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MAGNETIC
TAPE** pages
17-27

TAPE

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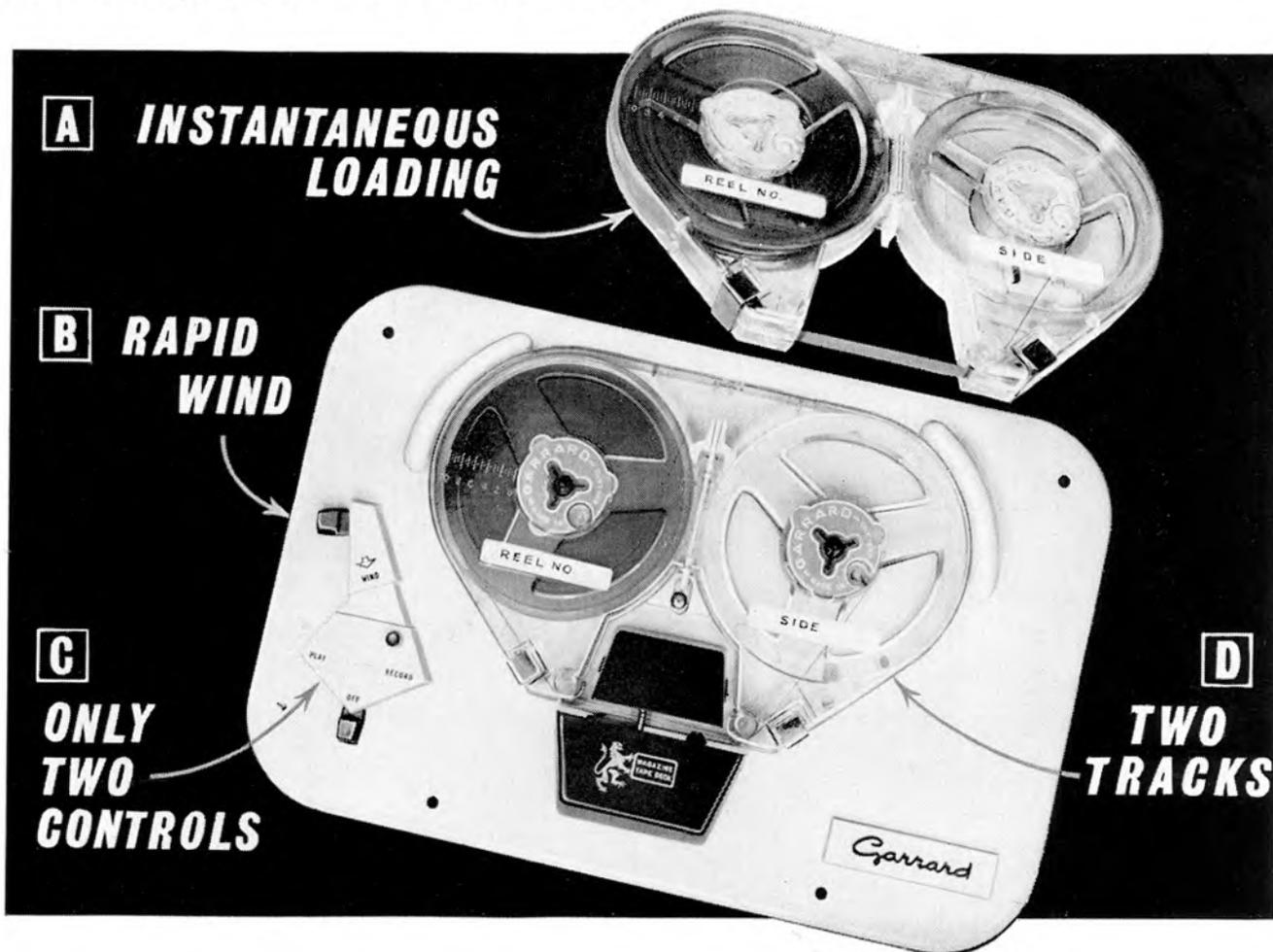
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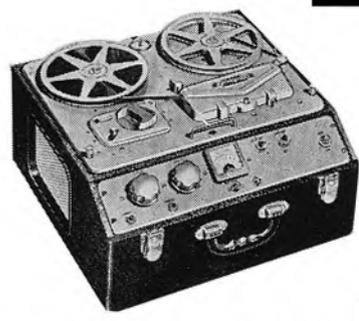
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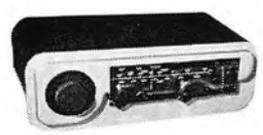
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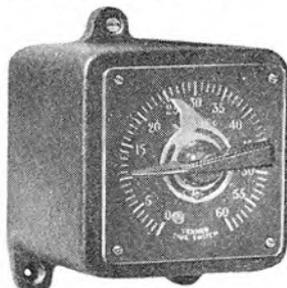
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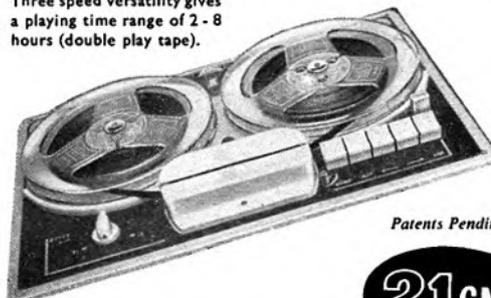
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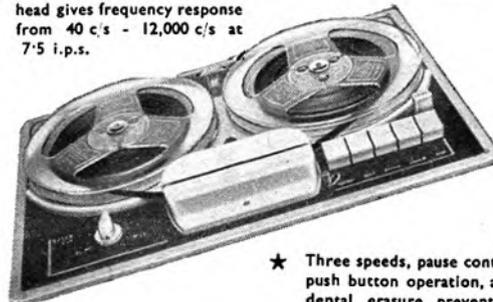
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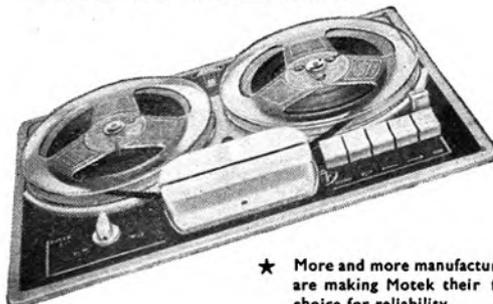
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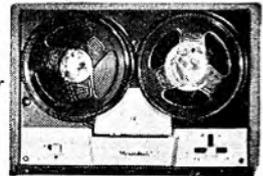
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25 GNS

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TOP

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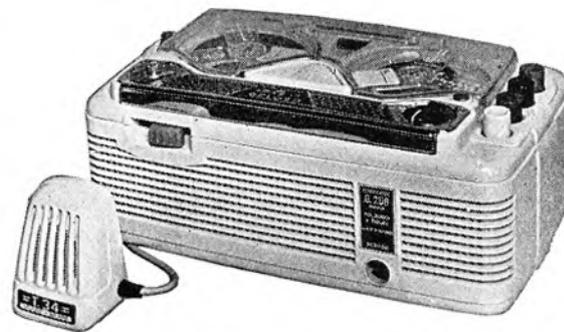
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Almost 90 minutes of your favourite music or whatever you choose on one tape ... recorded and replayed to a standard of perfection beyond your wildest dreams. So light and portable you'll love to take it to every party you go to, to capture every fleeting word and happy song, to be re-lived just whenever you please ... and the price.

26½
Gns.

(Complete with microphone and tape)



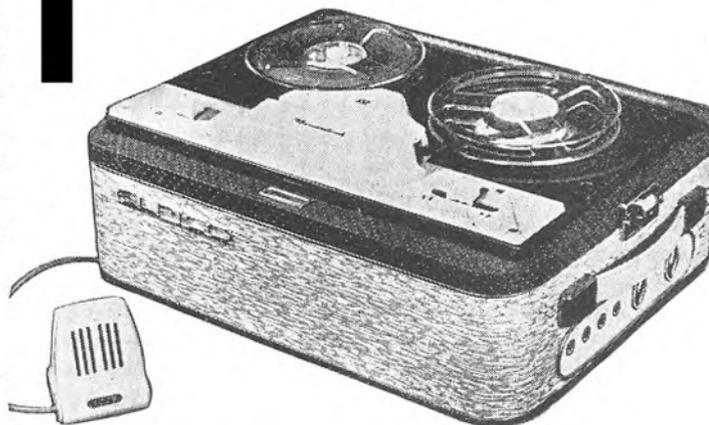
High-quality reproduction at 1½" per second from extra high flux elliptical speaker. B.S.S. tracking. Simple push-button control. Accurate place indicator. Dimensions 10" × 5½" × 4". Weight only 6½lbs. Isolated chassis.

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Complete with high fidelity microphone and 600ft. tape and spare reel.



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Something to Shout About

But please whisper it

IF your announcement is eagerly awaited, there is no need to shout the odds in letters ten feet tall, nor to roll the drums and fanfare the trumpets. Good news travels far fast and the launching of the new WyndSOR portable, the "Victor," really is something to shout about. But a whisper seems to have been enough to set the tape-recording world by the ears and when even the elder brethren in the electronic trade join in the excitement there must be a mighty good reason. And there is: the shapely WyndSOR "Victor," is a quality-all-the-way portable, so beautifully designed and executed as to bring professional-sounding recordings within the reach of the most non-technically-minded amongst us.

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* 10 in. x 6 in. elliptical speaker in detachable lid.

* up to 8 hours playing time on one D.P. tape.

* monitoring through its own speaker with independent control.

* finger-tip controls closely grouped.

* mixing facilities for mic and gram/radio inputs.

* additional output with automatic speaker cut-out.

* facility for use as an amplifier.

* three independent 4-pole motors.

* unique styling in two-tone grey with gilt fittings.

* twin tracks * pause control * tone control.

* guarantee: 12 months (valves 90 days) and the name of WyndSOR.

And how do WyndSOR do it? By the experience that ten years' manufacture of quality tape-recording equipment only can bring. By design-creation only after intensive market research and nation-wide trade inquiries, so that WyndSOR tape recorders virtually sell themselves, without sales-force, without large advertising campaigns, without exhibiting at you-know-where, and with minimum servicing requirements after sales. All these overheads are conspicuous in the price by their absence.

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the new WyndSOR "VICTOR" complete with crystal microphone, 1,200 feet of tape, and spare jackplug, is only 45 guineas

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Back numbers, if still in print, are available at 2s. 6d. per copy for issues up to November, 1959, and 2s. per copy for later numbers.

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We take the view . . .

Collaro's new American link

THE news that Collaro has passed into American control stirred up a great deal of interest in the trade and among enthusiasts; so widely have the Collaro decks been used on British recorders that few names are better known in this field.

Yet I suppose few laymen realised that Collaro Ltd. was formerly a subsidiary of Mr. Isaac Wolfson's Great Universal Stores concern. That fact now takes on a new importance for the audio enthusiast.

For Mr. Wolfson has sold control of Collaro to the famous American electronics firm, the Magnavox Company, and the sale has been accompanied by an agreement to sell Magnavox products in Mr. Wolfson's stores.

An interesting range of recorders and hi-fi equipment can be expected to make an appearance here soon under this arrangement.

I notice that Mr. Wolfson commented in New York, after announcing the Collaro deal, that it was his opening move in a drive to bring more American technical "know-how" to Britain.

U.S. demand is for simplicity

FROM an interesting conversation I had recently with Mr. Ralph Gough, Managing Director of Fi-Cord Ltd., after his return from a three weeks trip to the United States, I gained the impression that the Americans do not have a vast amount to teach us about tape recording and its associated activities. The main respect in which they lead is in styling, packaging and presentation; despite the efforts of the Council of Industrial Design, Britain has been lagging in this respect behind the Continent, as well as America.

Despite the emphasis which some American magazines place on "component hi-fi," as they call it, Mr. Gough reports that the mass demand on the other side of the Atlantic is for a packaged article—i.e., a sound recording-reproducing equipment supplied complete.

The same basic attitude leads the customers to demand in a tape recorder the utmost simplicity of operation, with as few controls as possible.

A DIGEST OF

NEWS, COMMENT AND

EDITORIAL OPINION

It is this public taste, of course, which has given the fillip to tape cassettes over there; yet the cassette is by no means winning hands down in the battle with orthodox spooling.

Though the Americans had a substantial start in tape development after the war, Mr. Gough's experience confirms the general impression that the creative recording side has made less impact on the public mind over there than in this country. Most Americans, he tells me, regard the tape recorder as another form of music reproducer.

Mr. Gough, of course, is particularly interested in creative tape recording, for that is the main value of such battery portables as his Fi-Cord to the tape enthusiast.

He reports that there are a number of battery portables on sale in the States, (including the Fi-Cord, of course), but that the position is complicated by the availability of eight or ten competing Japanese products which sell more cheaply, because of low wage rates in Japan.

Notwithstanding all these points, however, I report that Mr. Gough returned from his "recce" looking very cheerful and sounding very optimistic.

Ensuring your copy

SOME old readers have been writing to me recently to complain that it is difficult to get hold of copies of *Tape Recording Magazine*. Well, we warned you! When we switched to fortnightly publication, we also decided to supply the magazine against firm orders only. If you want to be sure of your copy, please place a regular order.

We are sorry if there have been difficulties. We understand the irritation of those who want *Tape Recording Magazine* and are offered other publications instead. We can understand that some newsagents may be a little confused about the identity of different magazines.

But if you specify that you want the **fortnightly** *Tape Recording Magazine* and you place a regular order, you will get it—as a steadily increasing number of readers are getting it each issue.

I shall still be obliged to have information about individual cases of difficulty, and each one will be investigated. Write to The Editor, *Tape Recording Magazine*, 7, Tudor Street, London, E.C.4.

Thanks

WE have received a very large number of replies from readers who have filled in the quiz form printed in our last issue. They are now being carefully analysed and we shall publish our findings on them shortly.

Meanwhile, we should like to thank readers for their enthusiastic co-operation.

LAUGH WITH JEEVES



"It's much easier with a portable recorder."

Monkey language

Chimpanzees which left Wuppertal Zoo, West Germany, for Moscow, are to be spared the trouble of learning a new language.

A tape recording of German commands and expressions with which they were familiar preceded them.

The recording was sent early enough for the Russian keepers to become acquainted with the terms.

Mullard claim new stereo radio system

A NEW British system of stereophonic sound broadcasting which secures compatibility with the existing BBC sound service is announced by Mullard. Described as a "time multiplex" system, it has been developed by Mr. G. D. Browne, of the Mullard Research Laboratories, and it has now been submitted to the European Broadcasting Union for examination.

The system has already been demonstrated by BBC research experts.

Fuller details are promised shortly, but it is known that this Mullard system will enable stereo sound receivers to be created by the addition of only a simple circuit employing two thermionic valves (plus, of course, the second amplifier and speaker).

V.H.F. receivers which are not converted in this way will be able to accept the stereo transmissions and reproduce them monophonically, as at present.

B.S.R.A. announces April convention

THE British Sound Recording Association is holding a special Convention on sound recording and reproduction on Saturday, April 23, in conjunction with the London Audio Fair. It is intended particularly for out-of-town members visiting London for the Fair.

There will be morning, afternoon and evening sessions to survey post-war developments in tape and disc recording, pick-up design and cinema sound systems, and the lectures will be extensively illustrated and demonstrations provided.

The Convention will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1. Registration will cost 5s. for B.S.R.A. members and 10s. for non-members.

Full details can be obtained from S. W. Stevens-Stratten, Greenways, 40, Fairfield Way, Ewell, Surrey.

THE WORLD OF TAPE • A NEWS ROUND-UP

B.B.C. INVITES AMATEURS TO OFFER RECORDINGS

LISTENERS to the B.B.C. Network Three programme "Sound" have been invited to submit suitable recordings for consideration by the B.B.C. Library. In the last programme, Mr. Timothy Eckersley, of the B.B.C., said they particularly sought good recordings of birds and animals, certain sound effects, dialect and folklore, and personal reminiscences of special interest.

Despite all that has been achieved by

men like Ludwig Koch and Eric Simms, Mr. Eckersley revealed the B.B.C. Library still lacks a good recording of the distant cry of owls at night.

Recordings should be at $7\frac{1}{2}$ ips and should, preferably, be single-track. There must be no irrelevant sounds on the tape; if there are traffic or wind noises, for example, the recording will not be suitable for the B.B.C.

All recordings should be fully documented, with details of where and when recorded, what the material is and who—if people are involved—is speaking.

"Sound" organises listener quiz

THE B.B.C. exhibition "Sounds Fantastic," first seen at the Radio Show last year, is now touring principal provincial cities. When it visited Middlesbrough recently, John Kirby, compere of the "Sound" programme, who lives locally, attended each day.

The B.B.C. is now distributing a questionnaire for "Sound" listeners, seeking information about the tape recording and hi-fi equipment they use, and inviting suggestions for the programme.

ROSE BRUFORD COURSE

THERE are still a few vacancies at the Easter Tape Recording Course at Rose Bruford College, but it seems likely that there will again be a "full house" this time.

The revised dates for the course are April 19 to 24.

Applications should be sent immediately to Mr. G. Hodson, Rose Bruford Training College, Lamorbey Park, Sidcup, Kent.



Two lucky youngsters, Ian Stacey and Geoffrey Gilbert, with the Elizabethan "Bandboxes" they won at the Schoolboys' Exhibition for recording the most imaginative impressions of landing on the Moon. With the boys are the judges, Michael Bentine and Big Chief I-Spy of the "News Chronicle"

UNESCO SIGNS FIRST CONTRACT COVERING FICS CO-OPERATION

THE International Federation of Sound Hunters (FICS) has just signed a first contract with UNESCO covering the supply of recorded sounds by FICS members for UNESCO archives.

As reported exclusively in *Tape Recording Magazine* on December 30, amateur recording enthusiasts have been invited to submit to the UNESCO Sound Library "sound recordings of distinctive national, regional or local colour."

The Federation of British Tape Recording Clubs is responsible for collecting British contributions.

The contract which has just been signed in Paris provides for payment to FICS of 1,500 French francs (about £110) for a collection of 200 minutes of recorded sounds.

This sum will be distributed to various countries in proportion to the amount of their tapes which go into the final collection taken by UNESCO. In Britain, the FBTRC has decided that the appropriate amounts shall be distributed to the individuals submitting the tapes that are accepted.

Sound Effects

By Alan Edward Beeby

A regular series of hints on how to get satisfactory sound effects at home. If you have a particular problem, send it to us.

TROUBLE! Answering the door-bell the other evening, I was confronted by a fellow-recording enthusiast sporting a large antiseptic plaster across the back of his hand.

Rather sheepishly he explained what had happened. The Breaking-Glass effect had back-fired on him! "It's all your fault," he protested, "you simply said 'break a piece of glass' in the article, without saying anything about *how* to break it!"

Right, let's get this thing sorted out. First of all *never* hold a sheet of glass in your hand to break it; to do so is just asking for trouble.

There are two ways of achieving this effect, according to the amount of room you have at your disposal.

If you are working within a fairly limited space, you might try the following method. Obtain a large cardboard box (an empty soap carton from the grocer will do) and lay your sheet of glass across the open top. Arrange it so that it is barely supported at the edges to ensure that the broken pieces fall straight into the box without spilling over the sides.

Now to the business of breaking the glass. Use a light-weight hammer for this, and, most important, *hit it really hard*. Giving it a sharp but timid tap will probably not only break the glass but send it bouncing all over the room in splinters. By the way, have a few broken pieces lying at the bottom of the box before starting, otherwise you will find that the effect itself will sound rather stunted and short-lived if the debris has nothing harder to fall upon than cardboard.

The second method is more suitable if you have a room of your own to work in and is the one I, myself, normally use.

Two strong cord lines are strung from wall to wall, one being situated about a foot behind the other. On the first one, a large thick blanket is pegged out and on the other, the sheet of glass is hung by means of adhesive tape. Another blanket is laid out upon the floor.

Use a light-weight hammer as before and, in striking, the blow should be aimed just off-centre. This helps to produce that particular ringing sound usually associated with the effect whereas, if the glass is struck dead-centre, you'll most likely get a "shatter" sound.

Two final safety tips. When breaking the glass, take aim, turn your face *away*, then hit it. Lastly, if any stray splinters should find their way on to the floor, go over it carefully with a dampened cloth as soon as possible.

Another request comes from a group who are taping a "period" play and are stumped at the point where the Roundhead troops are hammering at the heavy oak door of the castle.

"We've tried everything," they tell me, "but all we can get is a sharp knocking sound as though the door was made of plywood."

This is known as a "coloured" effect, the "colour" in this case being the implied thickness of the door itself.

Try it this way. Fold a rough towel into four, lay it on the table and hammer on it with the edge of a clenched fist. At the same time, a pencil, if laid on the table surface will provide a most convincing "rattle."

Another item causing frustration, I find, is the recording of a gong being rung. The complaint is that the average "prop" gong does not have a sufficiently sustained reverberation, so that there is a stunted finish to the effect.

This problem is easily overcome by using the method known as "chaining." That is to say, the vibrations following the initial striking, instead of being allowed to radiate uselessly away from the microphone, are conducted directly to it by means of a contact lead.

Remove the gong from its stand and attach to its rim a length of fine thread or cotton. (Don't use wire, it's too "twangy.")

Remove also the microphone from its stand or base and hold it so that the face is uppermost but slightly tilted to one side.

Lay the free end of the wire over the face and hold it in place with the thumb or forefinger. The gong is now virtually hanging from and consequently in direct contact with the microphone which will receive, at full value, the striking of the gong and also the reverberative fade-out.

Don't rest your finger on the *face* of the microphone or you'll be working with a "dead" lead, which isn't of the slightest use. Let the lead have the face all to itself and secure it on the rim of the microphone.

At the first attempt, you may be puzzled by a mysterious "dragging" sound on play-back. This is caused by the gong swinging the thread across the microphone face, but a few practice runs will soon give you the idea.

Incidentally, try a few variations on this. Quite a number of interesting sounds may be obtained by using various other items in place of the gong. A steel ruler, a length of brass tubing, the "dome" of a door-bell, or even a piece of wood can give surprising results when used in this way.

In the next issue we shall be sound-effect-hunting out-of-doors—on location. At least, you will. I've been in bed for the past week with 'flu.

I hope it doesn't snow to hard for you! Here comes the rum-and-milk. Eyes down for the end of the tape. Good night, all!

Second article in a series on tape recording with children by

GORDON PEMBERTON

Headmaster of Waterloo School, Pudsey, Yorkshire.

IN the early years after the war many schools introduced simple broadcasting systems within the building. Children gave talks, read stories and poems, sang songs and acted plays, all of which could be heard by the listeners in another room or in the school hall.

These early systems had several disadvantages: all broadcasts were "live," participants had no chance to hear themselves, the equipment was not always fully efficient.

The tape recorder has changed all that. It offers closed circuit broadcasting in schools that can be well-nigh perfect and absolutely easy.

The various items of the programme to be broadcast can be taped independently of one another. Mistakes and pauses, whispers and odd noises, can be edited out. The whole thing can be done at leisure, without the strain of a "live" performance. The actual broadcast can be made without the necessity for assembling the participants and, best of all, the children can listen to themselves, the better to learn by experience. Finally, the programme can be stored for further use, if required.

What kind of programmes are of value in school?

First, there are the uncomplicated programmes that need only single speakers. Younger children will be able to read stories and poems. Later they will want to make up their own stories and poems for broadcasting.

Some children can be encouraged to give short talks on their hobbies—how to make simple models or how to take care of pets. Nature is always interesting to junior children, who may give talks on the whereabouts of wild flowers, birds and fish in the locality. One boy I remember gave a most interesting talk on how he made his "conkers" so hard that they were rarely smashed in play!

Of course, the children cannot talk spontaneously on these subjects and it would be foolish to expect them to do so. They should write out their own scripts, which can be "vetted" by the teachers and generally polished up into something worth broadcasting. This applies to all ages, though a few older children may be found who are sufficiently expert in their subjects and also have the self-confidence to talk for short periods extempore.

FROM A SIMPLE POEM TO A SCHOOL MAGAZINE ON TAPE

If the scripts can be typed out, so much the better. Parents will help with typing, if they are encouraged to take an interest. But one word of warning—let the scripts be the work of the *children*. Too much interference from teachers and adults will kill the initial interest aroused.

Programmes requiring several voices need to be “produced” properly if they are to be interesting. The obvious first choice is the play. Children love costumes and scenery, but they realise quickly that the “broadcast” play has many advantages. They are no longer restricted by considerations of visual presentation and the sky’s the limit as far as setting is concerned.

A broadcast play can switch with ease from sea to shore, from mountain to desert, and can include characters for whom costumes might be difficult to devise. With no necessity for dress and staging, the children have unlimited scope in matters of plot and scenario. Moreover, they can have lots of fun with “effects,” trying out one after another until they produce the required sound.

Imaginations run riot

Many children like to start their broadcast plays along safe lines by doing their first “out of the book,” but most of them soon progress to plays of their own composition, in which they can let their imaginations run riot. Many are the realistic buccaneers, spies and gangsters I have heard on tape, to say nothing of terrifying giants and dragons.

A quiz is always interesting—particularly if there is some competitive element involved. The “Houses” in a school can organise a knockout contest, or a series of matches can be arranged between classes of the same age group. The subjects are almost endless, embracing all the various school lessons—geography, history, nature, general knowledge, local knowledge, religious knowledge and road safety. An occasional spelling bee is both useful and popular.

Music need not be neglected and, indeed, children are often anxious to hear their friends performing. Class choirs, school choirs and soloists can be put “on the air” for general appreciation.

Skill in the playing of instruments is often encouraged by broadcasting the performance of groups. Younger ones are quite capable of high-class percussion pieces. Groups of musical recorder players and pianists go over well. Further on up the age groups there may

Competitors in the Schools Section of the 1960 British Amateur Tape Recording Contest are invited to submit a magazine-in-sound of normal school activities. Intending entrants will find valuable guidance in this article.

be school orchestras or budding brass bands, each with its quota of soloists, who can supply background music or a real programme for the school network.

One idea that is popular among children is a weekly newscast—a programme given by the children about the children and for the children. Local news of interest to children, reports on work and activities in the school, house marks, results of matches of all kinds (and reports on them), a few commendations for good work, notices of forthcoming events, birthdays—such things all make good material for a regular broadcast.

