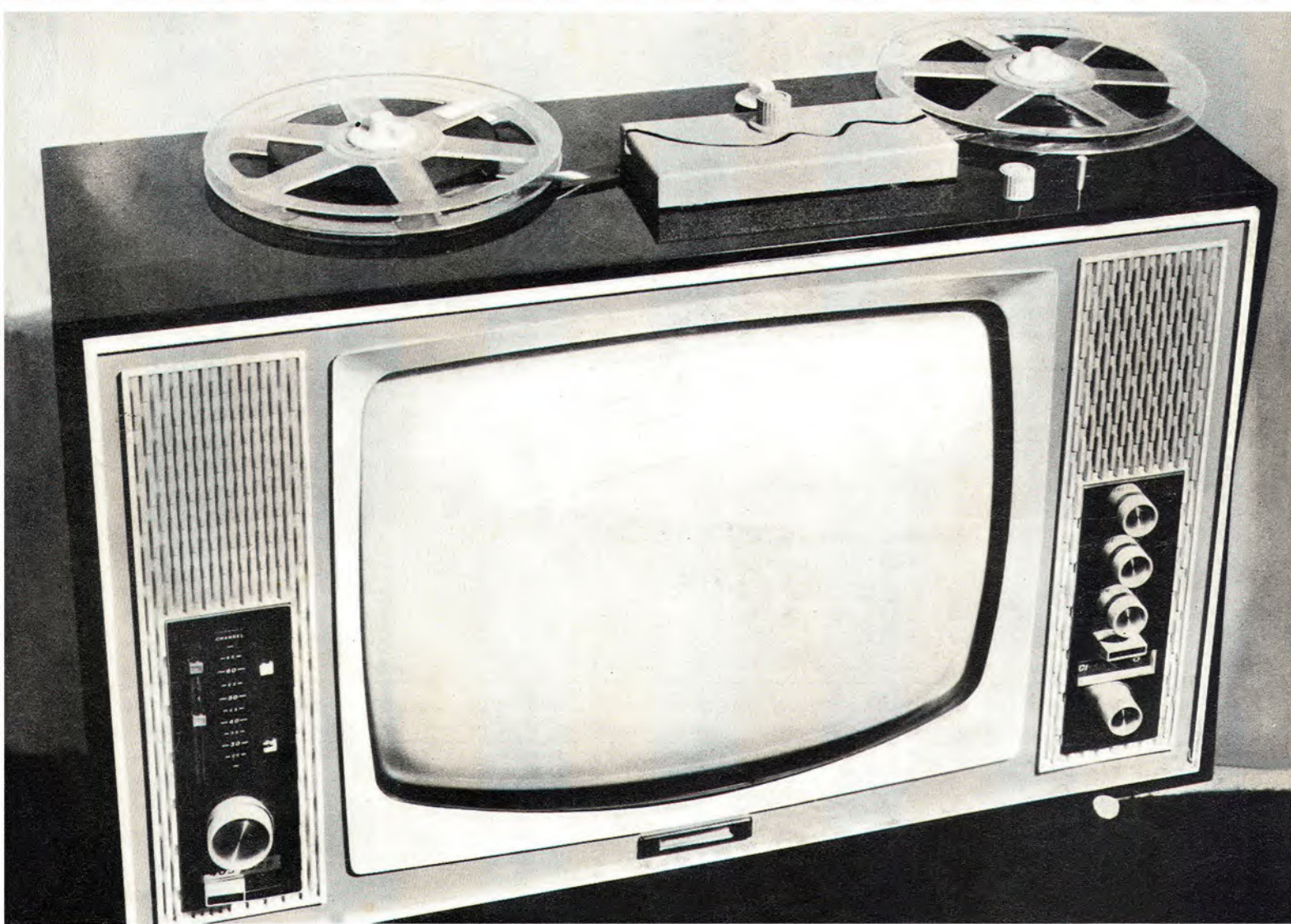


AUGUST 1963

TAPE

RECORDING MAGAZINE

1/6



—IN THIS ISSUE—

- Recording television programmes at home
- Creating sound-tracks
- Test Bench reports on two recorders
- of the latest tape record releases
- Travel with a tape recorder
- Tape and transparencies
- New Products
- Club news
- Reviews
- Readers' letters

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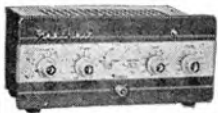
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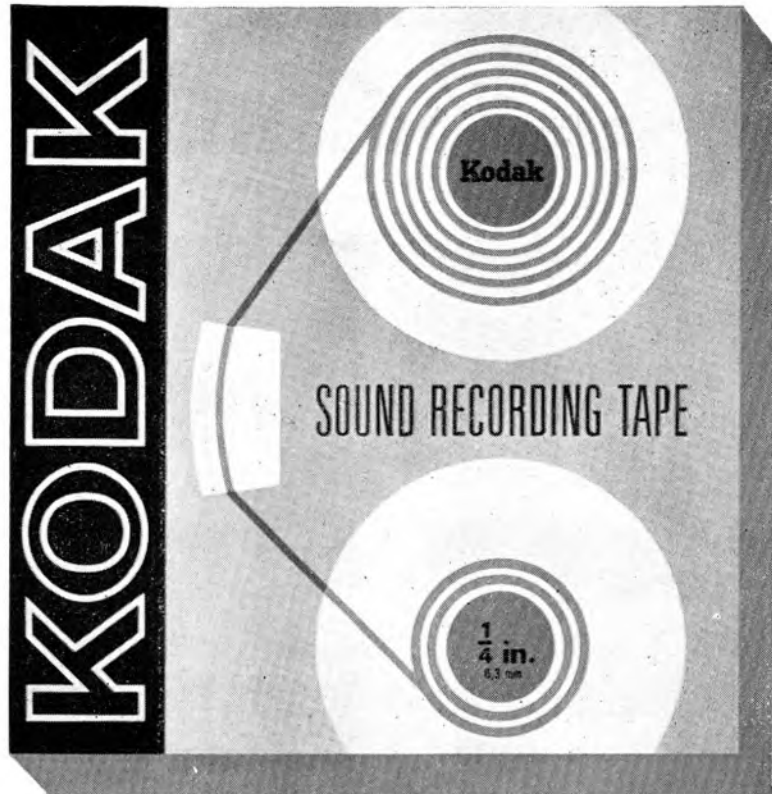
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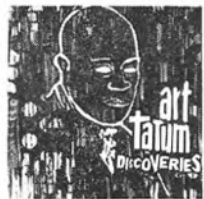
79 Patsy Cline sings 12 smash hit numbers including Walking after Midnight, Too many Secrets, I Can't Forget, Hungry for Love, etc.



12 Beethoven Eroica Symphony. Josef Krips conducts the London Symphony Orchestra in a masterly performance of this monumental work. **Also in stereo.**



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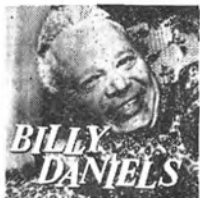
53 These two suites, containing some of Bizet's most thrilling music, are given magnificent performances by the Sinfonia of London under Murr Mathieson. **Also in stereo.**



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



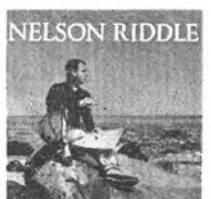
73 Born to be with You, Mad as a Hatter, The Boy, Tomorrow but not Today, That old Feeling - and six more hits by the brilliant and beautiful Patti Page.



2 Grieg Piano Concerto, Alexander Jenner in an electrifying performance with the Bavarian State Radio Orchestra conducted by Odd Gruner-Hegge



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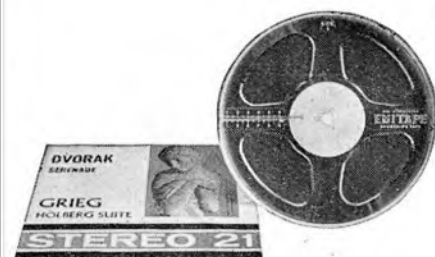
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TAPE

RECORDING
MAGAZINE

Vol. 7

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COVER PHOTOGRAPH: The fascinating development of a domestic video-tape recorder was recently announced, and the instrument demonstrated. Further details are given in the story on page 14.

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EDITORIAL

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Tape trends and tape talk

By the Editor

MOVES ARE AFOOT to establish a co-operative organisation of manufacturers with a common interest in promoting tape recording as a home hobby. A number of meetings have taken place and I expect an announcement to be made soon.

This is, of course, a project which we have advocated vigorously in this magazine. Nearly three years ago we suggested that a trade association might help to improve service to the customer. Two years ago we publicised a proposal that a Magnetic Recording Industries Association should be set up to work out standards and to stimulate improved marketing techniques.

At that time we gathered the views of most leading figures in the industry and published a symposium. A majority favoured the idea.

We have twice called meetings of manufacturers ourselves to try to get them to form a committee to promote jointly such activity as the British Amateur Tape Recording Contest.

All of this earlier campaigning has brought a disappointing lack of response but we have associated ourselves, behind the scenes, with the latest moves and I hope that this time there may be effective results.

to be passing out of the doldrums and a livelier future opening up. I sense this in a whole variety of ways.

Our rising circulation, to which I have already referred in this column, has been reflected in a record number of entries in this year's British Amateur Tape Recording Contest. Preliminary judging has begun. Results will be published in our September issue.

A number of leading firms in the tape field, after displaying an alarming quiescence for the past year, show signs of aggressive marketing plans this coming autumn.

I hear rumours that there may be a major exhibition or fair in the north of England in the autumn, with a heavy accent on tape.

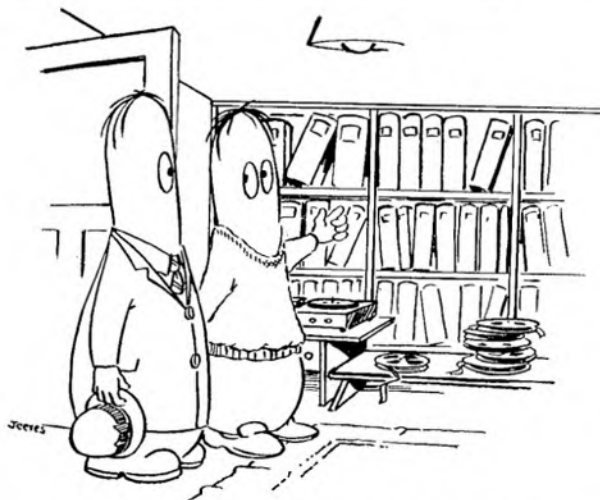
We publish elsewhere in this issue news of the formation of a Yorkshire Federation of tape recording clubs and there are moves afoot to develop this regional activity.

The new series of BBC "Sound" programmes is being continued, for the first time, right through the summer and is getting exceptionally good listener reaction (incidentally, anyone who missed the recent programme on the work of the BBC Radiophonic Workshop will be able to hear a repeat of this programme on August 4).

A livelier future

IT IS IRONICAL THAT, at the moment when something may be done, the world of tape seems

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"These are my tapes and a complete index."

Taped television

PERHAPS THE MOST EXCITING news of all this past month was the announcement of the manufacture of tape equipment to record TV programmes, with a price tag announced of only 59 guineas.

As long ago as December, 1960, we published an article by an amateur describing how he had built equipment to record TV pictures on standard tape and we have returned to the subject several times since then. We have known that a number of the leading firms in the world have been working hard on prototype equipment that will record visual images on tape direct and permit playback on a TV screen.

It is exciting that the first announcement of progress has come, not from one of the giants, but from a relatively small man working in Nottinghamshire. Twenty-nine year old Norman Rutherford, who has evolved the new equipment, founded his electronics firm five years ago in a garden shed, with £100 of capital.

There may be a lot more to be done before we get sophisticated domestic equipment giving top-quality results; but everyone can now see that we are dealing not with a theory on paper, but with a practical proposition.

The prospect of getting, within the reasonable future, tape recorders that will record both sound and vision (and play both back) is so far-reaching that it is difficult at present to assess the full effects.

Creating a sound-track for an Aquashow!

