for instance, in a pocket.

Record level/battery state indicator

Of considerable merit on a machine of this kind is the small, instrument type record level indicator. This not only indicates the audio signal level applied to the head, but also on playback it

continuously monitors the state of the batteries in relation to the black, red and green segments forming the indicator scale.

The recorder embodies a small speaker which is perfectly adequate for monitoring the material recorded. The quality of reproduction from this speaker is approximately equivalent to that obtained from a good quality portable transistor radio set.

Access to the battery compartment is through a clipped plastic lid on the underside of the case, and it is virtually impossible to get the five U11-type cells in wrong, for their correct positions are clearly indicated pictorially on a plastic drape which goes inside the battery compartment. The batteries are held firmly in position by a projection on the underside of the battery compartment lid. The whole of the record and playback electronics is built upon a printed circuit board, and this can be extracted quite easily for servicing when required. After a detailed examination of this recorder, one realizes just how much thought must have gone into both its electrical and mechanical design. It is a masterpiece of engineering, when one considers the low cost of the machine. Some idea

left-hand corner of the picture. The motor drives the substantial flywheel which holds wow and flutter to a low level.

The circuit

The circuit is composed of seven p-n-p transistors, three of which are employed in the early microphone and playback stages. One serves as a rectifier in the 'record level' circuit and one is a 'driver' on playback. The final pair operate as a class B output stage on playback and as the bias/erase oscillator on record.

The 'record level' control functions between the first and second stages. This, then, means that the microphone signal in full is applied to the first transistor to ensure the best possible signal/noise ratio. On playback, however, this control is muted and the head signal is applied through the first three stages in 'equalized cascade' and the volume control is switched in between the third transistor and the audio driver transistor. The class B audio output stage delivers about 250 mW to the speaker, while on 'record' it produces a remarkably 'clean' sine wave for erase and bias. The DIN sockets give microphone and remote-

Fig.3. The recorder with the lid raised, showing the cassette in position. This lid comes off when the recorder is used in the leather carrying case.



Fig.2. The tape cassette. This holds 300 ft of triple-play tape, and the amount unused can be seen through the window.

of its make-up can be gleaned from the pictures in Figs. 4 and 5.

Fig.3 shows the machine removed from its plastic case. This operation, by the way, can be performed in a couple of minutes. Here can be seen the top of the tape deck, the capstan and pressure roller, the two heads, the spool holders and their drive and braking arrangements, the record level and battery indicator (far right-hand corner) and the small speaker on the left with the DIN sockets in front.

Fig.4 shows the bottom of the printed circuit board and the drive mechanism below the tape deck. The two control knobs are visible at the top of the picture and the drive motor is at the bottom

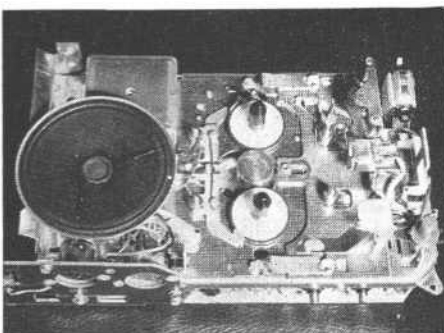


Fig.4. The top of the deck, as seen with the machine removed from its plastic case. Note the record level/battery state indicator in the top right-hand corner.

control switch connections, as already mentioned, provide a 500 mV output across 20 Kohm and accept an input of 0.3 mV across 2 Kohm. A headphone output of 200 mV across 1.5 Kohm can also be obtained.

To test the basic goodness of the oscillator in terms of erasure noise, the noise voltage output from a bulk-erased tape was first measured on playback. This tape was then recorded and the machine's oscillator was employed in the usual way to erase the recording. The noise output at the same playback level was again measured, and it was this time found to be about two or three decibels above that produced by bulk erasure. This small increase in noise voltage output was expected. It is normal with all machines. However, portable-wise it is very good indeed, it being well below that produced by an ordinary permanent magnet erasing system.

The machine was used for recording on a walking expedition and it was slung over the shoulder by the strap provided. A certain amount of wow was produced by the swinging movement of the recorder, as would be expected. About the only way that this could be eliminated is by the use of contra-rotating flywheels, but this is an expensive exercise, well outside the scope of an inexpensive recorder.

Wow effects

Nevertheless, the increase in wow was made negligible by keeping the machine

continued overleaf 29

reasonably steady while recording (not completely still). The remote-control switch was used in the trouser pocket to operate the machine. This worked very well, but care has to be taken in switching on and off the machine by this means to minimize the effect of stopping and starting wow, having in mind that the switch in effect simply cuts the battery power to the motor and amplifier. Thus, if the machine is stopped or started at the beginning or end of a recording, the change in motor speed – although rapid – is clearly discernible on playback. The sensitivity of the microphone channel is remarkably high, and it was not difficult to create good recordings of motor boats going up and down the River Dart at some 200 yards from the centre of the river. Good bird songs with relatively low background noises were also obtained without any special precautions and using the microphone supplied with the recorder.

Adequate sensitivity is available to record lowish-level signals from a source other than the microphone. The author made very pleasant recordings from radio, record player, hi-fi amplifier, FM tuner and second tape recorder through the DIN plug-terminator provided. Moreover, the output signal available is sufficiently high for all applications, even when the signal is fed via a matching device to a high impedance input and its resulting attenuation.

The output tends to drop fairly fast after about 6,500 c/s, which is a great pity. The specification is from 120 c/s up to 6,000 c/s ± 3 dB. This is good, of course, at the low speed of $1\frac{7}{8}$ in/sec, but for those keen enthusiasts who may want to employ the machine for 'sound hunts' and so forth, an improved treble response would almost certainly be desirable to allow for losses when dubbing from the portable to the main recorder.

A faster tape?

There is very little that could be done to the circuit to improve the treble. This is working both at optimum efficiency and equalization. However, it may be possible to rearrange the machine to take a sleeve on the capstan spindle in order to increase the tape velocity and hence the treble response for special occasions. This, indeed, may be a worthwhile point for the manufacturer to consider, for, apart from the mechanical aspect, there would also be the problems associated with alteration to the equalization, putting such a modification outside the realm of the enthusiast.

In spite of the low tape speed, the overall signal/noise ratio is maintained at a relatively high level, almost as high as 50 dB on the sample tested.

The Philips EL3301 is, indeed, a machine worthy of the name of this great manu-

facturer. It has a fantastic potential both as a self-contained tape recorder and as a secondary machine for collecting sounds on location with the very minimum of effort. It is inexpensive to operate – the five U11-type cells giving up to 20 hours of operating time. There is also a car-mounting kit for use with the recorder. This is Model EL3794D/00 and is priced at £12 10s 0d.

As a self-contained recorder, the machine is almost certain to be 'discovered' by the younger generation as a very convenient way (albeit, illegally) of deriving and storing the 'top of the pops'.

An educational aspect

From the educational aspect the machine also has a great potential. It is ideal, for instance, for taping lectures and talks for subsequent study in greater detail. The low motor noise level is a particular attribute in this respect. Apart from these things, the recorder

could well prove of value from the commercial point of view, for dictation, note-making and the like. The author has, in fact, proved its worth from these aspects while car driving.

For use on sound hunting tours or as a portable for sound collecting and location work, the machine is first rate, provided that due allowance is made for the limited treble response. The general record and replay quality up to the driver stage on playback is very good. The distortion is low, and very good results are assured by using this signal to feed into the record amplifier of a second tape recorder or to 'mix' for sound effects and so on.

The non-standard tape, of course, makes the machine singularly unsuitable for ordinary tape interchange activities, but the cassette idea could prove highly desirable for tapesponding as the technique develops, as it surely will. Meanwhile, at 26 gns the EL3301 must be a best seller.