In addition, the headmaster might be persuaded to give a five-minute chat with encouraging remarks about various happenings and, perhaps, a mild rebuke or two to the current mischief-makers.

Older children need something more satisfying for their efforts on the closed circuit broadcast. Plays and other features will interest them for a while, but they will become restless for something that is more than mere performing—something that has a deeper purpose and is more in keeping with adult broadcasting. Many of them listen and view regularly in their own homes and will want to emulate the techniques of the better-known national broadcasters.

You might try harnessing their out-of-school interests for a start—“pop and pictures.” Most of them are fond of listening to records. Get them to bring a few to school and challenge them to work out a programme illustrating some of the technicalities of the music and their reasons for liking it. Some will, of course, jib at this. They are not articulate enough to express their reasons adequately, but a class discussion on the subject will usually unearth a few good reasons and some comment, which the brighter enthusiasts will write up into something approaching an “appreciation” programme.

They all go to the pictures. Most of them sit, uncritically, being amused for a couple of hours. Again, you must challenge them to say not only what they like but *why* they like it.

You can make this kind of thing more interesting if you can arrange with the local cinema manager for some of them to sit through a “trade show” or a trailer of future attractions—then back to school and write it up for taping and subsequent broadcasting.

Similarly, they can report on the television programmes they view or, better still, give independent reports on the same programme.

Combining these and adding others to make a composite programme, they might do a sound magazine as a weekly feature. It would include the “top ten” chosen by school ballot, a report on the schools league matches, a review of films coming to the local cinemas, fashion notes for the girls, and general news about the activities of local clubs.

These are all things in which they are really interested and, although they don’t fully realise it, you will have them working harder than ever before in the ways you want—speaking and writing.

Exchanging ideas

As the children reach the last couple of years of school life, particularly in the Secondary Modern School, it is important that they should learn to discuss their ideas upon life in general and life in their own locality. They ought also to know the views of leaders of the community on problems that concern the adolescents. It is not always possible to get the vicar, the mayor, the librarian and other local figures into school, but it is a fairly easy matter to arrange to have tape-recorded interviews with them.

After some discussion in the class, a list of about half a dozen questions can be drawn up on subjects such as religion, local government, education, sport, leisure pursuits, entertainment, local amenities and so on. The boys and girls can then write to the local people, inviting them to be interviewed and, of course, sending them an advance copy of the questions that will be asked.

Different groups of children can then put their questions to the chosen persons.

(Continued on page 42)

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**A TAPE RECORDING AND HI-FI MAGAZINE
SPECIAL SUPPLEMENT**

MANY enthusiasts who pore studiously over the technical specifications of recorders and associated equipment tend to take the actual tape for granted. It is understandable; the standards of manufacture which have now been achieved result in a product which consistently meets the most exacting standards.

It is interesting to recall, however, that it was the difficulty of producing the tape that held back recording technique for a long time. It seems odd now to think of those complicated pre-war devices like the B.B.C.'s two-foot diameter drums of *steel* tape.

Coated tapes there were, of course, long ago, but they were primitive. Many of them were on a paper base. But eventually we entered the plastics age and the cellulose acetate tapes appeared—a type that is with us still, in an improved form.

The Germans were first in the field with satisfactory plastic-based tape coated with ferrous oxide, the Americans went into production after the war, and Britain entered the field in 1948. Since then progress has been remarkable; the latest video tapes achieve standards that were undreamt of even a few years ago.

Present tapes are virtually noise-free. Absence of distortion, low noise level and a flat frequency response are not easily attained, but patient research has produced the answers.

The modern tape has also little tendency to print-through (the transfer of signal from one position on the tape to another by magnetic induction) and fewer drop-outs (loss of recorded signal due to imperfections in the tape).

Further, though so thin, it has great strength and a high resistance to curling.

It is not possible to consider performance of a tape in isolation from the machine on which it is used. It is usual for recorder manufacturers to supply a particular brand of tape with their machines; it can usually be accepted that it is the most suitable brand and type of tape for the machines in question.

It cannot be assumed that any one brand of tape will be the best for all makes of recorders. It is always worth while experimenting, until you are certain you are getting the best results. You will probably find that, with a given tape, hiss will vary considerably between one recorder and another.

No one brand of tape is better in every respect than all other brands, but each kind has its own special virtues.

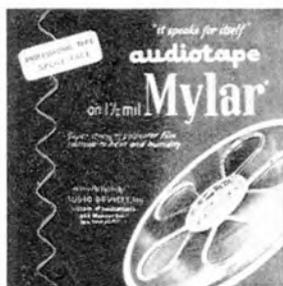
If you are going to give the tape a proper chance, there are certain obligations upon the user. Record-replay heads should not be permitted to become dirty, magnetised, worn or misplaced. Pressure pads should be kept properly adjusted.

If a recorded tape is to be used again after having been stored for a considerable time, it is advisable to bulk erase it first.

And pay some attention to the way you store your tapes. See that they are always put away in polythene bags and cardboard boxes or tin cans.

Keep them clean. Keep them away from extremes of heat or cold. And do not store them near magnets—and that includes, of course, your speakers.

AN ANNOUNCEMENT OF IMPORTANCE TO ALL TAPE RECORDER USERS



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A pioneering enthusiast recalls the days before magnetic tape



HOME RECORDING BEGAN LIKE THIS

By

B. W. Harley



Top left: *The Edison "Gem" phonograph with wax cylinders. This model was made about 1905. The sound-box could be changed to make it into a recorder.*

Left: *A "Fay" home recorder (1933) in the author's possession. Such a machine fitted to a portable gramophone would cut a 6-in. disc lasting perhaps 1½ minutes.*

UNTIL the advent of tape barely ten years ago, "home recording" was the term usually applied to our activities. It wasn't a widespread hobby, nor was it usually very successful; the standard of quality achieved by the least expensive modern tape recorder now would have been undreamed of in the '30s.

Nevertheless "home recording" had its moments—usually a flash-in-the-pan affair that soon palled, but occasionally taken more seriously to provide music and commentary to amateur films or to record occasional vocal or instrumental items by the family.

As far back as the beginning of the century, in the days of the cylinder phonograph, attempts were made to satisfy the popular demand to "make your own records." Machines like the Edison "Gem" phonograph could be adapted to record, since it had a screw tracking device incorporated. The diaphragm and stylus assembly could be changed and, indeed, the apparatus and the results were very much like the acoustic dictaphone still in use in many offices.

The early thirties saw a revival of interest in the topic and a number of home recording outfits came on the market. The majority of the "outfits" were straight acoustic devices and consisted of a replacement for the normal sound-box on the domestic gramophone; a short horn for shouting into, and a simple tracking device to pull the tone arm across a blank aluminium disc.

Tracking devices varied; the simplest, used in U.S.A., were merely shallow pre-grooved discs which were modulated by the recording sound-box. Another system was the Kingston Home Recorder which used an outer plain-grooved disc traced by a separate stylus that pushed the cutter across the recording blank.

The inexpensive recorders used a steel cutting needle, shaped like a miniature lathe tool, and the more expensive ones a similarly shaped sapphire or diamond cutter. The discs were usually six or eight inches in diameter and the depth of cut depended on the weight of the tone arm. The maximum diameter that could be cut depended very much on the power of the gramophone motor. The "Fay" recorder illustrated here is a typical example of the acoustic recorders. In this case, the cutter is pulled across the record blank by a centre scroll engaging a toothed rack.

The results were abominable. Behind a roaring noise like Niagara could be heard a thin voice repeating the original message. It was all very wonderful!

The soft aluminium discs had to be played with a fibre needle or, if these were not available, by thorns from hawthorn bushes, boiled in potassium permanganate to harden them.

Few of these outfits sold for more than £2 or £3 and some found their way into the street markets. One of my treasured memories is of hearing one street trader declaim that it was for fitting to the gramophone—"a word, my friends, that comes from the two Latin words *gramo* 'I shout' and *phonus* 'down a tin toob.'

It would be untrue to suggest that more serious work was entirely neglected. By about 1934 a number of very good belt-driven lead screw tracking devices were on the market and electro-magnetic recording heads were available. These were, in effect, normal pick-ups very heavily damped, that were connected to the output terminals of the radio or a separate amplifier.

Tracking gear could be purchased for adding to existing turntables, but for serious work more powerful motors were required. These were available, often with synchronising shafts for coupling to amateur film projectors. Many ran at 78 rpm and 33 rpm, and some would cut up to a 16-in. diameter disc.

Complete recorders were made for amateur use, with the tracking gear fitted under the motor board well out of the way of dust and swarf. One model incorporated a radio set so that direct copying of radio programmes was possible.

The microphones in general use were G.P.O.-type carbons, carefully spring-mounted in a frame or, if you wanted something better and were short of money, you could make the *Wireless World* transverse current mike, neatly assembled in a wooden case. The aluminium disc was still the limiting factor, though a well-cut disc recorded electrically could give satisfactory results by the quality standards of the times.

About this time an attempt was made to start what we now call tape-spence. Slot machines were installed in department stores and on seaside piers which would record a message on a 6-in. disc

(Continued on page 21)



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820'	6" " ...	1.	0.	0.
1200'	7" " ...	1.	7.	0.
TYPE LR (Long Play)		£	s.	d.
½" × 225'	3" Spool ...	7.	0.	0.
900'	5" " ...	1.	8.	0.
1150'	6" " ...	1.	12.	0.
1800'	7" " ...	2.	10.	0.

GEVAERT LIMITED

GREAT WEST ROAD, BRENTFORD, MIDDLESEX 'PHONE ISLEWORTH 2131

TWELVE YEARS OF OUTSTANDING PROGRESS IN TAPE MANUFACTURE

THE first magnetic tape manufactured in Britain became available in 1948, using cellulose acetate. The quality of the magnetic oxide was, at that time, considerably below present standards. These pioneer tapes, therefore, had a low coercivity value—something like 120 oersteds.

Today we consider any with values below 200 oersteds to be low coercivity tapes, and they suffer several disadvantages, notably poor frequency response and too easy erasure of recorded signals. Present-day high coercivity tapes have a value of 300 oersteds or more.

For best results—a good match

This improvement has played a vital part in reducing tape recorder speeds. Those first 1948 tapes called for 30 ips as a minimum!

Side by side with this improvement in coercive force has gone a similar development in remanence, or sensitivity. The result is a better signal-to-noise ratio.

The magnetic characteristic of tape is only undistorted under certain input conditions, which call for the application of high-frequency bias. The frequency of this current passed through the recording head is so high that, although it is recorded on the tape, it is above the limit of audibility.

This recording bias is an important factor in determining the signal-to-noise ratio, and bears a relationship to distortion and frequency response. It should vary in accordance with the nature of the magnetic coating on the tape. Put in another way, the tape used should suit the bias and frequency response settings of the recorder.

This is why the safest course is to use the type of tape recommended by the manufacturer of your recorder; although, in fact, a number of tapes call for similar bias and can, therefore, be regarded as interchangeable.

For weak input signals, increasing the bias current causes a progressive decrease in distortion. For strong input signals, this is true up to a point, but further increase in bias *increases* distortion. Too high a value of bias current can also cause loss of high frequency response.

Recorder manufacturers cope with these problems by settling on a compromise value for bias frequency.

HOME RECORDING BEGAN LIKE THIS

(Continued from page 19)

ready for posting to friends. The venture doubtless failed because of the difficulty of thinking of anything worth saying when standing in a small cubicle confronted by all the "works."

A few amateurs were engaged in serious development work, mainly in the technical field, and were building equipment capable of professional standards. One fundamental problem was that two complete sets of cutting equipment were required to record anything of high quality lasting more than four minutes. At the same time the recordist was kept busy changing discs, checking cutters, helping to clear swarf away, as well as monitoring the programme.

The greatest filip was given to the art by the introduction of new recording media. The first to break away was the Permarec blank introduced about 1934. This was still aluminium, but coated with a soft plastic material. This coating was easily cut and, after baking in an oven for about four hours, the surface was cured and became rock hard. The result was a permanent record with wearing qualities, even when played with a steel needle, fully up to commercial pressings. A four-hour delay before you could hear your work was one disadvantage and the smell during baking was another—the domestic oven wasn't much use for cooking for a day or so afterwards. This was soon recognised by the makers, who later introduced an electric baking oven made specially for the job. With a good amplifier and the new piezo-crystal microphone, the Permarec records gave very good results.

The difficulty of getting a perfectly flat surface with metal based discs was

probably the reason for the introduction of the Simplat glass blanks a year or so later. These were coated with a gelatine composition which cut beautifully and was remarkably noiseless. After cutting, it was hardened in a few minutes by swabbing it with a solution of formalin. As a further refinement it could be lubricated with a fine film of oil!

The Simplat discs were available up to the beginning of the last war. They were very good indeed but, in the absence of a very light pick-up, had to be played with a special trailing needle.

The use of aluminium or zinc for base material continued, however, and the most popular discs were, and still are, coated with cellulose acetate. This provides a soft enough material to cut easily and at the same time is tough enough to be played with little wear by modern lightweight pick-ups. They remained in use for direct recording until a year or so ago when tape rendered the method obsolete. Some amateurs and many professional studios still use them to produce conventional long-playing records from tape originals.

In the amateur field the tape recorder has made high quality sound recording a practical proposition for thousands, whereas in the past it was a laborious and expensive business. The revolution that tape has produced in the professional field can best be seen in the equipment of almost any studio or radio station. The elaborate and beautifully engineered disc equipment is still *in situ* but, as every recordist will tell you, it is very seldom used today.

And at home, we have come a long way since we first shouted down a tin tube!

Qualities needed

Good magnetic tape must strive after a dozen different qualities—high coercivity and remanence, even distribution of oxide particles over the tape area, freedom from inherent noise and a high signal-to-noise ratio, freedom from "print-through," polished surface—to reduce friction, freedom from curl, tensile strength, pliability—for easy winding, resistance to changes in temperature and humidity, and thinness—to secure space economy on the spool and good contact with the heads.

The oxide can either be coated on to a film surface, or dispersed in a mixture which is then extruded into a tensilised film. Unless the oxide is evenly distributed, the recording will be made on a variable background and the result will be background noise.

Irregular surface of the tape (or of the recording head) can cause poor contact during recording, and this is another way in which unwanted noise can be created. Permanent magnetisation of the head is a further cause.

To secure good results, therefore, it is necessary to ensure that the equipment is in good mechanical and electronic condition and that it is clean.

Then use the type of tape recommended, and you can be sure of the best possible results.

A glimpse behind the scenes

THE MAKING OF TAPE

SOME of the most fascinating recent developments in the tape field have been in the techniques of producing the magnetic tape itself. In recent years the phenomenal increase in the use of tape has called for sustained and imaginative effort by manufacturers. Tape is not only used for Audio equipment; miles of it are used every day in electronic computers and telemetering equipment. And very high standards are called for.

Now, of course, video tape has created new problems, most of which have been successfully solved as a result of some of the most impressive research work seen since the earliest days of tape recording.

It was, of course, the absence of a suitable base material for the oxide that held back recording techniques for a long time—until the modern age of plastics.

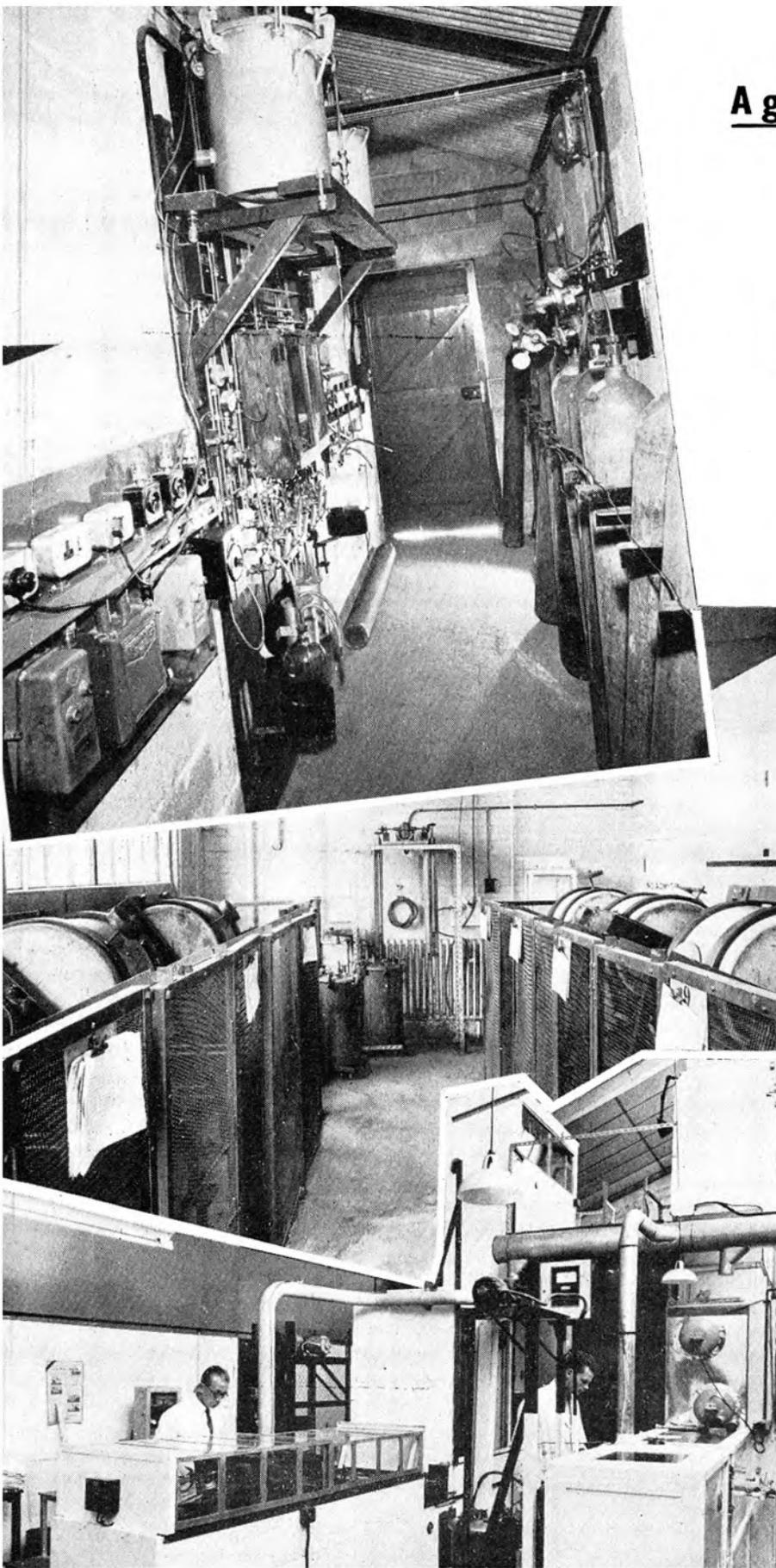
But, in the ten years since tape was first manufactured in this country, giant strides forward have been made.

Cellulose acetate was used at first, then polyvinyl chloride (P.V.C.). Later, in the search for thinner bases, polyester came into use, and so we got the long-play tapes.

In America more than half the tape sold is polyester. Here p.v.c. still leads, but polyester tapes are steadily gaining ground.

Not all the technical problems concerned the plastic base. The techniques of coating have undergone important changes.

Today we have a remarkably fine product that stands up to all the exacting demands made upon it.



Today we have achieved magnetic tapes that do not stretch or curl, that are unaffected by humidity or temperature changes, that do not become brittle or lose their strength, and that provide reasonable safeguard against print-through.

At the same time, we have achieved high standards with signal tracks which are only slightly over one-tenth of an inch wide and with tapes with an overall thickness of only .0023 in. (standard), .00165 in. (long-play) and .000825 in. (double play).

The process is not ended yet. The first of the tapes with four tracks on an overall quarter-inch width are already with us. We may look forward to more exciting achievements in the British factories where tape is produced.

Few people have had the opportunity to see magnetic tape in the making, but the accompanying photographs—published by courtesy of the M.S.S. Recording Company, of Colnbrook—give a general impression of a tape factory. They show "Mastertape" in production.

The first photograph (top left) shows the control gear associated with one of the kilns in which the magnetic iron oxide is prepared. Part of the kiln body can just be seen through the inspection wall on the left. At each end of this wall is the electrical control gear; between, and visible on the right, is the control apparatus for the gases.

The preparation of the oxide is a key operation. At this stage additives and special methods are used, which play their part in determining the standard of the finished product.

Processing at this initial stage takes many hours; the material is then passed to the mixing room and then—with appropriate solvents, additives and binding agents—to the milling section.

The second photograph on the left shows an experimental mill-room. In the background can be seen the containers holding lacquer in suspension and under pressure ready to be fed to the coating machine.

The liquid carrying the oxide must now be well dispersed, and each mill does 150,000 revolutions before this is satisfactorily achieved and samples are then taken for viscosity, electrical properties and particle size.

The raw materials are then taken to the coating machines, two of which are seen in the bottom photograph on the left. At centre right can be seen the meter which monitors the coating thickness applied to the polyester film base. This is not permitted to vary more than five per cent of four ten-thousandths of an inch.

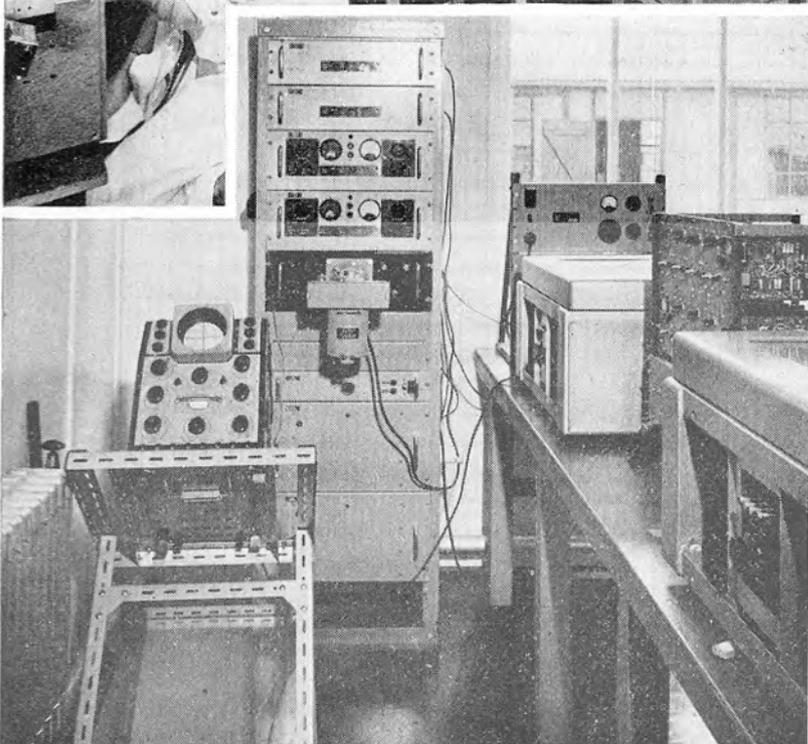
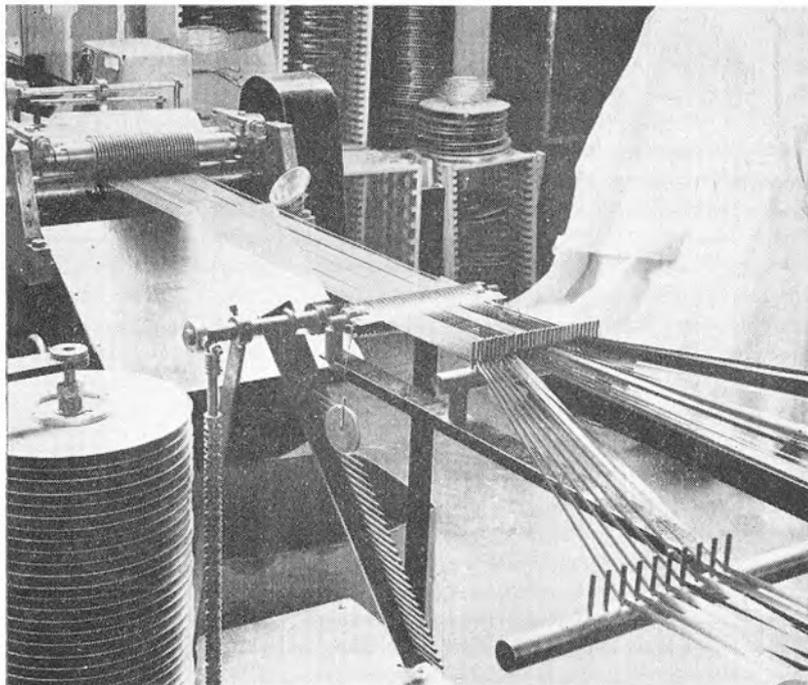
After two further processes, the tape is ready for slitting on a machine like that seen in the top photograph on the right. This shows quarter-inch tape being prepared for broadcast purposes, but various widths from quarter-inch to seven-inch are slit for special requirements. Each tape is tested during the slitting operation and is then passed to winding and inspection departments.

The centre photograph on the right shows a section of the M.S.S. main winding room.