BY ROBERT GUNNELL

"CAN you act as tutor to a group of teachers who will be creating a sound-track for an aquatic pantomime?" When one gives some professional assistance for a tape course organised by Geoffrey Hodson, an Inspector of Drama for the London County Council, it is commonplace to be asked to direct the seemingly impossible!

The LCC, apparently, were showing an interest in the possibilities of synchronous swimming, as a means of giving young people an additional interest in water sports. At its simplest, synchronous swimming is a form of water ballet, in which the performers move gracefully in the water to music, offering many different "stunts" both on and beneath the surface.

The sport is practised in America and on the Continent. One of the chief protagonists in this country is Mrs. Dawn Zajac, an LCC swimming instructress, who takes two evening classes in Central London.

I watched a film, then a simple demonstration. At first I was intrigued, then baffled, and finally quite excited. It was clear that this was something quite new and with enormous potential—a field for the tape recorder that had never been exploited before. The challenge was there—could any enthusiast ignore it?

The first problem was to choose a story. Mrs. Zajac suggested Noah and the Flood. As there has probably never been a wetter story in history, this seemed an excellent idea! But it had to be adapted to our needs.

As I watched the earlier demonstration, I was struck by the tendency of amateur swimmers to repetition. If the soloists were good, the attention was held: if they were

not at their peak, then the eye began to wander—the arena was so large.

The possibilities of lighting came to mind, but such resources were beyond us.

Sound alone would have to provide additional variety, and be used to direct the eye to the right part of the bath and its surroundings, where the action was planned to take place. By the same token, skilfully used, it could minimise unpleasant moments in the original demonstration when the audience was left to look at the anything-but-graceful sight of swimmers climbing out of the bath after their individual performances.

What was needed was a major diversion; we decided we could obtain this by using two folk singers, seated to the side of the bath, to act as narrators.

To get the audience to look to different parts of the arena, and indeed to fill it with exciting sounds, would need more than one loudspeaker—and more than one sound track. A form of stereophony seemed to be the solution.

Much of the movement in the water had to be done to music. Our story, however, had to be told in such a way that the audience was carried along with the plot; so dialogue and effects had to be laid over the music. Opportunities had to be exploited for mime to accompany the speech on "land" and in the water. Timing was vital; mental calculation had to be made of the time the performers would need to get from one point to another because, with each sequence, the tape could not stop.

Now we were ready for the LCC teachers on the tape recording course to start work. Two days were available. It took some time to explain just what we were trying to achieve, but, with the aid of such modified theatrical terms as "bath right" and "bath left," we began to make progress.

The first major technical snag was that no stereophonic equipment was available to us. We were using standard schools equipment (and probably rightly so).

Experiment proved, what we all knew in our hearts, that the possibility of starting two machines at precisely the same moment and running them for any length of time in synchronisation was out of the question, if music was to be carried by both.

We decided to use three tape machines, each feeding a separate speaker. The centre machine (the speaker for which would be placed immediately behind a symbolic Ark on the bath side, opposite to the seated audience) would carry the music, the main dialogue and some of the effects. That to "bath left" (with a speaker near to the folk singers, who would mime to their recordings) would have the sung narration, some dialogue and effects. The third, "bath right," had dialogue and effects only.

Writing the script as we went along, we began recording the various sequences for the centre tape. In many ways this became the master, to which everything else was related. Speech was slow and deliberate, to counter the echo that would be present.

Next came the tape for the left-hand machine. The folk song narration, which had been skilfully composed by the teachers, was committed to the tape in sequence. You will remember that we were trying to use sound to direct the eye: Words and animal noises on the two outer loudspeakers were to be the cues for the swimmers. So, working on the stop watch, the sounds were placed on to the dead tape (second machine) precisely according to a plan.

Finally, the third tape, for the right-hand machine, was made in the same manner. A crude run-through confirmed our hunch—we had achieved not only range of sound in physical space, but voices could be made to shout from the left or the right, to be answered by the centre reproducer.

With time running out, a fantastic editing operation was started—one operator to each machine, with other members of the group preparing cue sheets for the performance. The idea was to bring the three machines into step for individual sequences but to so cut the tape, using either coloured leader or dead tape, that none was ever very far out of step with the others when only one machine was carrying the "programme." The operators, in most cases only had to stop the tape with the pause button for a few seconds to bring the three machines into synchronisation for joint operation.

For example, at the start, as the right and centre machines ran through leader, the opening folk music came from the left. At the end of the song, the three tapes came together for speech and music from the centre with spaced dialogue from left and right (Noah's sons replying to their father's call).

Curiously enough, the operators found the complex 27-minute operation easy to control, and the swimmers were in their element. The two most dramatic moments, I thought, were a storm sequence (when the swimmers performed abstract patterns in the water, whilst Noah's doubts were voiced from left and right, to be answered by a re-statement of his faith from the centre—done against music, howling wind and beating rain) and a sequence in which the "animals" in costume left the Ark and towed Father Noah across the bath in an inflatable dinghy, with music on the centre speaker, the others filling the air with an enormous variety of animal noises.

Certainly the idea worked and it could be applied to any large spectacle covering a wide area, on land or water. It could be achieved more easily with professional equipment, but, as you can judge, it is not beyond the range of the skilled amateur.

Whatever will the LCC think of next?

On holiday with a tape recorder and camera

By NIGEL REES

THE last time that I went on the Continent I vowed that I would never go again unless a cine camera accompanied me. All those people with colour slides to show off left me com-

pletely in the shade with my handful of black-and-whites. Well, to cut a long story short when I set foot in France again this year there was no cine camera with me. I had had to compromise—with a good stock of colour films and a still-camera.

Before taking any photographs I had to undertake a major decision: was I to take slides of the holiday or of

the countryside we were visiting (there is a subtle distinction here!)

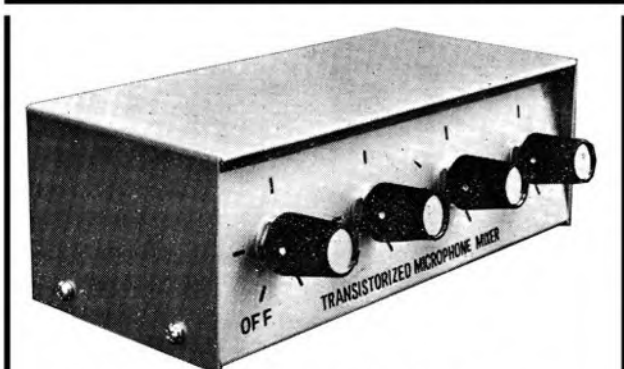
The reasons for my choosing the latter would most probably not correspond to most people's but as I was on a school party I knew that there would be plenty of others taking groups and photographs under the "snaps" heading. Furthermore, when we got home there was going to be a slide show for parents at which it would be impossible to combine historical and touristic information with supposedly amusing comments on "Johnnie paddling in the Bay of Biscay." Therefore, I specialised on the place itself while other boys took the sort of pictures for which an ad lib commentary was most suitable.

Stills, even in the most beautiful colour, are stills and nothing, I thought, except a sound track has any chance of bringing them to life—of giving them another dimension.

We were visiting the Basque country which lies at the western end of the Pyrenees. There was an abundance to photograph and even, more concern-

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ing history and folk-lore, to talk about. It was especially important then for me to ask myself before each shot: "Will it be useful for the tape-slide show?" "Will it fit into the mood of the production?" (I did spare myself a number of exposures for non-programme subjects, however.)

The only other thing to do in France was to make sure I had a Michelin Guide for the Pyrenees. This acted as a gold-mine of facts for the commentary. On returning to England it was simply a case of keeping my fingers crossed and hoping that all the photographs had come out.

Fortunately, all but one had done so. Next came quite the trickiest job of all. After acquainting myself with the subject matter of each slide it was necessary to decide on a logical sequence which also, and most important of all, would enable the commentary and music effects track to *flow*. I will illustrate what I mean by this, with reference to my show.

To begin with a few general notes and pictures on the area. Then, as you might say, moving into close-up, a study of a typical town, which happened to be the last fortress before reaching Spain, providing an opportunity to work in the slides of San Sebastian.



How do we get back into France? This is a seaside resort, so talk about the sea and its importance in this part of the world and work along the coast up to the next port of call Biarritz. Flow to facts on this town and end with a mention of transport and the airport. Obvious link back to Basque methods—oxen, and pony traps which take the women to market at—St. Jean-de-Luz. Facts on this town ending with a mention of its celebrated church and follow with a series of slides on local religion concluding with one of Bayonne cathedral this town being the economic centre of the region. General panoramic views of the Basque country including a rather outstanding one including a tree. Close show with two sunsets . . . the first one continuing the tree *motif*.

This required a great deal of thought and time but it was well worth it for the polish it gave to the show. This process together with scripting the commentary must have accounted for half the time in preparing the programme. The difficulty was in trying not to say too much with each slide and to adhere to the time schedule for the showing of each—an average of

twenty seconds (maximum thirty; minimum three!)

In writing the commentary I tried to make the last line of one slide lead on to the first line of the next (though this device is easily overdone and a compensating pause ought to be inserted in the middle of each twenty second section), as for example: (*Slide of Biarritz church*) ". . . of St. Eugenie is within earshot of the sea . . ." (*Slide of Biarritz statue of Our Lady*) "where the Rocher de la Vierge juts out into the waves . . ."



Affecting the change-overs this way does away with clumsy and distracting devices like gongs, clicks, buzzes and—as I heard one lecturer doing recently—thumping the floor twice, to cue in the next slide. The main thing is to give a rest from the commentator's voice for a few seconds and to move the position of that pause from time to time.

As regards music, it could not be simply a case of slapping on twenty seconds of this and that to go with each slide. One theme was made to last for four or five pictures and this too had to be borne in mind when deciding on sequence. I was fortunate in finding one disc in the mood-music catalogues which combined a tambourine-tapped rhythm (indicating near Spanish location), french horn passages (mountain panoramas) and a generally gay but sufficiently "warm weather" treatment. But it is too easy to employ other people's hard work however much dubbing fees one is paying, so I enlisted the aid of a friend plus his guitar. As soon as the respective keys of disc and guitar music were joined up he soon proved his worth by supplying continuous background with tempo and mood to suit the slide being projected. And although highly professional in his playing, the fact that the music was of our invention and execution contributed to it being more of *our* slide show rather than with too much "cribbed" from the professional disc.

Not being one of those lucky people who sport battery-operated portables I kept my sound effects to the bare minimum. In any case, the audience had enough to listen and look at with commentary, music and detailed pictures. Also, will the audience accept a sound of moving horses hooves with a still of a horse in motion? I did not try in that particular case but with waves breaking on to the Atlantic coast it was entirely successful.

Where the source of sound cannot

be seen anyway—as with the whirring of crickets and the chirping of birds up in the trees—the problem does not arise. We experimented in the "religious" sequence mentioned above with the guitarist imitating the tolling of a bell—the particular chord changing with the slides . . . and other little production aids like that.

After compiling the sound track it was just a case of rehearsing the slide changes. As in the two public showings I have so far made of the production, magazine loaders were not available, there had to be some very nimble finger work in the wave sequence when pictures of cascading water had to be synchronised with sound rhythm. In my particular case it was necessary and easiest to memorise the cues for changes firstly, because to have followed a cue-sheet would have necessitated having a pilot lamp and, secondly, because of the overlapping commentary described above it was obvious to me, the script writer, when it was logical for the next slide to follow.

Finally, in the public showing I detailed someone to control the lecture-theatre lights, extinguished on a signal from the projector operator, and I immediately started the sound fanfare to catch the audiences' attention.



To avoid having the first, title, slide on the screen or the white light of an empty frame showing, I switched on the projector (already warmed up) on a particular note of the music. During the showing itself I experimented with a few tricks to try and bring it to life further.

In describing the entertainments of Biarritz I had a device which enabled me to flash on and off some slides of neon signs above casinos and night clubs. With the concluding chord going with the last sunset I purposely blurred the projector to give a fade out effect and cut off the slide completely with the end of the soundtrack.

These methods were employed to give what I hope is a professional tinge to the show. Such split second accuracy and polish is not essential for an informal family performance, but the most appreciated comment made about my production was that it had brought the slides to life and had "made you think the waves were moving anyway."