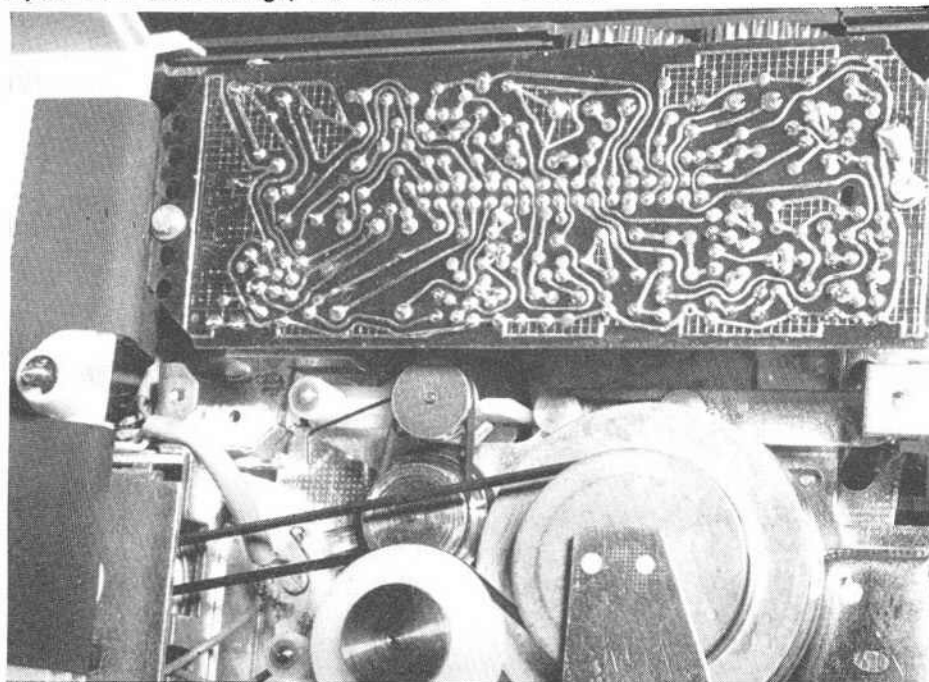


Fig.5. Here is shown the underside of the machine, looking on to the printed circuit board and the capstan drive mechanism.

TECHNICAL SPECIFICATION

Supply Voltage/7.5 V from five U11-type dry cells.
Current Consumption/approximately 100 mA at 7.5 V.
Tape Speed/ $1\frac{7}{8}$ ips.
Wow and Flutter/less than 1% peak-to-peak.
Tape Width/0.15 in (3.8mm).
Track Width/0.059 in (1.5mm).
Tape System/Cassette loaded with 300 ft (90 m) of triple-play tape.
Tape Time/Total 1 hour on two tracks.
Wind Time/Approximately 70 sec for full cassette.
Power Output/250 mW.
Frequency Range/120–6,000 c/s ± 3 dB.

Signal/Noise Ratio/Better than 45 dB.
HF Bias and Erase Frequency/Approximately 35 kc/s.
Permissible Temperatures/41 to 113 deg F (5 to 45 deg C).
Inputs/DIN sockets.
Dimensions/ $7\frac{3}{4} \times 4\frac{1}{2} \times 2\frac{1}{4}$ in.
Weight/3 lb approximately with batteries (1.35 kg).
Microphone/Moving-coil hand type with removable plastic stand.
Remote Control/Main switch type attached to microphone (removable).
Battery Life/Approximately 20 hours, depending on frequency of use.

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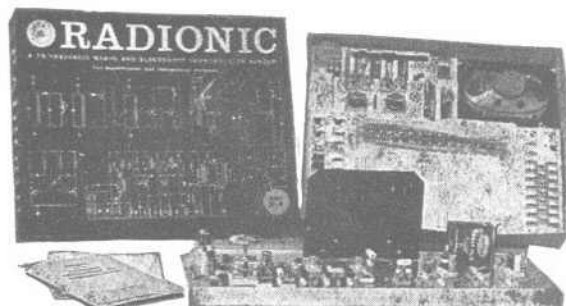
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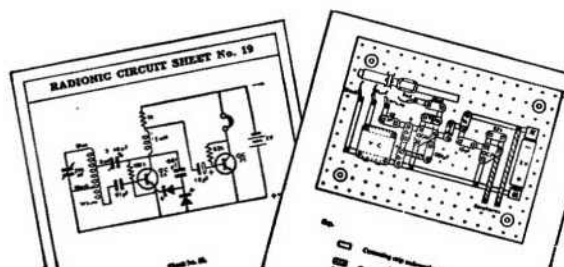
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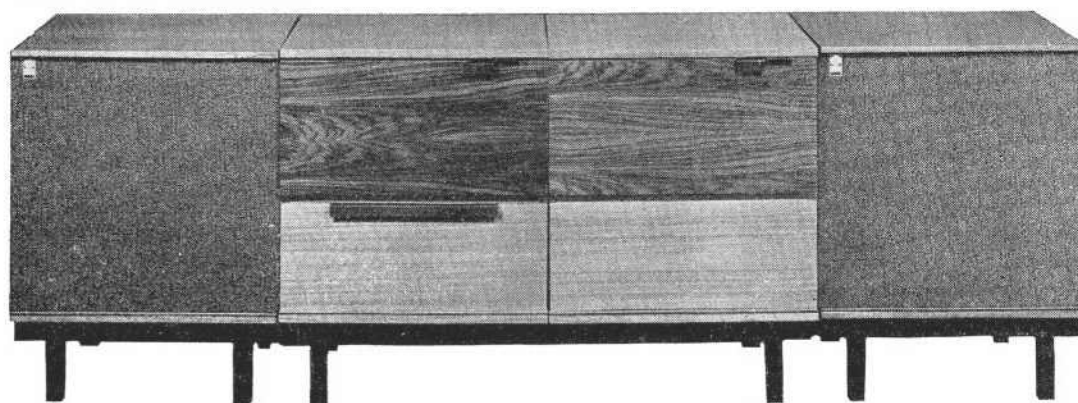
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PRODUCING A PROGRAMME

Clive Moore reveals the pitfalls and pleasures awaiting those who take up tape programme production

At one time my tape recorder was just a useful gadget for capturing items from the radio which I had been unable to hear when first broadcast; but today this is only one of its many applications. I enlist its help in learning music; it has, I think, partly cured an unfortunate mannerism in my speech of which I was unaware until told by the playback head; it has enabled me to keep in touch with distant friends in a way that written letters cannot equal; and it constantly challenges me to do new things with it. The purchase of a Fi-cord 202 to use in conjunction with my Ferrograph 4AN-1 opened up new recording possibilities; and so, spurred on by the work of other amateurs, I went into the programme building business.

To my mind, there can be very few hard and fast rules about production techniques. For one thing, I believe the producer's personality should be expressed in his presentation. Furthermore, different subjects will call for different treatments. Unlike professionals, most of us are limited by the material and equipment available. But to any serious recordist, this last factor should be an incentive to him to see just how much he *can* do with what he has.

My first programme was nothing to be proud of, but it taught me more than any I have done since. Not wishing to jump in at the deep end, I chose a subject with which I was thoroughly familiar: music. Being a jazz and dance band musician myself, I knew most of the people I was to interview, and I felt that I should be more relaxed in their company than would have been the case with complete strangers. The only drawback was that interviews occasionally turned into conversations, which was not what I had intended. The idea behind the programme was to get musicians talking about the music they played and the public for whom they were playing. All the interviews were obtained at a local band cavalcade, during which ten groups covered almost every facet of popular music. Apart from a friend who agreed to look after my machine whilst I was playing, the presence of the Fi-cord took everybody by surprise. This was done deliberately, because, rightly or wrongly, I wanted spontaneity rather than carefully rehearsed answers. On reflection, this wasn't very fair on the person organizing

the event with whom I particularly wanted a chat, and though he was most co-operative, I think it might have been better if I could have spoken to him at a different time.

It was immediately obvious that recording in the ballroom would have been useless for my purpose, but fortunately I was able to commandeer a band room. Music unobtrusively accompanied most of the recordings, with from time to time some rather effective crescendos as somebody inadvertently opened the door. Before setting out on this expedition, I had worked out in which order I was to use my spools: a very elementary precaution, but an essential one to avoid erasing something recorded half an hour earlier. *Blindness created the additional problems of being unable to read the recording level and tape position indicators.* (Unlike some blind people, I am fortunate in being able to feel which is the coated side of the tape, so there were no difficulties with threading.) In a desperate bid not to overload the tape, some of it was in fact slightly undermodulated; setting the correct level came later with practice. There is a better method than trial and error which I sometimes use; though I have yet to hear an automatic gain control system which pleases me, and this is an excellent way of lining up aurally any programme source with which I am unfamiliar. As long as the tape is being driven properly (which I always check at the beginning of each track), my braille watch is an accurate guide to the time I have left on a reel.

I was convinced that I should find interviewing easy, probably because professional broadcasters make it sound easy. Uppermost in my mind were three cardinal rules: try not to put questions which can be answered with a single 'yes' or 'no'; listen carefully to the answers you receive; and be ready at a second's notice with your next question. So what went wrong? Well, perhaps I like the sound of my own voice too much; anyway, I went to such lengths to be the perfect interviewer that half my questions took up nearly as much time as the answers! Another point in my disfavour was that I became too actively involved, at times airing my own views (cleverly disguised as questions) when it would have been better had I simply shut up. At the end of each period

of recording, I played back the last few seconds to see whether all was as it should have been; and a good job I did, because half-way through the evening, for no apparent reason, the recording bias and erase current packed up. In this instance, it turned out to be one of those intermittent faults which gave no more trouble that evening. As a result, I lost one interview, but was able to re-record the end of another thanks to the co-operation of a tenor sax player who was by profession a radio and television engineer, and therefore a most understanding and sympathetic interviewee. Eventually the evening was at an end, and I departed somewhat hurriedly with an inebriated American serviceman in hot pursuit shouting: 'Hey, I wanna say something over your radio!'