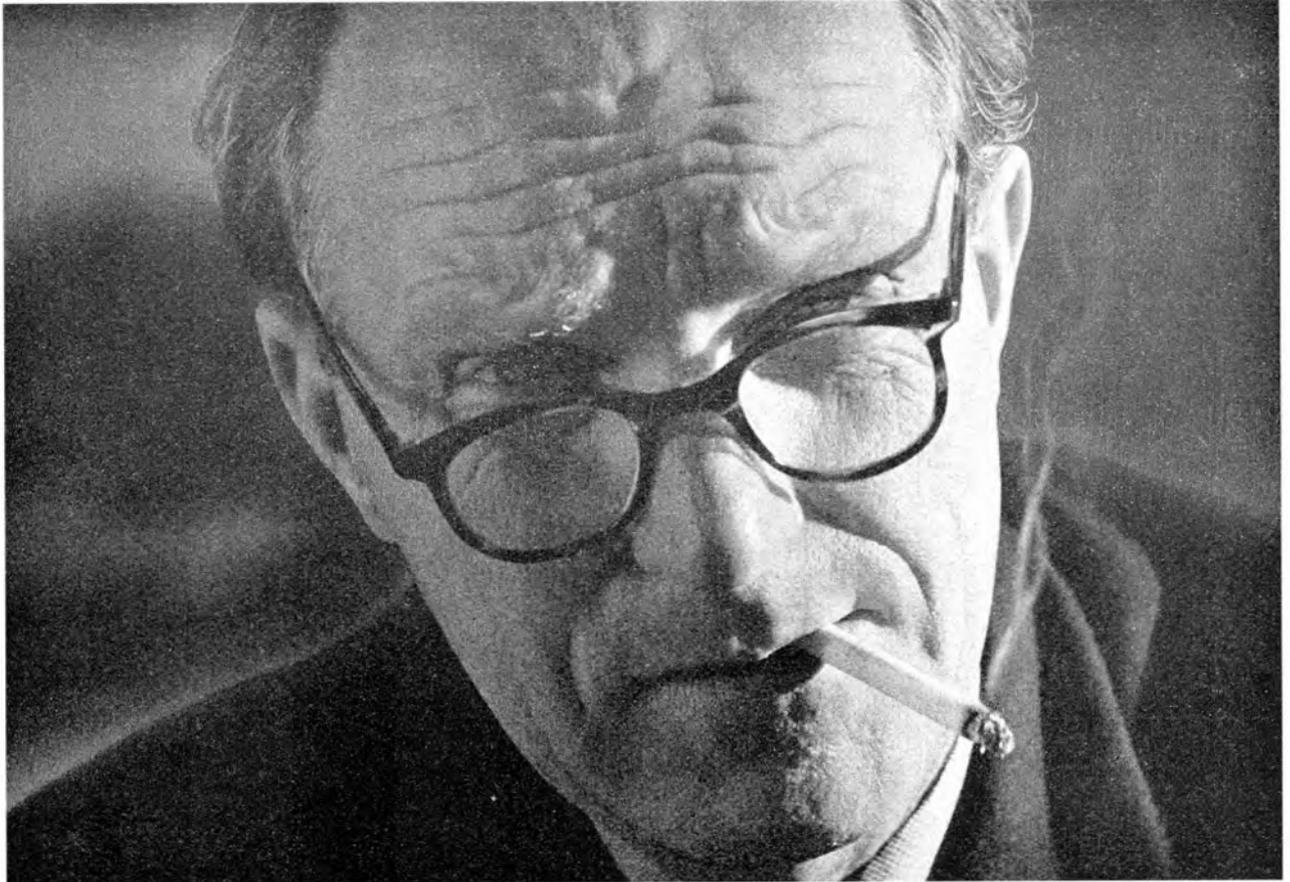
The bottom picture shows one of the test channels used for electrical tests on the tape. It makes 400 tests on each inch of tape and will detect any signal loss immediately. Results of these tests are photographically recorded on the track in the centre of the illustration.

These manufacturers claim that a special process of high polish finish ensures better top response, minimum background and minimum head wear.

The M.S.S. Company is a member of the B.I.C.C. group and thus has the backing of very big research development laboratories.



What's so good about Mastertape?



Mastertape—Magnetic Recording Tape sounds better—hear it for yourself

Mastertape—is extra strong and unfailingly reliable

Mastertape—is backed by the largest pioneer research organisation in the market, ensuring the most advanced techniques in manufacture

Mastertape—obtainable from your local dealer or post free from the address below

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Mails like a letter
Weighs under 2ozs.
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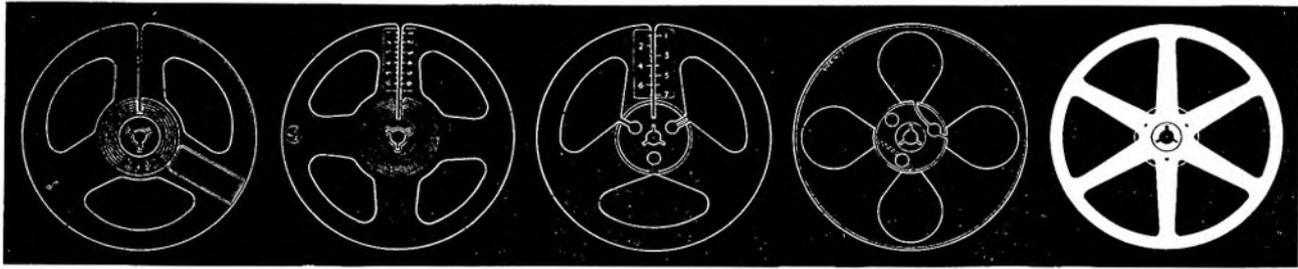
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FOR CHRISTMAS
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(27/6d. 850 ft.) or
Longplay (35/-, 1,200ft.)
Mastertape in a gay,
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B.A.S.F.

Emitape

Scotch

Audiotape

Ferrograph

The thought that goes into design of tape reels

ACCORDING to the advocates of cassettes, it is the business of threading tape on to the take-up spool that deters many people from switching from disc to tape. Women, in particular, are supposed to shy off this difficult task, a strange thought, considering how much more easily than the average man they are able to thread a needle.

For myself, I have never found it unduly tedious to thread up the tape, but I confess to brief moments of irritation if the tape-end does not go into the slot first time, or slips out as I am putting the spool through its initial revolution.

I suspect, therefore, that the design of tape reels may have a lot to do with individual preferences for one brand or another. A lot of thought and ingenuity has gone into these designs.

Some of the more popular patterns of reel are illustrated on this page.

The most frequent approach to this problem is to provide reels with a long slot from the outside edge along one "spoke" and into the centre hub. This is the method used by Emitape, Mastertape and BASF, among others. The few inches at the end of the tape is dropped into the slot, about half-an-inch at the end projecting into the hub, and a careful revolution of the spool anchors it.

Until now Scotch tape has been spooled in a different way. There was no slot from the outer edge, but a small round recess in the hub into which the looped end of the tape could be dropped. This firm is now introducing a new spool incorporating three separate methods. The new design features the previous round recess; a small plastic spindle in the hub around which to loop the tape end; and the edge-to-hub slot.

Gevasonor tape has a rather similar system—a slot leading to a round recess in the hub.

The American Audiotape now being marketed here claims an exclusive C-slot reel. In this system, the tape is first threaded between upper and lower flanges to the hub and then dropped in a C-shaped slot across the hub. This provides a very firm anchorage.

Another type of spool—of the smaller sizes—has a complete quarter of each flange cut away, so that there is easy, direct access to the hub for threading.

Ferrograph have their own well-known "Hublock" reel design, using aluminium instead of plastic, providing a spring-clip fixing to the spindle, and anchoring the tape end by a special finger-controlled spring on the hub periphery. One advantage of this method is that the inner turns of tape wind on to a firm surface, without slots or indentations of any kind. These reels, however, are appreciably more expensive than the plastic types.

So far, I have written only about the method of fixing tape ends at the hub. For a long time no-one appeared to be much concerned about the loose end on the outside of a full reel.

Agfa spools now have two small slots in the outside edge in which the tape edge can be secured. BASF and Gevasonor provide small plastic clips that slide on to the outside edges of the reels to hold the tape in. Similar clips are now sold separately for use with reels which contain no special provision of this sort.

(Continued on page 27)

COMMENT BY JEEVES



5 reasons for choosing irish tape

The exclusive Ferro-sheen process produces a mirror-smooth tape and offers five distinct advantages:

1. Exceptional high frequency response, due to intimacy of contact between tape and heads.
2. Minimum head wear.
3. Freedom from head contamination by oxide build-up.
4. Considerable reduction in background noise.
5. Minimum drop-outs.

In addition, the Tensitized Mylar base gives Irish double-play tape twice the strength of conventional thin tapes.

Irish tape has only recently been introduced into this country, and supplies are not yet sufficient for it to be stocked by all dealers. If your local dealer does not yet stock Irish tape, give him this coupon, which will ensure that the spools you require will be sent him by return.



* PRIORITY ORDER

Please obtain for me the following IRISH tape

Brown Band	5"	5 $\frac{3}{4}$ "	7"	} Delete items not required.
Long Play	5"	5 $\frac{3}{4}$ "	7"	
Double Play	5"	5 $\frac{3}{4}$ "	7"	

NAME.....

ADDRESS

Note to Dealer: Send your order to us and we will dispatch the tape by return.
WILMEX LTD., 131 Sloane Street, London, S.W.1.

Sole British Concessionaires:
WILMEX LTD.,
131 Sloane Street, London, S.W.1.
Telephone: SLOane 0621

TIP OF THE MONTH by Mr. Irish

Before connecting a lead from the radio to your amplifier or tape recorder, make sure that the radio is not a universal AC/DC set. With such radios the chassis is often "live" and thus, when plugging into an earthed device, one can receive an unpleasant, if not dangerous, electric shock. If in doubt consult your dealer.



Brown Band (Acetate base)

600'	5" spool	17/-
850'	5 $\frac{3}{4}$ " spool	23/-
1,200'	7" spool	27/6



Long Play* (Mylar base)

900'	5" spool	28/-
1,150'	5 $\frac{3}{4}$ " spool	35/-
1,800'	7" spool	50/-



Double Play* (Tensitized Mylar base)

1,200'	5" spool	45/-
1,650'	5 $\frac{3}{4}$ " spool	52/6
2,400'	7" spool	80/-

* Ferro-sheen process

Concentration on modern packaging

(Continued from page 25)

Some reels have a small identity slip on one spoke, on which the contents can be inscribed.

Emitape reels are marked with a scale to indicate the proportion of tape used, or still available for use.

The tape manufacturers are also giving more attention now to packaging.

One of the most interesting innovations is the new colourful plastic container of high-impact material used for Emitape 3-in. and 3½-in. reels. Types of tape are indicated by a coloured label on the outside—yellow for "44," red for "88," green for "99" and black for "100." A container for leader tapes has a specially designed inner section which enables it to be used as a non-spill dispenser.

This improved type of packaging is intended to facilitate transmission of message spools through the post.

This is a problem that has occupied the minds of other firms, too. M.S.S. sell their 3-in. message spools with a special type of envelope for despatch.

Gevasonor market this size of spool in a reinforced box, with space for address, intended for posting without any other need for packaging.

As for the boxes used for larger sized reels, these are generally very attractively produced and often contain space for cataloguing the contents of tapes. A notably good example is the Agfa tape, which is contained in a stout case which has indexing space on both sides and which then folds away, on a hinge, inside an outer container.

With the public demand for tape steadily increasing, and more firms moving into the field, we may anticipate careful and constant thought for spooling and packaging in the future.

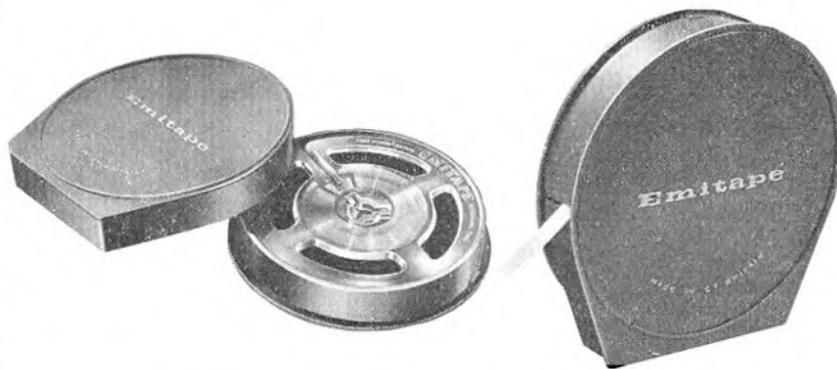
AUDIOTAPE'S "C SLOT"

In a recent review of the American Soundcraft tape we described the method used for tape anchorage as "centre C slot." We understand that this term is not, in fact, a correct description and that the "C" slot is patented and registered by Audio Devices and is employed by them to describe their product Audiotape.

25 YEARS OF B.A.S.F.

It is 25 years since B.A.S.F. marketed the world's first magnetic tape. Yet it is doubtful if it was ever used for an odder purpose than that described in some of this company's latest advertisements—to comfort orphan piglets.

In the drive to secure more meat more quickly, piglets are removed from the sow soon after birth, given special foods to hasten growth—and kept happy by tape recordings of their mother's grunts.



The new Emitape plastic containers for message tape reels

CAREFUL WITH THAT PICK-UP

IF there is one particular aspect of stereophony that repays study, apart from the crucial matter of speaker placing, I should say it is that of the pick-up. The reason is that everything from the tip of the stylus to the base of the pick-up is to some extent variable. Tape heads need a certain amount of attention, and incorrect azimuth alignment can be particularly destructive to good results, but they are not nearly as vulnerable as pick-ups, or so exposed to the introduction of error through neglect or maltreatment by the owner.

If anything sounds wrong in the reproduction the "non-technical owner is inclined to suspect the record, the speakers or the pick-up; and since he can do nothing about the record, except clean it, and practically nothing about the loudspeakers, he is tempted to "have a look" at the pick-up. It may well be that the fault does lie there; but simple logic, unaided by knowledge, may lead to a remedy that is worse than the disease.

Groove-jumping, for example, may be treated by putting extra weight on the

STEREO

pick-up, and if that stops the trouble the owner may comfortably assume that his pick-up was previously too light and leave things at that—with a pick-up that will wear out his records at ten times the normal rate. All the time, the real trouble may have been that the bearings needed adjustment—or that the turntable was not horizontal.

It would help if everyone realised, to begin with, that good tracking represents the occupation of a comparatively narrow belt of safety between twin dangers. The stylus pressure must be sufficient to maintain full contact with the groove and not so great that it causes rapid wear.

This belt of safety cannot be achieved at all in practice if there is bad design or if such troubles as stiffness or misalignment develop during use.

The extra complexity of the stereo groove means that the stylus must have a smaller tip in order to follow the pattern, and this in turn means that with the same weight as before the wear would be greater.

To even matters up the stylus pressure is reduced, even though this makes it more difficult than before to keep the stylus in the groove. Ultimately, then, we are thrown up against the necessity for a higher standard of pick-up efficiency at the outset and in operation.

Freedom of movement and excellent vertical and lateral compliance must be maintained. Care should also be taken that the arm and cartridge are fitted correctly in relation to the turntable. If, for example, the stylus is not vertical when viewed from the front there will be undue tracking difficulties. This fault can also be the cause of cross-talk.

Amplifiers and loudspeakers can, to a large extent, be left to get on with their jobs, but pick-ups and cartridges are subject to so much handling by the operator that there is less room for being satisfied with a purely non-technical approach to them. Knowing more about how they function may not only prevent you from doing them harm; it may help you to detect faults before they have time to damage your record collection.



THE Motek K.10 may well prove the answer to those home constructors whose problem is the choice of a low-priced and reasonably efficient three-speed deck. It is simple; simplicity is often said to be the keynote of efficiency, and most of the facilities required for a good general purpose tape recorder are here included.

It is fitted with a large and well-turned flywheel/capstan and three motors take care of the drive system. Controls are push-button type, which operate a series of switches with plenty of spare contacts for HT, erase head, and changeover from recording to playback amplifiers. A pause button is provided, as well as an interlocking safety switch for recording, which also serves as a useful reminder

The New Decks

THE MOTEK K.10

that there may already be something on the tape that shouldn't be erased.

A drum-type tape position indicator is fitted and the tape hubs have screw-on spool locks. These prevent the spools coming adrift if the deck is used in a portable recorder and reduce spool vibration on the very fast re-wind that is available by the use of separate motors for each spool.

Rewind time for a seven-inch spool

of tape (1,200 ft.) is approximately one minute.

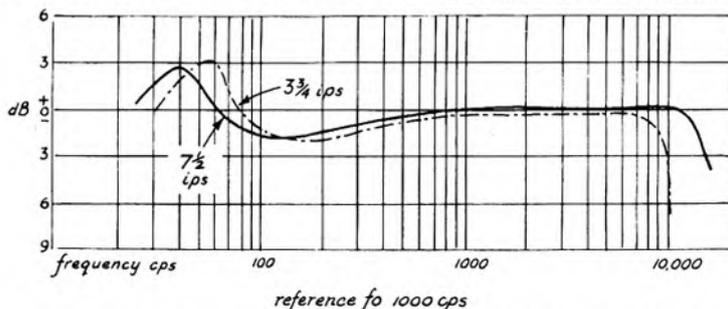
The deck is nicely finished, in two shades of grey with white controls and tape head cover, and actually comprises two plates, the lower one being of pressed steel, which overcomes warping and consequent misalignment of bearings and mechanism.

Mechanical band brakes operate from the push-button controls and have a very definite and fast action on both normal running and re-wind. The deck reviewed was for 220/250 volts 50 cps mains operation, with three operating speeds: $7\frac{1}{2}$ ips, $3\frac{1}{2}$ ips and $1\frac{1}{2}$ ips.

The record and playback consumption is 70 watts, and during fast wind, 120 watts.

A half-track record/playback head and an erase head are fitted with a tape pressure pad system mechanically operated from the push-button controls.

The five push-buttons provide the following functions: playback, record, fast forward and reverse re-wind and



Frequency response obtained with the Motek K.10 Tape head via a Mullard 510 amplifier with CCIR corrected pre-amp

PHILIPS TAPES...better for all tape recorders!

On any tape recorder, Philips Tape gives you better results. It has great sensitivity, a very wide frequency range, and extremely low noise level. This superlative tape is equally good for music or voice recording. Available in all reel sizes from 3" to 7". For those building up a tape library, Philips 7" reels are specially packed in durable books designed for convenient storage, and quick easy reference.



- * Strong pvc base.
- * Resistant to stretch, snapping and tearing
- * Powerful adhesion of magnetic coating
- * Unvarying high-quality performance
- * Standard, long-play, and double-play tapes available



PHILIPS ELECTRICAL LTD · CENTURY HOUSE · SHAFESBURY AVENUE · LONDON WC2

By **F. C. JUDD**
A.M. Inst. E.

stop, with the pause button and speed switch as separate controls.

I can quote no maker's figure for wow and flutter percentage as none were given.

All controls were checked for correct operation and all performed properly. The tape position indicator was accurate enough, as most of this type are, to find a given place on the tape. The three speeds were correctly related to each other, complying favourably with normal performance specifications.

With a frequency test tape one can easily check the relationship of speeds that are each a half of the other. For example, a tone of say 1,000 cps recorded at $7\frac{1}{2}$ ips will, or should, drop exactly one octave when played at $3\frac{1}{2}$ ips and should be two octaves lower at $1\frac{1}{2}$ ips. It should be an octave *higher* at 15 ips.

To return to the Motek deck, I did detect very slight wow at the lower speeds and occasional vibration from the pressure pads. Braking is almost instantaneous and the tape rides smoothly in the guides and winds evenly on to the take-up spool on normal playing or fast wind. The tape head cover is removable to permit azimuth alignment of the tape head, for which two adjusting screws are provided at the base.

I would suggest that the tape head be provided with some mu-metal screening or a humbucking coil; this may be necessary when the deck is fitted near a mains transformer, as there is already some hum pick-up from the motors when they are running.

FREQUENCY RESPONSE TESTS

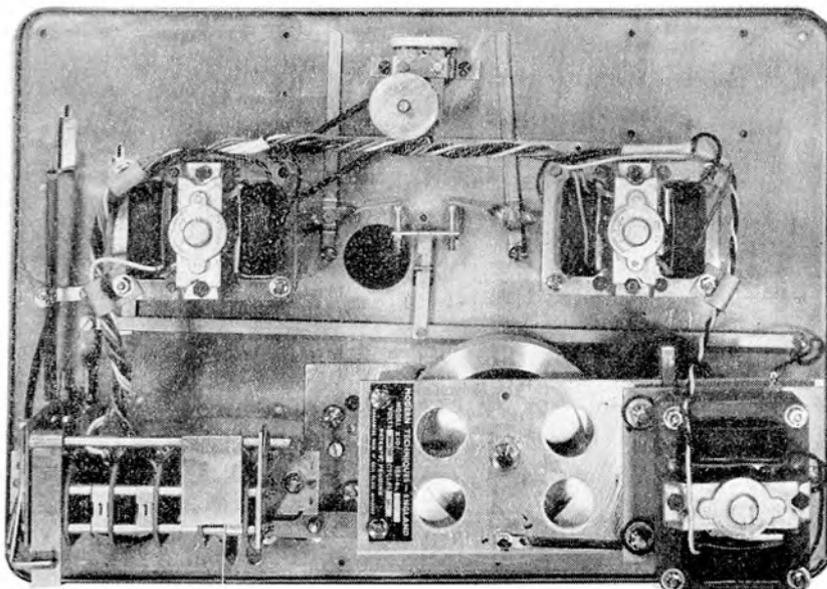
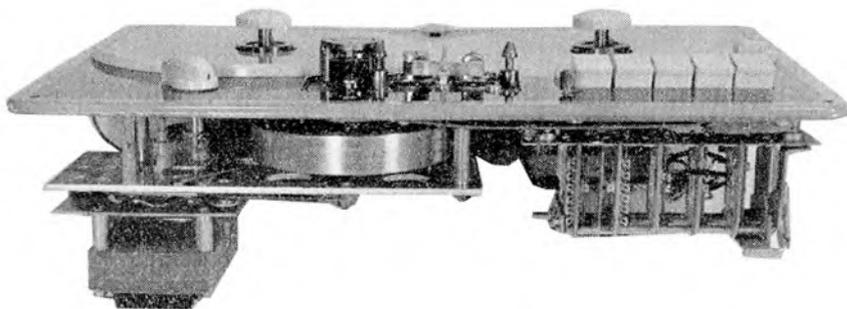
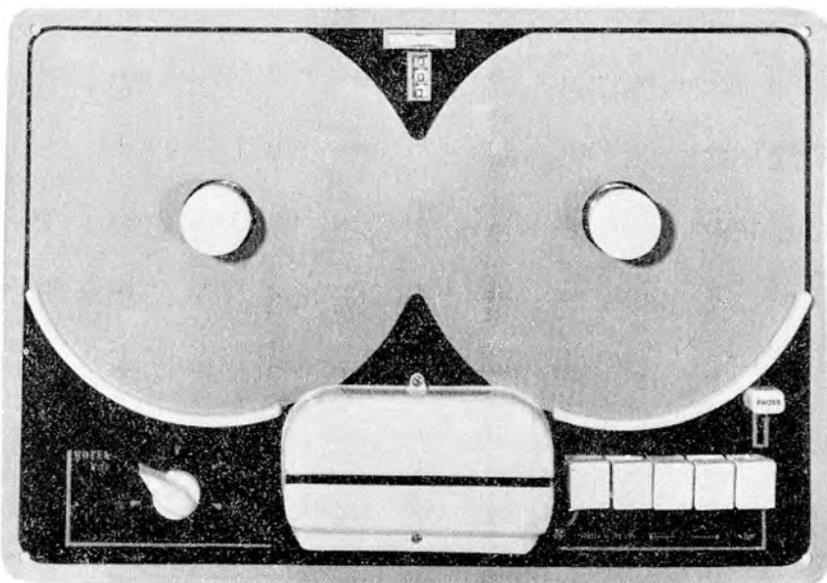
The deck was tested in conjunction with a Mullard Type C recording amplifier and a Mullard 510 amplifier with a C.C.I.R. corrected tape pre-amplifier in front. Pre-recorded music was well reproduced, but required some treble boosting for a more brilliant response at the high frequencies. The head is capable of good recording and erase is clean, providing a suitable oscillator is used.

The newly-designed Motek head is a high impedance device (no transformer required). The makers claim that with a suitable amplifier the response is better than 40-12,000 cps at the higher speed using medium grade tape.

Previous designs of the Motek decks have included a high impedance erase head, this new model is fitted with a low impedance head of radiometal lamination construction to secure maximum performance.

The tape deck was tested for frequency response with the aid of an E.M.I. TBT1 test tape for $7\frac{1}{2}$ ips and a specially-recorded test tape for the other two speeds. The response curves for $7\frac{1}{2}$ ips and $3\frac{1}{2}$ ips are shown in Fig. 1, but these may vary very considerably with the type of amplifiers used. They do, however, indicate the capabilities of the tape head fitted to the Motek K.10 deck and could no doubt be improved upon by careful design of the amplifiers to be used with it.

(Continued on page 42)



The Motek K.10 deck viewed from three angles. The top photograph gives a bird's-eye view, with the reels removed, but the screw-on locks in place. Centre picture provides a side, front view, with the head cover removed. Below, a view of the under-side of the deck

Contest Corner

SNAGS IN MAKING A CLUB TAPE

Charles Aitken concludes his account of the making of the tape which won first prize for the Dundee Tape Recording Club in the Club section of the 1959 British Amateur Tape Recording Contest.

THE final assembly of our contest entry was done by a group of eight club members, four tape recorders and a mixer unit. Our musical background was on one tape, our sound effects on another, and the last tape contained all our recorded interview material with final editing completed.

It seemed a simple enough job to mix this on to one master tape. In fact, it took us eight hours and two evenings to finish the task!

We had previously timed all the recorded work so that I would know how much time to allow for narration. This linking narrative between interviews was to be done "live," and we used two narrators. Using two narrators is useful because a switch in voice helps to stress a switch in the tempo of the tape or a change in the type of material.

Originally, Leonard Douglas had decided to be "professional" about this final assembly job. He was producer and operating the master machine, a Vortexion. The other three recorders were providing the interviews, musical and sound effects and were linked to the Vortexion via a Brenell mixer. We were instructed as to what the various hand signals were to mean by Leonard Douglas. All machines were switched on, pause controls were hauled back, a signal was given and all h-ll broke loose!

Having decided that we were rank amateurs at this game, we agreed to dub on to the master tape bit by bit, pausing where required, and this we found to be the ideal method. After each section was dubbed we played it back. If we weren't happy about it, we erased and did the job again. Hence the eight hours hard work before completion!

Operating the mixer was fairly easy, but getting the right balance between a background of either music or sound effects and a piece of narration was not so easy. Time after time we tended to drown out the voice of the narrator completely. But eventually the job was done, and we had fourteen minutes forty seconds of documentary programme on one master tape at a speed of $7\frac{1}{2}$ ips.

The fact that we won the Club Sec-

TAPE TITTER



tion with our tape is not the important factor. For us in Dundee it had provided our first really club effort. We had all enjoyed making this tape and it gave us a real sense of achievement. We may not win again this year, but at least we know a great many of the snags which will crop up. Any clubs planning to enter the 1960 contest will do well to note them.