At least that was some compensation for not being able to take a cine camera!

Exchanging tapes with schools abroad

By Allan Cooper

WHEN considering the planning of class tapes for exchange with schools abroad, it is soon apparent that one or two marathon listenings of an hour or so may dampen children's enthusiasm for the wide world.

The good pupils listen attentively, somewhat hopefully, in anticipation that something more interesting may turn up in a minute or two; the bad ones, quite likely, have long given up, and twist and turn to find renewed interest in the structure of the beamed school roof, or in the picture of the young Raleigh that may be as old as the building. The answer lies possibly in magazine-type tapes and accompanying drawings, diagrams and maps.

The advantage of producing magazine-type tapes is their adaptability to short periods of listening that fit easily into lesson periods, allowing for immediate follow-up and associated written work; secondly. They do not make overlong demands on children's attention; and, in the making they benefit from careful editing that is necessary in view of restricted time allowances, thus all padding is pruned out.

An accompanying index of feature titles and their approximate duration will save the recipients much trouble in working out a suitable schedule of listening.

The features are of varying length and may be the products of individual contributors, groups, or of the whole class. For example, an individual may report on some event he has witnessed. This news report with the personal touch can make an otherwise ordinary news item come alive with the benefit of first-hand experience. I once had an opportunity of producing a report following my attendance at the funeral and memorial services of the late 9th Earl of Shaftesbury. Being able to record my impressions immediately after the event, I was able to include, as a background, part of an hour-long peal of muffled bells which provided a fitting accompaniment.

Group contributions may take the form of discussions, at best extempore, on such subjects as spare-time activities; of ways of helping at home; or of the description of bus or car journeys to town. The last-named are greatly improved if a set of small sketch maps is sent with the tape—enough for the class at the receiving end. Or, to save postage, one exceptionally clear copy may be sent for use in an opaque projector or epidiascope. In fact, projected illustrations are useful in nearly all features; even the words of a song in which the participation of the listeners is sought.

The inclusion of some *individual* written work has two advantages. First, the receiving class has something tangible to hold and see; and second, the sender benefits from a period of solid preparation that eliminates the possibility of the tape

HOME RECORDING OF SOUND AND VISION

A TAPE recorder which plays back sound and pictures from standard television sets, will be marketed before Christmas. This is the claim of two young electronic engineers in Nottingham, who recently demonstrated a prototype of their invention.

The recorder, the Telcan, illustrated on our front cover this month, is available in two versions. As a separate unit for use in conjunction with existing TV sets, and which can also be used as a standard audio recorder; or as an insert built into a TV set by manufacturers. The former will cost 59 guineas, and the latter will add no more than 25 per cent on to the cost of the set.

Thirty-year-old Norman Rutherford and Michael Turner designed and built the Telcan unit. They worked for three years in their East Bridgford laboratories developing the unit.

The principle is exactly the same as a standard tape recorder, with instant playback on quarter-inch tape. The maximum spool size is eleven inches, and with a tape speed of 120 ips, it provides a playing time of 15 minutes on each of the two tracks.

Apart from the facility of recording and playing back TV programmes, the Telcan can be used, with a TV receiver and TV camera, as a home cine recorder. The camera for this costs 50 guineas, plus lens. For the home cine enthusiast

it has the advantage of a sound accompaniment.

Mixed feelings were expressed following the debut of the Telcan, the greatest doubts being expressed about the quality of the picture. Using an improved tape might raise the quality, which is described as "entertainment standard for home viewers."

One of the main snags is of course the speed which restricts the playing time available, only fifteen minutes before having to change the tape. Another snag will be the complexities of copyright. The cost of recording is said to be in the region of 6s. a minute.

Once the machine becomes generally obtainable a feast of possibilities will be available. Its ability to playback pre-recorded tapes will enable "canned" West End shows, opera, ballet, films and educational programmes for home use. It will also overcome the present delay regarding Pay TV, in that Telcan programmes can be distributed by post or over the counter instead of being transmitted.

Home videotape is not now such a far-off dream. A recent report from New York states that the Armour Research Foundation is working on the problem, and Sony have announced a transistorised portable professional videotape recorder modified for home use. The price could be in the region of £200-£400.

R.C.A. demonstrated such a unit a few years ago, and reports that "it is still in the development stage." The problem seems to be the same as for the Telcan unit, of how to reduce the tape speed for home use.

being mere transitory talk and entertainment.

Local legends make suitable group productions, especially if they are dramatised. These can include ghost stories; former communities and their varying domestic ways, from the Stone Age to a Victorian Sunday; and the questioning of a local personality like the parson, policeman or paper-boy. These are all within the capabilities of even junior children.

A skilful interview by the class teacher can yield treasures of inestimable worth. From Africa, for instance, came the recollections of an aged man who trekked with ox wagons northwards from the Cape. An Arizona teacher brought to life the dull text-book descriptions of a desert environment. His tape included a fascinating description of the attempts of the cactus wren to build six or seven nests as decoys to confuse marauding creatures.

Habitually shy boys and girls can be encouraged to participate by reading from their diaries of home affairs. In this way little gems of description may arise. For instance, one may learn how Mrs. X gives Mother a home "perm"; the rich rewards are made known of gathering wild mushrooms and selling them in town; or maybe the gamekeeper's son has collected plover's eggs for Lord Y. Lastly, there may be a vividly painful narrative of the night a pet dog came home injured, and of how no one heard it at the door except the brave little ten-year-old who dressed and came downstairs to give first-aid.

One tape a term is usually sufficient if this vital mode of learning and teaching is not to be worn out by over-familiarity. The anticipation of a tape from afar should be seized and well worked up by the teacher, in order to build up a keen interest and useful background for what is to come.

If the result is a disappointment then let it be taken in the stride and be made an object of intensive criticism from the young "connoisseurs". Perhaps the microphone was too far off; the enunciation may have been weak; the subject matter may have been unsuitable or too text-bookish; or it could have been simply the product of uninspired planning. Whatever the case may be, then, "Let us go to it, and show them how really to do a good job!"

People young and old never tire of teaching others when they feel they know better!

TAPE IN A MARIONETTE THEATRE

By Roger Stevenson

"STAND by studio, recording in ten seconds from now, watch for light." The words came over the headphones to me from the recording engineer in the other room. Recording was in progress for my first play, "Hansel and Gretel," an adaptation by Eric Bramall from the original fairy tale by the brothers Grimm, for use in my Marionette Theatre.

I had been drawing up plans for the play for several months, and up to three weeks before the recording day I had worked on the effects tape which would be "mixed" with the main tape. This was my first full-length play, designed to run for just over twenty minutes when completed. There were several difficulties, especially on the recording set-up and during the actual recording, as in the first "take" I had to get the actors to leave time gaps for puppet movements.

A colleague co-operated with me on the actual recording, and we used a Ferrograph to play the effects tape, a "Cadenza" ribbon microphone on a floor-stand, complete with a thirty-foot length of cable to pick up the actors' voices in the studio, and a Simon S.P.4 automatic recorder (which has a built-in mixer) to record the final tape.

The evening before recording, the equipment was set up and tested. Two rooms were used, one containing the equipment and the other (let us call it the studio) contained the microphone and cast. A second microphone was placed in the equipment room and connected to an independent amplifier and then to headphones which I wore in the studio; I could thus hear the engineer's remarks and also the recorded signal coming through the internal speakers of the "Simon." A light placed on the microphone stand in the studio was operated from the engineer's room to indicate to the actors when recording was in progress.

At one stage we needed to record thunder. A very large thunder sheet was erected in the hall—the only place in the house where the sheet could be hung—and we proceeded to record, placing the microphone just in front of the sheet. The recorded sound was rather high-pitched and did not possess a true likeness to thunder. But recorded at 7½ ips and played back at 3¼ ips it sounded much more realistic—although it still did not compare with the electronic thunder used in such films as "The Robe" and "Ben Hur."

Other effects needed were rushing wind and bird-song for a woodland glade sequence. The bird-song at first proved to be quite difficult; neither my colleagues nor I are in the same class as Percy Edwards. We tried recording at 7½ ips, both of us round the microphone, whistling various notes, but the best results we found were secured by recording at 3¼ ips and playing back at 7½ ips.

When the final recording session took place, we decided to make two "takes," one with effects mixed with the microphone, and the other of the microphone by itself suitable for later addition of the effects.

When the actors arrived, we had several run-throughs in the studio. The signal was monitored and mixed in the engineer's room.

Then came the "Stand by, Studio, recording in ten seconds, watch for the light."

The two recordings were successfully completed and the tapes are at present awaiting editing and any re-recording that may be necessary.

This recording session proved great fun for the cast and the engineers and we all learned a great deal about the art of tape recording.

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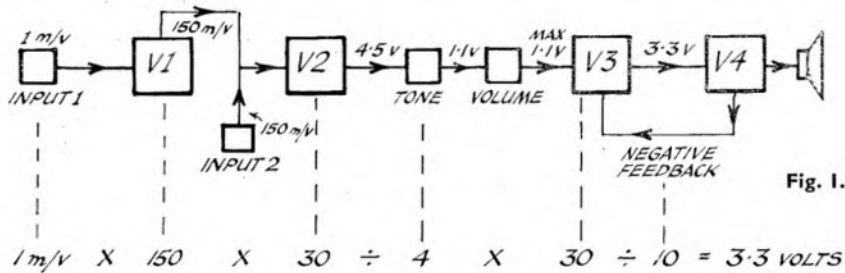
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Designing to a specification

By ROBERT HIRST



THE specifications shown in Table One would satisfy the average domestic listener requiring pleasant reproduction, and it is around these figures that we shall see the problems encountered.

We must first determine the amount of gain or amplification we shall require to change the small input voltage of 1 m/v to a large output wattage (three watts). For simplicity we shall

Tape Exchanges began with the Berlin airlift

By ROBERT COOTE

THE means of personal communication which we now generally know as "Tape Exchanging" owes its origin, strangely enough, to the political situation during 1948 in which the city of Berlin was cut off from the rest of the Western world by the Russians. Civilian mail in and out of Berlin ceased, and many people were cut off from relatives and friends.

One of these affected was John Schirmer, a clerk in the export department of the Webster-Chicago recording equipment firm in America. Concerned with the fate of his mother and sister still in the blockaded city, he sought a way to get a message to them and have word of their welfare.

A rather novel opportunity presented itself to him one day when he saw an order for recording gear to be flown to Germany for a U.S.A.F. pilot engaged on the Berlin air lift. He sent along with the equipment a recording he had made for his relatives, with a request that the pilot locate the Berliners and play the recording over to them.

This favour arranged, the two ladies were so overwhelmed by this new and personal contact that they begged to be allowed to make a return recording, which eventually found its way to Schirmer in Chicago.

The first exchanges of personal recordings were not of course on tape, they

had not been perfected at that time and were not on the domestic market. The messages were continued on bulky reels of steel wire which played through a machine similar in some ways to the modern recorder.

Schirmer, overjoyed at this first exchange, soon realised the potential pleasure that could be gained from the wider exchange of recordings amongst Webcor owners. He managed to persuade his employers to organise and co-ordinate a recording exchange club as a public service to Webcor customers in 1950.

This little organisation, the first of its kind in the world, was known as "The Wirespendence Club." Soon it grew too big for Webcor to handle any more and they were forced to cease its sponsorship entirely.

Members Charles and Melva Owen joined with John Schirmer at this time to save the club and put it on an independent basis based on Noel, Virginia. In July 1953 the club, under its new secretary Charles Owen, was re-named "The Voicospendence Club" to take in the increasing numbers of domestic tape recorders, and it issued its first roster of 169 members—many of whom are still with the club today.

This year, these founder members join with the remainder of the now 1,700 membership in over thirty countries to celebrate the tenth anniversary of the first ever recorded exchange club.

Since that time in 1953 the club has never failed to provide its published services to members. It has never been late with an issue of any of its publications. The ambitious directory, now running to 52 pages, appears each August, and its quarterly supplements of new and dropped members are mailed with the club magazine to all members for no extra charge.