Back in the peace of my living-room, I played the tapes back three or four times, partly to find out whether the microphone had heard what I thought it had, and partly to get some idea of how the finished product might sound. A few days later I went through the tapes yet again, this time writing down cue material, which consisted of from three to eight words at the beginning and end of each section to be included in the final programme. Having done this, my next task was to write a script linking the inserts in the order in which I wished to use them. (There were about twenty-five inserts in all; my commentary linked seven of them, the rest simply eliminating unwanted passages.) I had collected fifty minutes of material, and my finished programme lasted for thirty-five minutes; it would have been much better had I cut it down to twenty. Another small but irritating fault was that when recording the commentary, I didn't take the precaution of binding the pages together, and from time to time a distinct rustling of paper is audible.

Only selected victims from my family and friends hear my attempts at creative recording, and this seems likely to remain the situation for some time to come – at least until I can do something with which I am completely satisfied. Nonetheless, there can be no doubt that my first production is a supreme example of what not to do; but I shall keep on trying to improve, and learning from my mistakes as I go along.

C.M. 33

BUYING A TAPE RECORDER

Points to bear in mind
when buying a
new machine
By A. Lester Rands

One of the most difficult questions to answer and one we are often asked is – 'what sort of tape recorder shall I buy?' – to which is often added – 'how much will it cost?'. Or we may be asked – 'I have X pounds to spend on a tape recorder, what can you recommend?' Yet another approach is – 'Here is a list of different makes, which one would best suit my purpose?'

What will you use it for?

Here the enquirer usually fails to mention the 'purpose' in mind which again makes it difficult for us to provide the right answer. So first we must have some idea of what kind of recordings are likely to be made and therefore what facilities may be required of the tape recorder itself. For example, will the recorder be used just for copying programmes from the radio with no more in mind than producing tapes of selected items of music etc., or is it required solely for taping? Is serious and creative recording contemplated which may call for special facilities such as mixing and access to the tape heads for editing? Will track to track re-recording be required, or will superimposing cover the more simple requirements for mixing speech and music?

Some of the medium priced tape recorders now on the market have most of the essential facilities so it would be as well to take a look first at the lower priced recorders which in the main have a somewhat limited scope. This does however, bring to mind another question we are often asked, 'can you recommend a cheap tape recorder?' The plain and straightforward answer to this is – *we do not recommend cheap tape recorders*, although this may depend on what is meant by 'cheap'. It could of course refer to a recorder in the lower price bracket but one which in actual fact has a reasonably

good performance. On the other hand it could be one of the so called 'bargains' offered by certain mail order firms. Most of these are foreign made affairs with a doubtful performance and which often run at some non-standard speed. They will make a recording of sorts from the low grade microphone usually supplied but aside from this they have no potentiality as a tape recorder whatsoever. So first put aside all thoughts about so called bargains and special offers.

Price v. Quality

The lower priced tape recorders made by reputable manufacturers have a guaranteed performance but remember that this must be limited to some extent by the price. The lowest price that should be considered is about £25 and for this you will get a small serviceable recorder with one or two speeds but which may only take a three-inch spool of tape. A microphone suitable for fairly good quality speech reproduction will most likely be supplied, together with a spool of tape. Such recorders are quite suitable for tape corresponding and for music too, if one is not too fussy about the reproduction quality. The quality of music recording would be about comparable with that from a small transistor radio. This is assuming that one makes the recording by holding the microphone near the loudspeaker of the radio receiver. (This is not the ideal

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way to make such recordings.)

The playing time can be extended by using double- or treble-play tape which is very thin tape and therefore a greater footage can be accommodated on a given size of spool. Some improvement in the quality of a recording can be made by using a better microphone. Some of the lower priced tape recorders have an extra socket for direct connection to a radio receiver which will also help provide better reproduction from radio programmes. There are also a few battery-operated recorders in the low price category and many experienced enthusiasts use them for outdoor recording. They usually employ a higher grade microphone however, and copy or replay the recordings on another and much higher quality machine. The Philips EL3514 Starmaker is a typical recorder of this kind and although having a single running speed of $1\frac{7}{8}$ ips is quite capable of making a pleasing recording. It retails at £28. Among the main-operated recorders are the Cossor CR1620 at £26 5s 0d, the Philips EL3585 at £25 4s 0d. There are of course many more to choose from within the £25 to £30 bracket but as the price goes up we can expect to get more by way of facilities. These may include the accommodation of larger tape spools, two or three speeds and possibly mixing as well. The microphone may be a better type and the quality of reproduction

somewhat higher. The frequency response range may be wider too but this is not as important as you may think. A wide frequency response does not always denote good quality of reproduction, and the only way of assessing the sound quality without actually carrying out special tests is to have the dealer demonstrate the recorder for you. If the tonal quality pleases you then all well and good. If not, try another make or type.

Two-track or four-track

This question always pops up and is one which entails a somewhat complicated answer, or at least one which may sound complicated to the newcomer. Standard recording tape is quarter-inch wide and the very first tape recorders employed the whole width of the tape for the recording. Most professional recorders still do this because of the higher signal level obtainable and because of editing etc. Then followed the practice of dividing the tape into two ie, having two separate recording tracks which means twice the recording on one tape. This is known as half-track recording although you will also hear it called two-track recording. (The latter term more correctly applies to stereo recording when the two half tracks are used together for the same recording). With improvements in amplifiers and tape heads came quarter-track recording whereby the standard quarter-inch wide tape carries four

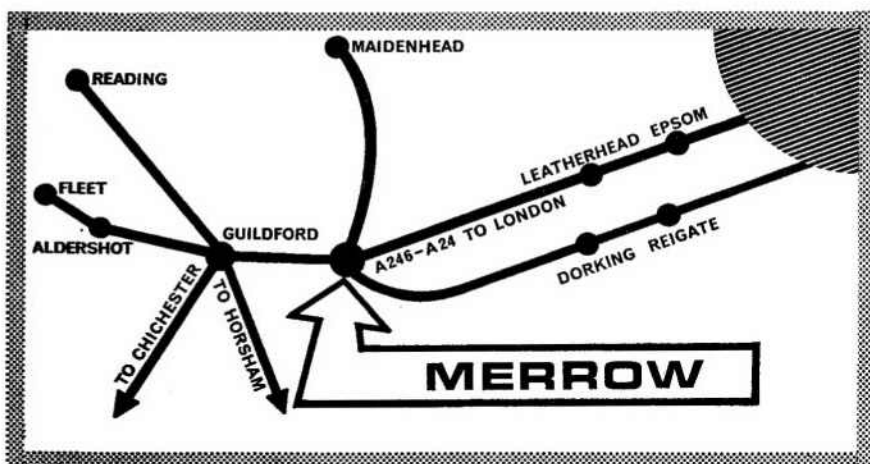
separate tracks and allows twice as much recording again or if you like four times the amount of recording that would be obtained using single- or full-track (the whole width of the tape). This also means that stereo recording time can be doubled. Now the main advantage of half- and quarter-track is the large amount of recording that can be accommodated on one tape but if the tape has been recorded on more than one of the tracks the process of editing, which involves cutting unwanted material from the tape, becomes almost impossible as one may cut through recording on another track. To sum up, quarter-track provides greatest economy and the maximum amount of recording on one tape. Half-track is still economical but allows a slightly better recording quality. Neither lend themselves to really creative recording which calls for quite ruthless editing and therefore much tape cutting. Most enthusiasts choose half-track for the better quality and when material has to be edited they record on one track only.

But whatever type of recorder you choose, do insist on a thorough demonstration before you buy. Make it quite clear to the dealer that you expect to get proper service if anything does go wrong, and don't buy unless you are completely satisfied.

Next month I will deal with the rather more popular range of tape recorders in the £30 to £50 price bracket.

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Merrow is conveniently centred in the heart of "commuter country". There are no parking problems and you'll find it altogether easier and more pleasant to make your choice in our comfortable demonstration rooms without haste or distraction. Our stocks cover a wide range and include all leading makes. Comparative demonstrations of any leading make of Tape Recorder or of any combination of equipment, speakers, pickups, amplifiers, etc., can be given at any time in our showroom or in your home. If it is more convenient for you an evening appointment will be gladly arranged entirely without obligation.