Time is all-important in getting your tape ready. All work is done in your spare time and a tight schedule should be worked out right at the start. Arrange for much more material than you will need. Much of it will be of little use. Some recordings will be poorly made. Quite a few members will fail to hand in any interviews at all.

If you have to interview V.I.P.s, remember they are important people! They are well booked up for weeks at a time, so give them plenty of notice when you ask for their help. But don't be afraid to ask for help. It is usually given most willingly. If you have local research to do, Chief Librarians are a fund of knowledge. So are the local Press boys. And in industrial work the P.R.O.'s are only too pleased to help.

Editing is a problem at any time, but leave the job to one man and make sure he's a good one! We were lucky with Leonard Douglas, but unfortunately he has now left Dundee and we must find another "cut and splice" expert. Don't be too ambitious with your entry. Fifteen minutes is not a long time and too much material can "overload" your entry. Listen to documentaries on the radio as much as possible. I always think that the "Schools" programmes do a wonderful job.

You don't need a battery portable to make a documentary tape. Sound effects in themselves are of little use unless they add something to your story. Otherwise they become little more than gimmicks.

The 1960 contest will soon be here again so get started now. I'm sure that you'll realise as we did in Dundee that making up a contest tape is good experience and grand fun in the bargain!

Equipment Under Test

THE Steelman Transitaape is one of the most recent transistor, battery portable recorders to appear on sale here, and is the first American product available in this field. The early models on sale are British assembled from American parts, but it will later be an all-British product, manufactured under licence.

The first notable thing about the Steelman is the handsome appearance and the simplicity of handling. It is contained in a leather case which, as a change from the now all-pervading plastic, is a joy to handle. This case is cunningly contrived. A flap which covers the reels can be folded back for momentary access to them, or it can be detached entirely. The microphone normally rests in a foam-rubber-lined recess in the top of the recorder, under this leather flap, which is perforated to permit sounds to be picked up with the flap closed.

The front of the leather case incorporates a grill over the speaker cone.

By slipping off three operating knobs from the sides, the recorder can be removed from the case. The photographs show it in this state, and it will be noted how readily the batteries can be changed when necessary. The back plate can be removed in a few seconds and quick access gained to any part of the equipment.

This is a two speed recorder, operating at $3\frac{1}{2}$ and $1\frac{1}{2}$ ips on two tracks, using three-inch reels. With double-play tape, therefore, it will give over half an hour's recording at the higher speed on a single pool.

The reels are neatly recessed and held by spring-clips, so that the recorder can be used in any position, or swinging from the shoulder (a stout leather shoulder-strap is provided). On the model reviewed, there was not enough springiness in one of the clips, and it proved difficult to change the reel without straining it unduly, but this was a small fault which was easily rectified.

Behind the reels, and visible through them as the tape moves from one to another, is a scale which enables the operator to estimate the time and footage remaining unused.

The controls are well placed, simple to understand, and positive in action.

A switch above the tape-deck on one side gives choice of speeds, which can be changed while the recorder is running. A similar switch on the other side gives fast forward and rewind. This is said to over-ride all other controls, but I found

THE STEELMAN TRANSITAPE

that fast rewind with the speed control set for $1\frac{1}{2}$ ips became *faster* rewind if it was switched for $3\frac{1}{2}$ ips.

A milled knob on one side of the recorder gives control of playback volume and recording level. A small neon glow indicator on the top of the recorder serves as level indicator, and those who are used to more elaborate mains models may find it disconcertingly inadequate at first. It "flickers at medium brilliance while recording loud passages of music or voice," but "when the lamp is flashing brilliantly or remains on, you are overloading"—in the words of the instruction booklet.

Personally, I was never happy about it, but the results I secured with the recorder did, I admit, bear out another phrase in the recording instructions, that "a little practice will ensure uniformly good results."

On the other side of the recorder there is a second milled knob which switches on and then selects either playback or record. A separate knob close beside it must be depressed before record can be engaged, so there is no danger of error.

But there are slight disadvantages in having to switch *through* playback into record.

If one is using a tape that has already been recorded—the deck incorporates an erase head—you may end up, unless you operate the controls very quickly, with snatches of an old recording immediately before and after the new one. They can, of course, be eliminated later, but it is irritating. It would be an improvement to have a central "off" position, with playback in one direction and record in the other.

I do not think that critical measurement of laboratory performance is the right way to assess portable recorders of this type and I have, in fact, avoided any such test. Instead, I have used the machine in a wide variety of ways and places.

It came out of this testing with flying colours. I began by recording a journey by suburban diesel train, with the Steelman resting beside me on the seat, the leather flap closed and the microphone concealed in its foam-rubber recess. At $1\frac{1}{2}$ ips there were good recordings of acceleration and deceleration of the train, but some of the refinements were lost, as, for example, the subtle changes in tone as we passed track-side buildings. At $3\frac{1}{2}$ ips, however, quality was excellent.

In a normal room, with the microphone attached to a label by the special clip with which it is provided, speech recording was all that could be desired. At $3\frac{1}{2}$ ips, in fact, it was fully up to that of many mains recorders.

In a roomful of people, the pattern of conversation was well recorded, with the microphone giving good perspective and catching children's voices well at seven or eight feet distance. This, however, did involve full gain with the level control, and some background noise resulted.

Finally, I put the Steelman to what I recognise to be an unfair test—a recording of a zither. This would expose the deficiencies of many really expensive machines, and there was discernible wow. The results, however, were not unpleasant.

On every reasonable test I made, the

Steelman more than fulfilled my hopes of it.

The built-in 4-inch speaker provides very good playback facilities, with surprising volume available. The microphone can be plugged in to provide individual low-level listening. I also played back my Steelman recordings on a Ferrograph with complete satisfaction.

The Steelman is built for use (with suitable accessories) from a mains supply, and remote-control hand or foot switches are also available.

It measures $6\frac{1}{2} \times 9\frac{1}{2} \times 2\frac{3}{4}$ inches and weighs under $6\frac{1}{2}$ lbs. (without batteries).

At £55, I consider it a very good buy.

The following is the maker's specification covering those points not mentioned above:—

Input: one miniature jack, 100,000 ohms.

Transistors: seven RCA 405 or equal.

Diodes: two CBS IN48 or equal.

Overall gain: 55 dB.

Motor: rubber mounted DC motor. Integral electro-mechanical governor maintains constant speed from 7 to 9.4 volts.

Bearings: jewelled and oilite type bearings at all critical points.

Wow: approximately 0.5 per cent at $3\frac{1}{2}$ ips.

Batteries required: 6 Mallory MR-12R or equal for the amplifier (about 300 hour life); 7 Mallory MR-12R or equal for motor (about 50 hours life). In emergency, AA penlight cells will provide about six hours life.

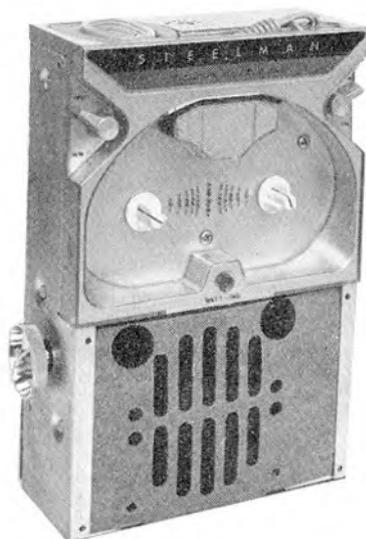
Output: heavy-duty 4-in. PM speaker. One output jack, 3.2 ohms, cuts out speaker and can be used with mic. or earphones or for large external speaker.

Frequency response: 150 to 7,500 cps.

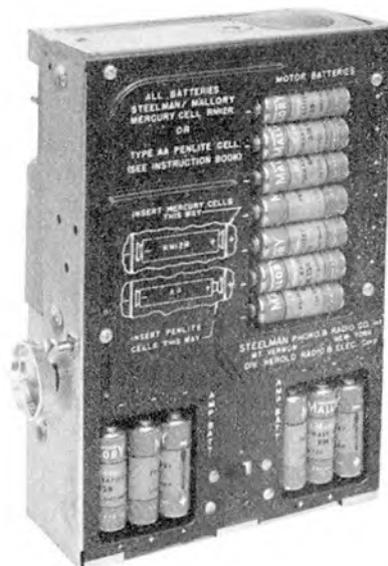
W. D.



The Steelman with its leather case closed and ready for use



Removed from the outer case and with the reels removed—front view



Back view, with outer case removed, showing easy access to batteries



By
F. C. JUDD
A.M.Inst.E.

ASSEMBLING A THREE CHANNEL MIXER

DETAILS of a suitable case for the mixer are given in Fig. 1, which shows also a side elevation view of the chassis. The original design was built into a case of mild steel (18 s.w.g.), but aluminium at the same gauge is quite suitable and may be easier for construction if workshop facilities are limited.

The chassis dimensions and drilling details are given in Fig. 2; note the bend at an angle of 45° which offsets the valves, so as to clear the top of the case.

Assembly of the components, the

component group board and valve-holders, etc., calls for some explanation, although the diagrams show sufficient detail.

First, the small component group board. A miniature type 24-way board was used in the prototype, but may consist of three 8-way, two 12-way or four 6-way, or any other combination of boards placed end to end. See that they are raised so that the rivets securing the tags do not short circuit on to the chassis. This may be done with small spacing washers on the fixing screws or by a sheet of thin paxolin under the board.

The diagrams, Figs. 3, 4 and 5, have been specially drawn so that assembly and wiring details are clear enough for those who cannot read the theoretical circuit which was given in Part 2.

It is easier first to assemble and wire the components on the tagboard and to

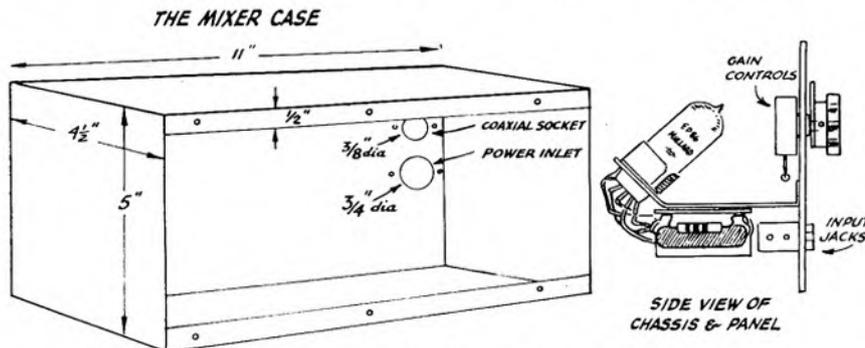


Fig. 1.—Left: The mixer case. Right: Side view of chassis and panel

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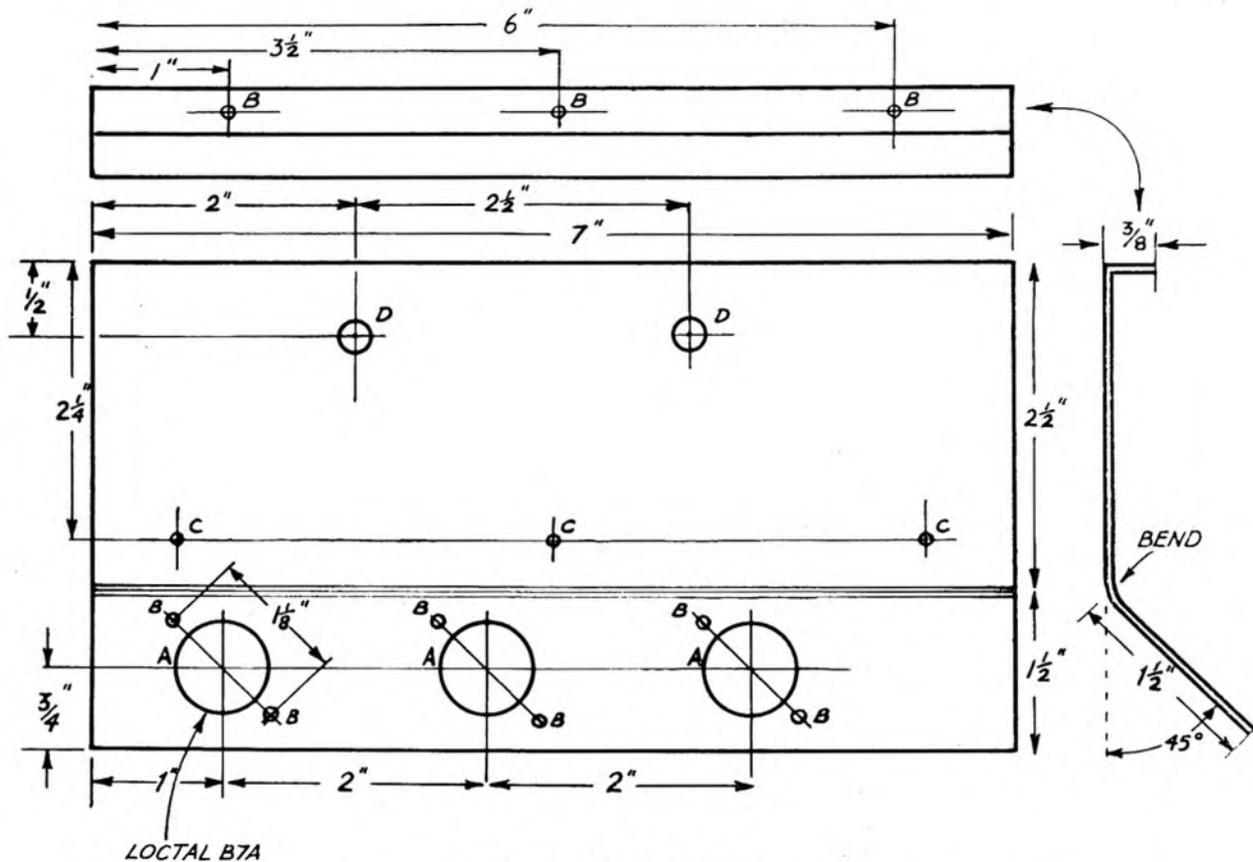


Fig. 2.—Chassis dimensions

A=holes 1/4 in. diam.; B=holes 6 BA clear; C=holes for fixing tag boards (see text); D=holes 1/4 in. diam.

mount this before wiring the valve-holders. The gain controls and panel light which are mounted on the front panel can also be wired before fitting it to the chassis.

The co-axial output socket and the HT and LT input socket are both mounted at the back of the case, to the left-hand side when facing the back. The leads from here are marked AC, HT+ and XX, and should be just long enough to allow the chassis to be withdrawn clear of the case.

Note how the leads X, Y and Z go through holes in the chassis to the gain controls on the opposite side; providing just sufficient wire is allowed, no screening is necessary on any of the wiring and ordinary PVC covered wire may be used throughout the mixer.

On no account alter the order of the components on the tagboard. Considerable attention had to be given to this in the prototype model, in order to keep crosstalk between channels to an absolute minimum. Similar comments apply to wiring as well.

To avoid confusion, all the component values have been marked on the pictorial diagram, but note that the resistors marked "high stab" are high stability types with a tolerance of one or two per cent. It is essential that these are used to keep the amplifier noise to an absolute minimum.

The heater leads between valve-holders must be twisted as shown in the wiring

(Continued on page 35)

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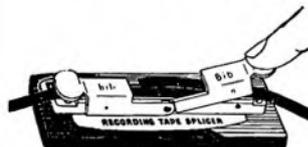
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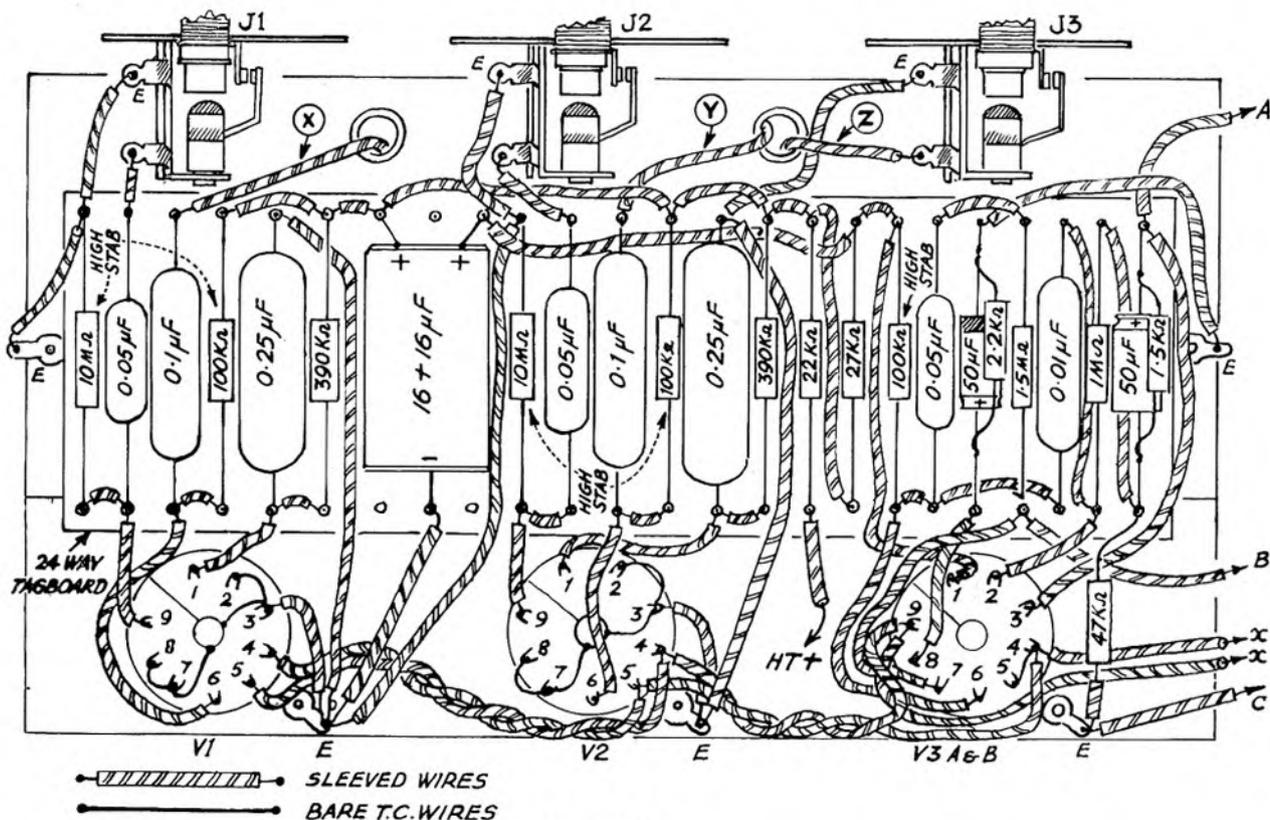


Fig. 3.—Wiring of tagboard valve-holders and input jacks

E=solder tags and points earthed to chassis. For all other symbols, see text

diagram and a "humdinger" should be included in the power supply (see Part 2, January 27 issue).

When the wiring and assembly has been completed, carefully check all connections and components before coupling the mixer to its power supply unit or other power source.

Note that some tape recorders have an HT and LT outlet, usually 250-300 v. DC and 6.3 v. AC. The current consumption of the mixer is low enough to permit operation from one of these outlets, in which case the "humdinger" will have to be fitted across the heater wiring in the unit itself.

If the wiring and assembly is correct the unit should, of course, work without any further checking or adjustment, but if you have access to a signal generator and output meter the frequency response and gain through the mixer may be tested. Alternatively, couple a gramophone pick-up or radio source into the appropriate socket and turn up the gain

control for that channel. The signal out of the mixer should be slightly greater than if the signal source were plugged directly into the recorder. The same comments apply to the microphone inputs.

To check for hum and noise turn each gain control to maximum and listen carefully through the monitoring circuits of the recorder, if this facility is available; if not, a recording can be made as a test. No microphone or other signal source should be connected for this test.

Some notes will be given later on modifying the output circuit to provide lower input voltages for those who have no gram or radio socket on the recorder. As a microphone socket would have to be used, a very much lower output voltage from the mixer is necessary to prevent gross overloading of the input stage of the recorder.

Details of modifying the input circuits for low impedance microphones will also be given.

B.B.C. "Sound" Programme
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Ralph West, John Borwick and I. W. Jarman answer questions sent in by listeners.

The programme will be repeated at 6.40 p.m. on Monday, February 22nd.

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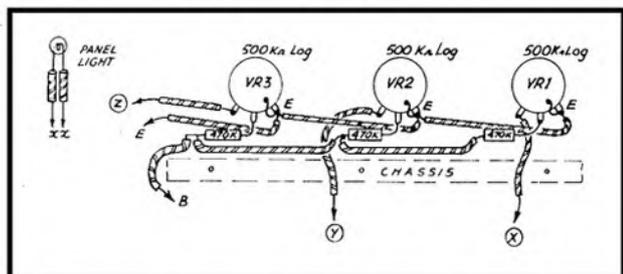
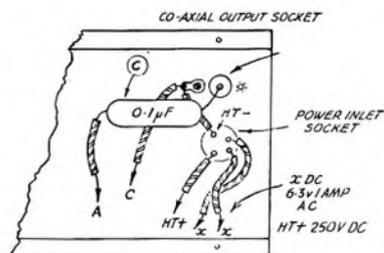


Fig. 4.—Left: Wiring of gain controls

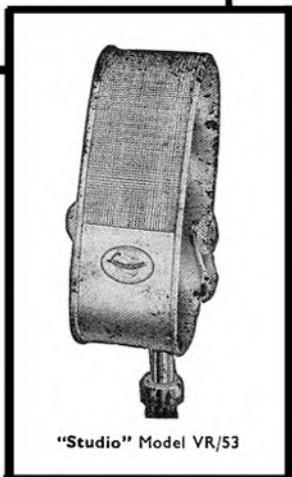
Fig. 5.—Right: Wiring at rear of case



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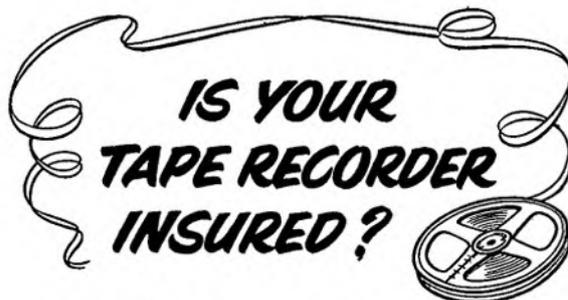
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Two record/replay heads are fitted, allowing either function to be carried out in each direction. Normal half-track recording sense is incorporated and, using long play tape, six hours playing time may be obtained at the slower speed with a seven-inch spool of tape.

The Mobile

Output is 4 watts and a single squirrel-cage induction motor with an external rotor provides the motive power to give wow and flutter - free performance. Separate record level and volume controls are provided, as well as independent bass and treble controls on playback. Sockets are provided for an external loudspeaker, with automatic cut-out, microphone, phone pick-up, and telephone adaptor.

The Mobile has automatic stop and pause control functions, a tape position indicator, a magic eye recording level indicator, and fast rewind facilities.



It weighs $26\frac{1}{2}$ lb, measures 15 x 12 x 7 inches, and is elegantly covered with green and grey rexine. A dynamic directional microphone is included in the price—£59 17s.

Apparatus & Instrument Co. Ltd., Aico House, 36, Grove Road, Hounslow, Middlesex.

NEW FIRM MARKETS TWO GERMAN MACHINES

CHITNIS ELECTRONICS, a new firm in the tape recording field, announce the arrival in this country of two new German recorders. They are the Chitnis KM22 and the KM33, identical in appearance and design except for track width. The KM22 employs dual track operation and the KM33 uses the four track system.

There is a wide range of facilities, including two speeds, $3\frac{1}{2}$ and $1\frac{1}{2}$ ips.

The completely new deck is fitted with the high performance heads (0.0001375 in. gap) manufactured by Bogen, of West Germany. The quoted frequency responses are 30—16,000 cps \pm 3dB at the higher speed and 30—10,000 cps at $1\frac{1}{2}$ ips.

Wow and flutter is given as better than 0.12 per cent combined, and the signal-to-noise ratio as better than 55dB unweighted. Bias frequency is 50,000 cps. Monitoring facilities are obtainable

through the 6 in. elliptical loudspeaker. Mixing and superimposition facilities are also provided. Other features include a pause control, a safety erase lock, separate bass/treble controls, rev. digital counter, magic eye recording level indicator, and a socket for an extension speaker.

An automatic stop switch is supplied which instantly cuts off the motor drive when supply spool is empty or if the tape breaks during recording and playback.

Separate inputs are incorporated for microphone, radio and gramophone, the respective values being 3Mv at 2M Ohms, 3Mv at 10K Ohms and 100Mv at 1M Ohm. Output is given as 500Mv at the diode pre-amp. stage with a final total output of 3 watts.

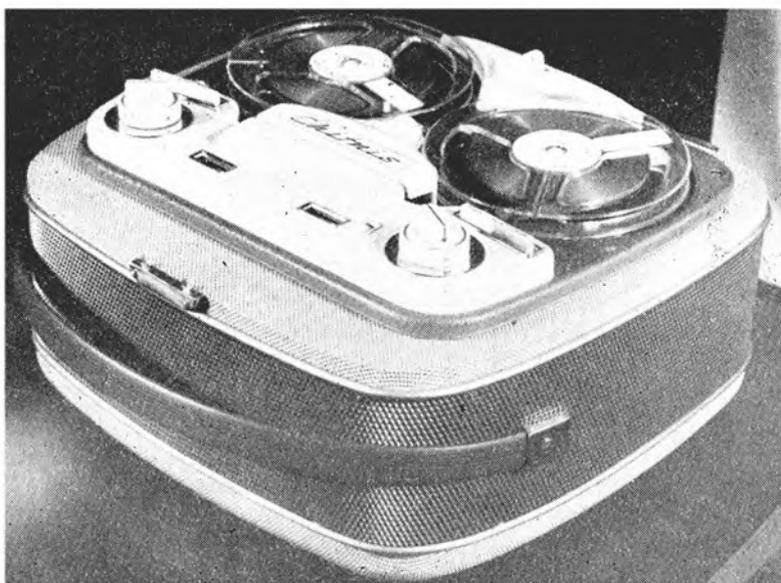
Mains voltage is 110-250 AC, 50 cycles, and the valve line-up is EF 86, ECC 83, EC 92, EM 84, E1 84 with two point contact rectifiers, B250/C75 and RL 32. Consumption on recording and playback is 50 watts.