One of the highlights of policy laid down is that all membership listings shall be completely "live" and that quarterly supplements will list members who for some reason or other have dropped membership. There is no fear of not making contacts through out-of-date information. Another strong point of the club is that although it has grown out of all bounds and the secretary is of course completely unable to personally welcome each new member as he did years ago it has not lost the very personal touch. Through a system of District Deputies new members are mailed a "Welcome to Voicospendence" tape by the Deputy in their area. Members in the United Kingdom hear from Skip Shipman in Weymouth when he tells them more about the club and how best to get started and also invites any queries by return tape.

Complete novices have the facility of the newly formed "welcome panel" of established members who, on request, are happy to tape with people new to the hobby helping them with things till they are completely happy to carry on with magnetic friends of their own choice. These are just some of the many services of the club.

Membership of the club is still open to all in the world. The U.K. dues are a token amount of 17s. 6d. per year which may be mailed direct to the U.K. Publicity Chairman, Bob Coote, 27, Royal Oak Road, Bexleyheath, Kent. He will also supply on request more details of the club without any obligation.

TABLE ONE: A satisfactory specification

Output: Three watts, single-ended.
Input sensitivity: One Millivolt.
Signal-to-noise ratio: 50 dB.
Frequency response: 40-12,000 c.p.s. ± 3 dB.

Inputs: One at 1 m/v and one at 150 m/v.
Output: 15 ohms.
Distortion: Better than 3 per cent.
Controls: Bass and treble lift and cut 12 dB.

take as a starting point the amount of voltage required to drive the output valve to give the three watts specified.

Let us assume that this voltage is three volts. If we divide this three volts by 1 m/v, i.e. 1/1,000 volts (the input required), we will arrive at a figure that shows the amount of multiplication that we need to transform the input signal to three volts. Our answer will be 3,000, but as we have losses of 12 dB (four times) in the tone control and losses due to feedback to linearise the output (discussed in an earlier article) of 20 dB (ten times), the total amount of gain required is $3,000 \times 4 \times 10 = 120,000$. Therefore altogether we have to budget for a multiplication of 120,000.

adjust this, at the same time improving frequency response and distortion, or we may find some losses that we had not anticipated. The latter is quite probable.

Having decided upon the valves we have to be careful where we place the volume control, tone controls and insertion of negative feedback. The maximum input voltages that the valves would accept to keep distortion to a reasonable level are V1, 1 volt; V2, 2 volts; V3, 2 volts; and V4, 5 volts.

In **Table Two** some of the simple requirements of tone and volume controls and negative feedback are given.

To illustrate an incorrect positioning of the tone controls let us ignore the feedback between V4 and V3 (**Fig. 1**), and see what would occur were we to

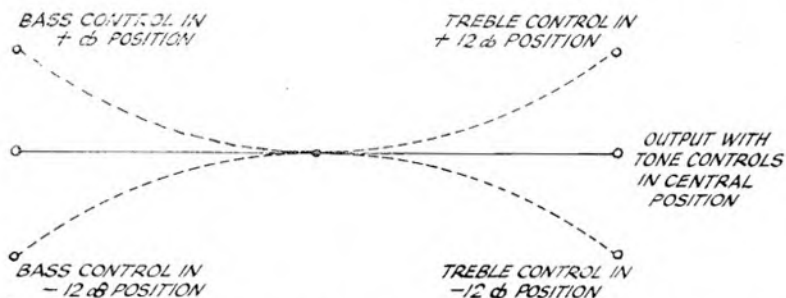


Fig. 2. The tone control system is used as a storeroom releasing or suppressing the lower or higher frequencies

The choice of valves now becomes a problem. If we select two pentode valves we could get a gain of 200 from each one making a total gain of 40,000. This is not enough, so a choice of a pentode and a double triode is made as being the most economical method of achieving what we desire. This arrangement will give a gain of $200 \times 50 \times 50$, equalling 500,000. This amount of gain is available if the valves are used to their capacity but as high note response deteriorates and noise increases when the valve is working flat out, it is advisable to work these valves at a much lower level, that is $150 \times 30 \times 30$, equalling a gain of 135,000 which is the gain approximately required.

We have now killed two birds with one stone. By reducing the gain our high note response has improved and the noise has decreased.

Under these conditions we appear to have a little too much gain. This is good practice, as we can apply a little more feedback over the output stage to

insert the tone controls between these two valves.

The output voltage of V3 for 1 millivolt input at V1 in theory would be 135 volts ($150 \times 30 \times 30$), and the input to the tone controls would be likewise. Of course the valve would have given up the ghost long before this output voltage were reached and so would the listener, having been subjected to a most hideous cacophony. This is not the designers aim in life.

This illustration is drastic but it must

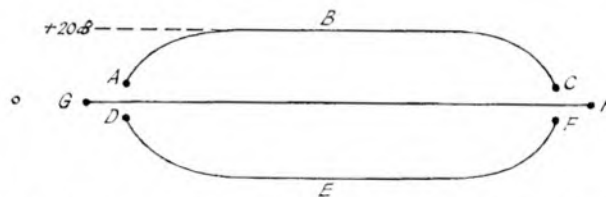


Fig. 3. A-B-C: Original output from output valve; D-E-F: Effective output from V3 with feedback; G-H: Output from V4 with feedback

be realised that even a slight overloading of a valve can cause quite appreciable distortion.

The tone controls should be inserted between V1 and V2 to be ideal but unfortunately the input impedance may cause peculiarities if some types of gramophone pick-up are fed in at Input 2 (**Fig. 1**). Therefore the insertion is made between V2 and V3, the input and output voltages of the circuit are shown. These fall within the limits of **Table One**. The volume control will immediately follow this.

TABLE TWO
Simple Requirements

Tone controls (Passive): Input to be kept low to avoid distortion.

Volume control: To be inserted for Signal-to-noise ratio and amplifier loading.

Negative feedback: Must not be taken over stages incorporating tone or volume controls.

Signal-to-noise ratio is calculated by measuring the full output of the equipment when a signal of 1 m/v is applied to V1 and measuring at the same point when the input voltage has been removed. The first measurement should be three volts approximately at the input to the output valve.

If the second measurement with no input was three volts the answer would be a ratio of 10:1. In our particular case the second measurement should not exceed 0.01 volts to give a ratio of 300:1 or 50 dB as called for by the specification.

Noise consists mainly of two things: hum and a hissing noise. As these two points will require lengthy explanation a later article is devoted to this subject.

Now let us "recap" and see how we have progressed. For an input signal of 1m/v we have an output of three watts, signal-to-noise ratio of 50 dB and bass and treble control as specified.

The bass (low notes) or treble (high notes), are controlled individually. In order to obtain more bass and treble the whole frequency range has to be reduced equally in our case four times so you can consider the tone control system as a storeroom releasing or suppressing the lower or higher frequencies as you increase or decrease the separate controls, as shown in **Fig. 2**.

(Continued on page 21)

More about belts

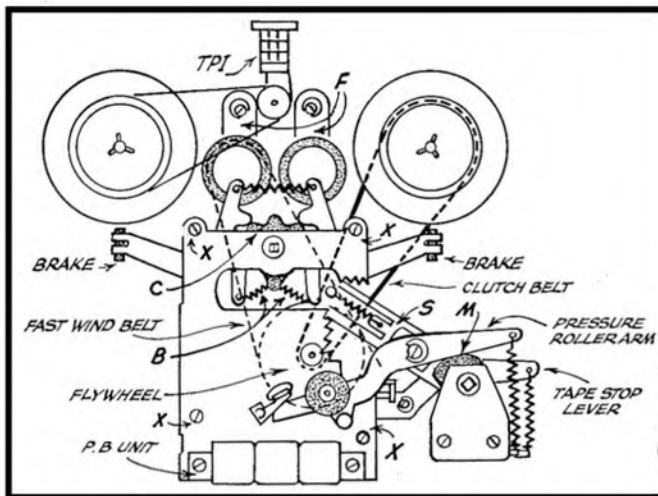


Fig. 1. The Grundig TK5 and 8

SEVERAL interesting suggestions have appeared in recent postbags. None, I am happy to say, were of the unprintable variety. But lack of space prevents more than a brief recap.

There was a rejoinder from B.P., for example, whose problem was touched upon in the November 1962 issue. He had assembled the erase circuit we published and had run into trouble. The fault was mine—I had overlooked the need for numbering the pins on the valve-base.

On the same subject, K.B., Whitefield, sent a very helpful letter in which he first chided me for mentioning the scarcity of published battery erase cir-

cuits, and went on to detail a few. Of course, the gap between the writing of the article and its publication had brought some new heads and transformers on the market, and we were quick to pass K.B.'s remarks along to interested readers. In a future article it is hoped to deal more fully with the problem of converting from magnetic to electro-magnetic erase.

There were one or two requests for rare replacements, usually spare for machines whose makers had long since vanished from the scene. It should be stated here that we are not able to suggest sources for spare parts: partly because these sources are continually changing as supplies run out or are transferred, partly because many of these out-of-production parts can only be ob-

tained through an accredited agent or a radio/audio dealer.

Often, the best way of getting hold of spare parts of this kind is to advertise. A couple of lines in the classified columns will reach other enthusiasts all over the country—indeed, the world. Someone, somewhere, should have the vital items tucked away, or know whence they may be obtained.

This brings us to the point raised by G.M.L. of Glasgow, who said that a page of "Readers' Problems" would be a good idea.

This is, of course, the function of the Service Bureau section. Only the hard economics of publishing make it necessary to paraphrase questions and lump answers together under some sort of loose subject heading. But all questions are dealt with as fully as possible in a private reply, even if the results are not published.

And that is the reason for this article—the title of which has probably caused you to wonder already. Four readers have pummelled me for not giving enough details in my contribution "Belting Up," which came out last October.

"What is the use of telling us to remove the Grundig belt and give it the hot water treatment," asks H.J.H., Balham, "If you don't tell us how to get the darn thing off?"

He's right, you know. When the top cover is removed from a Grundig 5 or 8, the mechanical assembly may well deter an owner who has never attempted to take one to pieces. The clutch and fast wind belts on these models are overlaid by a linkage assembly for winding selection, brakes and clutching. The problem seems to be in knowing what to remove—and when to leave well alone!

So if H.J.H. would care to refer to Fig. 1, he will see the relevant components drawn roughly (not necessarily to scale), and the procedure for removal of both belts is as follows.

First, set the selector switch to *Off*. Remove the pressure roller arm by releasing the spring at its right-hand end, taking off the circlip on the pivot mounting and lifting the complete arm away, with roller and head pressure pad.

Next, take out the two screws that secure the press button switch unit, and move the whole unit toward you about a half-inch, just clear of the baseplate, which has to be removed next. Take out the four screws marked X in Fig. 1. Then, using both hands together, hold the baseplate near its upper edge and ease

Have recorder— am travelling!

By S. M. WHEATLEY

SINCE my last Notebook appeared I have left behind the green shores of England for the warmer climate of Southern Rhodesia.

One of my main considerations during the packing procedure was the type of recording equipment I would want during my stay. I had a Fi-Cord 1A, but I wished to have a machine that would provide a longer playing time, and with mains power facilities. The £300 transistorised Nagra had to be discounted on financial grounds. After much searching, I settled on the successor to the 1A—the Fi-Cord 202.

Now I have used it a great deal, I feel it is just the job for a professional or amateur recordist on such a trip as this. Using long-play tape, I have twelve minutes' unbroken running time on the four-inch reels (using only one of the two tracks). I like the fast rewind facilities, although this does tend to be very heavy on the Mercury battery. I had decided my accessories would in-

clude a microphone extension lead (16 ft.) with plug and socket; an adaptor for 600 ohms lines to feed and record over land line; a recording lead for use with pick-up or hi-fi receiver; and another lead attenuated for use where it is necessary to have a useful range on the recorder gain control. All these leads have Bulgin miniature plugs fitted, as does the lightweight headset, which also has a volume control that secures to a lapel button-hole for easy reach in operation. This is a handy accessory when monitoring.

Other additions were spare Mercury batteries. These are neatly made up in plastic jackets ready for easy insertion into the 202's battery compartments. All of these items are made by the West German Beyer company. I decided on BASF four-inch reels of LP tape. These, like the other items, are packed in plastic bags within their cardboard swivel-type boxes with plenty of room for logging recordings.