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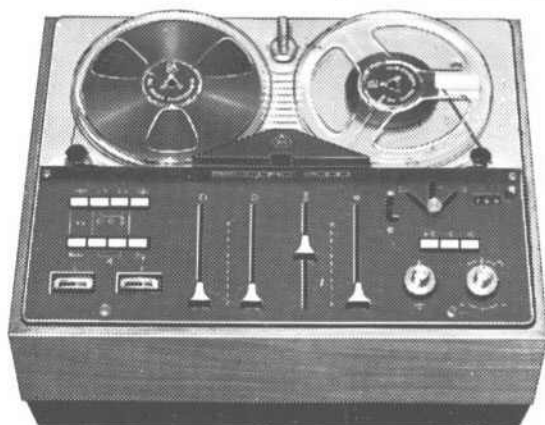
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Beocord 2000 T—The Beocord 2000 is also available as a portable model with loudspeakers built into the lid and has exactly the same technical specifications as the Beocord 2000 K. The lid can be divided; each half forming one loudspeaker unit and giving a performance fully comparable with two stereo loudspeakers. This unit is ideally suited for the enthusiast who insists on the high quality performance of the Beocord tape recorder in a transportable version. Dimensions $10\frac{3}{4}$ " high (including speakers), $17\frac{3}{4}$ " wide, 14" deep. **Price 117 gns.**

◀ **The Beocord 1500**—the very latest tape recorder from Bang and Olufsen. Based on the design of the Beocord 2000 this new tape recorder is technically identical but does not have mixing facilities or an output replay amplifier and is intended for the enthusiast who already owns a high quality hi-fi system yet desires the inherent qualities of the famous B & O Beocord 2000. The Beocord 1500 is available in a choice of Teak or Brazilian Rosewood finish. Dimensions $8\frac{1}{8}$ " high, $17\frac{3}{4}$ " wide, 14" deep. **Price 89 gns.**

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Amateur Tape Recording Video & Hi-Fi

GOOD EVENING - where's the fuse box?

...Recording in church - and the live wires doing it - including David Lazell!

I felt rather sorry for the vicar who recently explained that, owing to overwork, he was forced to play pre-recorded sermons from the pulpit. Not that the congregation liked it. There are, of course, good reasons for their dis-satisfaction, but one cannot help feeling that the use of tapes would, in some respects, improve the general quality of many sermons. After all, the great speakers, like films, could go out 'on general release'. And think of all the ecclesiastical manpower this would release for more important tasks!

Not many people realize that the Church and Sunday School have together developed the use of tape since the earliest days of the domestic tape recorder. And I don't mean merely those long-speaking gentlemen who slumber quietly through play-backs of their own sermons! I talked to a young man who used his tape recorder in his church activities, and in the school where he taught. He told me of the recording, and subsequent play-back, of a spontaneous performance of the story of the Prodigal Son. The boys - of about twelve years or so - were told the story first, then invited to 'act it out' in front of the microphone. The teacher was especially impressed with the young lad, taking the part of the wandering prodigal, who said that he'd squandered his substance 'going to the pictures and playing Bingo'. This method of 'acting out the story' is quite widely used in scripture teaching, and the scripts written by one teacher were so popular that they were subsequently published.* This is certainly a far cry from some of the old methods of Sunday School! Another wide use of tape has been the recording of church services for play-back to elderly

or sick people no longer able to attend. Indeed, some churches organize this on quite a professional basis, ensuring that the best possible results are obtained (no mean task, as anyone who tries recording in a church building will agree). Perhaps the leading pioneer in the use of tape in the service of the church is the Lansdowne Baptist Church of Bournemouth, which, for many years, has sent tape recordings all over the world.

In some respects, this interesting example of the potentialities of tape reflects the amazing revolution in communication of our own times. These days, missionaries working in hospitals or schools in Africa or Asia can send tapes about their activities back to friends in Britain, and which are heard within a week or two of their being made. What a contrast this is, say, to the Africa of a century ago, when the newspaperman, H. M. Stanley, was sent out to find the celebrated Dr Livingstone. All the major denominations, Protestant and Catholic, use tapes in these ways.

Of course, there are problems in their use! Some church buildings have faulty electric fittings, as I have found to my cost. I recall one occasion when a friend and I were invited to play some recordings at a church in South Wales. I was using a record-player plugged in to a rusting light-socket, and, not noticing that I was standing on a stone floor, switched on. The resulting shock threw me some distance from the machine. My colleague beamed at the people present and said cheerfully: 'It's great to know there's something *live* in the church tonight!' Using an expensive piece of equipment like a tape recorder calls for considerable care (and, perhaps, rubber-soled shoes!).

One of the most memorable uses of tape that I recall was a 'missionary evening' which I helped to arrange. As virtually all the missionary societies offer free loan of sets of 35mm slides accompanied by tape recordings, I was able to obtain a set on the social and educational work of a mission in Hong Kong. The tape recording had been made by the missionary who had taken the transparencies, and, in the darkness, it was hard to realize that it *was* a recorded commentary. His talk was so informal and interesting that, as we went through the set of transparencies, it really sounded as if he were in the room, instead of thousands of miles away! These tape/slide shows (which do *not* try to 'sell' any particular 'brand' of religion) are well worth seeing, as they often bring home the complex problems facing the poorer

countries of the world (and, for that matter, those who go there to help).

It's quite surprising how many ways there are of using tape in church activities. You could find no small number of people crawling through dusty organ lofts, microphones between their teeth, trying to find the best situation for recording tonight's organ voluntary. (Heaven help them if some sudden intruder strikes up an arpeggio or two, forte, that is!) A friend of mine, recently 'gone stereo' (how like a clinical condition that sounds), went to considerable trouble to record some hymns performed by the children of the church. The tape will be used before church services instead of the customary organ solos. All this recording has its own hazards, naturally. For some time I was unable to decide whether the bells of a local church - in a former town - were real or just recorded. When standing close to the tower, a certain amount of 'mush' could be heard... I wonder if the death-watch beetles were fooled, too! I suppose careless choir-boys could be threatened with redundancy - with the use of pre-recorded tapes of the best choirs - when they sing out-of-tune.

A lot of people say that the church is 'old-fashioned'. In some respects the criticism may be just, but I prefer to think that this energetic use of tape is a modest expression of the imagination you can find in many churches these days. One last point... try asking *your* local vicar where he keeps the fuse-box. If he can give you the answer in less than thirty seconds, he's probably got a tape recorder!

*The twelve dramatic interludes were published by the Religious Education Press Ltd, Wallington, Surrey, the company which also publishes quarterly reviews of audio/visual aids in religious education (AVA magazine, 6s annual subscription).



'Yep! It's time we started the church bells'



'Didn't anyone mention it's just dc here Mr Twitt?'

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(Left) WYNDSOR 707

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(Right) WYNDSOR SABRE II

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tape club news

We apologize for being unable to publish the 'Top Ten' for last month. It is included in this edition of Club News, together with the score for this month. A few clubs have written complaining that their news items have not appeared in Club News. There are two main reasons why, and the first is that the news may have arrived too late. News items which reach us even only one day after copy date are too late. This is often due to delay in the post, so advice here is to allow at least three or four days for your letters to reach us. A recent check on postal deliveries revealed that on an average letters coming into London, even from the suburbs, can take three to four days; some have taken as long as five days! Another not unusual reason is that clubs often send in news which is outdated; for example, this month we received details of events that had taken place last May, June and July! So make sure your news comes in on time and up to date, and be sure of seeing it in print!

FCJ

Club meets club

The Radio Club of Scotland (tape recording section) recently met the Dundee Tape Recording Club at Auchterarder. The afternoon and evening brought a selection of tapes, games and films. Wives of the tape recordists were also there in force and they enjoyed the programme which was compiled with them in mind.

Another event outside the clubrooms, and a very worthwhile venture, was the visit made by club members to Glasgow's Museum of Transport. Many feet of tape were used and an interesting and informative evening was had by all.

In the clubrooms, the club's first 'Auction Night' was held. Members brought along unwanted pieces of equipment they wished to have auctioned off. As well as unusual programme material, tape was not forgotten; for John Douglas gave a lecture about magnetic tape and John Wood talked about tape records. Anyone interested in tape recording, be he a beginner or old hand, will be made most welcome at this club. Please write to the Secretary, J. A. Douglas, 113 Novar Drive, Glasgow W.2.

The club they met

When the Dundee Tape Recording Club met with members of the Radio Club of Scotland, making a grand total of 72 tape recording enthusiasts, it turned out to be a fine social event. A visit to the Local Toc-H hospital radio studio revealed how sound and TV programmes are made for the Dundee hospitals with advice and assistance from the BBC and Scottish Television. Some of the members of the Dundee TR club have been roped in to help with this very worthy service.