The maximum spool size is $5\frac{1}{2}$ inches, with a rewind speed of $2\frac{1}{2}$ minutes. Overall dimension of each machine is 14 x $12\frac{1}{2}$ x 8 in.—weight 19 lb.

The elegant design (see photo) is enhanced by the neutral beige simulated-leather covering. A key is provided to lock the recorder lid.

The KM 22 costs 54 guineas, the KM 33, 62 guineas; each includes a dynamic microphone.

Chitnis Electronics, 1, Long Acre, London, W.C.2.



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News from the Clubs

THE weather upset the plans of a number of club meetings during January. Hardest hit of all was the Coventry club where their first meeting of 1960 was nearly cancelled.

Thick fog descended on the city and only six hardy souls managed to make their way to Rotherham's Social club. While the fog swirled about outside, these members firmly ensconced themselves around a fire with "the odd noggin" by their elbows and spent an enjoyable evening talking of recorders and recording.

Henry Hopfinger played a tape, recorded a few nights previously, of speeches made by the Lord Mayor and the Bishop of Coventry during a meeting held to raise funds for World Refugee Year. Arrangements were also discussed following the invitation from the Birmingham club to visit them later this month.

In Rugby the weather was unkind to the second and third sessions of the tape recording course. Frozen snow and ice affected the attendance, which dropped in comparison to the opening night.

Mr. Capell gave the first lecture, and spoke of the tape equipment available to the enthusiast today. A number of machines in various price ranges—25 to 120 guineas—were on view and each was demonstrated to show its advantages and capabilities.

Mr. Mostyn Ridley followed with a demonstration of audio spectrum. He also gave various hints on care and maintenance of tape equipment.

Before the meeting broke up a stereo tape was heard on the Grundig TK 60.

The January 5 meeting of Edin-**burgh** club, unaffected by the weather, was divided between an auction and a message tape. The auction was held to relieve members of spare and unwanted equipment. Items for sale ranged from tape spools and headphones to a variety of books on tape recording.

A limit of sixpence was set until bidding reached twenty shillings when minimum bidding was announced as one shilling. One penny in each shilling of the proceeds went to club funds.

The tape was received from the tape club aboard H.M.S. "Caledonia," a Royal Navy training establishment at Rosyth. A reply tape produced by members included an invitation to the naval group to visit the society rooms.

Howard Lockhart of the BBC was present at their meeting on January 17, to entertain members with his talk: "Between you, me and the mike." A good deal of banter ensued from his light-hearted lecture and he told the story of

FREDDIE WESCOTT was first introduced to tape recording through his activities with the Forces Broadcasting Services in the Middle East. Following a tour as a bomber pilot, and a spell as a prisoner of war, he found himself in this part of the world entertaining the troops with record request and sport programmes. He also provided commentaries on ceremonial occasions and conducted interviews with visiting personalities. One of his outstanding memories was interviewing the M.C.C. Touring Team on their return from an Australian series.

The equipment he used for his work, an FBS Vortexion, and the general interest he found in the medium led him to purchase a model for personal use, and hi-fi became his hobby. Since that time he has owned a variety of recorders and is now decided on a Grundig set-up. He uses a TM60 in his home "studio" and a TK60 for outside work.

He moved into his present home at Ashford in November, 1958, heard about the West Middlesex club in the December and became a member at

a radio listener who wrote to him asking for "Christian and her soldier" to be played in the Housewives' Choice programme, when in fact she wanted to hear *Tristan und Isolde*.

Bournemouth and Poole Tape Society members are also arranging a sale of surplus equipment in the near future. March 8 and 22 are the provisional dates to note.

Demonstrations of the Veritone Venus and the Grundig stereo machines have been held at recent meetings. Lined up for future presentation are the new H.M.V. and Philips recorders. Tape Recorders, Ltd., of Westbourne, have offered to demonstrate the recorders, and will also display a few of the Saga pre-recorded tapes.

A new feature of the club, members' tape time, is proving very popular. At their most recent meeting two items were heard. The first, a fourteen-year-old tape from the BBC entitled *Voices in the past* was presented by Allen Cadsworth. Mr. W. Lawson introduced the second tape, a selection of his favourite pieces of music.

A small cup for the best recording of the year is to be competed for amongst members, although at the time of writing no particular theme has been decided upon.

In London, final plans for the competition for the McManus cup have been made and the first subject is to be a ten-minute observation of friends and neighbours. The tapes when completed will be heard by all members who will select

Club Personalities No. 9



FREDDIE WESCOTT
West
Middlesex
Tape
Recording
Club

the January, 1959 meeting. His enthusiasm for tape recording, and his natural flair for organisation was soon noticed by the members who elected him Chairman in June of that year. Two months later he was elected to the committee of the National Federation.

Other interests of this 48-year-old Squadron Leader include amateur dramatics, the theatre and opera. He is employed in the publicity offices of the Air Ministry.

Married, with a three-year-old daughter, he states his wife is "somewhat apprehensive" of the multitude of knobs and switches on tape equipment and "expresses extreme concern" at each new tape recording development, as this usually means a complete change of equipment.

the best four. An independent judge will decide the ultimate winner. The cup is to be held by the producer of the winning tape for six months.

Business commitments have led to the resignation of the club Secretary, Stan Wrist. Assuring members that he would attend club meetings as often as he could, he confirmed his willingness to continue in his role as librarian. Frank McManus agreed to combine the vacant post with his present position as Treasurer. Incidentally, the next meeting of the London club is on February 11, not 12, as stated in our last issue.

At the latest meeting of the **Chesterfield Tape Society** on January 18, a demonstration of tape and cine synchronisation was given by three members of the local Cine Society.

Several colour films produced by the cine enthusiasts were included in the programme and an interesting discussion was held on the combination of the two hobbies. A tape from the Nottingham club was heard during the evening, and Jack Clayton, Treasurer, rounded off the evening with a quiz tape.

Members Jack Taylor and Reg Derby recently recorded a service at a local spiritualist church. Recordings obtained when the medium passed messages to the congregation will be heard when the finished tape is played at the February 29 meeting. At the same meeting, Jack Clayton will demonstrate the Telefunken four-track recorder.

The members of the **Brighton** club are in the process of contacting all local clubs

(Continued on page 41)

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Tape recorders, players, radios etc. (modern) wanted for cash. Callers or particulars Cooks Store, 159-187, Praed Street, W.2. (opposite Paddington Station). Tel. PAD 6464.

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Special purchase! 1,800 ft. Agfa-Wolfen L.P. tape on 7 in. spools, only 32s. 6d.; 1,200 ft. 7 in. Ferrotape, 26s. 6d.; P. & P. 1s. 6d.; send for complete list of tape bargains (including American Audio tape, BASF etc.) and list of new and second-hand tape recorders. E.C.D. Kingsley & Co., 132, Tottenham Court Road, London, W.1. EUS. 6500.

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GRUNDIG "Cub" battery portable for hire: £3 3s. per week. BM/DNKD, W.C.1.

Reflectograph 500 purchased April, 1959—hardly used. Perfect condition. £80 or near offer. Shepherd, 12, Grove Road, Whimble, Exeter.

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(Continued from page 39)

throughout Britain inviting their co-operation in a nation-wide message service. Chairman Bert Guernsey informs me that fifty letters have been despatched so far and already a number of favourable replies have been received. Members of the club attended the Gala night of the Crawley and Sussex club on February 1.

The AGM of the **Weymouth** club was held in January. Among officials elected, Gordon Butler was re-elected to serve as Secretary and Garnet Jones was voted Chairman for the second year running. A report of the Hospital and Old People's tape service was given by Eric Walbrin, who continues to keep members active recording tapes for this worthwhile service.

Their proximity to the sea has encouraged members to hold a fishing contest. I have it in good authority that tape-worms will not be used as bait.

Last March, when Percy Ager tried to form a tape recording group in the Ilford area, only five enthusiasts responded and the project was subsequently shelved. Almost a year later, on January 22, over thirty devotees were present when Mr. Ager took the chair for the inaugural meeting of the **Ilford and District Tape Society**.

Local interest in tape recording has increased to such an extent that Jeff Langley, the elected Secretary, has gathered a potential membership of seventy, during an intensive drive to seek tape enthusiasts.

The opening session of the club met

with a slight drawback, when it was discovered too late that there was no AC current available. A recorder which had been taken along for demonstration purposes remained as silent as the grave. To overcome this blow, the next meeting is to be devoted to transistorised machines, meanwhile, new club rooms are being sought.

Alan Stableford was present at the meeting and provided members with food for thought in the way of future activities, warning them of the dangers of club meetings held without a definite object in view.

Tape recording, he emphasised, should be a creative hobby, productive of minor works of art. It should be the constant aim of the society to encourage this ideal by proper instruction and competition between members.

Of the three young ladies present, two were enveigled into helping with the administrative work. Miss Marion Way was elected Assistant Secretary and Miss Leslie Edwards will serve as Treasurer. Mr. Ager is to continue as Chairman.

The subscription fees were set at one guinea a year, half price for teenagers, and meetings are to be held fortnightly.

Further east, but still in the same county, I hear of another club recently formed. Members of the **Clacton Tape Society** meet every Monday at the RAFA Club in Pier Avenue. At present members are occupied producing a commentary for a colour film of a holiday in the West Country. The Secretary is A. C. Ings, 18, Coopers Lane, Clacton-on-Sea, Essex.

The third club to be formed recently is the **Ultracorder**, a society formed within the social club of Ultra Electrics Ltd., Western Avenue, Acton, W.3.

In the same district Mrs. Hilde Wiseman, 8, Woodhurst Road, Acton, wishes to form a club. Mrs. Wiseman is willing to assist any hospital service by relaying tapes to hospitals in the London area.

The Tape Section of the **International Short Wave League** is flourishing, and membership is steadily increasing. Members have four round-robin tapes in circulation at present. A news tape has been initiated and is proving very successful. It is hoped to circulate one of these every month. Details of the club and its activities may be obtained from Mick Witt, 12, Bruce Avenue, Shepperton, Middlesex.

The Tape Organ club, a group of tape enthusiasts with a leaning towards Organ music, announce the addition of over fifty new members from the British Isles to their list. The new roster will be issued shortly.

Meanwhile, the Secretary, Carl Williams, 152, Clizbe Avenue, Amsterdam, New York, U.S.A., wishes to inform all members and prospective members that as from March this year, the subscription will be ten shillings a year.

A lecture is to be given by the British Sound Recording Association on February 19 at the Royal Society of Arts, John Adam Street, London, W.C.2. Entitled *The Sounds of Music*, the lecture will commence at 7.15 p.m. Doors will be open at 6.30 and light refreshments are available.

.....CUT ALONG DOTTED LINE.....

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Tape in the classroom

(Continued from page 15)

For taping purposes it will be necessary for one child to introduce the "celebrity," then come the questions, and finally a word of thanks at the end.

Back at school these interviews can be edited and made into interesting programmes for broadcasting to several classes at a time.

Those who are about to leave school may like to organise a similar set of interviews with local employers. A little help from the Headmaster will probably be needed here, but the results of such a scheme can prove very stimulating.

A more ambitious scheme would be a general sound-picture of the locality, containing spoken descriptions by the children together with interviews of local characters, craftsmen and tradesmen. A scheme of this kind needs a good deal of initial planning into its natural sections—history of the districts, its people, its industries, its services, its government and so on. The result is well worth while and of true educational value.

Don't forget the parents! They have a stake in the school, too. They will want to hear the recordings, not merely to listen to their own children, but because many of them are interested in what is going on in the school. They like to make comparisons with their own school-days and learn something of the modern techniques that are producing a "silent revolution" in teaching methods.

Even the odd malcontented father can be calmed. Next time he asks his usual question — "What are the schools doing?"—grab him. Sit him in a comfortable chair, give him a cup of tea and switch on the machine. At the end of the recording I'll bet you'll have a convert who will put his hand in his pocket and give you half a crown towards a new reel of tape!

Motek K.10 Deck

(Continued from page 29)

The record head is mounted on a precision bearing located under the head-seating plate below the head. By suitable adjustment of the two screws on the left and right of the head, the gap line can be set to a very fine degree of accuracy and for the best possible results from pre-recorded tapes. Alternatively, the gap line can be deliberately off set to obtain good playback reproduction from a tape recorded on another machine with a misaligned head.

Because of its low price the K.10 should certainly appeal to the home constructor with a not too deep pocket who wants a serviceable and adaptable deck for building an inexpensive recorder. It is recommended for this purpose, and I may add that many manufacturers already incorporate this deck in their recorders—a good indication of a deck with a satisfactory performance.

All metal parts are tropicalised Cadmium plated. The dimensions of the deck are 15½ x 10¼ x 4⅞ inches, weight, 13½ lb. The list price is 21 guineas.

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February 10th, 1960



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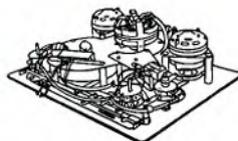
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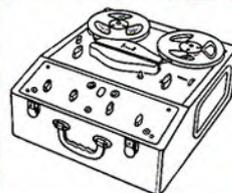
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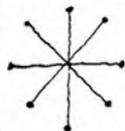
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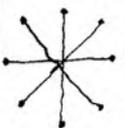
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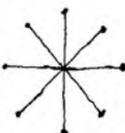
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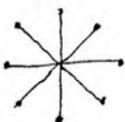
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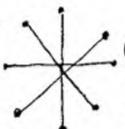
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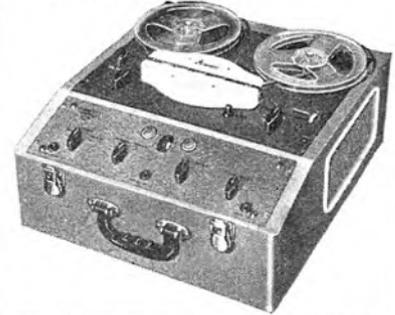
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Wyndson Viscount	49	6 19 0	3 14 2
Spectone 161 (Ex Tape)	49	6 19 0	3 14 2
H.M.V.	50	7 0 0	3 15 10
Telefunken 75KB (with microphone)	56	7 6 0	4 5 10
Brenell 3 Star	58	7 10 0	4 9 0
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MINIVOX

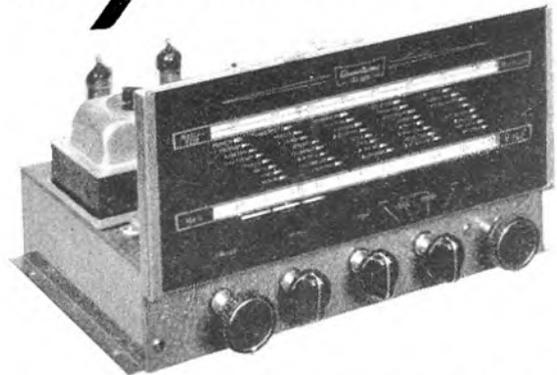
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These are some of the comments which have all been received in the last month or so, and the originals can be seen in our files:—

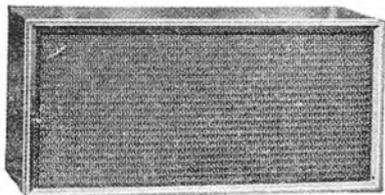
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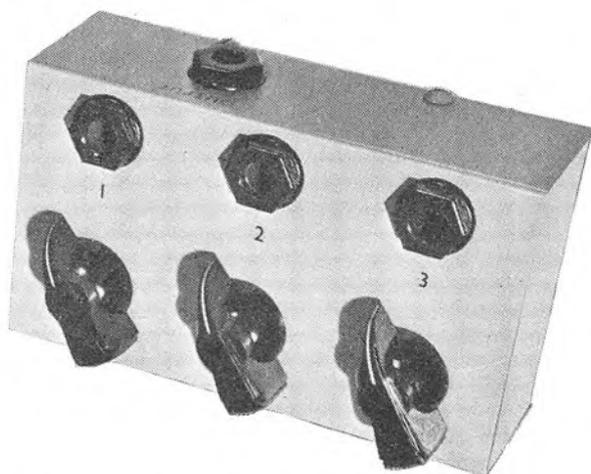
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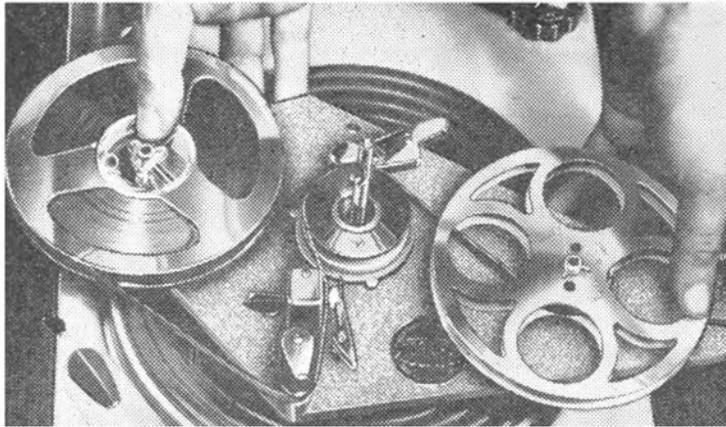
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Vol. 4 No. 4 24th February, 1960

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We take the view . . .

A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

IN our next issue we shall present some of the fascinating facts which have been established by the "Readers' Quiz" recently published in this magazine. One thing I can reveal immediately: there is no such thing as an "average" reader. But the readership does divide up into two clearly-defined groups, and they appear to be very well balanced numerically.

One group demands "give us more technical articles." The other protests "keep your articles simple, for the sake of we beginners."

What does an editor do about that? I hope to be able to provide some satisfactory answers next time.

Meanwhile, may I lift the curtain an inch or two and say that I was surprised at the interest in stereo developments among our readers! Nearly a quarter of them appear to have stereo equipment of some sort, though the disc stereo enthusiasts seem still to be the largest group at present.

I have just heard from Mr. R. V. Huddleston, of 33 London Road, Grantham, who is keen to help start a special club for stereo enthusiasts. He is willing to help in the formation and running of such a club.

Mr. Huddleston has been recording stereophonically since last October and has so far "had a go" at a full-length play, the sounds of a railway station, a fire station and traffic on the A.1, a rock and roll group, and a tap dancer—with, as he puts it, "varying degrees of success."

One of his future projects is a recording made inside the organ chamber of a Wurlitzer organ.

Mr. Huddleston asks if I will test reader's reactions to his idea of a special club. Well, your ideas are sought; you can write direct to Mr. Huddleston, or to me. Naturally, *Tape Recording Magazine* is only too anxious to help in any way possible.

You can help

SOME time ago, we published some information about the duration of various orchestral works, in the belief that it would be of value to recording enthusiasts.

We have now had requests for more. If readers will send me information, based on their own experience, I shall be glad to make it generally available.

We should also like to revive "The Ideas Pool," which, last year, was a very popular feature. Readers with tips and wrinkles which they have learned from

their recording experiences are invited to share them with other enthusiasts; those with insoluble problems are invited to put them to our readership, in search of solutions.

A basic rule

THE old "sneak-recording" deception still goes on, earning a bad name for recording enthusiasts in general. With sale of recorders now running at record levels, and thus a big influx of newcomers, it is perhaps worth while re-emphasising the fact that recordings should *never* be made without the knowledge and permission of the person being recorded.

A particularly unpleasant example of what can happen if this elementary rule is ignored was quoted by a reader of the *Sunday Express* recently.

"My wife and I," he wrote, "were having a quiet drink in an Essex hotel when the landlord came over and asked whether we would be amused to hear extracts from the talk of some of his

more hilarious customers just before closing time the previous night.

"He had a hidden microphone leading to a tape recorder under the bar. We were regaled with a mixture of 'blue' jokes and snatches of obviously confidential conversation.

"Then to our indignation, we discovered that he had also been recording our voices since we had come in."

I agree with this correspondent when he called the practice "intolerable" and "detestable." If it ever became widespread it could do immense harm to tape recording as a hobby.

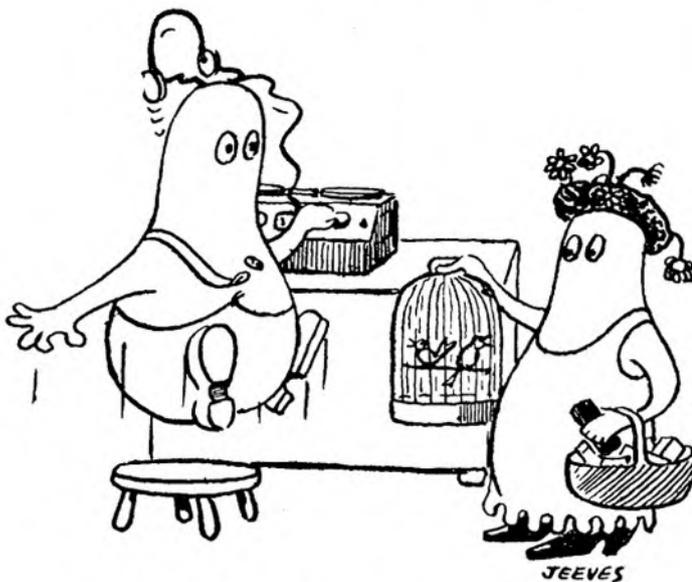
Salesmanship

DID you hear about a salesman lecturing about his product to a tape recording club.

"We've heard about all the good points," said one member of the audience. "Now what about the bad points of your recorder?"

"Well," said the lecturer, "it doesn't work under water. . . ."

LAUGH WITH JEEVES



"Look darling, I got you two of those tweekers you're always talking about"



Mr. Walter Hall, of Bexleyheath, was particularly happy when he won a Stuzzi Magnette portable recorder in the Michael Miles TV programme, "Take your pick." He is a piano tuner and he believes that the machine will be invaluable to him in his job

Granny hears tapes—by long distance cable

TO HELP old folks who couldn't manage to get to services, the Youth Fellowship at South Church, Crieff, hit upon the idea of raising money to buy a tape recorder, so as to be able to take the services to them. This was over a year ago. Since then, the minister, the Rev. Walter Reid, has held a special record service every month in which the good old hymns are sung.

One night recently, the young folks knocked at the door of Granny Macdonald, who is in her nineties. Living alone Granny was glad to see them and delighted at the thought of listening to a church service at home . . . but alas, Granny had no electricity in her house!

The Fellowship contacted the next-door neighbour, who had electricity in her house. The recorder was connected up, the cable trailed out of the window, along the street for about twenty yards, then through a window in Granny's house.

With a serene smile, Granny was able to sit back and listen to a church service at her "ain fireside."

DECCA TAPE UNITS

THOUGH Decca are not in the domestic tape equipment field, the chairman of the company, Mr. E. R. Lewis, reported to its annual meeting recently: "We continued (during 1959) with our development and sales of magnetic tape transport units for use with digital computers and equipment was sold to most of the British computer companies during the year.

"It is hoped that our developments in this specialised field will provide an increasing source of income."

Manufacturers recommend standards for audio items

STANDARDISATION in the types of plugs, sockets and connectors used in audio equipment is on the way. The Technical Committee of the Audio Manufacturers' Group of BREMA, formed last May, has now issued the results of its inquiry into this problem.

It recommends standards for mains input connectors, mains outlets to auxiliary units (including gramophone motors), inter-unit power supplies, audio frequency signal feeds (including microphone inputs and outputs to speakers), and aerial inputs to radio tuner units.

Copies of the document, "Recommended Practice for Plugs, Sockets and Connectors for use with Audio Amplifying Equipment," can be obtained, free, from The Secretary, Audio Manu-

facturers' Group, 49 Russell Square, London, W.C.1.

The purpose is to facilitate inter-connection of units of different manufacturers, provided that their electrical characteristics are matched.

Priority has been given to performance and safety and, when these are best provided by a component already widely accepted, then this component has been specified. On the other hand, connectors which are not in general use are specified in some cases, when it is considered that they are the most suitable for their particular function.

The report applies to equipment which has its chassis isolated from the mains by a double wound transformer.

The Audio Manufacturers' Group hopes soon to publish a second report laying down a standard method of measuring and expressing the performance of amplifiers.



B.B.C. WILL EXHIBIT AT AUDIO FAIR

THE British Broadcasting Corporation will be exhibiting for the first time at the London Audio Fair this year. They plan a display of audio equipment and a demonstration of studio monitoring equipment.

The Fair will be at the Hotel Russell from April 21-23.

Among 62 firms which have already decided to exhibit are the following manufacturers of tape equipment: Brenell, Ferrograph, Challen Instruments, Cosmocord, E.A.P., E.M.I., Fi-Cord, Garrard, Grundig, F. A. Hughes, Lustraphone, M.S.S., Minnesota Mining, Multimusie, Politechna, Recording Devices, Reslosound, Simon, Specto, Technical Suppliers, Truvox, Veritone, Vortexion, Walter Instruments and Welmec Corporation.

When teenagers at the Leamington Spa, Warwickshire, Riverside Youth Centre got themselves into the national headlines by staging a 24-hour rock 'n roll marathon, there to get it on tape was Terry Draper, chairman of the Warwick and Leamington Amateur Tape Recording Society.

Using his Philips EL3538 and Elizabethan Princess, Terry interviewed some of the teenage contestants as they jive-jogged their way to a British marathon record (no one had ever tried it before).

He even persuaded cameraman Slim Hewitt and commentator Trevor Philpott, of the B.B.C. television programme "Tonight," who covered the whole event, to be interviewed—when they themselves were not busy interviewing with their E.M.I. portable.

NEW TAPE RECORDS

A brilliance that is hair-raising



IT is a commonly held view that critics are always out of touch with the feelings of the public, and the career so far of the conductor Constantin Silvestri does suggest something of the sort in his case. Over and over again he has been reviled by the critics for distorting the scores he is playing, for re-scoring them, and for generally playing them up for all they are worth.

I myself would not like to deny the accuracy of the charges brought by critics, but all I do know is that Silvestri has anchored himself firmly in the minds of the concert-going public. The reason is, of course, that, quite apart from purist, technical points, Silvestri never fails to give a brilliantly exciting interpretation.