In the circumstances I expected to meet, one must be prepared for all eventualities, and assume that other

(Continued on page 25)

More about belts

By HARRY MACK

off the brakes with the third finger of each hand. The pivot action will free the cam followers from the cam C. Then the whole plate may be lifted slightly and swung up and over to the right, to the extent of the connecting leads of the sound channel unit. Take care not to damage these leads.

Now we can take off the TPI belt and transfer our attentions to the fast wind levers, F in Fig. 1. Remove the circlips at their upper pivot and raise them both slightly.

At this point it is as well to mention that if you are only interested in the fast wind belt, you may remove it with no further dismantling, from the lower part of the fast wind pulley on the left. But to remove the pulleys altogether a little sleight-of-hand is required. The lower end of each pulley lever is anchored by a spring B to the cam assembly. It is possible to raise both the idlers and this cam assembly complete, but the action of the springs tends to draw the levers across and make things difficult.

If these two springs are to be released, proceed with caution, for the anchorage is easily damaged. When the complete assembly has been removed, put it carefully beside the machine to note its position for the rebuilding operation. (An obvious remark, but a lot of frustration can be saved by this simple precaution).

Return now to the selector switch. Remove the two screws holding the bracket and the spring at the right which goes to the tape stop lever. Take off the cam M, which is fitted on the switch spindle. Don't forget to note its position on the square spindle—most peculiar faults can result from this being re-assembled backwards!

Next, the interlocking slide bar S has to be removed. Note the spring which lies in the slot in the middle of this lever. This can be unhooked from either end, but to make work easier, it may be more useful to unscrew the anchor pillar altogether and set this spring aside. Then the slide lever can be withdrawn easily. All that remains is to remove the circlip of the tape stop lever and release it. Now the belts are both easily accessible.

Reassembly should be in exact reverse order to the above, with special attention to the placing of the selector cam, the fitting of the slide spring and the anchoring of the two springs at the bottom of the fast wind levers. And, again, care with the leads when the baseplate is returned to its original position.

A simpler mechanism that employs both belt and idler wheel drive, in a very different way, is the Ferguson tape deck

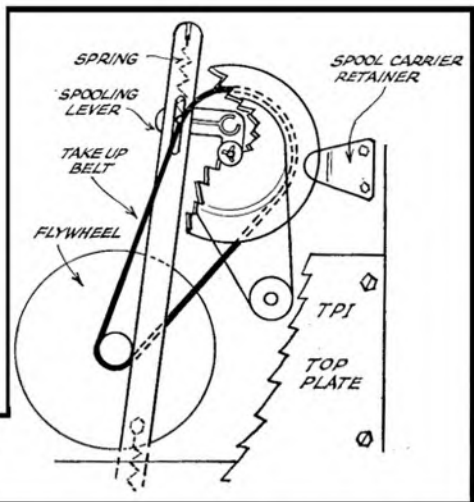


Fig. 2. Part of the Ferguson FTD3

FTD3. This was used, in its original version, in the model 3200 tape recorder, a single-speed half-track machine, of modest price but excellent performance, since superseded by the 3202, which uses the FTD4 deck. This has an additional cam and bracket assembly which engages the idler wheel with a reduced step on the motor pulley for a tape speed of 1½ ips. Four-track working is also incorporated, and two solenoids are added, for Remote control, Pause and Automatic Stop. But basically, the mechanism is the same, and the take-up belt layout is as shown in Fig. 2.

This is in answer to a query by reader T.M.F. of Hull, who wants to know if it is necessary to strip the mechanism "right down to the bone" in order to change the belt.

The task is not so formidable as it first appears. The head assembly, with its associated pinch roller and pressure pad mechanism, tape position indicator,

together with the switching and the spooling link levers lifts away as a complete unit. The procedure for dismantling is as follows:—

First remove the TPI belt, then the spool carriers, which are only held in place by the two retaining angle brackets, each fixed with two screws to the side members.

The left-hand side has a clutch disc, held by a circlip, and the right-hand side has the take-up pulley, around which the belt is fed. Remove these two items, leaving the belt lying slack.

Now the spool carrier brackets will be seen, with the long spooling levers attached to the inner angle by a circlip and a spring. Remove the circlips and gently disengage the springs from the ends of the levers, allowing them to lie on the baseplate.

It is now possible to take off the whole top-plate assembly, which is held by ten screws. If you want to lay it aside altogether, disconnect the leads to the heads at the amplifier end, making a note of the connections. Then take out the six screws holding the top of the plate to the main structure. (Note that the pause brake pivot screw should not be disturbed—the fixing screw is just to the operator's side of the brake lever).

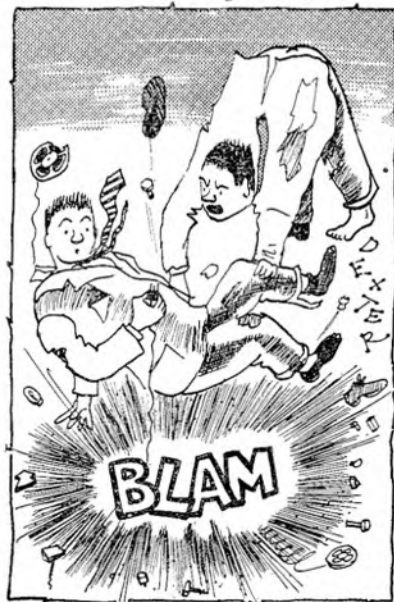
The final four screws will be found beneath the deck, holding the angle brackets to the base plate. Do not remove the two screws with spacers and grommets that will be seen at each side of the press-key assembly, above the deck. If these are slackened, you may be faced with the task of latch adjustment. (N.B.—Screw at middle of latch plate should be adjusted until plate clears the bottom edge of the keys by 0.02 inches).

When removing this top-plate, lift gently vertically so that the seal ring slides off the capstan spindle. Replace it with equal care. The flywheel is self-aligning and the four screws of the bottom bearing should not be adjusted except as a last resort.

At this stage, the belt may be removed, but note that when the top plate was withdrawn, the right-hand of the two spooling levers lay within the loop of the belt, as shown in Fig. 2. It is most important, when re-assembling, to ensure that the belt goes under at the front and over at the rear.

Tape Titter

By DEXTER



"Now you know why we don't plug into that socket."

Tape records reviewed

Two of CLASSICS Haydn's earlier symphonies



By Edward Greenfield

HAYDN. Symphony No. 45, "Farewell"; South-West German Chamber Orchestra conducted by Friedrich Tilegant. Symphony No. 73, "The Hunt"; West German Mozart Orchestra Conducted by Walter Schulten. W.R.C. (TT 206), 3 1/2 ips, mono. 29s.

Haydn's last dozen symphonies, written on his visits to London, have long tended to overshadow the rest. Admittedly they are his greatest works in this form, but many of the earlier ones like these are equally striking and memorable. These two are both splendid examples, full of the profound contentment that came to Haydn in his long years as music master on Count Esterhazy's Hungarian estate. No. 45 has tended to escape the general neglect through the fame of the story of its composition.

Count Esterhazy had not given his musicians a holiday for a long time, and Haydn in this symphony provided the broadest of hints to their noble master. One by one in the final slow movement (an original idea at that time) the musicians stopped playing, they put out their candles and left, till finally only one or two violins remained.

Even without the story it would be a fine symphony. No. 73 "The Hunt" or as it is often called in French "La Chasse" is equally attractive. Neither of the two German chamber orchestras playing here is specially delicate or pointed in its playing, but there is the right Haydn spirit of gallumphing enjoyment, and we can be fairly sure that these are infinitely more polished performances than the original ones at Esterhazy.

Certainly with the primitive horns of Haydn's day it hardly bears thinking how the players coped with the hunting calls of the exhilarating 6/8 finale of "La Chasse." The recording is very clear and with good range, but in the finale of No. 45 there is a complete break of a second or so—limited I hope to my copy.

JOHANN STRAUSS. Die Fledermaus Overture; Pizzicato Polka; Blue Danube; Emperor Waltz; Perpetuum Mobile; Tales from the Vienna Woods. Musical Arts Symphony Orchestra conducted by Leonard Sorkin. Saga (STG 8081), 3 1/2 ips, mono. 32s. 6d.

Six of Strauss's most justly popular works played most efficiently. I am not sure what exactly the Musical Arts Symphony Orchestra is, but plainly these American musicians make a highly skilled group which Sorkin controls with precision. In the Pizzicato Polka for example not only is the chording of the plucked strings very accurate but the fluctuations of tempo are well drilled.

All the same these are far from Viennese performances, and it is disappointing to have such unatmospheric playing for the slow opening and close of "Blue Danube." The recording is rather restricted in range.

This tape POPULAR will be quite historic



By Don Wedge

CHRIS BARBER AND LONNIE DONEGAN. The Chris Barber Jazz Band. Saga (STG 8063), 3 1/2 ips, mono. 32s. 6d.

The Colyer musicians were not completely happy striving for authenticity. They wanted to be more creative though remain in the traditional idiom.

Early in 1954 they all left him and formed the Barber band. Pat Halcox was brought in to replace trumpeter Colyer. This record is of the new band's early work. It is rough but much more swinging.

Part of it was recorded at a concert and both Barber and the band's banjoist, Lonnie Donegan, are heard talking.

Donegan in fact introduces two work songs, *Over in the New Burying Ground* and *Leaving Blues*, which must have been the first skiffle numbers to be recorded in this country. Lonnie's skiffle took first the band and then himself to international fame.

Of course both these records are more important for their historic value than the quality of the performance.

GEORGE CHAKIRIS SINGS GERSHWIN. London Variety Theatre Orchestra directed by Norman Stenfalt and the Alan Clare Quintet. Saga (STG 8093), 3 1/2 ips, mono. 32s. 6d.

When George Chakiris was in London for the stage version of "West Side Story," he made this record for Saga. His subsequent rapid climb to stardom, largely through the film version of "West Side Story" has given this record a new interest.

He had not developed fully at the time of this record. His singing has too much of the actor's wobble about it—a slight touch of the Noel Cowards in fact. His caressing, usually tenor voice is too often suspect. Throughout, it is most unlike that of the young thug he played in "West Side Story."

Most of the George Gershwin songs recorded are well known. He gives them some freshness by including the intro-

ductory verses in most cases. He is not well served for accompaniment.

Again this is a record rather more important for its historic interest in following the career of someone who will probably be one of the screen's biggest stars in the next decade.

NAT KING COLE SINGS, GEORGE SHEARING PLAYS with the Shearing Quintet and String Choir. Capitol (TA-W 1675), 3 1/2 ips, mono. 38s.

Nat Cole and George Shearing are well represented in the tape catalogues. This is the first record, however, on which they are teamed. It is a brilliant combination.

Nat Cole's velvet voice goes well with the satin smooth jazz of Shearing. The songs are excellently chosen with some good recent ones included in addition to standards.

In the former category the best is probably *Fly Me to the Moon* the "national anthem" of the Bossa Nova movement. In the latter, there is the revival of one of Cole's earlier successes *There's a Lull in My Life*.

The Shearing-Cole combination is well known from the top twenty success of "Let there be Love" which was taken from the album for issue as a single disc.

With E.M.I.'s large catalogue of LPs to draw on, obviously only the best are issued in tape form. The standard, therefore, is always high. This record is at the very top.

"SUMMER HOLIDAY" SOUND-TRACK. Cliff Richard and the Shadows with Grazina Frame, Michael Sammes Singers, Orchestra conducted by Stanley Black and Norrie Paramour. Capitol (TA-33SX 1472), 3 1/2 ips, mono. 35s.

The tremendous success of the "Summer Holiday" film is well known. It produced four hits for Richard and the Shadows, but in this long extract from the sound track it shows that there is much good music in the film which was not aimed for the hit parade.

The Peter Myers-Ronnie Cass song *Seven Days to a Holiday*, done brilliantly on the screen, stands up on its own as a very good situation number. *A Swingin' Affair*, a duet for Richard and Grazina Frame (honestly credited as vocal ghost for the leading lady, Laurie Peters) makes good listening.