The club news letter gives full details of meetings up to June next year. (At least we assume it is June, 1966—the news letter quoted 1965!)

New club room for Derby

The new clubroom has been fully approved by members of the Derby Tape Recording Club and they are running a campaign for new members. (Secretary: D. Flecknoe, 464 Osmaston Road, Derby.) Recent activity includes a recording contest and a film showing of the club members' day out in Blackpool.

Tape in education

At the request of the Dundee College of Education and with the co-operation of a local primary school, a member of the Montrose and District TR Club spent four very interesting days taping the reactions of children to an educational aid. A copy of the tape is now

Operatic Society. Members were pleased to welcome Mr Griffin, well known in the Midlands in recording circles as an expert in hi-fi. His disc equipment included stereo transcription units with the latest cartridges, expensive amplifiers and electrostatic speakers and his expertly prepared programme included demonstrations of some well-known stereo recorders. Michael Dagnall is now the proud owner of a Fi-Cord 202A portable, presented by ATR as a result of the 'Soundtour to Denmark' competition.

Teaching by film

Reading Cine and Tape Recording Society has a problem on its hands—how to teach tape recording techniques to the complete beginner. Recently they have been running a series of 'Beginners Lecturettes', extending over the season to teach both tape and cine to the



Members of the Walthamstow and Redbridge Tape Recording Societies at their recent interclub recording contest. (Photo by Redbridge TRS)

being studied by the college staff and is expected to provide information which will be useful in assessing the value of the aid. Due to the influx of new members to the Club it has been found necessary to reorganize the club programme to include a short and fairly intensive course of tape recording covering operation, editing, dubbing, etc. The exercises are to be judged by a local sound engineer to professional standard and returned with markings and constructive criticism. A note is also being made of members showing particular talent or aptitude in any one branch of recording. Progress made during the past few weeks indicates that tapes of a very high quality can be expected in the near future. Other recent activity included providing PA and recording equipment for a local function, a talk on microphones and an experimental club magazine.

B-TRAC contest

When members of B-TRAC judged their second bi-monthly tape competition Michael Dagnall once again came first, this time with a résumé of recordings made with the club over the last twelve months. This was closely followed with an excellent tape by Dave Taylor entitled 'Time' and third place was shared by chairman Laurie Watson, who interviewed some fishermen at work, and Terry Morris, who had entered recordings of the Dunlop

absolute beginner, but committee members now believe they may be able to kill two birds with one stone by making a short film explaining how to handle the tape recorder! In this way the film side of the society is given an exercise and, if successful, the finished product will be available for inclusion in a tape lecturette each year.

Interclub contest (see photograph)

At the interclub contest between Walthamstow and District Tape Recording Society and Redbridge it was a double win for Walthamstow. First prize was awarded to Ken Perks for his entry the 'Human Brain', with Don Cooper's entry, a documentary on 'Glider Flying', taking second place. This is the second time that Walthamstow have beaten Redbridge in a contest.

New Circle Tape Recording Society

This old-established society still meets at 7.30 pm every Tuesday at the Shoreditch Tabernacle as it has done for the past seven years. New members are welcome and instructional classes on creative recording are available to them.

New meeting place for Brighton

Two meetings have already been held at 14A Georges Place, Brighton, the new venue of

(continued overleaf) 39



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the **Brighton Tape Recording Society**. Recent activity has included a history of the club on tape, results and tapes of the British Tape Recording Contest and Brighton speed trials on film and tape.

Closed-circuit TV

The second Slade 65 closed circuit TV show took place recently and displayed all amateur built equipment. **Slade Radio Society** featured in part of the show which they produced themselves and included a 'magazine' programme, humorous sketches, and an extract from 'The Importance of Being Earnest'.

TOP TEN FOR NOVEMBER

- | | |
|-------------------|--------------|
| 1. Singapore | 6. Newcastle |
| 2. Southall | 7. B-TRAC |
| 3. Thornton Heath | 8. Furness |
| 4. Park | 9. London |
| 5. Rugby | 10. Reading |

TOP TEN FOR DECEMBER

- | | |
|-------------------|------------|
| 1. Montrose | 6. Reading |
| 2. Radio Scotland | 7. Norwich |
| 3. Thornton Heath | 8. Millom |
| 4. Rugby | 9. Leeds |
| 5. B-TRAC | 10. Dundee |

Going like a bomb!

Members of the **Norwich TRS** really feel they are going places fast. Recent activities, including their 'Norfolk dialect' project, have received tremendous publicity in the county, being featured in both morning and evening papers. The *Daily Mail* and the *Daily Express* both carried short items on the Norwich club and it was also mentioned in the *East Anglian News* on the local VHF wavelength. In conjunction with their own publicity campaign, this has resulted in members being able to contact over a dozen people throughout the county who still speak in genuine local dialects. Nevertheless, Club publicity efforts continue. Two members who are shop-keepers carry stickers and posters in their shop windows and Secretary John Butcher is designing a simple car sticker for members to display. As a result of all this, applications for membership are constantly flowing in, sometimes at the rate of five a week. Older members were on hand to talk about recorders and recording to the **Norwich International Club** recently and they are also hoping to arrange joint meetings with **Yarmouth TRS** and perhaps stage a one-day exhibition.

Ladies bow out

It looks as though members of the **Rugby TRS** will have to organize a baby-sitting service if they are to maintain their record of high attendances at club meetings. The fifth 'club baby' was born recently, parents being staunch club members Jean and Ernie Crane. They now join Alec and Anne Russell, Janet and Pete Clarke, Mr and Mrs Harold Hawkins and Mr and Mrs Rory Martin in taking turn-and-turn-about in looking after the new arrivals. Certainly it seems as though Ladies' Night will have to bow out for a while. Other activities by members have included the taping of musical effects for a teenage fashion show at a local boutique, a demonstration of Pye Brahms equipment, a number of tape quizzes and an evening looking at some of the cheaper items of audio equipment and their respective merits.

Typewritten tape!

Members of the **Millom and District TRC** were quite surprised to see a tape from the new **Barrow Soundtrack Club**. Nothing so unusual in that except that the tape measured 17 yards and was typewritten! Ten members of

this new club recently paid a visit to Millom, during which everyone enjoyed a lively recording session followed by potato pie supper. Two of the Millom club's members travel in to meetings from Whitehaven—a round trip of 65 miles. Other club travelling included a visit to Keswick to make location recordings of the **Crossthwaite handbell ringers** (a round trip of almost 100 miles) and to the opening of a new social club in Whitehaven. For keen **Cumberland recordists** distance has no object.

Sound slogans

Members of the **Leeds and District TRC** have been trying to dream up some sound slogans which could be applied to tape recording itself or those who indulge in it. Two of their efforts were 'you don't have to be mad but it helps' and 'money speaks' (referring, of course, to some of those expensive loudspeakers!). Club discussions on wow, flutter and hum were followed by a dubbing exercise using a Tandberg 6, a Revox E36 and a Revox 736. Members found that after only three dubbings (at 7½ ips) some difference could be detected between the master and the end product. This figure naturally varies according to the standard of tape used, but Leeds members are interested in hearing how other clubs have fared in similar exercises.

Self support

Pursuing their policy of being more self-supporting, members of the **Thornton Heath TRC** have not yet booked any outside demonstrations for the forthcoming year. Instead, members have taken turns in producing their own programmes. David Kennard, fresh back from India, and on his way to Moscow, played a programme entitled 'The Factory' (from the BBC's Landmark series) in which he had so large a part in producing. Members have had their own tape night as well as their own story night and monthly contests, hospital programmes, etc., have carried on as usual. Two members also spent six consecutive days tucked away in the basement of the BBC

helping other members of the Federation of **British Tape Recording Clubs** organize the **International Tape Contest**.

New secretary

As Len Ask of the **Great Yarmouth and District TRS** has taken up an appointment in Bradford, he has had to leave the club and relinquish his post as Secretary. The new Secretary is Ron Wain of 9 Hawkins Avenue, Great Yarmouth. The club recently embarked on a series of four live recording sessions, the most colossal of which was the recording of the centenary celebrations of the **Salvation Army** at the **Yarmouth Hippodrome**. It fell to five members to string microphones on the flying trapeze, cart equipment around seats and steps and eventually set up shop in their position in the 'gods'!

Disappointing show

Bad weather led to a great disappointment for members of the **North London Tape and Hi-fi Club**. After having put many hours of work into the production of a stand at the **Enfield Show** and manned it for the opening session on the Friday, members turned up for duty on Saturday morning only to discover stand and posters smashed in the mud as a result of stormy weather. Fortunately, no equipment suffered damage and it should be possible to re-build the stand for next year's Show, but a great recruiting opportunity was missed. Perhaps one of the most disappointed was Colin Deane, a 14-year-old blind boy who had specially produced three copies of the club's magazine in braille for the Show. The whole content of the magazine was recorded on tape for Colin to punch out on his braille machine. However, it is hoped that further use of this idea can be made at a later date.