I am always one to applaud excitement and vividness in playing, and though, to my mind, it has not always excused Silvestri's worst liberties, there are times when the music can stand cavalier treatment and actually sound fresher and more spontaneous because of it.

Most great masterpieces can stand a variety of different treatment, and Silvestri's recording of Tchaikovsky's *Fifth Symphony*, now available on stereo tape, is a case where I find that the liberties, though objectionable from a purist point of view, always sound right in the general impetus of the music. In the first movement, for example, with its dotted triplet rhythm, Silvestri often pulls the phrases around quite unashamedly when Tchaikovsky marked no such thing, and varies the speed as he wants.

But this symphony, as the composer himself realised, needs some coaxing

BY EDWARD GREENFIELD
Recorded music critic of "The Guardian"

if its comparatively square musical framework is not to show through. The prime object of the composer's exercise was not to create a work of formal perfection or close argument, but to convey a range of emotion. That is what Silvestri's interpretation invariably seeks to do, and no one could deny that the overall effect is of the greatest sympathy and understanding of the work's mixture of exhibitionism and introspection.

The waltz, for example, with its delicate middle section, makes just the right contrast with the rest. It is in the finale where Silvestri really shows what he can do with an orchestra, choosing a speed which one can hardly imagine any orchestra coping with, yet the Philharmonia respond brilliantly and one can only describe the net result as hair-raising.

This last movement is musically the weakest of the four, so that to have a performance which so convincingly covers this up is particularly welcome. This is a performance, then, to recommend to all but the purist—and how many purists are there who, in any case, want to wallow in Tchaikovsky's Fifth.

The sound from this tape is perfect for wallowing in. The stereo is rich and warm with a fine hall acoustic. The strings, in particular, have a wonderful bloom on them.

In this stereo tape version I was slightly disturbed once again by the level of the tape hiss. When I turned down the treble control it receded enough to permit enjoyment of the rest, but I do wish E.M.I. would do something about tape-hiss on pre-recorded tapes. Some are excellent, but I cannot help feeling that in a large proportion of their tapes they have emphasised the treble to disguise the effect of the frequency ceiling of 7½ ips reproduction. With tweeters in particular one often finds the hiss very hard to get rid of efficiently.

(SAT 1023—3 guineas.)



A MESSAGE FROM MAX GRUNDIG

I am happy to respond to your request that I should say something about the situation of the tape recording industry today.

Since we have just crossed the threshold of a new year, it may be appropriate if I glance back at 1959. Last year, once again, we were given the proof of the popularity of our recorders throughout the world. In spite of the most concentrated production effort, we could not meet the demands of the market.

More than half of our machines produced in 1959 were exported—to 110 different countries.

Last October we celebrated a special event. The one millionth Grundig tape recorder left the factory. This number does not include the office dictating machines produced by us.

Besides introducing several new types last year—I should like specially to mention the battery-driven, fully transistorised machine which we call "Niki" and which is sold in England under the name "Cub," which has had an enthusiastic reception throughout the world—we concentrated our main effort on improving the quality of our products, with the aim of offering customers the highest quality and value for money.

Further development is in progress. How poor a business it would be if nothing new were to be produced!

A great number of new ideas await realisation. All will be critically tested and introduced if proved successful. Our aim is always to offer quality products based on the latest technical advances, from the world's biggest tape factory.

Progress—and some confusion—in the U.S.



From PETER M. BARDACH

Tape Recording and Hi-Fi Magazine Correspondent in the U.S.A.

THIS is the first of periodic articles concerning latest developments in tape recorders, related equipment and activities on the "other side" of the ocean. Every attempt will be made to separate fact from fancy and well-intentioned publicity blurbs.

1960 promises to be the "break thru" year in pre-recorded tape for two reasons. First, most new recorders coming off the production lines here are equipped with a 4-track stereo playback head, while the major manufacturers have made available relatively low-cost "kits" which enable present tape recorder owners to convert their machines to take the narrow width tracks.

The second, and perhaps more important development is the formation by Ampex of a new subsidiary known as United Stereo Tapes. UST already has licensing agreements with 25 different record firms (including two of the giants—Decca and London) and will be the exclusive tape agent for these companies, manufacturing and distributing 4-track reel-to-reel tapes under long term agreements.

Because the record dealer may now contact a single source for most pre-recorded tapes, this is expected to result in more diversified stocking in the local shops. UST is thus in a position to dominate the future course of pre-recorded tape because, in addition to manufacturing recorders and distributing tapes, Ampex has an important interest in one of the important firms which manufactures raw tape.

All U.S. recording companies are not of one mind yet. Columbia and Capitol are issuing only selected items of 2-track reel-to-reel stereo tape, while RCA Victor continues to promote its own cartridge unit which uses 4-track recording, but plays at $3\frac{1}{2}$ ips rather than the $7\frac{1}{2}$ ips standard of the industry.

Until at least two of these "big three" swing over to $7\frac{1}{2}$ ips reel-to-reel 4-track, confusion must exist in the mind of the average consumer . . . confusion that will slow the mass acceptance of stereo material on tape, as opposed to disc.

But perhaps the greatest threat to the tape interests is the news this past month that a group of American engineers, working in concert with a small record firm has developed what is claimed to be a truly compatible stereo-monaural disc.

The cutting process uses the Fairchild technique, rather than the more common Westrex system.

Should further tests prove satisfactory, the effect on the disc and tape industries would be widespread. Of greatest consequence is the fact that discs could and would be sold for the same price as current mono records, and yet would produce stereo on two channel sets. Thus the price gap (generally one dollar—about seven shillings) between stereo and mono discs would vanish, leaving an even greater price differential between the discs and stereo tapes.

Ominous rumblings have also been heard from a leader in the raw tape industry, Minnesota Mining (Scotch brand), which is reportedly working with Zenith and CBS engineers on the development of a revolutionary new cartridge unit, employing tape half standard width and moving at a speed of only $1\frac{1}{2}$ ips. Should such a device reach perfection and gain mass popularity, it should virtually obsolete all existing recorders. An unhappy prospect with which to start the new year.

The recent "battle of the copyright interests" in England has been looked upon with some amusement by recordists on this side. Far from cautioning against infringement by off-the-air taping or dubbing, American firms promote off-the-air recording in their advertisements, and one leading company has even issued a free booklet detailing the best way to obtain top quality radio and TV recordings.

The reason for this attitude is basic; the copyright firms recognize the absolute impossibility of policing or licensing this form of home recording.

Tapespondents in this country got a break this past year when postage rates for "educational materials" were broadened to include recorded tapes. Recordings may now be mailed within the continental U.S. for only 9 cents (approximately $8\frac{1}{2}$ d.) the first pound (an

air mail letter costs 7 cents), and just five cents per additional pound. This means that two seven-inch reels can be sent for only 14 cents.

And while on the subject of tapesponding and mailing, we would repeat the words of a friendly U.S. Customs inspector who urged that the words "recorded tape club exchange" be printed clearly on the outside green Customs sticker. This immediately identifies the package as a club exchange, and tells the Customs department that the tape will be returned to the country of origin.

Reports have reached the trade that several American firms will shortly introduce "three channel" stereo disc playback units. If the consumer is confused, he will have good reason, for how, he properly asks, can three channel stereo result from a two channel disc recording. The answer is simple . . . it can't and won't.

The "third" or middle channel is produced by selecting portions of the right and left channels. One system purportedly filters the highs to the left, the lows to the right; another employs an "out of phase" principle. The result must of course be gimmick "stereo," far from the true purpose of true stereo which is lifelike reproduction.

A recent suggestion could produce expanded interest in tapesponding if acted upon by the raw tape manufacturers. Many tape recorder owners are unaware of the tape club and tape exchange movements. Strange as it seems, the idea just hasn't hit them.

That's where the tape companies come in. The proposal is that information concerning tape exchanges, and addresses of the tape clubs, be included inside the packages of blank tape. The incentive to the tape companies is that increased tapesponding means more sales of raw tape. How about that!

Several American air-lines are now soothing passengers from take-off to high altitude by means of restful music piped over the public address system. The source, of course, is tape. And talk is being revived of tape players (cartridge no doubt) for automobiles. Several attempts in recent years to market specially designed disc players for cars were unsuccessful. The problem of record cueing and changing, as well as tracking, proved too difficult.

From this last item it seems clear that the horizon is ever widening for tape recording applications, and the early 1960s should be years of exciting new developments and activity. We'll do our best to keep you posted on the news from this side.

Tape Recording Magazine has now appointed special correspondents in many countries overseas. They will keep you informed of interesting developments and trends. This is the first of a regular series of articles.

A fascinating new
family activity

THIS IS YOUR LIFE— ON TAPE

BY KENNETH S. DUKE

YOU probably know the popular television programme, "This is your life," in which some unsuspecting person is brought before the cameras and confronted with various people with whom they have been associated over the years.

I decided to do something similar through the medium of my tape recorder. For my "personality" I chose my father. I then started on what was to be a most interesting project, requiring quite an unusual approach compared with one's own normal use of the tape recorder.

Before commencing the actual recordings I listed the main phases of my father's life, from his childhood up to the present, and then listed some friend or acquaintance closely connected with each phase.

The choice was influenced by whether I knew their present whereabouts and whether I thought I could get a recording made by them. The people fell into two main groups—those who still lived quite near and whom I could arrange to record fairly easily, and those who lived some distance away, with whom I had no personal contact.

My first approach was to those who lived some distance away—a group which I kept as small as possible. They included a neighbour who had emigrated to Canada, the proprietor of a hotel where my father always spends his holidays, and about three others with whom my father had been closely connected over the years.

I then wrote to each of these people, several weeks before I needed their contributions, explained my project to them, and asked for their help. I enclosed a 3 in. tape, marked at the speed at which I was making my recording, and asked them to make a recording on one track of the tape of about five



"Oh well, so much for baby's first word"

minutes duration of their reminiscences of times spent with my father.

I told them what phase of my father's life I wished them to cover, and suggested a few main headings—starting with "first recollections of my father." This gave them a good opening. I asked them not to give their name immediately—to give my father a chance to identify them.

I was surprised how good was the response to my letters; it was not long before the tapes started to come back.

I then started the recordings by the local contributors. First I recorded one or two whom I knew would not be "microphone-shy," so that I could play these recordings to the later contributors who I knew were not used to recording or public speaking.

I found it better, whenever possible, to get two people, say husband and wife, to make a joint recording. In every case I talked over the recording before we made it, jotted down various headings and then rewrote them in chronological order.

I never let any contributors read their reminiscences. Very few people can read anything and make it sound natural.

But with note headings they were able to pass from one topic to another without awkward pauses. Some people, I found, played with their notes as they talked and the noise of the paper was picked up by the microphone; so I had diplomatically to place the notes where they need not be handled.

I found it helpful to tell contributors not used to tape recorders that the tape could be re-recorded indefinitely in the case of false starts. This helped to put people at ease. I also found it best for only my self and the person making the recording to be in the room—and I busied myself "adjusting" the tape recorder. This helped by contributors to overcome their initial self-consciousness.

I now edited my tape, introducing each speaker, being careful not to reveal his or her identity, but only indicating the phase of my father's life in which they played a prominent part.

My final contributor was my three months' old daughter—my father's first grandchild. The tape concluded with Auld Lang Syne.

The tape, when completed, was a birthday present for my father, and with it I gave a small autograph book with the signatures of those who had taken part in a recording that lasted for two hours and with nearly thirty contributors.

Does the law protect your privacy against unauthorised recording? Are there legal limits to the use you make of a recorded interview?

A legal expert deals with these and other similar problems in this special article.

"You're a lawyer, Bill. Tell me this. Is there any legal restriction on what may be recorded on tape?"

"I expect you are thinking of the civil, as well as the criminal, law?"

Peter hesitated.

"Well, yes. Supposing the private conversation of some famous person was recorded without his knowledge; would he have any redress if it was circulated to the public, or would there be any criminal offence involved in what, he might say, was an invasion of his privacy?"

"In general," said the lawyer, "the answer is 'no redress,' but that answer is subject to a couple of qualifications.

"In English law, you have no general right to privacy, either privacy from being overlooked or being overheard. Attempts were once made to show, for example, that a man had no right to open up windows in his own house if they would look directly into the private gardens of his neighbours.

"But that idea was scotched long years ago. In 1811 a judge declared that he had never known this sort of action to succeed in the courts and, years later, in 1857, when a landowner got additional statutory compensation from a railway company to compensate him for being overlooked by train passengers, the award was set aside by the courts.

"There was a celebrated case in Australia just before the last war where a company operating a race-

TRESPASS BY TAPE?

course sued another company which had erected a platform outside the race-course so that it could observe the races and broadcast the results. That caused considerable financial loss to the race-course owners, but the Australian Court of Appeal said they had no redress."

"But one can think of most annoying situations, if a man has no legal right to his privacy."

"Indeed, yes. Our law books have a reference to a case in Balham in 1904 where a family, by placing an arrangement of mirrors in their garden, could observe all that passed in the study and operating theatre of a neighbouring dentist. He sought in vain for legal protection.

No redress

"Provided, of course, that there is no trespass—no actual entry on another's land by, for example, cables or cameras—not only has he no redress if you take even active steps to overlook him, but he has no redress if you perpetuate or broadcast what you see or hear by photographs, broadcasting, or tape-recording."

"You mentioned qualifications."

"Yes. First, of course, libel. Anything published about a man—that, in law, may mean simply informing a third party—which may tend to lower him 'in the estimation of right-thinking persons' or to 'expose him to feelings of hatred, ridicule, fear or contempt' can be defamatory.

"So, for example, if one got a tape recording of the proceedings at the hilarious end of the firm's Christmas party it might be unwise to play it over in another place and in other company.

"The defence that defamatory matter is true does not succeed unless it is also proved that it is for the public benefit that it should be published."

"You can publish to your wife?"

"So you know some law! Yes, publication to one's spouse is not 'publication' in law because of the ancient idea of the legal unity of husband and wife."

—By—
ANDREW PHELAN

"And the other qualification?"

"There might be a breach of contract. It has occurred in cases where a photographer, after getting a commission from a client, has then, without permission, sold copies of the photograph. In one case in 1894 such copies were arranged as Christmas cards and put in a window for sale. The angry client went to court over it and the court decided that there was an implied term in the contract that there should be no reproduction and sale of the original photograph without permission.

"The position of a clerk in confidential employment was referred to. 'The law,' said the judge, 'does not permit him to make improper use of information obtained and an injunction is granted, if necessary, so that he may be restrained.'

"The same position," concluded the lawyer, "might arise if a famous man gave a recorded interview. There might be an implied term that it should be reproduced only in the newspaper interviewing him and not, for example, reproduced on gramophone records.

"Supposing you go to record, not a private conversation, but proceedings at a public meeting or even a concert?"

"If it was a play, or concert, or lecture, an infringement of copyright would probably arise if the recording was published.

"But if it was not a production with an artistic, creative character—supposing you went to record the sounds at an Air Display, or at a Dog Show, or the Zoo—problems of copyright would not exist.

"The question has already arisen in the case of photographs. In 1916 persons who claimed to have been given sole photographic rights at a certain dog show sued a man who took photo-

graphs there and sold them to the paper *Our Dogs*. They failed.

"The court said that if the promoters of the show wished to prevent visitors taking photographs they should make this a matter of contract by stating the restrictions on the tickets or exhibiting a notice in the grounds. No restrictions of this sort had been imposed on visitors—there was no evidence on which the court could find even implied restrictions—and so photographs could be taken with impunity."

The lawyer's review of the possibilities of trespass by tape omitted an interesting historical sidelight on the situation. Back in 1361 the Justices of the Peace Act created an offence called "Eavesdropping" and a jury attending court to investigate the crimes in their district would be charged to deliver up "eavesdroppers that do hearken under walls or windows or the eaves of a house to hear, and then tell news to breed debate between neighbours."

Archaic? There appear to have been no prosecution for this offence in modern times though the subject was given publicity a few years ago in the nation-wide discussion of telephone tapping.

American view

New York States has, however, recently created a felony called "eavesdropping," punishable with two years imprisonment, which is defined as the "intentional overhearing or recording by anyone other than the sender or receiver of a telephone or telegraph communication without the consent of the sender or receiver."

Tape recording through the telephone is today becoming a commonplace, but, while English law appears to give a wide latitude to the interception of conversations by telephone by third parties, such as the police, America, usually quicker to adapt the law to the changing habits of life, is apparently more ready to protect the privacy of this form of conversation by the heavy sanction of the criminal law.



The author

A home-made clockwork-battery recorder

BY RICHARD A. MARGOSCHIS

FOR many years my chief hobby was photography. I used it mainly for record purposes and in connection with illustrated travel talks. Later the still camera was supplemented by a cine camera, but still my interest in the documentary subject was uppermost. Even before my first film was complete, I realised that I was going to require some form of sound track.

It was this which led me to purchase my first tape recorder and, very soon, I began to take an interest in sound for the sake of sound, as well as sound as a means of supplementing vision. As this interest has grown, the leaning towards documentary work has been retained.

My sound recording equipment steadily improved, but I quickly realised that I wanted a machine capable of recording without having to rely upon a mains electricity supply. I think it is true to say that in 1957, when I first

considered my requirements, few, if any, suitable machines were available on the "domestic" market. Professional machines were available, of course, but cost ruled them out of reach.

I gave them some thought, however, because I came to the conclusion that my answer lay in building a machine to my own requirements, and I wanted something upon which to model my efforts. After much thought I chose the E.M.I. model L2B, and I shall describe how I went about building the portable recorder shown in the photograph.

I think I should say at once that my profession is in no way connected with electrical or mechanical engineering; in fact I am a Health Officer employed by a Local Authority. I say this in order to encourage those similarly placed to "have a go"; you do not know what you can do until you try, and then you may surprise yourself. I did!

It is inevitable that in such an undertaking many snags will arise, especially if you do not possess a complete workshop. I found that with some help from friends and by having certain parts turned up at a small engineering works,

STEREO RADIO IS ON THE WAY

STEREO radio programmes are perceptibly nearer after the developments of the past few weeks. About twenty different systems have just been demonstrated to the European Broadcasting Union in Cannes, in the hope that an international agreement can be reached on a standard method of stereophonic broadcasting.

Germany, it is reported, is making definite plans to introduce regular stereo transmissions into the normal programmes.

Meanwhile, in this country the recent demonstrations of the new Mullard system of stereo transmissions seem to have given heart to the B.B.C. engineers who have shown such cautious reticence in the past.

There is now a general disposition to believe that, within the next year, the

Stereo Notes

B.B.C. will take firm decisions on stereo broadcasting.

It will be interesting to see how far there is any commitment by the time of the Radio Show. The B.B.C., inevitably, has a decisive role to play and it is fair to say that a whole industry now waits upon its decisions.

The new Mullard system is based upon the fact that the human ear is unable to detect high-speed interruptions of a sound source. The two sound channels, therefore, are each interrupted in this way, and one is "laced" into the intervals in the other.

In other words, the signal for each loudspeaker is transmitted in a series of alternating pulses and silences, each of

one thirty-thousandth of a second. The sound pulse on one channel coincides with the interval of silence on the other.

The most striking demonstration of the efficacy of this method was the transmission at a Mullard demonstration of two simultaneous speech programmes in different languages.

This application would be useful in countries like Belgium and Switzerland which have more than one national language. This ability to provide twin signals would also be valuable in many other fields.

The Mullard system is compatible. Programmes transmitted by this method can be picked up monophonically by ordinary radio sets, and sets adapted to receive such stereo programmes will be able still to receive conventional monophonic programmes.

It cannot be assumed that the Mullard system is the one that will eventually be adopted, but its announcement at the present stage has had a healthy, stimulating effect.

I was able to complete the task, having added only a set of drills and B.A. taps to my scanty set of tools.

When first considering the basic requirements of my machine I paid attention to the following points. It must:

1. Be completely self-contained.
2. Be as portable as possible.
3. Be simple in operation.
4. Be capable of being put into operation quickly.
5. Provide monitoring facilities.
6. Produce a recording of as good a quality as possible.

You may consider that I should have put item 6 in first place. But the machine is not intended for recording serious music; that is a job for the mains-operated equipment. In actual fact, the quality attained is very adequate for speech and sound effects, and satisfactory for certain music.

The finished machine weighs 26 pounds, can be carried for short distances by one person, and is fairly easily transportable by two persons over considerable distances—the car does the rest!

I am not certain of the total cost, but it was only a little over £20.

THE DECK

Clockwork versus electric motor to drive the deck was the first consideration.

It seemed likely that an electric motor, together with its batteries, would weigh less than a clockwork motor and would give a longer period of running without attention. Such a motor must not cause electrical interference with the amplifiers and its speed must be accurately governed.

Though I approached several manufacturers I was unable to purchase a

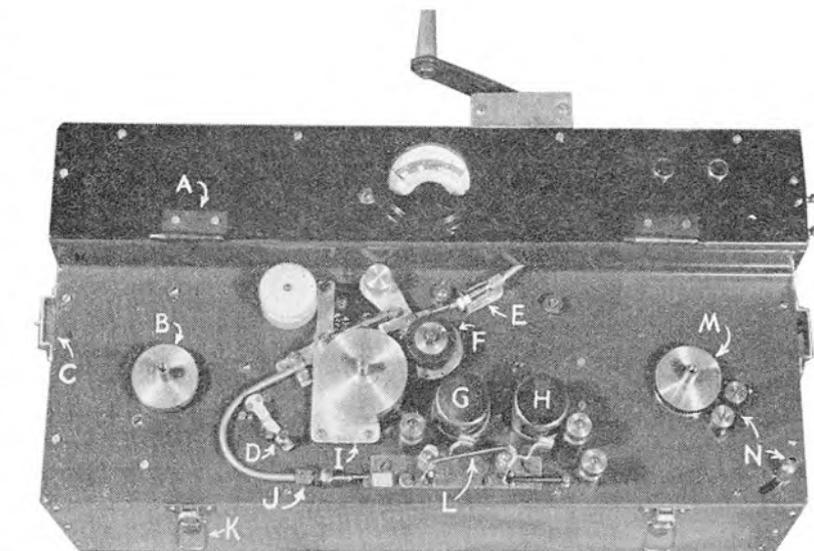


Fig. 1.—The tape deck

(Key: A, lid hinge; B, take-up; C, strap guide; D, spring-loaded guide; E, cable adjustment; F, tray; G, replay head; H, record head; I, tray; J, cable adjustment; K, lid fastener; L, pressure pad spring; M, reservoir; N, tension)

suitable motor, and so I turned my attention to spring motors. Again I came up against the same difficulty; no manufacturer was willing to supply me. Thus began a long search around shops dealing in government surplus stores and the like.

Eventually, the trail ended in a shop in London's New Oxford Street, and the

spring motor which now provides power for my deck is shown in the photograph (No. 2). The main snag is that it weighs 11 pounds, but against that is the fact that it was purchased for fifty shillings.

Tests on the motor proved that it would run, without a load, for nearly ten minutes, and a strobe indicated that a constant speed was being maintained.

Having decided that it was not practical, or essential, to provide fast re-wind facilities, the first problem was where to place the capstan and how to take off power for the take-up spool.

Only one shaft proved suitable to carry the capstan; with the motor set for maximum speed it is capable of some 115 r.p.m. The end of the shaft has a diameter of $\frac{1}{8}$ in. and protrudes $\frac{1}{4}$ in. above the top motor plate.

This shaft was extended by $1\frac{1}{2}$ in. by careful lapping and pinning. The aluminium capstan was then turned up on the extended shaft and great care taken to ensure that it ran perfectly true. In fact, the final grinding was done with the motor itself driving the capstan.

The speed of the motor can be controlled to fine limits by careful adjustment of the governor, and so the actual diameter of the capstan is not critical. I finally selected a diameter of two inches, which would require approximately 70 r.p.m. to provide a tape speed of 7.5 ips, with sufficient power in hand to increase this to approximately 12 ips or, of course, to reduce it to a very low tape speed, though both deck and amplifiers are designed primarily for 7.5 ips.

Once the capstan was successfully mounted, I fixed a piece of steel 15 in. x 6 in. to the top motor plate. The purpose of this was to provide a temporary deck on which to experiment and determine the best lay-out for the various fittings; it could easily be removed for any necessary holes to be drilled, etc.

(To be continued)

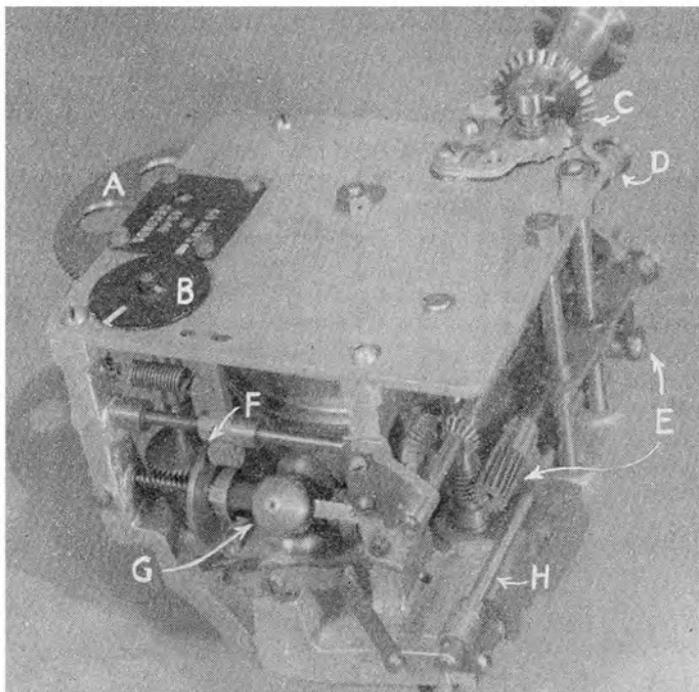


Fig. 2.—The motor

(Key: A, gear driving capstan shaft; B, disc removed and shaft extended to carry capstan; C, motor wind; D, motor speed control; E, indicator arm moves as motor runs down; F, speed control; G, governor; H, motor stop/start)

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Concluding article in a series

on tape recording with children

SCHOOL FRIENDS AROUND THE WORLD

SIXTY years ago, at the age of eleven, my father and his classmates copied from the blackboard in the same copperplate style a letter, which they subscribed—"Your obedient servant." The letters were collected, packaged and sent to a school in Toronto, to which a member of the school staff had gone some months before. My father still remembers the thrill of receiving a reply, nine sentences long, from a Canadian boy.