This record will be bought mainly by or for teenagers, of course. However, when it is played I suspect that quite a lot of older people will get great enjoyment from it. It is first class.

THE MODERN JAZZ ORCHESTRA FEATURING KENNY DREW. WRC (TT 211), 3 1/2 ips, mono. 29s.

Good modern jazz is played by this orchestra made up of instrumentalists whose names are quite unfamiliar to me. The label copy says it features pianist Kenny Drew though little is heard of him as a soloist.

All the compositions seem to be originals and the whole record has an air of freshness about it.

The sound could be most closely related to the Johnny Dankworth Orchestra in its quieter moments.

Therefore, the record is quite suitable for background music and is worth a listen for all those interested in the expansion of big band modern jazz.

TRADITIONAL JAZZ WITH KEN COLYER'S JAZZMEN. Saga (STG 8070), 3½ ips, mono. 32s. 6d.

Ten years ago, before the trade boom brought fame to Acker Bilk, Kenny Ball, etc., Ken Colyer was the instigator of a notable revival in British traditional jazz. Authenticity was his aim.

His devotion brought a new following and a new interest. This record was made at this period.

Colyer's main driving force was the marching bands of New Orleans, so often at their best in funeral parades.

His music is heavy and often solemn. *A Closer Walk* which ends track one is so depressing it is brilliant!

Even on *Tiger Rag* and *My Bucket's Got a Hole in It*, soulfulness comes through the brightness. Towards the end of the record on *Gentofte Blues* the band is recorded without Colyer himself. There is a notable difference in this approach. It is much brighter and lighter.

* * *

The tapes reviewed this month are issued by the following companies:

"Capitol," E.M.I. Records Ltd., 20, Manchester Square, London, W.1.

"Saga," Saga Records Ltd., 127, Kensal Road, London, W.10.

"W.R.C.," World Record Club, Box 11, Parkbridge House, The Little Green, Richmond, Surrey.

Designing to a specification

(Continued from page 17)

Finally we will investigate the frequency response. As you will remember we have taken into account most of the treble losses in the earlier stages. Let us now concentrate on the output valve and transformer where most of the trouble occurs.

It is essential that the volume of all the respective notes emanating from the amplifier is equal. However, output transformers of an economical commercial variety tend to give more output at the middle frequencies (Fig. 3, line A-B-C). In order to remedy this a sample of the output of V4 is taken and fed back to V3 (Fig. 1), the rule being that the greater the feedback, the less output from V3. So the middle notes, having the largest output, therefore giving the most feedback, would cause V3 to reduce in output (Fig. 3, line D-E-F). The overall output G-H being the difference between lines A-B-C and D-E-F. Feedback also reduces the distortion in the output stage, the more feedback the less the distortion.

This is only part of the story as all the points mentioned have a direct bearing on each other. As one is altered to achieve one result, what can happen elsewhere is anyone's business. Although designs get better and better results as the years go by, let us not forget the commercial designer who, apart from the electronic complications, has to bear in mind the economics of his design.

Alan Edward Beeby's

TAPE TALK

LAST November, a scheme was put forward in this magazine by which specially-nominated blind, crippled and other handicapped folk were to have been awarded a monthly "Oscar-on-Tape," contributed jointly by the Editor of *TAPE* and comedian, Charlie Chester.

Unhappily, despite two separate appeals for nominations, *only one* reply was received, and the scheme had to be dropped in consequence. To put it mildly, I was disappointed at the lack of support—and, at the same time, puzzled. Is it possible, I asked myself, that among the many thousands of *TAPE* readers, there was not more than one person who knew of a deserving home or hospital-patient to whom an award of this sort would have brought pleasure? I'm sorry, but I just can't believe that—it's ridiculous. Which, of course, forced me to the conclusion that the lack of response must have been due to sheer apathy. It's a nasty word, I know, but what else can you put it down to?

I'm not trying to pretend that it's the one and only charitable appeal that's ever gone off at half cock—it isn't. It's simply that I just don't get it. I don't get it at all.

* * *

FROM time to time, people ask me: "Which, in your experience, is the best tape recorder ever produced?" I'll tell you. It was a Philips model, released, I believe, around 1953-4. An "upright" item, 3½ ips, magic-eye tuner, six-inch spools, brown-leatherette case, priced at 77 guineas—and a little smasher!

There was nothing fancy, special or gimmicky about it; it was simply a first-rate piece of straightforward, common-sense equipment, which did a darn good job, and did it well. I must confess I have a long-standing, sentimental attachment for this particular recorder, since it was the first one I ever worked; but, though I personally hold Philips in the highest regard in the field of hi-fi, they have never—in my opinion, at least—produced another machine to beat this one for sheer delightful simplicity of design and performance.

Don't get me wrong—it's a smart firm that can outstrip Philips these days for value, reliability and after-sales service. It's just that I sometimes wish that one of their backroom-boys would take out an old brochure from the files, look at it and say: "You know . . . *this* was a smart, little job we did way-back. I wonder if we could possibly . . ."

I often wonder, too. How about it, Philips?

* * *

MY recent note on the subject of love-tapes (as opposed to love-letters) brought an amusing reply from

Charles Towers, secretary of World Wide Tape Talk.

Commented Mr. Towers: "There *are* such things as love-tapes. In fact, woovers on tape are a "wow," causing many a heart to "flutter," and when this happens, the tape is not the only thing that may get "spliced"! Our organisation is not essentially a marriage-bureau—nor do we ever intend to be one. But friendship is our business, and if friendship blossoms into romance . . . well, that's up to the two individuals concerned. And, after all, "magnetic" does mean "attraction," does it not . . .?"

* * *

"TAPE-TALENT" DEPARTMENT:

I have some advice to offer to any talent-scout who may be reading this column. It is this: "When you've finished signing-up guitar-bashing, hollering teenagers with about as much talent as a mentally-retarded orang-utan, take time out to pay a visit to young Maurice Cole who lives in Seaforth, Liverpool, 21. Take him back to the recording-studio, provide him with a tape-recorder, a record transcription deck, a pile of records of his own choice and an editing-block. Then leave him to it. Don't try to direct, produce or stage-manage him—just leave him alone to get on with it. You'll have quite a pleasant surprise."

How do I know about Mr. Cole? He was among the readers who responded to my recent invitation to "send me a tape." What makes me think he has talent? My 16-years as a semi-professional variety-producer—and it takes one hell of a lot to make me sit up and beg for more!

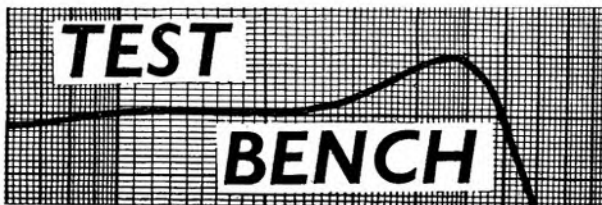
Mr. Cole just talks and plays records. Doesn't sound very original, does it? It isn't—until Maurice takes over the D.J. chair. It's difficult to describe his style, but if you've ever watched and listened to Timothy Birdsall (TWTWTW's mad-cap cartoonist), you may get some idea.

In my humble opinion, he's well worth a spot on "Sound." ARE YOU TAKING THIS DOWN, BBC?

* * *

NEW neighbours moved in recently. Father, Mother and Daughter. Daughter's nice. Twenty-one, dark hair, brown eyes, and a figure that makes Jayne Mansfield look like a drainpipe with malnutrition. Bumped into her quite by accident after digging the garden for two hours during a snow-storm. "Hello," she said. "Hel-lo!" I said. Started chatting, got on to the subject of tape recording and told her all about it. "How absolutely fascinating," quoth she, and leaned forward on the wall, breathing deeply. "Perhaps I could come round and see your equipment one evening?"

Time was when the password was "etchings"



PHILIPS EL3534

By Alan Beutement

AFTER one has reviewed a number of tape recorders, they tend to seem monotonous or stereotyped, both in build and performance, so one begins to wish for something different. Well, this one is. Although not so different in appearance, in performance, I must say here and now, it is outstanding. So much so, that yours truly, who has heard a goodly number of recorders, sat up swiftly and took notice. However, more details will come later. First, let's examine the animal which produced such resurgence of enthusiasm.

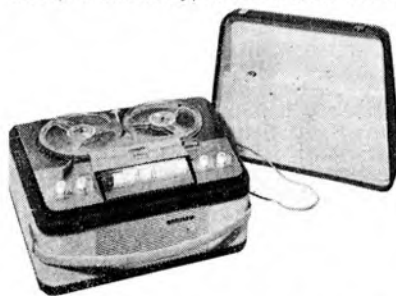
The EL3534 is a mains-operated, fully-transistorised, four-speed, four-track, mono or stereo device, complete with replay amplifiers and loudspeakers for both stereo channels, the whole weighing about 36 lb. It is contained in a two-tone grey, PVC-finished wooden case, with chromium-plated fittings and a strong plastic carrying handle, (not removable), across the front. The size, in carrying order, being 18½ inches wide, 10½ inches high and 15½ inches deep.

The 4½ inches deep lid is detachable and contains a six-inch diameter loudspeaker, and a 24 ft. lead, (stowed in a compartment at the left of the baffle), allowing more-than-ample loudspeaker spacing for stereo reproduction. The other loudspeaker is a 7 x 5-inch elliptical in the front of the case.

A plastic cover on the rear of the case gives access to a compartment in which the input and output sockets are located. This provides stowage for spare cables and the 8 ft. mains lead. (The colours of the wires follow standard British practice—mains, red and black; earth, green.) The recorder operates on voltages of 110, 127 and 200 to 250, at 50 or 60 cps, and consumes approximately 60 watts. The actual consumption depends upon the signal level—more signal, more watts—a characteristic of all transistorised equipment. The mains voltage adjuster is easily accessible beneath the case.

The machine is supplied with a seven-inch spool of tape; a spare seven-inch spool; a stereo microphone, in a grey plastic case, with removable tripod desk stand and a 16 ft. lead and plug. The microphone case contains two moving-coil units, one above the other, with the axes angled at ninety degrees. Also supplied are a 6 ft., four-core lead with a five-pin plug at each end; a 6 ft., four-core lead with a five-pin plug at one

end only; and a profusely illustrated handbook, which not only describes the use of the particular recorder, but also contains simple explanations of recording principles, useful tips on making good recordings and other helpful items. It makes all operations and connections quite clear and gives pin numbers for each socket, so that other plugs may be wired, as necessary, to one's own access-



ories. (Very good. Some handbooks lack this information and make a hit-or-miss procedure necessary.)

So, having described what it consists of, let's now take a look at what it does and how it does it.

DECK AND CONTROLS

The deck layout is convenient and attractive, the rear portion being finished in a dark grey wrinkle enamel and the front portion in matt silver and chromium. The most commonly used controls are grouped together in front of the head cover and push-button operated.

The drive is provided by a single motor, of generous proportions, which is coupled to the spool spindles and a massive capstan flywheel—(it runs for 2½ minutes after switching off!)—through a system of rubber idler wheels and belts, all wheels being disengaged when the tape is stationary. The maximum spool size is seven inches, and an illuminated digital tape position indicator is mounted between the spools, at an angle which provides easy reading.

In front of the detachable head covers is a recording level meter, which operates in the usual manner on mono and indicates, simultaneously, both track levels on stereo. The level can be adjusted before starting the tape.

A rotary switch, below the take-up spool, selects speeds of 15/16, 1½, 3½ or 7½ ips. An "Off" position is provided between each speed change, and, as the recorder is transistorised, it is ready for use the moment any speed is selected, (but don't forget that the capstan must reach a steady speed before starting the tape, or a slurring start results.) Below this switch are controls for microphone and radio/phono record level, which provide mixing of the two inputs, as required.

A four-position switch below the feed spool selects either tracks 1 and 4, 2 and 3, (for mono, when the usual reel inversion procedure is used), stereo, and PA. In the last position, all inputs are connected directly to the replay amplifiers, so that the recorder may be used as a straight audio amplifier for public address, record player, or tuner amplification. Concentric with the switch spindle is a balance control for stereo. Below this switch are controls for playback volume and tone, the latter also being operative on the PA switch position.