Material for inclusion in **Tape Club News** should be sent to Mrs Kim Cook, *ATR*, 86-88 Edgware Road. Copy date for the January issue is 22 November and for the February issue 28 December.

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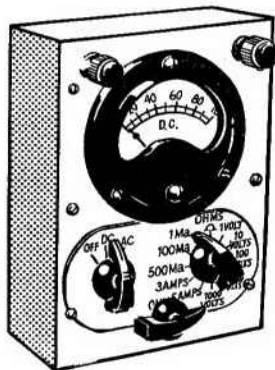
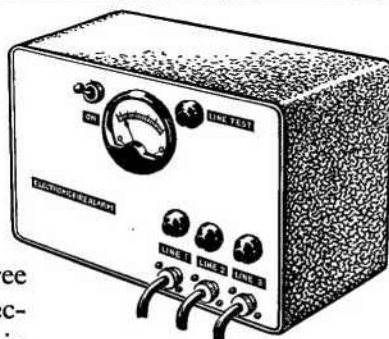
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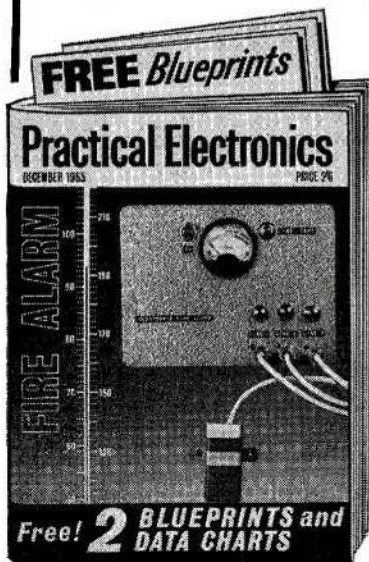
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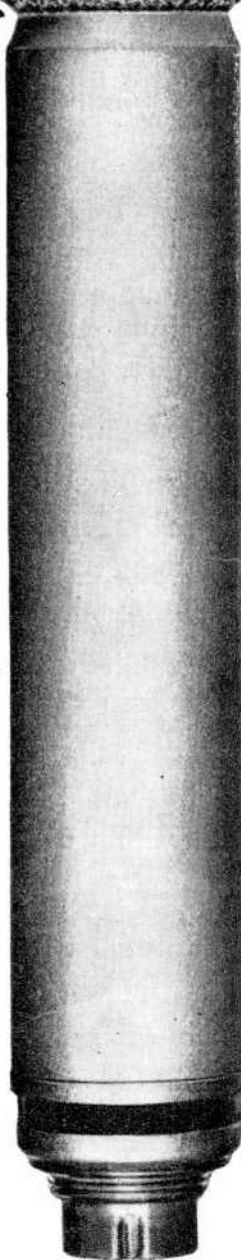
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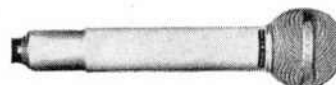
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CANADA

W. J. Ayre, 31, director, 7 Waterford Bridge Road, St John's, Newfoundland, Canada. Reading and countryside; folk and classical. Sony 500 stereo and mono, Ampex stereo and mono, 7 in., 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Any European (in English or French).

NEW ZEALAND

Kenneth Howard, 35, public servant, 16 James Street, Glenfield, Auckland, New Zealand. Motoring, colour slides, B & W photography; all except chamber and opera. BSR 4-track, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. West London, Cornwall, West Coast USA, Hong Kong, Canada, Japan.
Ray Wolf, 29, hospital storeman, 508 The Terrace, Thames, New Zealand. Recording, postcards, people and countries, general natter; almost everything. (Home-made) BSR deck, 5 $\frac{1}{2}$ in., 3 $\frac{3}{8}$. Anywhere.

RHODESIA

Norman Thompson, 31, clerk, 29 Cardigan Road, Queens Park East, Bulawayo, Rhodesia. Anything and everything; light and pop. Philips, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$. English speaking. All answered.

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Bennie Van Rhyn, 27, draughtsman, No 1 Anned Court, Connaught Road, Tiervlei, Cape, South Africa. 35mm colour slides, hi-fi; pop music, light classical. Collaro studio deck, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. America, England. No letter necessary.

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Cpl Ron Sully, 29, Sgts Mess, RAF, Akrotiri, Cyprus, BFPO 53. Recording; jazz, C & W, pops. Sony TC 500, 7 in., 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Anywhere in the world English speaking. No letters please.

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Roy Fells, 30, estimator, 15 Brighton Road, Darlington, Co Durham. Motion picture soundtracks, music; modern, jazz, light. Philips EL3552, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$. Overseas only.

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Edward Albury, 55, author, Beau Rivage, Oaktree Close, Exmouth, S. Devon. Art, literature, social questions, imaginative tape recording; church organ to barrel organ. Ultra, 5 $\frac{1}{2}$ in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$. England, USA, Latin countries. English or French speaking.
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ESSEX

Bill Froud, 50, fitter, 34 Woburn Avenue, Theydon Bois, Essex. Camping, motor racing, tapesponding; all types. Sony 521, stereo, Stella mono, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$, 4-track. Denmark, UK, USA. Males only.
David Smith, 21, draughtsman, 147 Oakwood Hill, Loughton, Essex. Tape recording, hi-fi, big bands, motor cycling, civil defence, discs, chat; all types. Philips EL3549/15A 4-track, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. British Isles.

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C. D. Richards, 55, motor driver, 1 Hope Street, Salford 7, Lancs. Short wave listening, recording records, tape recording; brass bands and good music. Magnavox TM 800, Cossor CR 1604, Cossor portable CR 1620, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. UK.
Anthony Rimmer, 16, TV servicing apprentice, 5 Duncan Street, St Helens, Lancs. Fishing, radio ham; pop. Philips EL 3586, 4 in., 1 $\frac{1}{8}$. USA.

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Michael Riley, 25, hatter (salesman), 39 Alexandra Street, London SE14. Youth hostelling, cycling, walking, films; classical, pop. Marconi 2-track, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. UK, Eire, Canada, USA.
John Snoad, 31, structural engineer, 397 Cannon Hill Lane, Raynes Park, London SW20. Norwegian language, mountain walking, photography; classical only. Tandberg 62, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Norway.

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James Fawcett, 52, insurance broker, Lundy, Sand Road, Sand Bay, Weston-super-Mare, Somerset. Fair organs, short wave listening; musical comedy. Grundig TK 18, 5 $\frac{1}{2}$ in., 3 $\frac{3}{8}$. Any.
Reg and Lucy Lethby, 55, watchmaker, 8 Orchard Place, Weston-super-Mare, Somerset. Cine and still photography, general interests; light to classical. Grundig TK14, 5 $\frac{1}{2}$ in., 3 $\frac{3}{8}$. UK.

STAFFORDSHIRE

Denis Barlow, 20, industrial shift chemist, 263 Walsall Road, Darlaston, Staffs. Hi-fi, sound effects, 8mm cine. Ferrograph 5A, 8 $\frac{1}{2}$ in., 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Anywhere.