After that, he was given several lessons about Canada consisting mainly of lists of towns, rivers and lakes, to be recited until they had been learned by heart.

That kind of thing is now in the educational joke-book, along with slates, but . . . the logical outcome of my father's letter was the tape that my children planned, recorded and sent to Calgary two years ago.

An exchange, whether by tape or by letter, consists of two parts—the giving and requesting of information. Children in this country tell about life at home, in school and in the district and they ask about similar things in the countries overseas.

In terms of tape recording, three main types of exchange have evolved in recent years: the information tape, the programme tape and the audio-visual tape.

THE INFORMATION TAPE

This consists purely of the spoken word and, as long as the school possesses a tape recorder of any kind, no other equipment is necessary.

The contents will, naturally, bear some reference to the country to which it is to be sent. A little discretion is necessary in the choice of destination. If, in your enthusiasm, you decide to send it to a small town in the "backwoods," you may be sending it to a place where they have not yet seen a tape recorder!

For instance, we sent a tape to the Mayor of Alice Springs, in the heart of Australia, with a polite request that he should pass it on to a local school—but we didn't know that the town hadn't even a mayor. Only the kindness of the Education Department in South Australia,

who lent a machine to the school at Alice, saved the exchange from being a complete flop.

On the other hand, you would be well advised to steer clear of the large cities, where your tape may be "filed" for months, pending a decision by a sub-committee. A medium-sized town with good communications is the safest bet.

By

GORDON PEMBERTON

*Headmaster of Waterloo School
Pudsey, Yorkshire*

An information tape is usually quite straightforward and falls naturally into four main parts: (a) description of the school, (b) description of the town or village, (c) description of the geographical area in which the school is situated, and (d) questions about life in the area overseas.

The best way to tackle this job is to let the children appoint their own Committee to get out the facts and then, on an individual or class basis, to write out the scripts and the questions. When these have been done and "vetted," it will be necessary to arrange them in logical order and add a little "continuity."

There should be an initial greeting, followed by the name and location of the school, leading into the reading of the three descriptions, and the list of questions. Finally, there should be a polite leave-taking with a request for a reply tape.

Snatches of local dialect or the sounds that can be heard round the school might be put in to provide a little variety or light comedy.

Having written out the script in full, there comes the business of selecting speakers. All children who wish to do so should be allowed to take part; the best method of selection that I have found is to let the committee give "auditions" to choose the comper and the principal speakers. Others can be given questions to ask, or given their chances on subsequent tapes.

The children should be given a day or two to practice reading their scripts.



The exciting moment when tapes arrive from far corners of the world. These pupils are seen with their master, Mr. Robert Ellis, at a school in Scotland

Their accent will be strange to children overseas, and they will have to speak much more slowly and distinctly than usual.

The actual recording is best done after school hours, when quietness reigns. Choose a small room for better acoustics and let the children do as much as they can themselves—including the manipulating of the machine, if you have previously trained one or two in this. There will be some mistakes; you should erase and re-record only the very bad ones.

For all normal purposes, the two tracks of a long-playing three-inch reel at 3½ ips will suffice for most school exchanges. When the tape is ready, include at least one full copy of the script. Although you may be able to understand every word, this is no guarantee that your overseas friends will be able to do so.

THE PROGRAMME TAPE

This can be classed as a mixture of information and entertainment. It is an expansion of the information tape to include music and other items which will make the tape of additional interest to listeners overseas.

Your committee of children can deal with it in the same way as before; they will have the extra tasks of songs to be chosen and auditions for those who wish to sing solos or play musical instruments.

A balanced and varied programme might be listed in this way:—

Signature tune and greeting; name and location of school; a national song by the choir; spoken description of school; two or three soloists; spoken description of town or village; a folk song by the choir;

some local dialect (with translation); solo instrumentalists; spoken description of geographical area; a classical song by the choir; questions to children overseas; leave taking; National Anthem.

In a programme of this kind it is essential that the compere (or comere) should have a bright personality and good-quality voice.

Many variations of the above programme are possible and you should accept those that will typify your school and your area, or add a little humour and good feeling to the whole thing. For instance, we sent a home-made calypso to the West Indies, a greeting in French (by a former pupil) to Canada, and some local cricket jokes to Australia.

Again, a full script should accompany the tape. All the words of the songs should be included, as well as the full titles of the solo and instrumental pieces.

As an example of the opening of such a programme, I quote from one we sent to New Zealand last year:—

Signature tune—last three lines of Ilkley Moor bah't at.

Janet: "This is Yorkshire, calling the Commonwealth. Hello, all you Pakehas at Ellerslie School, Auckland.

My name is Janet Wilde and I'm eleven years old. I'm a pupil at Knole Bank School, in the village of Golcar, in the West Riding of Yorkshire. If you get out your map of England and look at Yorkshire, you'll be able to find the town of Huddersfield. Three miles west of Huddersfield is our village—Golcar."

(She goes on to spell Golcar phonetically, followed by the spelling of the

name of the school. She then announces the title of the first song to be sung by the school choir. The choir sings the song.)

"Now here's Jack Lendon, who is going to give you a short description of our school."

Jack: "Our school is a very old one. It was built in 1816, the year after the battle of Waterloo"—etc. etc. for about four minutes.

Janet: Thank you, Jack. Our next song is one that was written about our island, but it might do equally well to describe your beautiful islands in the South Seas. Here it is: 'Fairest Isle'." And so the tape gets into its stride.

You might even like to send a class a set of copies of the script. This makes it so much easier for the listening children and teachers at the other end. If you have a duplicator and an enthusiastic typist on the staff, the job won't be a big one and you can keep some copies in the school as souvenirs.

Get the children to design front and back covers for the copies of the script and to include one or two maps of the area, suitably simplified.

THE AUDIO-VISUAL TAPE

This is exactly what its title implies—a visual presentation of the school and its environment, with recorded commentaries by the children. It can take several forms: a set of plate-size photos, a film strip, a set of colour slides, or a cine film, in each case with tape commentaries.

The idea is that the pictures can be shown to the children overseas and, at the same time, they can have them explained by the recorded voices of the inhabitants of the places shown.

The tape recording part of the preparation of such a production does not vary fundamentally from the procedure described above.

Now what about the cost?

This may be no more than 9s. 6d. for tape, plus four or five shillings for postage; but it may be more.

There are three main ways of recovering the cost. First, the children can be asked to contribute, according to their means.

The School Fund is, surely, for purposes of this kind, if it is felt inappropriate to collect from the children.

Best of all, give a performance of the tape to parents. If you explain the costs and have a collection at the end of the evening, you may be surprised at the response.

Now it's up to you. If you discover any bright ideas, please let me have them to pass on to others.

This is the concluding article in a series of three about tape recording in schools. The previous articles dealt with introducing children to recording activity and with the types of programme which may be put on to tape. Copies of issues containing these articles are available at 2s. each, including postage. The author will welcome letters from teachers with ideas and experiences which are likely to be of interest.

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Equipment Under Test

THE SOUND PRINCE

THE SOUND PRINCE wins immediate points on appearance; its cabinet has a streamlined appearance with gilt fittings. The compartment for the storage of microphone, connecting leads and spare reels is of a sensible size. The cabinet is covered in leatherette cloth, with a centre surround of Vynair "Breathable" fabric.

The tape-deck is the B.S.R. Monardeck, which has a single speed of 3½ ips.

There are two controls on the deck of the Prince:

1. Record/Replay, which incorporates a safety lock against accidental erasure of a previously recorded signal.

2. Selector switch, which controls the normal running, fast forward and fast rewind operations.

The amplifier panel is of simple, yet elegant, appearance and carries microphone and radio controls, which also provide mixing facilities; normal/trick; a combined bass and treble tone control; and volume control, together with the on/off switch.

At the rear of the cabinet, four jack

sockets are provided, for microphone, radio/gram, hi-fi output and extension loudspeaker.

The internal speaker is elliptical, 8 inches by 5 inches. When an extension speaker is used, it automatically mutes the internal speaker.

Using the "hi-fi output" to feed my own equipment, I found the reproduction of recorded music to be very good.

The output of the amplifier is 4 watts. It gave a good performance when used with a self-powered radio tuner, and good reproduction was provided from a crystal gramophone pick-up.

On recording, good results were secured with the crystal microphone supplied, and mixing of signals, accomplished with ease, also produced very good results.

The "Trick" control is no trick at all. It is a positive switch enabling the user to superimpose another signal on an already recorded tape without any noticeable loss of the original signal.

A special socket and connecting lead is supplied for recording from radio.

The Sound Prince has the strip kind of electronic record level indicator, which is more easily read than the older types.

Monitoring was very effective, using the internal speaker in conjunction with



a variable control on the amplifier panel. I also used earphones for this purpose, plugging them into the extension loudspeaker socket.

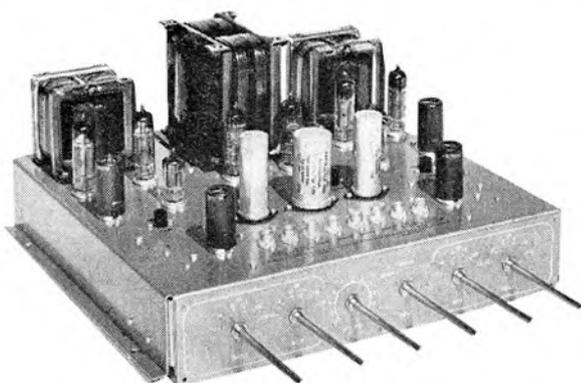
Wow was not noticeable on the machine tested.

This model provides 1½ hours recording time, using standard tape, or three hours with double-play. Recordings made on the Sonocolor tape supplied were very good.

Comprehensive literature is supplied with this machine.

At its price of 34 guineas, I consider the Sound Prince to be a good investment.

G. P.



THE AIRMEC STEREO AMPLIFIER

★
By
**ANGUS
McKENZIE**

★

THE Airmec stereo amplifier is to be highly recommended to enthusiasts who cannot afford more elaborate and comprehensive amplifiers. At £33 10s., this amplifier is a very good bargain, for the two channels can be classed as being high-fidelity with a sensibly large power output, certainly sufficient for most homes with a little bit to spare.

The hum level was found to be considerably better than the manufacturer's specification of -70 relative to ten watts; in fact, with minimum feed-back and the

gain control at minimum, the signal to noise ratio on both channels was 79 dB below ten watts. For an amplifier at such a low price, this is really first class.

With the input switch turned to radio and the main control at maximum, the hum level again was very low—being -74.5 dB on one channel and -76 dB on the other. The response on both channels from the radio input was plus or minus ½ dB from 15 cps to 14 kc/s, and plus or minus 1½ dB from 15 to 30 kc/s—a very good figure.

I like the provision of separate tone controls for each track. The workmanship is extremely good, although the layout of the amplifier is not as neat as the

layout for amplifiers such as the Leak and Quad.

The stated power output of ten watts was fully maintained up to 6,000 cps and indeed between 15 cps and 1,000 cps no distortion was visible on a very accurate double beam Oscilloscope, when the power output was as high as 15 watts.

It is very outstanding that the same power is available at 15 cps as at 1,000 cps. At 15,000 cps serious distortion arose when the power output exceeded 2½ watts. I cannot, however, see that in normal listening conditions a power output in excess of this would be needed, so musically this is not serious.

My only serious criticism of the amplifier is that when it is set inside a cabinet, when only the normal control knobs are accessible, it is difficult to see how any allowance can be made to increase or decrease the sensitivity of one channel or the other if necessary. I would certainly not agree that commercial stereo gramophone records have the same peak levels on both channels, and a difference in sensitivity on one side of only 1 or 2 dB is distinctly noticeable as a change in directionality, although not of overall sound.

There is one other criticism of this
(Continued on page 28)

F. C Judd concludes his build-it-yourself series.

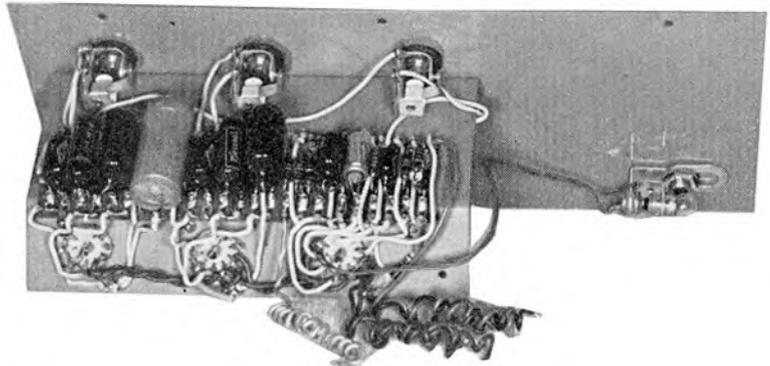
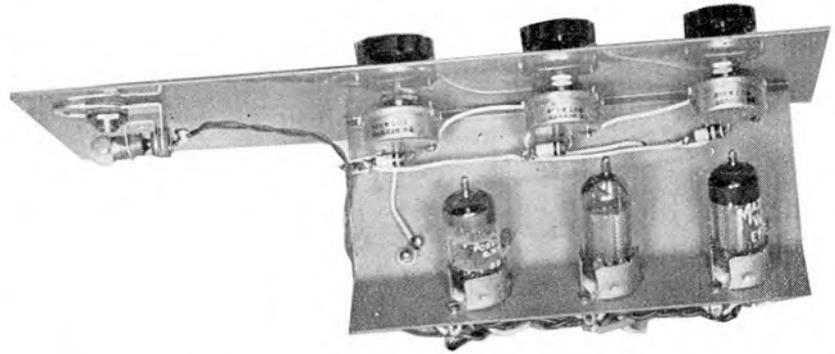
A THREE-CHANNEL MIXER

THE last two paragraphs of Part 3 mentioned that details of modification would be given for (a) reducing the output voltage and (b) increasing (or decreasing) the gain through the mixer. Some notes on the use of low impedance microphone inputs will also be given.

Dealing with, first, reduction of output voltage, tape recorders having a single input socket for a microphone require only a few milli-volts to fully load the input valve. The original circuit of the mixer, there (Fig. 2 part 2) must be modified as shown in Fig. 1. (This modification was actually shown in part one of this series as Fig. 5, but it was referred to in the text as Fig. 4, for which I apologise.)

It will be seen that the anode load R12 of V3A has a 5.6K. ohm resistor in series with it, making a total anode load of 105.6K. ohms. The output is taken from the junction of these two resistors instead of the anode of V3A, with a consequent reduction at the output socket to 40mV or so.

If an increased output is desired, and this amounts to having more gain through the mixer, it will be necessary to increase the value of R10, which is part of the negative feedback chain. This resistor should, however, not be made too large in value, certainly not much greater than 2 M. ohms, as the frequency response and low noise level of the mixer will be impaired.



Rear views of the mixer chassis. Top: positions of valves and potentiometers. Bottom: underside, showing component layout

Those desirous of low impedance inputs are referred to the circuit marked Fig. 4 (Part 2), which shows the connection for a microphone transformer. Note that if a built-in power supply is contemplated, it will be necessary to use mu-metal screened microphone transformers and they may have to be orientated as well to reduce hum pick-up from the mains transformer to a minimum.

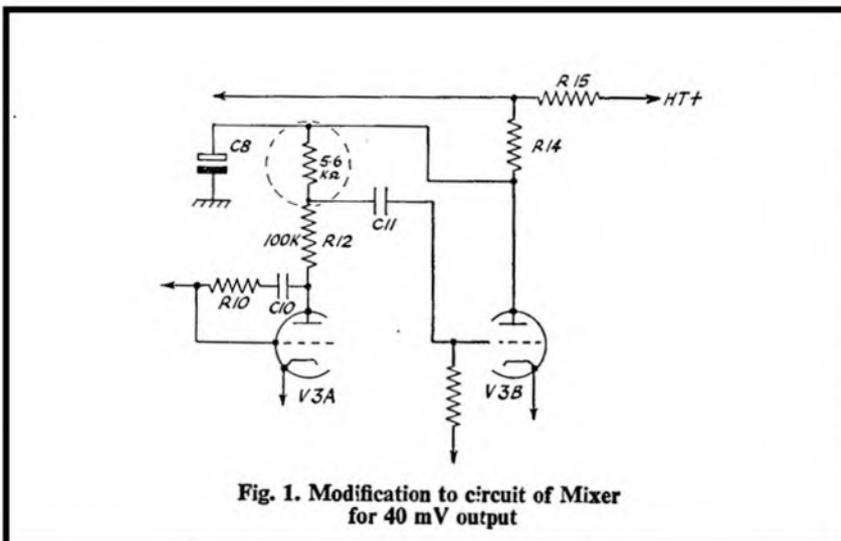


Fig. 1. Modification to circuit of Mixer for 40 mV output

The new tapes

AGFA—WITH 50 YEARS' EXPERIENCE

AGFA Long-Play (PE 31) and Double-Play (PE 41) magneton tapes are now being vigorously marketed in this country. These are on pre-stressed polyester base, which gives exceptional strength and resistance to accidental stretching in use.

The coating shows exceptional uniformity, not surprising in a product from a firm with over 50 years' experience in sensitised film coating technique.

Sensitivity tolerance is quoted at $\frac{1}{2}$ dB within reels, and no more than ± 1 dB between different reels.

The long-play tape tested showed impressive flexibility, and ran very smoothly over the magnetic heads. Yet the manufacturers state that it is designed to give exceptional resistance to abrasion—an endurance test was tried during which a tape was given one million runs, and no mechanical change was noted in the magnetic layer.

Frequency range of these tapes is fully up to that of any other make at present available.

V.I.Ps PEOPLE IN THE NEWS

Frank Freimann, who, as reported in our last issue, has become chairman of Collaro Ltd. now that his American Magnavox Company has taken control, is a dynamic character. Hungarian by birth, he went to America as a child, went through technical high school, then joined a radio and gramophone company. By the time he was 19 he was made chief engineer.

He tried some other jobs, sailed twice round the world as a ship's radio officer, then founded his own audio company in Chicago. It linked with Magnavox in 1938 and Freimann had a great deal to do with the company's growth thereafter.

He is 53 now, a big, broad-shouldered man who claims that he works 18 hours a day.

He is a great believer in stereo and his company sells nearly a quarter of all machines in the American quality range. In 1958 he switched Magnavox's gram production over completely to stereo.

He expects to sell 70 million dollars' worth (about £25 millions) of stereo equipment this year.

Magnavox has acquired 70 per cent of the Collaro stock and British-made Magnavox TV and radio sets and gramophone units will be sold here through the Great Universal Stores retail and mail-order chain.

There is also to be an intensified drive to push the British products in the European market.

*

Mr. Michael Muckley, President of Beam-Echo International Ltd., who has recently been visiting the parent company in Britain to discuss future sales plans for "Avantic" equipment in the North American continent



*

A new company has been formed by **Mr. Kenneth H. Williman**, formerly a director of Simon Sound Services Ltd., to act as an agency for manufacturers of audio and electronic equipment. The firm—K. H. Williman Ltd., 29 The Highway, Sutton, Surrey—will handle Romagna Reproducers, a new tape splicer, and some speaker units.

It aims to provide a complete marketing service in both home and export territories.

It hopes to release shortly details of an



Mr. Frank Freimann, the new American Chairman of Collaro
(see story on left)

interesting new range of products from Mr. Stanley Kelly.

Mr. Williman told *Tape Recording Magazine* that, in his view, there is room in the audio world not only for the big international companies and the old-established specialist firms, but for some comparatively new ones of modest size who will bring originality to design and production.

He sees much opportunity for designer, production engineer and marketing man working in a close partnership and giving the customer a very great deal of attention.



"I've had one or two extras fitted to this model"

MAGAZINE DIGEST

In this column we draw attention to items published elsewhere which may be of particular interest to readers.

Hi-Fi Review (American): "Stereo and the environment." Continuing a series of practical stereo speaker placement suggestions for uncommon room arrangements.

Hi-Fi Tape Recording (American): "1959 Roundup" of tape developments in the USA; "What's a dB?" (*January*).

The Tape Recorder (February): "Building a sound effects library—railway sounds," by B. R. Read; "Finding a play and choosing a cast," by Stephen Grenfell.

Revue de Son (France): "Stereo broadcasting"; "Four-track tape magazines."

Amateur Tape Recording (February): "Plays on tape," by Harold Rottesman.

High Fidelity (American): "Big bass from small boxes," as far as loudspeakers go, good things come in little enclosures.

All the above, unless otherwise stated, are issues dated February.

Advice Bureau

In each issue we shall reprint one specimen question and answer dealt with by our Advice Bureau. Others will be dealt with by post. When sending queries use the coupon below.

Q. Perhaps you could give me some advice regarding direct recording from a television set. I have found by trial and error to my cost that there is danger lurking at each connection. Is there some way in which I can make a direct recording from an AC/DC set.

E. L. T., London.

A. Great care must be taken when modifications are made to a television set, especially when it is of the AC/DC type. We cannot emphasise enough the danger of modifying the AC/DC type of receiver which has a mains connection to its chassis. If in any doubt, contact the manufacturer, retailer or a qualified service engineer before attempting any alteration to your set.

**TAPE RECORDING AND HI-FI
MAGAZINE ADVICE BUREAU
FEBRUARY 24, 1960**



Sound Effects

SOUND effects recorded on location usually come under the heading of "background" noises and do not, strictly speaking, enter into the true sound effect category. With the battery-operated tape recorder gaining in popularity, however, I suspect that quite a few enthusiasts will be trying their hand at location work, and in the next couple of issues I shall cover the main points on the subject.

If your individual problem is not included, drop me a line and I'll be pleased to help.

To begin with, how does a background noise differ from a sound effect proper? It's very simple. A sound effect is intended to portray, in sound, a specific action or occurrence; something which stands by itself.

A background noise, on the other hand, can be likened to a piece of stage-scenery, in that its function is to convey an impression of a certain scene or location.

Several will come readily to mind. Railway station, street noises, children playing, bus station, factory noises, crowd effects, and so on.

I keep a permanent collection of about a dozen of these "backgrounds" and find them extremely useful for dubbing purposes.

Let us start with Railway Stations.

Have you ever tried to record the Luton Girls' Choir in an indoor swimming-pool? It's simple compared with this! Railway stations can play the very devil with acoustics, so keep a careful eye on that gain control.

You will, of course, have to obtain a clearance from the railway authority if you don't want to be tied with regard to free movement, as regulations are rather strict. It's also a good idea, and a useful time-saver, to get some information on train arrivals and departures at the same time.

In recording, the best plan is to find a fairly high vantage point as far back on the platform as possible. In my case, I was fortunate to be allowed to use the window of an empty first-floor office, which was ideal.

A small caution: don't be tempted to record from the centre of a bridge overlooking the line itself. Nine times out of ten, it's useless. You'll simply get a series of isolated puffings and bangings, with a complete absence of atmosphere of any sort.

Plan your effect in four parts: train passing through, train arriving and stopping, general station noises, and train moving off.

On the approach of a train, keep the gain control as steady as you can until the engine is almost opposite the microphone, and then ease it down a little.

Don't try to hold the general station noises at full value until the train is on top of you. If you do, you'll find yourself frantically operating the gain control in an effort to compensate for the sudden rise in volume. In any case, station noises, if needed, can always be dubbed in afterwards.

Listen to any professionally-produced sound effect of a passing train and you'll notice that where the noise of the engine *should* reach its loudest point, there is, in fact, a definite levelling-off or even a slight drop in volume, which is maintained until the engine itself has passed the microphone.

General station noises are more or less a straightforward proposition consisting of the voices and footsteps of passers-by, porters' trolleys, etc. One thing to watch for, though, is the intrusion of any particularly loud and distinctive noise apart from the normal flow. This will render the effect useless for repeat-tracking purposes in dubbing work where a sustained "run" may be called for as, after a few "repeats," a sound-pattern will establish itself in association with the intruding noise and any semblance of continuity will be lost.

As soon as you hear a sound which doesn't quite "belong," so to speak, stop the tape, wind it backwards by hand for a couple of turns and start up again.

The sound of a train leaving the station involves one snag. The driver may give an unexpectedly shrill blast on the whistle. This might not appear to be very loud in actual volume, but it has a penetrating quality which can send a recording-level meter into hysterics! Play a safe compromise by dropping the gain a little lower than usual before starting to record.

As the train begins to move away, bring up the gain so as to keep it on a fairly even keel as the noise subsides and you will find that a natural mix-in to the general station noises will result.

One train effect which I haven't mentioned is that heard from inside the train when travelling.

Briefly, there are three approaches to this. The first is to record inside the travelling-compartment, which gives a slightly "boxy" effect and isn't awfully successful. The second is to record in the corridor; although an improvement on the first method, this can sound rather flat and monotonous, owing to the shape of the corridor causing what is known as "sound-wash."

The third method, which to my mind is the best, is to open a window and hold the microphone about two inches from the opening. Choose the side of the window that corresponds with your direction of travel and point the face of the microphone in the *opposite* direction.

Open scenery makes for the best recording, cuttings (so long as they are fairly wide) are not too bad, but try and avoid a regular lines of trees or posts or you'll actually *hear* them going past!

Finally, don't hold a microphone out of the window of a moving train—for three good reasons.

It is a legal offence to hold any object out of a window while the train is in motion.

No microphone is at its best when facing up to a 50-60 mph gale.

The sound effect of train wheels crunching their way over a brand-new battery-operated tape recorder is not terribly inspiring!

And I should hate to receive a note from the Editor saying: "Dear Sir, Get out and stop out! Yours Faithfully..."

Be with you in a fortnight.



Symphony Mark III

New Products

REFINEMENTS ON NEW SYMPHONY MARK III

THE "Symphony" recorder produced by Northern Radio Services appears in a new Mark III which incorporates a number of important improvements, producing a versatile, high-quality machine at a moderate price.

In its two previous versions, the Symphony proved a popular model. Now it uses the new Mark VI Truvox deck.

One of the most important changes involved is that direction of tape-play is now standard left-to-right.

This is a two-speed machine—7½ and 3½ ips—and the earlier need to change capstans to change speed has been removed. The change can now be made quickly by switch, and this can be done while the motors are running.

There is a new pause control which can be used momentarily, or kept in use without causing any click on the tape.