In line across the centre front are push-buttons for stop, fast forward, fast rewind (1,800 ft. in three minutes), play, pause, record (depressed alone to set level and with "play" to start the tape) and multiplay. The latter enables the operator to transfer recordings from track to track whilst adding additional material from outside sources, the procedure being repeatable *ad infinitum!*

Tape is loaded through a straight slot between the two head covers, where it is guided from the spools by two pillars. These pillars are also switches for the automatic stop system, which comes into operation when metal foil is added to the ends of the tape.

It consists of a relay, mounted on a pivoted arm in such a manner that, when the "Play" or "Fast wind" buttons are depressed, it swings over the rim of the flywheel. When the foil reaches either switch, the relay is actuated and pulls the tip of the arm downwards, where it engages with a spiral slot in the flywheel. Centrifugal action throws it outwards and upwards, so that it strikes the locking bar on the bank of push-buttons and returns everything to "Off." The resultant "clang" is rather startling the first time it is heard.

One pressure pad holds the tape against the first switch pillar; another holds it against the record/play-back head, which is housed in a section of mumetal to complete the head-screening on record or playback. The tape is lifted clear of the heads on fast wind so that wear is kept to a minimum. Little more need be said about the controls, except that a foot switch is available as an accessory and this overrides the internal "pause" control. All rotary controls are smooth without stiffness and switches are positive, although only moderate pressure is needed for their operation, the "stop" button action being particularly light for immediate response. Braking is positive and tape spillage nil.

CONNECTIONS AND AMPLIFIERS

Three signal inputs are provided. These are all dual-channel for stereo recording, and have characteristics as follows:—Microphone: (five-pin round socket), input impedance, 1,000 ohms and sensitivity 1.0 mV; Diode: (five-pin round socket), for recording from radio, ext. amplifiers or another tape recorder. Input impedance, 20 K Ohms and sensitivity 3.0 mV; Record player: (two sockets—five-pin round and five-pin flat). Input impedance, 0.5 M Ohms and sensitivity 150 mV.

There are outputs for two 3-7 ohms external loudspeakers, (the internal one being silenced when an external is connected to the left channel socket), and

a five-pin socket for headphones and outputs from the diode socket, to external amplifiers. The headphone output is 200 mV at 1,500 ohms, (dual channel), and the signal for external amplifiers is 1.0 volt at 20 K ohms, on each channel. The headphone connection can be used for monitoring during recording, or this can be done using the loudspeakers, subject to the usual warning regarding feedback when recording from a microphone.

Each amplifier uses eight transistors, the OC26 output transistors giving three watts per channel paralleled on mono; an OC79 is used, in addition, as a common bias/erase oscillator. The frequency response of the system overall covers from 60-16,000 cps at $7\frac{1}{2}$ and $3\frac{1}{2}$ ips, cutting to 10,000 cps at $1\frac{1}{2}$ ips, and 4,500 cps at 15/16 ips—all ± 3 dB. Hum is virtually non-existent and the signal-to-noise ratio is better than 40 dB.

DC supplies for the amplifiers are obtained from a transformer/contact-cooled metal rectifier combination, which should provide a long, trouble-free life. Apart from the output stages, which are assembled on the main chassis, to provide heat sinks for the transistors, most of the circuitry is of the printed circuit type and this contributes largely to the compactness and rigidity of the assembly. The recorder is easily accessible for servicing through removable covers on the bottom of the case. In fact, the accessibility overall is of a high order. Removal of the "top hamper" is very simple, due to the use of press-on knobs for rotary controls and the fact that there is no need to remove the push-button knobs to remove the top cover plates.

OPERATION AND PERFORMANCE

Although this recorder provides a wide variety of facilities, operation is quite straightforward, and even a newcomer would have little difficulty in operating it, thanks largely to the clarity of the instruction book and the logical layout of the controls. The reviewer's twelve-year-old son, on whom all recorders are tried out for ease of operation, was handling it competently (under close supervision!), after a very short time—and I know the story of the man who wanted a recorder that his children *couldn't* operate!

Recordings were made from radio, gram and microphone, all with satisfactory results, but the most impressive performance was the remarkably fine sound that was produced from professionally made stereo tapes. Even the internal loudspeakers, which, obviously, lack real bass and tend to sound "toppy," because of their small size, nevertheless produced a very pleasant effect with a suitable setting of the tone control. In this condition, the recorder was demonstrated to a number of the author's technical colleagues, and all agreed that the results were far better than they had expected.

The real test came when the recorder was connected to two external L.S. systems switchable for 8 or 15 ohms. The right channel assembly was a twelve-inch bass unit, reflex loaded; a 13 x 8 inch, high-flux, mid-range unit and two horn-loaded three-inch tweeters, with full-section crossovers. Left channel was a twelve-inch bass unit, six-inch round mid-range and a $2\frac{1}{2}$ -inch tweeter in a more-or-less standard reflex enclosure,

with simple half-section crossover. Just to give some idea of what reproduction is expected of a good recorder.

All expectations were exceeded. The amplifiers in this machine must have the most conservatively rated three watts output in the business. The volume, without distortion, sounded more like any standard hi-fi stereo amplifier of much higher rating and the quality, in my judgment, as good as, or better than, most so-called hi-fi amplifiers. Most users would certainly find that external amplifiers would be quite unnecessary, only good loudspeakers being needed to give real hi-fi performance. Neither 8 or 15 ohm connections seem to bother the output stages—quality is first-class for both.

Wow and flutter were undetectable and hum and noise negligible, as also was crosstalk between channels. In fact, the whole thing worked like a charm and if the review sounds like a film-maker's description of his latest super epic, it's because it results from the pleasure induced by extensive handling of a fine recorder. Admittedly, one expects something special at such a price—but one doesn't always get it! There's value for money in this one.

However, even idols have feet of clay, or an Achilles' heel, or something. My own sorrow about this one is the use of a common record level meter for both channels, on stereo. If an overload is indicated, it has usually gone by the time the channel has been identified. Fortunately, most overloads are only momentary, so long as the original level-setting has been carried out carefully, so the complaint isn't serious, but it would be helpful to have two meters, even so.

In view of the plethora of functions and facilities incorporated in this machine, we'll skip the usual summarised specification, which would almost duplicate the article and just say that it is a recorder that anyone, including your reviewer, would be proud to own—and I can't give higher praise than that!

BUTOBA MT7

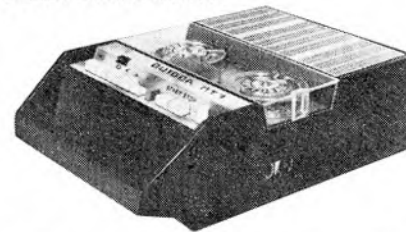
By H. Burrell Hadden

THE Butoba MT7 is a small battery-operated tape recorder, made by one of the oldest manufacturers in this field. It is elegantly styled in the modern manner, is light in weight and eminently portable. An excellent leather case with a shoulder strap is available as an accessory, and the workmanship of the machine and all its accessories is of a very high standard.

The machine can be operated by four dry batteries of the "U2" type. If used intermittently a battery life of some ten to twelve hours is available. A rechargeable dry accumulator is available, together with its charging unit for operation from the mains, and with this accumulator the machine can be run continuously for up to ten hours. A

special lead is available for operation from a car battery. Also supplied is a mains converter unit of such small size and dimensions that it fits very conveniently into the battery compartment.

The MT7 records at two tape speeds, $3\frac{1}{2}$ and $1\frac{1}{2}$ ips, and will accept a three-inch reel. With triple play tape, this will give a maximum recording time of twice 44 minutes at $1\frac{1}{2}$ ips, or twice 20 minutes at $3\frac{1}{2}$ ips. Fast forward and rewind are provided, and the whole operation of the tape transport mechanism is by means of a comprehensive set of push buttons. There are no other controls apart from these push buttons and one other knob. There are eight push buttons and all except one are white. The exception is red, and is the record release button.



From left to right the functions of the buttons are as follows: the first switches the machine to playback, at the same time turning on the transistorised amplifier, but does not set the tape in motion. The second, if depressed simultaneously with the red record button switches the machine to record, but again does not start the tape. This enables the recording level to be set before making a recording, using the "exclamation mark" magic eye level indicator provided. The third and fourth push buttons give the fast rewind and forward spooling facility, and the fifth switches the whole machine off. Next comes the red record release button, followed by two buttons labelled "start" and "stop." The start button actually sets the tape in motion in the record or playback conditions, and the stop button is a pause control. This can be locked down by a slight movement forward if required. The single control knob at the right hand end of the operating panel is the volume control on playback and the record gain control on record.

One other control, situated in the well by the feed spool, enables the speed to be changed from $3\frac{1}{2}$ to $1\frac{1}{2}$ ips.

All connections to and from the machine are made via three multi-pin sockets of the now familiar continental type. One of these is used for the connection of the battery charger and the car battery lead, and the other two for inputs and outputs to the machine. Of these, one accepts the microphone input, or the signal from a telephone adaptor, and the other takes care of high level inputs such as a radio or gramophone. The two output sockets are the feed for operation via an external power amplifier, and a connection for an external loudspeaker. Inserting a plug into this socket automatically mutes the internal loudspeaker.

The machine is provided with a small moving coil microphone, and a lead for the radio socket. There is no place to

(Continued on page 25)



THE MIKADO
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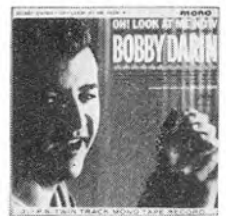
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Have recorder—am travelling!

(Continued from page 18)

accessories will not be easily come by. For this reason my "kit" also contained two spare spools, jointing tape, editing block, blades, scissors, soldering iron, and solder tools and a twelve-way cable block. I have found very useful those hair-grips with rather long crocodile jaws. With a half-inch of jointing tape held in one of these it can be laid very precisely along the tape in the editing block groove—no clumsy fingers impeding the sight of what you are doing, nor acid from the fingers fouling the adhesive, an important consideration in clammy climates.

When static and within reach of an AC mains supply, the mains unit for the 202, can of course, be used. It is separate from the actual machine, and can be adjusted over the range 105 to 240 volts. I chose a rugged moving coil stick microphone, also by Beyer. This has a special plastic covering to reduce handling noises in use. The only thing I forgot was a wind-shield, but I had

TEST BENCH

(Continued from page 23)

store these in the equipment unless the leather carrying case is used, when a convenient compartment is made available under the original carrying handle of the machine, which is now enclosed.

The machine was given the usual practical and technical tests, and generally speaking performed well. Some lack of extreme bass was noticeable when tapes were played back through high quality equipment, and this was borne out by the measurements, as well as by the manufacturers specification. It is a pity that more bass response could not have been achieved.

The high frequency response of the model tested did not really meet the specification, either at the high or low speed. However when played back on its own internal loudspeaker, a 3½ x 6-inch elliptical, the reproduction was well balanced, though of limited range. This balanced, though relatively narrow, frequency response, together with good wow and flutter performance, enabled some good music recordings to be made. The speed constancy of the tape drive was to some extent affected if the machine was allowed to swing on the shoulder strap when making a recording, or when playing back, but with care this need not happen, and in any case a portable machine should be placed on a firm support whenever possible.

For a machine at the lower end of the middle price range of portables, this has much to commend it; it is really portable, with a weight of only seven pounds, and should be capable of producing a lot of interesting work. With the slight reservations noted above, I can recommend the Butoba MT7 as value for money at £46 4s.

packed some cellular foam rubber, and fashioned a wind-shield on the boat.

One point I was pleased to notice concerned the Beyer microphone which was supplied complete with a very well-written instruction booklet and a circuit diagram. A first-class leather carrying case, with a strap supporting the microphone compartment, completes the outfit.

All through the voyage to Capetown, I waited hopefully to record the thunderous cracks and crashes of tropical storms. But never a sign; in fact, the weather was quite unusual: heavy overcast most of the way. The thunder sequences will have to wait.

I did, however, have plenty of opportunity to record life on board the ship.