YORKSHIRE

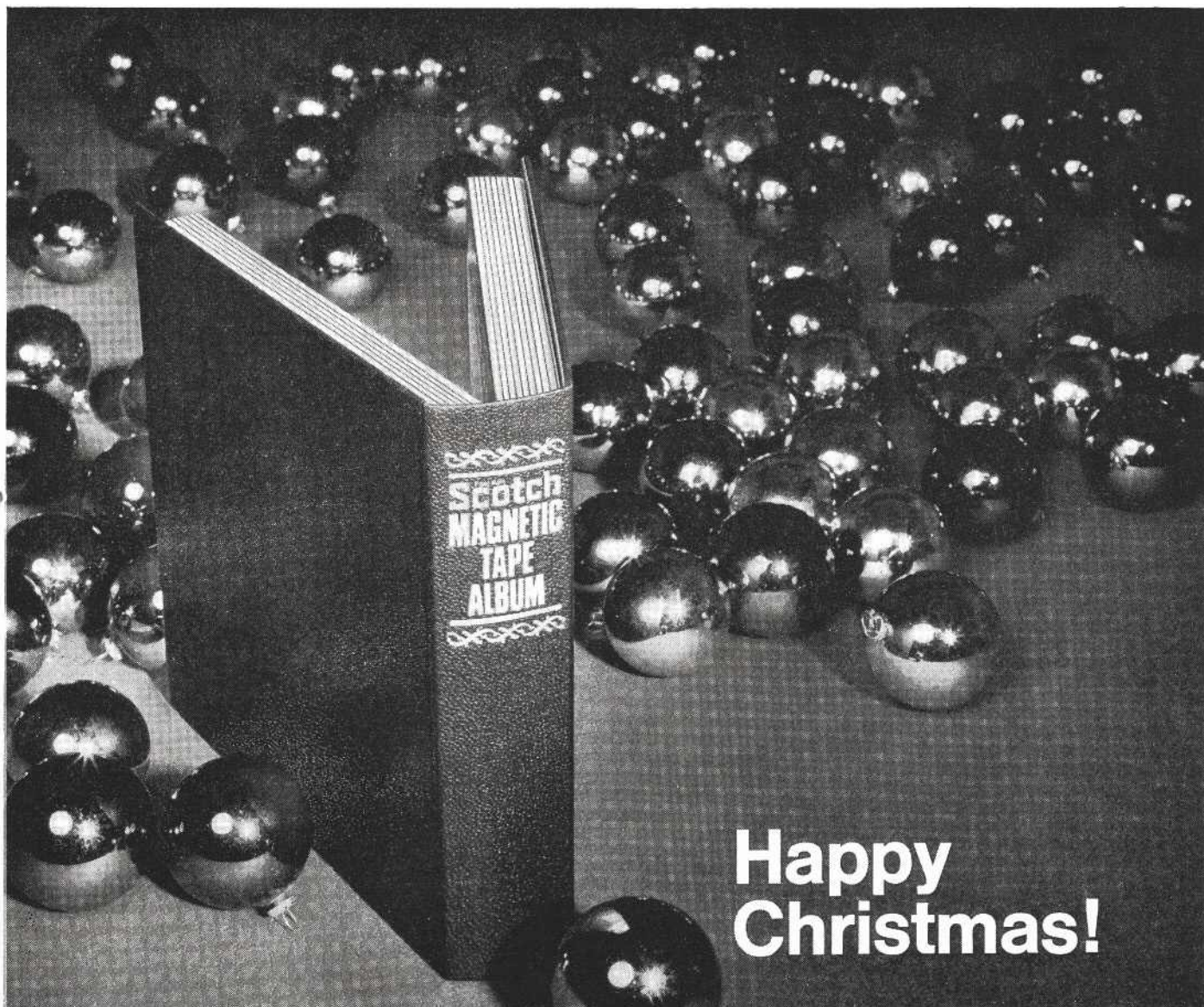
Peter Foster, 20, apprentice joiner, 69 Bothferry Road, Hessle, East Yorks. Motor cycling, TA, recording, bowling; pop and comic records. Philips EL 3552, 5 $\frac{1}{2}$ in., 3 $\frac{3}{8}$. USA, France.
George Wilson, 40, driver, 23 Highfield Street, Cemetery Road, Pudsey, Yorks. Motoring, travel; pops, light classical. Philips, Cossor stereo, Brenell MK5, 7 in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$, 15. Anywhere, male only.

SCOTLAND

Bjorn Bjortorp, 22, student, 40 Lansdowne Crescent, Glasgow NW. Electronics; classical. Tandberg, 10 $\frac{1}{2}$ in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Canada, USA.
Ian Young, 21, salesman, 41 Clarendon Street, Glasgow NW. Photography, cars, films, modern dancing, humour; popular. Grundig TK5, 5 $\frac{1}{2}$ in., 3 $\frac{3}{8}$. Anywhere, male or female.

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John Bennett, 43, mechanic, 15 Garnon Street, Caernarvon, Wales. Sea fishing, motor vehicle repairs; classical. HMV 4-track, 5 $\frac{1}{2}$ in., 1 $\frac{1}{8}$, 3 $\frac{3}{8}$. European, Australia, USA, Canada.
Ralph Down, 15, schoolboy, 20 The Crescent, Machen, Mon. Electronics, hi-fi electronic organs; pop, classical. Grundig TK 20, Truvox, 7 in., 3 $\frac{3}{8}$, 7 $\frac{1}{2}$. Girl in any English-speaking country.



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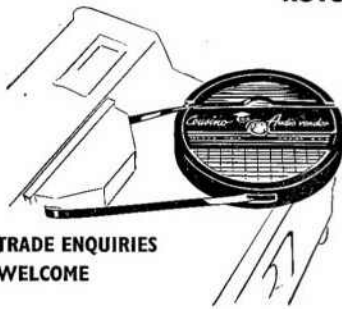
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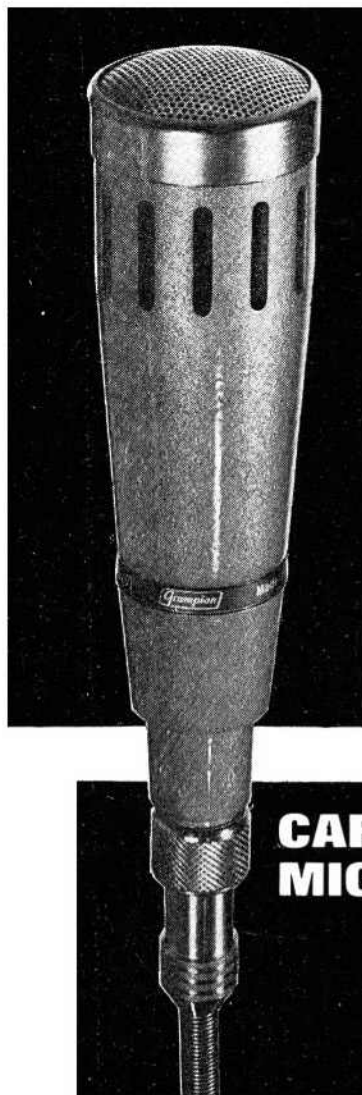
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Sleep study and therapy. Two revolutionary new techniques in their respective fields of Academic Learning and Mental Health which have been rendered possible by the invention of the modern tape recorder. Learn difficult lessons, memorize new data at short notice, master foreign languages, parts in plays or improve your mental powers. Send now for free details of our Sleep Study Recorder, Time Switch, Pillow Speaker, Cassettes, Induction and Language Tapes, and general information about these vital subjects. Psychology Tapes Ltd, Dept ATR, 16 Kings College Road, London NW3. PRImrose 3314. The foremost suppliers of Sleep-Learning Equipment in Britain.

Make friends Down Under by joining The Australian Tape-recorders Association. Details: Fred Rickers 5 Belmont Road, Andover, Hants.

You ought to send for a copy of 'Psychology and Whisper Teaching' to 1 York House, Huddersfield - 5s 9d post free.

Could you spare an hour of your time once a month to help Oxfam? Extra voluntary helpers urgently needed to collect 2s 6d Pledged Gifts from eight friends or neighbours. You could easily raise £1 a month. A Devon helper writes: 'Everyone has been so kind and willing and I've made new friends through collecting.' Please write for explanatory leaflet to Miss Joan Chapman, Room 50, Oxfam, Oxford.

Record Library. Borrow your L.P.s. Write to Ismyr Record Library, Snape, Nr. Saxmundham, Suffolk.

Learn while you sleep. Learn languages, memorise speeches and sales presentations, absorb business statistics or the highway code while asleep with Learnasleep Equipment. Details from Sleep Learning Supplies, (Dept ATR), 245 Capworth Street, Leyton E10.

Highest cash prices offered for good quality Tape Recorders. Hi-Fi Equipment and LP Records. REW. Earlsfield Ltd, 266/8 Upper Tooting Road, London SW17. Tel BA1 9174.

Revising for exams? Play discs or tapes and relax. 'O' level French in 1½ hours. English Language 3 hours. Box No 227.

Limited number of WWTT Magazines now available to non-members. Send 1/- (stamps) for copy and find out what makes Tape-talkers Tick! Worldwide Tape Talk, 35 The Gardens, Harrow.

CY Tapespondence Club. All ages, SAE for details. 22 Baker Street, Weston-super-Mare.

PRE-RECORDED TAPES

American 4 track stereo tapes covering most famous labels at realistic prices. Why pay more? Imported directly by us, saving distributors' profits. Vast selection at 75s each—send SAE for free lists or call at London showrooms. Teletape of Marble Arch, 33 Edgware Road, W2.

Two track tapes. Armed forces radio broadcasts. Rare radio broadcasts and jam sessions. Air checks and out of print recordings by all the great bands. Bill Ordowski, PO Box 121, Port Huron, Michigan, USA.

MAGNETIC TAPE

A unique tape buy. Top brand. 7 in, 2,400 ft, 25s; 5½ in, 15s; P & P 1 at 2s, 2 at 2s 9d, 3-6 at 3s 6d. Bargains in all sizes. SAE for list. E. C. Kingsley & Co Ltd, 93 Tottenham Court Road, London W1. EUSton 6500.