There is also improved braking and a newly-developed type of record/playback head.

The Symphony incorporates a very useful device which automatically returns the recorder to the playback position as soon as the motors are stopped—a fool-proof method of preventing accidental erasure.

This machine is sold in two forms—portable or table type. The price, with 1,200 feet of tape, is 52 guineas.

*Northern Radio Services (London) Ltd.,
11 Kings College Road, London, N.W.3.*

REFLECTOGRAPH ANNOUNCE FIRST OF NEW MODELS

THE first of the promised, entirely new, series of Reflectograph recorders incorporating the new Multimusic deck is about to be released. Known as Model A, it is described as being "in the professional class, but extremely simple to operate." The price is 95 guineas.

This recorder is pleasantly styled in two-tone grey and blue, but is supplied without cabinet. Instead, it has wooden sides which may be removed when the recorder is built into furniture.

Alternatively, it can easily be housed in a special case with handle and locks, or in a luggage case including a compartment for accessories, tape, and so on, or it can be mounted horizontally or at an angle in a rack for studio use.

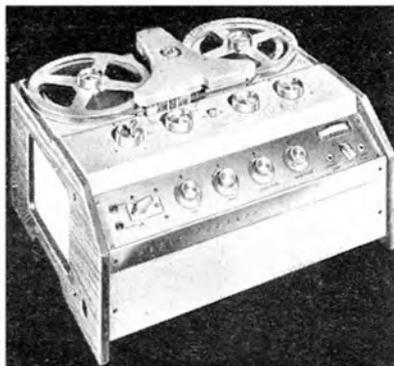
The deck was described and illustrated in our issued dated January 27, and we hope to publish a full review in our "New Decks" series in the near future.

In the Reflectograph Model A, the deck is used as a single channel recording and playback instrument, being provided with three heads on the left-hand side of the capstan.

Open access is provided to the heads for ease of editing. Reels up to 8½-in. can be accommodated.

The machine operates at 7½ and 3½ ips. Frequency response is quoted at 40 to 10,000 cps plus or minus 2 dB at the higher speed. Total wow and flutter is said to be better than 0.2 per cent RMS.

Signal to noise ratio claimed is approximately -50 dB unweighted including hum.



An automatic stop switches off the equipment at the end of the tape and special metal foil strips can be supplied for fixing to any tape at any point to actuate this control.

The separate record and playback amplifiers have two tone controls (with boost and cut); separate record and playback gain controls; an entirely new "slimline" edgewise-reading record level meter, calibrated in colour; and a tape/input switch for comparing any input signal with that recorded on the tape.

No input or output sockets are situated on the instrument panel. A socket for external speaker (which automatically mutes the special Goodmans internal speaker) is situated at the rear.

Input sockets for microphone and radio or pick-up are provided at the front of the right-hand side. A socket for connection of an external amplifier is situated at the front of the left-hand side.

The record/playback switch illuminates red and green indicator lamps and there is a safety button to avoid accidental recording.

(Continued on page 28)

NORFIELD PRICE DOWN

Birmingham Electronic Products Ltd. announce a reduction in price of their Norfield console recorder. A new streamlined production line has enabled them to bring down the cost of the recorder by four guineas and the new price is 57 guineas.

*Birmingham Electronic Products Ltd.,
1, Lodge Road, Hockley, Birmingham
18.*

B.T.H. INTO A.E.I.

B.T.H. hi-fi equipment is now being marketed by Associated Electrical Industries Sound Equipment Ltd. The name of the Company having been changed under the general A.E.I. reorganisation scheme, from B.T.H. Sound Equipment Ltd. The company's offices remain at Crown House, Aldwych, W.C.2.

When writing to manufacturers please mention that you "saw it in Tape Recording Magazine"

New products (continued)

THE NEW REFLECTOGRAPH

(Continued from page 27)

Pre-set controls allow for zero adjustment of the meter and adjustment of the input level to equal the signal on the particular brand of tape being used.

By removing four screws on the front of the recorder instant access is obtained to the valves of the amplifier.

Multimusic Ltd., Maylands Avenue, Hemel Hempstead, Herts.

THE AIRMEC STEREO AMPLIFIER

(Continued from page 23)

amplifier that I can make: I do not consider separate bass controls are necessary on both output channels, unless the equipment is far more expensive and comprehensive. I feel that it would have been far more useful to have a common ganged bass control and to use the other control for balancing the two channels in volume.

The tone controls of the amplifier work extremely well, exactly as the

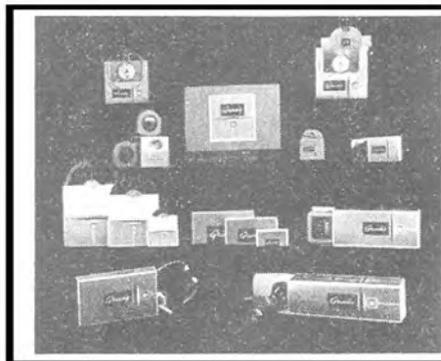
manufacturers specify. As the bass control was advanced to the higher degree on bass boost, there was very little change in the apparent hum level, which is a lot more than can be said of many other amplifiers costing a lot more.

A few words on the appearance of the amplifier. All the inputs are in the front of the amplifier on the chassis, just above the various controls, and all are coaxial sockets. On the back of the amplifier are all the outputs and earth, using terminals. Spare HT and LT supplies for external tuners are provided. The transformers used seem to be of very high grade and have been tropically treated.

The chassis measures 16½ x 15 x 8 ins., the latter dimension being the height to top of the transformers.

All tone controls are enclosed at the front and are shielded from the main amplifiers to reduce hum level.

The sensitivity of the radio and tape input is 440 mV for full output; the gram input (dynamic) is 10 mV and the crystal pick-up is 100 mV.



GRUNDIG RESTYLE THEIR PACKAGING

Grundig (Great Britain) Limited have completely restyled the packaging for their range of accessories.

The colour scheme—black, white and turquoise on a gold background is pleasing and eye-catching, and has been so designed that it can be attractively arranged to form a striking showroom or window display.

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Tel.: HUN 1635

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Free demonstrations within 60 miles but
NO MAIL ORDER

★

The New Models

So many new tape recorders have been introduced this season that it has been impossible to describe them all fully when they first appeared. In this regular feature, we shall provide photographs and full specifications of models which have recently made their bow.

TRIX COMPANION

The least expensive of the Trix trio, this machine is designed for use with 210v-240v AC power supply only.

Manufacturer's Specifications

Price: 29 guineas. Deck: B.S.R. Monardeck.
Speed: $3\frac{3}{4}$ ips. Rewind speed: 3 minutes.
Recording sense: half track, left to right.
Frequency response: 60-9,000 cps.
Wow and flutter: Better than .4 per cent.
Signal-to-noise ratio: -45 dB.
Output: 2 watts. Weight: 21 lb.
Size: 14 x 13 x 8 in. Maximum spool size: $5\frac{1}{4}$ in.
Speaker: 7 x 4 in. elliptical. Microphone: crystal.
Other facilities: Superimposition, tone control, magic eye level indicator, inputs for mic., radio/gram, 3 ohms extension speaker socket, can be used as a straight-through amplifier for music.

TRIX ELECTRICAL COMPANY LTD., 1-5, MAPLE PLACE. LONDON. W.1.



TRIX EVEREST

Attractive in appearance, this machine incorporates a host of facilities, including three speeds.

Manufacturer's Specifications

Price: 44 guineas. Deck: Collaro "Studio."
Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ ips. Rewind Speed: One minute.
Recording sense: half track, left to right.
Frequency response: 50-12,000 cps at $7\frac{1}{2}$ ips.
Wow and flutter: .15 per cent at $3\frac{3}{4}$ ips.
Signal-to-noise ratio: -55 dB.
Output: 4 watts. Weight: 32 lb.
Size 16 x 15 $\frac{1}{2}$ x 9. Maximum spool size: 7 in.
Speaker: 7 x 4 in. high flux. Microphone: crystal.
Other facilities: Superimposition, mixing, monitoring, pause control, magic eye, tone control, rev. digital counter, inputs for mic., radio/gram, 3 ohms extension speaker socket, can be used as a straight-through amplifier, storage space for extra tape spool and microphone.

TRIX ELECTRICAL COMPANY LTD., 1-5, MAPLE PLACE, LONDON, W.1.

MAGNETOPHONE 75K-15

A moderately priced recorder providing many facilities with allowance for additions if required.

Manufacturer's Specifications

Price: 52 guineas. Deck: Own.
Speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ ips. Rewind speed: $2\frac{1}{2}$ min. (1,800 ft.).
Recording sense: half track, left to right.
Frequency response: 60-16,000 cps ± 3 dB at $3\frac{3}{4}$ ips.
Wow and flutter: Less than ± 3 per cent at $3\frac{3}{4}$ ips unweighted, and less than ± 3 per cent at $1\frac{7}{8}$ ips.
Signal-to-noise ratio: Better than 40dB.
Output: $2\frac{1}{2}$ watts. Weight: 21 lb.
Size: $12\frac{1}{2}$ x $12\frac{1}{2}$ x $6\frac{1}{2}$ in. Maximum spool size: $5\frac{1}{4}$ in.
Speaker: 5 x $2\frac{1}{2}$ elliptical. Microphone: extra.
Other facilities: Headphone monitoring, pause control, magic eye level indicator, tone control, auto stop, rev. digital counter, inputs for mic (2Mv at 2M ohms), radio (2Mv at 100K ohms) and pick-up ($1\frac{1}{4}$ Mv at 18K ohms), extension speaker socket. Provision for remote control, superimposition and mixing is also made.

WELMEC CORPORATION LTD., 147, STRAND, LONDON, W.C.2.





*Those who sell
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TRADE MARK
SCOTCH
BRAND
recording tape



WORLD'S LARGEST SALES OF MAGNETIC TAPE

NEWS FROM THE CLUBS

Edited by Fred Chandler

MR. J. PARRINGTON, the Walter Instruments representative, was the opening speaker at the January 28 session of the **Rugby** Tape Recording Course. Outlining the progress made in the general manufacture of tape recorders, he went into some detail giving the history of his firm, and the manufacture of their tape equipment from the pre-war days until the post-war period when they produced their Tape Editor. He completed his illustrated lecture with some advance information of their latest machine, soon to make an appearance.

A lecture on tape programme construction given by Peter Scott, leader of the Society's technical group, followed and included practical demonstrations of editing, dubbing and splicing. The tape splicing equipment used for Mr. Scott's lecture was loaned by Multicore Solders Ltd. Problems met when mixing sound sources were detailed and members were shown how to overcome these with an illustration by Mr. Scott using his home-built mixer unit.

The first session on February 4, devoted to the technique of interviewing, was conducted by Leslie Skingley of the Coventry club and the National Federation. He used a number of recordings to illustrate his talk, among them interviews with Beryl Reid and Bernard Miles, obtained last year at the Coventry Theatre. The second session produced a lively talk on the humour in tape recording given by David Loughborough.

At the request of a local Brownie pack leader, members of the Rugby club recorded a camp fire party last month. The object of the recording was to prepare a tape that has since been sent to an Austrian girl adopted by the pack under the "Save the Children" Fund.

News of the first tape society to be formed in the **Royal Navy** was recently brought to my attention. Based on H.M.S. *Caledonia*, the new club has been formed by trainee artificers of the Royal Naval training establishment in Rosyth. With the problem of finding a clubroom solved for them, members are concentrating their activities on constructing their own equipment. This, however, has not superseded work of a more personal nature, for they recently held their first short tape competition. The resulting prowess has led to an attempt of the same exercise on a larger scale.

The present complement of the society includes two officers, a Chief Petty Officer and about ten apprentices. So far they have sent tapes to the societies in Edinburgh and the R.A.F. They are most anxious to contact other enthusiasts and clubs, and hope to encourage the formation of groups in other ships and establishments. The society is affiliated to the National Federation. Their Secretary is E.R.A./App. S. Jordan, Benbow Division, H.M.S. *Caledonia*, Rosyth, Fife, Scotland.

Members of the **Sheffield** Society are also considering the construction of a tape recorder. The suggestion came from the Chairman, Mr. W. N. Anderson, during his report at their recent A.G.M. Mr. Anderson, urging the members to a more active year, also proposed location recording sessions and a hospital service. Play productions are also envisaged. The Committee were re-elected after Mr. Brazil presented the annual accounts.

The A.G.M. of the **Keighley** club was held at the end of January. The officials elected include Mr. H. Scaife as President and Mr. F. Double as Treasurer. Mr. K. Wells continues in his role of Secretary. Membership of this five-month old club now totals forty. Lined up for the future is a programme which is to include microphone technique, sound effects and outdoor recording.

Alan Stableford was the guest of honour at the Annual Dinner of the **Warwick and Leamington** Society held a short while ago. During his speech he stressed the need for members to work as a team producing tapes to be entered in contests. Following up his suggestion, "volunteers" were hand-picked to take part in a recorded extract from the play *She Stoops to*



Club Personalities No. 10

ROY PENFOLD

Coventry Tape Recording Club

ROY PENFOLD purchased his first recorder about four years ago with the sole idea of keeping a sound picture of his two-year-old daughter. However, being a restless, energetic type, he experimented with his equipment, exploited it by joining the British Tape Recording Society and soon had a long list of tape contacts. He met Malcolm Simmons, then B.T.R.S. local representative, and together they planned the formation of the Coventry club.

After a paragraph in the local press, a number of enthusiasts met in the Liberal Club in February, 1958, and the Coventry Club was born. Roy was elected Secretary and Malcolm took the chair. Some months later they exchanged offices and Roy became the driving force. In June, 1958, representatives of clubs all over the country met in Coventry to form the Federation of British Tape Recording Clubs. Roy's enthusiasm was noted and he was elected Secretary.

Now Treasurer of the Federation and again Chairman of his club, Roy is full of ideas for the future. He aims to make the club an established force in the city, and is encouraging the recording of present day life for future historians. Although his active life has led to a reduction in tape contacts, he still maintains a weekly exchange with his original tape pal in Canada.

He is an assistant chief buyer at the Morris Engines plant and part-owner of the ladies' hairdressing business run by his wife. His hobbies are monochrome and colour photography, light orchestral music, reading, and criminology.

His equipment comprises a Ferrograph 3A/N, Philips 8108AG and EL3527, Boosey Hawkes Reporter, Dulci pre-amp, amplifier and FM tuner, a CQ series reproducer, and various microphones.

Conquer, the test piece selected by *Reynolds News* for their Drama on Tape Contest.

A stereophonic demonstration given by one of the members during the evening lost some of its brilliance due to the background accompaniment formed of a road drill being used in the roadway outside. Notwithstanding the interruptions, and devouring a "food parcel" sent by a Leamington exile now in Canada, members enjoyed a humorous tape take-off entitled *Up Your Street* presented by Mr. Willis.

Competitions are being re-started, and the first for the season is to be a five-minute tape of music-concrete. With the noise alterations ever present, there should be no shortage of sound samples available.

Interviewing technique was the first item during a recent meeting of the **Birmingham** club. The subject was arrived at following the presentation of a recorded interview with the winner of the London-Edinburgh walk. The interview, which took place in the walker's home, was produced by Messrs. Knež and Wilkinson.

Two recorders were demonstrated during the evening. The first, a Bradmatic, was shown by Mr. Field. Very favourable comments came from members following the demonstration of the second machine—the new Simon Minstrelle.

The club Treasurer, Albert Greenway, is in hospital recovering from an operation. I am sure all his friends join with the club members in wishing him a speedy recovery.

Blackpool club members heard the 1936 tape recording by the London Philharmonia Orchestra when Mr. Wilson of B.A.S.F. Tapes visited the club recently. A number of other early tapes were heard in his lecture on the origin and development of tape which concluded with monaural and stereophonic recordings co-ordinated with film slides.

The club has been presenting shows for the benefit of local Old People's Homes. Members gathered together a number of historical voice recordings aimed at reviving memories for the old-timers. Mickey and Minnie Mouse put the audience in the right frame of mind and the recordings—passing through the years—culminated in an imaginary trip to the Moon.

(Continued on page 33)



*Those who know
insist on . . .*

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Trade, ninepence per word (minimum 10s.); box numbers, one shilling extra. Payment with copy. Copy should be sent to Advertisement Department, "Tape Recording Magazine," 1, Crane Court, Fleet Street, London, E.C.4.

Philips EL 3527 Tape Recorder. New, in carton, full guarantee, cost £41. Accept £29 10s. After 7.30. Roberts, 131, Windsor Avenue, Hillingdon, Middx.

Tape Recorders, Players, Radios, etc. (modern) wanted for cash. Callers or particulars Cooks Store, 159-187, Praed Street, W.2. (opposite Paddington Station). Tel.: PAD 6464.

JOHN HASSELL RECORDINGS. Tape/Disc. All Speeds. CCIR Studio. 21, Nassau Road, London, S.W.13. Riverside 7150.

Special Purchase! 1,800 ft. Agfa-Wolfen L.P. tape on 7 in. spools, only 32s. 6d.; 1,200 ft., 7 in. Ferrotape, 26s. 6d.; P. & P. 1s. 6d.; send for complete list of tape bargains (including American Audio tape, BASF, etc.) and list of new and second-hand tape recorders. E.C.D. Kingsley & Co., 132, Tottenham Court Road., London, W.1. EUS 6500.

Gramdeck Recorder complete—Micro, Tape, Control Unit. New November. Accept £11 post paid. Jenkins, 45, St. Davids Crescent, Penarth, Glam.

Winston Thoroughbred Recorder. Also Grundig Cub. Both in mint condition. Owner going abroad. For quick sale. Offers to R. Vass, 19, Eastfield Road, Enfield, Middx.

Stereo Tapes H.M.V. SCT. and SDT. for sale, half list price or exchange for other Stereo Tapes, in perfect condition. T. I. Harris, 54, Kings Road, Gorleston, Norfolk.

WAL . . . Meet us at the **AUDIO FAIR** from 21st to 24th April inclusive. Wellington Acoustic Laboratories Ltd., Farnham, Surrey.

Tape Recorder, Stereo and Hi-Fi Demonstrations Tues., Wed. and Thurs., Feb. 23rd, 24th and 25th, in the Ballroom, British Hotel, High Street, Bognor, by **JOHN SHINN & SONS LTD.**, of Leigh, Lancs and Melody House Branches.

TAPE RECORDER need repairing? Let the specialists do it for you at an economical price. See page 6 **ESSEX TAPE RECORDER CENTRES.**

One Tenth Deposit—Three Years to Pay! All makes stocked, let us quote you. Simmon of Halifax, Paul Simmon, 35, Northgate, Halifax.

ROY FOX Records 78 r.p.m. and LP, otherwise unobtainable, excellent condition. S.A.E. for list. Graigie, 6, Saint Giles Street, Edinburgh, 1.

Wanted. Two 8½ in. reels. Pair matched microphones. Mixer. Bulk eraser. Hi-Fi earphones. Miles, 23, Radcliffe Gardens, Leamington Spa, Warwicks.

Ferrograph 3/AN. Perfect condition, as new, complete mic and tape. £65. T.S.L. FM tuner, Walnut Cabinet. £10. Box No. 332.

Straight Swop. Walter 303 de Luxe, perfect order, for Clarion Battery Portable or similar. Mr. P. R. Limb, 3, Astley House, Gipsy Road, London, S.E.27.

Unwanted Xmas gift. New, unopened four track Telefunken 76K. £53. New Lenco GL-60 £25. G.700 £8 10s. R. McKay, 9, Airlie Gardens, London, W.8.

MAGNAFON Tape Recorder, cost 55 gns. Sell as new, £30 o.n.o. Box No. 334.

Sonomag Adaptape for sale. First-class condition. Reason for sale—have gone stereo. Offers. Miles, 23, Radcliffe Gardens, Leamington Spa, Warwicks.

Telefunken KL75K. 3¼/1½. Thirteen months old (owner changing to four track). Demonstrations evenings. North London. £34. Box No. 333.

Wonderful Offer — special meters graded in decibels. Frequency response absolutely flat 20 C/S to 20 K/c's. Suitable for use across L/S terminals or 600 ohm lines. Instructions supplied. Ideal accessory for Test-Tapes—59s. 6d. P. and P. 2s. extra. Professional recording tape 17s. 6d. per 1,200 ft. spool, plus 1s per reel postage. Unboxed. Six or more post free. Olympic Sound Studios, Carton Hall, Carton Street, London, W.1.

TAPE RECORDERS. Large selection of used models, most as new with Three Months guarantee. Part exchanges with cameras, binoculars, radios, etc. Good quality Recording Tape at competitive prices. **COOKS STORE**, 159 & 187, Praed Street, W.2. (both opposite Paddington Station). PAD 6464.

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WAL GAIN transistor pre-amplifier £5. **WAL GAIN STEREO** transistor pre-amp £7 10s. **WAL BULK TAPE ERASER**, cleans a reel in 30 secs., £7 18s. 6d. Ask your dealer for details, or send to us for full descriptive leaflets. Wellington Acoustic Laboratories Ltd., Farnham, Surrey (6461 or 4961).

Repairs to all makes! Estimates free! Efficient, reasonably priced serving by the people who *know* Tape Recorders. **HOWARD PHOTOGRAPHIC**, 218, High Street, Kent. Ravensbourne 4477.

CLASSIFIED ADVERT — SPECIAL OFFER

I enclose postal order for 2s. 6d. Please insert as follows

Name..... **Address**

Trade announcements not included. Box number extra

(Continued from page 31)

This latter recording may have been initiated by the monthly tall story competition. The winner of the latest being Jim Lister with his actuality recording of the arrival of little men from outer space in an all mod. con. flying saucer.

Membership of the club has reached twenty-six, and interested persons are invited to contact the Secretary, Eric Wallis, 23, Kiplin Drive, Marton, Blackpool. Future programmes will include play-reading and another show for the old people. An open night for stereo takes place on February 24.

Two letters were read at the first full meeting of the Coventry club held on January 21. The first announced the temporary loss of the President and founder-member, Malcolm Simmons. Hearing that he had to resign his position due to pressure of personal business, members stated they hoped it would not be too long before he was again present at meetings.

The second letter was from R.E.S. (Coventry) Ltd. promising to provide a demonstration of recorders and accessories at their March 31 meeting.

Next item on the list was the introduction of the Programme Sub-committee comprising Henry Hopfinger, Peter Warden and Howard Freer. They outlined some of the programmes listed for the near future, including films, demonstrations and visits. The formation of the Production team followed. Their first project is to be the tape for this year's National Contest. Henry Hopfinger pro-

vided the recorder demonstration and also took photographs of members.

The scheme to issue membership cards has been dropped. It is felt that this would have been a needless expense considering the National Federation is to issue cards to all its member-clubs.

The sound effects section of The Voice-spondence club is to be run in future from Sgt. Bill Woodrow's service address which is: 400256, Sgts. Mess., R.A.F. Newton, Near Northampton. Sgt. Woodrow asks that when requesting effects, members should state speed and include return postage.

Meetings of the newly-formed York tape society are now being held every Thursday from 7-9.30 p.m. at 25, Broadway Grove, York. Members would like to hear from other club secretaries and other interested persons. The Secretary is Mr. H. C. Edwards, 45, Thoresby Road, Yorks.

The Leeds and District club has had a change of Chairman. Following the resignation of Mr. J. W. Williams, members elected Mr. F. Kelsall into the top position. A change also in the Secretary's address. Terence Quigley can now be contacted at 52, Station Road, Horsforth, near Leeds, Yorkshire.

The club is very fortunate in having a professional studio at its disposal. Mr. Pape of Sound Recording and Equipment Hire is also a member of the club and makes available a variety of recorders to members. On March 3 the studios are providing a demonstration for the club entitled "The Sound Picture." Members

(Continued on page 34)

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The first issue of *Tape Recording Magazine* was published in February, 1957. To celebrate our third birthday, we offer a special welcome to new readers who join us between now and 30th April—a reduced postal subscription rate of 39s. for a year (26 issues), including postage.

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are engaged at the moment producing a tape to be sent to the Brighton club.

Crawley and Sussex club members have started the New Year well with the formation of "action" groups. These include a play-writing and acting group, now busily engaged on writing a script, and a technical group. Leading lights in the former group are Mr. and Mrs. Archer, who having only recently moved to the district are feverishly trying to book baby-sitters for meeting nights.

Another new member to the club is Hugh Gilson. He is only 13 and a very keen tape enthusiast.

As reported a fortnight ago, members entertained the Brighton club members at their special guests night. One of the items heard by the visitors was provided by Tony Wales, who presented recordings of an impression of a local carnival and the London-Brighton Veteran Car Rally. Members believe Mr. Wilson has one of the finest tape collections in the South.

At a later meeting, members had a chance to try their hand at adding a commentary to a short film sequence, when a special tape and cine night was arranged.

Meetings are now held on the first and third Monday in each month at the Southgate Community Centre. Nightly entrance fee has been raised to 1s. 6d. and includes refreshments.

One of the last monthly meetings of the Kettering club, in future they are to meet fortnightly, was held on December 23 in the form of a social evening. Drink

and reasonable fare was provided and two Ferrographs were made available. These were used to make some not-so-serious recordings.

Secretary Tony Webb provided an entertaining interlude once the evening was in swing, by singing to a piano's accompaniment. The recording made was later played back in multi-recorded form. The evening became progressively livelier and ended with an uproarious rendering of McNamara's Band, providing a scintillating recording.

Their January 20 meeting commenced with a Brains Trust. On the panel were Mr. D. Scotney (radio engineer), Maurice White (brother of the Tape Organ Club's Stanley White), and Mr. J. Potter (Club Treasurer). The club Chairman, Mr. P. Lambert, was "in charge." Nineteen members attended and the meeting was rounded-off with a practical demonstration by Mr. Webb of how to produce exchange tapes.

The February 3 meeting, an open night with members demonstrating their equipment, produced a demonstration by Stanley White of his Ferrograph 808. Incidentally, this club has also held a census of members' machines and have found that 75 per cent of the machines owned are Ferrographs. "We are not rich," they say, "we just know what is best." A Fi-cord, another popular recorder amongst clubs, was demonstrated by Donald Eaton.

Members are interested in exchanging tapes with an overseas club. Secretaries should contact Tony Webb at 93, Regent Street, Kettering, Northants.

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