Brand Five polyester tapes. P & P free. Send 5s for sample 600 DP on 7 in reel. Minim (ATR), Kenley, Surrey.

TAPE TO DISC

J & B Recordings. Tape/disc. Mobile unit. Wedding experts. 14 Willows Avenue, Morden, Surrey. Mitcham 9952.

Tape to Disc Recording. Finest professional quality: 10 in LP, 42s; 12 in LP, 48s; 7 in EP, 21s; 40 ft recording studio; 48 hour postal return service. Any speed tapes. SAE for leaflet. Deroy Sound Service, 52 Hest Bank Lane, Hest Bank, Lancaster.

John Hassell Recordings. Tape to Disc. Studio and mobile services. 21 Nassau Road, London SW13. River-side 7150.

Rapid Recording Service. Records made from your own tapes (48-hour service). Master Discs and pressings. Recording Studio - Demo Discs. Mobile recordings, any distance. Brochure from 21 Bishops Close, E17.

If quality and durability matter (especially with LPs from your precious tapes), consult Britain's oldest transfer service. Our mobile units attend anywhere for mono/stereo master recording. Records published tax free for schools, choirs, orchestras. Sound News Productions, 10 Clifford Street, London W1.

EQUIPMENT FOR SALE

Don't Buy A Tape Recorder until you have visited the Barden/Grundig Centre opposite Dalston Junction Station. All Grundig models are available on easy terms with generous part-exchange allowances. The Grundig Centre, 21 Dalston Lane, E8. CLIssold 8811.

'Somerset' 10 and 30 watt output transformer. Transformer Equipment Limited, Railway Place, London SW19.

Unbiased guide. Our latest sixty-page, photographically illustrated hi-fi catalogue (4s 6d). Advisory service, preferential terms to Members. You'll be glad to have consulted Audio Supply Association, 10 Clifford Street, London W1.

For sale: Grundig Stereo 608 mixer. Unused. £13. Box No 228.

Elizabethan LZ29 4-track, 3-speed Mono Tape Recorder. Good condition £20 o.n.o. Stride, 10 Dence House, Turin Street, London, E2.

TRUVOX

The new Truvox "Series 40" (see page 10) is the first professional recorder with the amateur price tag. Yours, in all its shining new splendour, for only 44—repeat, 44 GNS! If you didn't receive our leaflet in the last issue write to K. C. Smith at

TRUVOX LIMITED
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Make certain you receive your copy of AMATEUR TAPE RECORDING Video and Hi-Fi by completing this form and sending it, with your annual subscription, to:

AMATEUR TAPE RECORDING, SUBSCRIPTION DEPT,
86-88 EDGWARE ROAD, LONDON W2

Please send AMATEUR TAPE RECORDING Video and Hi-Fi for one year, commencing with the next (.....) issue, to the address below. I enclose the annual subscription of thirty shillings (30s). ATR will pay the postage.

Name

Address

Date.....

Tape Club members wishing to avail themselves of the special Club Subscription rate of 25s per annum should apply to their local Club Secretary. All Club orders must bear the Club Secretary's signature and be sent to the Subscription Department.

ATR postal bookshop

A selection of audio handbooks and guides readily available to you through Haymarket Press Ltd. (All prices include postage and packing.)

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(Focal Press Ltd) | by H. Woodman
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| 8 Radio and Electronic Hobbies
(Museum Press) | by F. C. Judd
23/6 |
| 9 FM Radio Servicing Handbook
(Odhams Press) | by G. J. King
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M.13



You plug a microphone into your Grundig tape recorder.

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Meet an interesting tape recorder. The Grundig TK18L, which sells for 41 guineas.

It looks simple. Six press-buttons and a few controls.

It is simple. But behind the scenes lies a lot of work by Grundig. Each TK18L has a history before it reaches you. Checks. Anything up to 150 of them. Noise level tests (that's the humpots!). Recording tests (that's the fluttermeters!).

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The TK18L is a twin-track machine with Grundig's automatic 'Magic Ear'

recording level control. That means no knob-turning while you're recording. The 'Magic Ear' balances every noise it hears—from a whisper to a cymbal crash. And the sound that it plays back is *natural* sound—with no hum, no motor noise.

The TK18L is not the cheapest tape recorder you can buy. But in case you don't think you're getting a bargain, Grundig give you a spare spool and tape worth £2. Plus an unusually high-quality microphone. Separate, that would cost you about 7 guineas.

Your Grundig dealer has a TK18L. Talk to him.

Or better still, plug in the Grundig itself. And listen.

Valuable - but free if you post now!

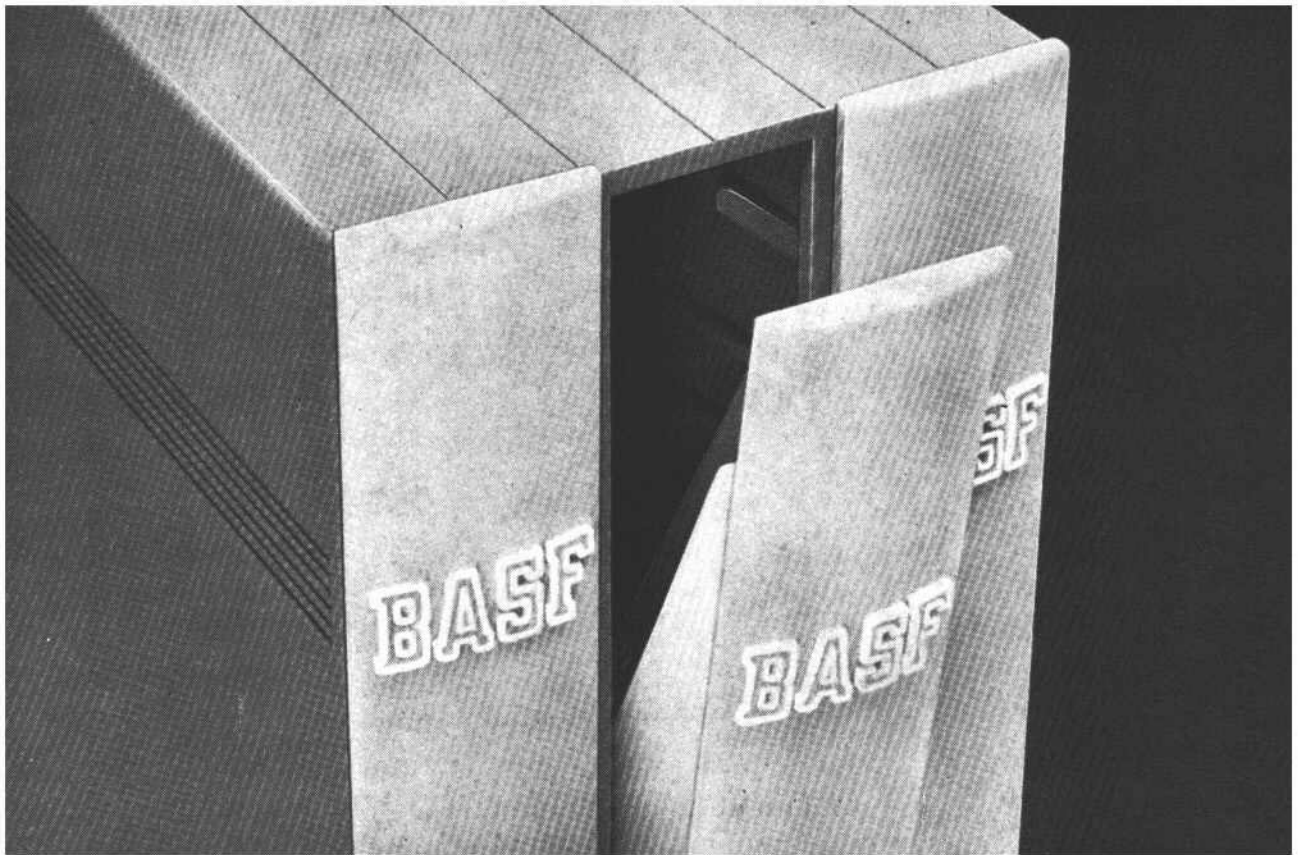
'The Grundig World of Sound.' This 20-page colour book illustrates the full range of Grundig tape recorders, radios, stereograms and accessories. To get your copy post this coupon now to Grundig, London, S.E.26.

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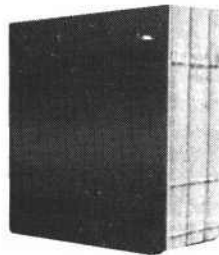
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