Once familiar with the controls, I liked the 202. It felt a bit heavy suspended on the strap around my neck, but the only occasion I discarded it, in favour of the lighter 1A, was when I climbed on to a deck-house to overlook the Crossing the Line ceremony. On this occasion, I was also borne down with a camera and its accessories.

A constant source of material was interviewing on the ship. Exchanges of confidences are nowhere more freely given and exchanged than on board. I concentrated on the women's stories, and some entertaining and unusual ones were related to me. Generally speaking, the ladies talk better and more freely than their menfolk.

The voyage ended, and we found ourselves on the trip from Capetown to Salisbury. This is essentially a scenic experience, and did not provide much in the way of sound effects or interviews. We drove for hundreds of miles on the magnificent tarmac National roads. Stopping for picnics, we experienced the most intense silences I have ever known—one of the few things that cannot be recorded.

We stopped at a motel and I recorded an interesting account of her flight out from England by a dear old lady of 84. She compared life in Natal today with the adventures she had had fifty years ago under pioneering conditions. Then came another story from a refugee from Kenya who had the unenviable task of trying to start her third home, and was literally making the bricks to start building.

Following up an advert I had read whilst in the U.K., I called in at an address in Port Elizabeth. The advert had requested 45 minutes of material recorded at 7½ ips and promised 7½ per cent for all tapes sold. The concern lists London, Paris, New York, Hong Kong, and Zurich on its letter-headings. The address, however, turned out to be a Chinese grocery store; the only claim to the world of entertainment was a few pop records displayed in a side window. The owner gave a fulsome account of the business to be done, and the widespread contacts he had. He also told me they were in great need of plays. He was not forthcoming when I asked about copyright and royalties, and although I left my address with him, I have heard nothing.

THE WORLD OF TAPE

RED tape was out in favour of recording tape when Warwick Councillor, P. F. Vittle, was allowed to attend the opening session of Warwick Assizes.

The Councillor has been devoting much of his spare time compiling a tape recording called "The sounds of Warwick," and in order that the recording should be fully representative of life in the town he needed to capture something from the Assizes.

He was informed, by officials, that it was unlikely he would be allowed in to the well of the court. However, the question was put to one of the judges, Mr. Justice Marshall, who readily agreed; so Councillor Vittle took his place on the Press bench with a battery portable recorder while the official declarations were made convening the Assizes.

AN executive of a Yorkshire engineering firm overheard an office girl say to another: "Ee luv, if that's t'case w've 'ad us chips."

The girls on the staff, he decided, would benefit from speech classes. They started in March. Now the scheme is so popular that even the girls' boyfriends want to get in on the "spoken English" act. The firm is Newton Chambers, of Thorncliffe, near Sheffield. The girls hear their voices on tape recorders, and then start to put things right by taking part in discussions and play-readings.

STUDYING radio with the help of a Pembrokeshire "ham," blind girl, 21-year-old Eva Morris, receives instruction on tape. She has already had several lessons which she is transcribing into Braille. Eva hopes to sit the Postmaster General's examination which would enable her to hold a transmitter licence, in May. Her instructor, Mr. Price who represents Pembrokeshire on the Radio Society of Great Britain, intends to present the tape to the National Institute for the blind once Miss Price's instructions are completed.

A SHORT course on tape and tape recording is to be held at the Chiswick Evening Institute from September 24 to December 10. Classes will be held on Tuesday evenings from 7-9 p.m., for an inclusive fee of ten shillings.

The course is designed for the tape recorder owner who wishes to get the best out of his machine; who wants to know how to maintain it in good repair; and how to obtain worthwhile recordings. Advice on the selection of a suitable machine will also be available.

Enrolment week is from September 16, but applications may be received by post at any time. Applications should be addressed to the Head of Institutes Education Offices, Town Hall, Chiswick, London, W.4.

THE manufacturing rights of WAL products have been sold to Messrs A. C. Farnell Ltd., of Hereford House, North Court, Vicar Lane, Leeds 2, following the retirement on medical advice of Mrs. D. E. Wellington, Director of the Wellington Acoustic Laboratories.



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LETTERS to the editor —

Tape recording in the classroom

THE suggestion ("Editorial," June issue) that teachers should use tape recorders for marking essays would seem at first glance to have more disadvantages than advantages.

How could the rest of the class concentrate with the teacher's voice always in the background? What advantage is there in recording what could easily be said or written on the book?

Yet the tape recorder, as a supplement to traditional marking, can be of great benefit to children, and can side-step the child's frequent reluctance to take notice of correction on the page. It must be stressed, however, that marking will inevitably take up more time.

The following technique can work very successfully:—

(1) Books are marked in the normal manner; comment, however, can be reserved for the recording.

(2) Comments can be recorded, say, once a fortnight, on each book. Praise, or censure, can be given where appropriate; criticism of presentation can be made; detailed comment on points of style or grammar can be given; further reading can be suggested. At the end of the commentary on each book the name of the next person to be dealt with should be clearly stated.

(3) The best time for pupils to hear the comments on their work is when the class is engaged on some piece of written work. This process can be continued for a fortnight, whenever opportunity presents itself. Pupils listen to the comments at the front of the class through headphones with the internal speaker muted. As each pupil finishes, the next one can be unobtrusively informed that he is required.

(4) Pupils should summarise the teacher's comments in a book kept solely for that purpose. Two or three pages allocated to each child should prove adequate for a term's work. By doing this the pupil thoroughly absorbs the points made; a log of progress (or otherwise) is readily available; and, in addition, by having the book at his side when the next recording is made, the teacher can see at a glance if his advice has been taken.

DONALD M. BOYALL.

Manchester, Lancashire.

Tape scripts from Aberdeen

THE May issue of *TAPE* contained a news item which referred to the series of tape recordings produced by this office for use in schools. As a result of this publicity, a number of inquiries have

been received from Youth Employment Officers interested in producing their own tapes. We have, therefore, had copies of our scripts duplicated, and I have prepared a short guide for Y.E.O. who may be encountering a tape recorder for the first time.

We shall be glad to post copies to any of your readers on receipt of a stamped addressed foolscap envelope.

D. HAGGART.

Youth Employment Officer,
Barnett's Close, Aberdeen.

Royal procession down The Mall

I WAS particularly interested in the article by Reginald Bonney (*June issue*) concerning his experiences recording a Royal Procession in The Mall.

A very successful technique I have used when making recordings in crowded conditions is to attach the microphone to the front of my hat. This allows complete freedom of movement, with the added advantage that the microphone is well away from noises caused by the rustle of clothing or by the elbows of other spectators jockeying for a vantage position.

The bulk of felt to the rear of the microphone increases its directional properties and aiming is simplicity itself by merely looking straight at the point of interest.

I would add that I have used this technique on many occasions, and with the most outstanding success at Hyde Park's Speakers' Corner on a Sunday morning when both the orator and the hecklers were recorded with remarkable clarity.

C. J. BALL.

Ruislip, Middlesex.

Identification badges for clubs

WE were interested in the remarks ("Letters," *April issue*) that clubs should produce identification badges for their members.

Within a few weeks of being formed W.W.T.T. made available attractive blue, black and ivory badges for use by its members. Two types are available, one with a stick-pin suitable for clothing, the other with an adhesive backing for brief-cases, handbags, tie-clasps, etc.

With these badges, many of our members who have been in contact with each other for maybe years, have met for the first time. Many such introductions have taken place at the Audio Festivals, but chance meetings in out-of-the-way places have also occurred.

In the same issue Mr. Chambers made a request for the blind. He and others might like to know that W.W.T.T. have now reduced their already low membership fee for the benefit of blind enthusiasts.

CHARLES L. TOWERS.

Secretary,
World Wide Tape Talk.

British equipment abroad is too expensive

I WOULD very much like to register a complaint about the cheap, nasty, brittle plastic knobs used on British recorders. Why do not manufacturers use nylon or similar non-brittle knobs, or anodised aluminium as on the Norwegian Tandberg?

Another complaint I have against British equipment is the high price and poor after-sales service. Two machines, one German the other British, on sale here are approximately the same price in the U.K. Here the German machine costs £95 (paying 25 per cent Customs Duty), and the other costs £135 (ten per cent Customs Duty). The German Agents offer a 48-hour or less repair service; if they did not have an efficient service they would lose their franchise. The owners of British machines are lucky if they have their machines returned within ten days.

If I were ever to buy a British machine it would be a Vortexion, which is slightly cheaper, and which is backed by a comprehensive stock of spares and after-sales service. The £27 increase in the U.K. price is quite reasonable as there is Duty, sea freight, and a large stock of spares to be carried; but the extra £50 on the other British machine is not considered reasonable.

Another of my pet moans is the price of magnetic tape. I see no reason why it should be so expensive, with so many million feet being used nowadays. It should be cheaper by at least half.

ALAN BONE.

Salisbury, Southern Rhodesia.

When will plugs be standardised?

WHY do we have to suffer the farcical variety of plugs and sockets which are fitted to the modern-day machines?

Not only do manufacturers fit the type of their choice to models, but in some cases one machine may have as many as five different types fitted. Although this may prevent the ham-fisted beginner from plugging his microphone into the external speaker socket, we would suggest this is a minor advantage compared with the difficulties which arise when the novice becomes an addict.

How often does a dubbing session involve a lengthy period of time spent rewiring plugs or arranging "pill-box" connecting boxes. Such operations should not be necessary.

We all agree that maximum of two

types—the standard jack and the three- or five-pin Din—of plugs would suit all requirements. Surely the use of one or both of these would be wholly adequate.

The voice of one tape recording club alone will not be heeded. We require the support of every tape recording club in the country if we are to impress the views of the tape recordist upon the tape recorder manufacturers.

IAIN DONALDSON,
Chairman,

Hull Tape Recording Club.

The magnetism of tape exchanges

JUST for the record—in response to the final paragraph of "Tape Talk" in the April issue—yes, the Voicesspondence Club brings its crop of weddings each year.

We do not, of course, aim or claim to be a lonely hearts club. Nevertheless, Cupid and his regional board of cherubims steps in on many tape exchanges, and we read of the marriage of Voicesspondence members who have met, courted and proposed by tape, sometimes across the Atlantic even.

ROBERT COOTE.

U.K. Representative,
The Voicesspondence Club.

IN PRAISE OF: Dealers,

I WOULD like to pay tribute to the firm of Tape Recorders Ltd., of Bournemouth and Exeter. I have been dealing with the Bournemouth branch since it opened, and have been most impressed by their willing service and consideration to their customer.

Nothing seems to be too much trouble for them, and many a time a member of the firm has come round to my home to fix something that has gone wrong.

I must add that I have no financial or other interest in this enterprising concern.

LORD VENTRY.

Poole, Dorset.

and manufacturers

I NOTED in a recent issue a letter from a correspondent in Northern Ireland praising the Ferrograph company in South Shields. I would like to endorse his remarks wholeheartedly.

Having a minor spot of trouble with my Ferrograph, I contacted the company. Within three days I had the necessary replacement parts, and as a result my machine performs better than ever before.

It is indeed a pleasure in these days when the attitude of "Blow you, Jack . . ." is all too prevalent to find a firm that offers such a prompt and efficient after-sales service. It also shows a keen interest in how and for what their product is being used.

A. JACKSON.

St. Leonard-on-Sea, Sussex.

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NEW PRODUCTS

THREE NEW MODELS FROM JAPAN

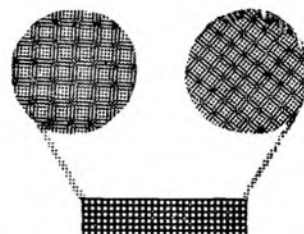
THREE battery portable tape recorders are announced by a newcomer to the UK market, Uroko Sangyo Kaisha Ltd., of Japan.

The first of the new machines, the Uroko MR-100, illustrated top in our photograph below, is a two-speed recorder. It has a quoted frequency response of 250-7,000 cps, signal-to-noise ratio of 35 dB at 1,000 cps, and wow and flutter at 0.3 per cent at 3½ ips, and 0.5 per cent at 1½ ips.

The maximum spool size is five inches, providing a playing time of 32 minutes for each of the two tracks using standard play tape at the top speed.

A 4 x 2½ inch elliptical loudspeaker is incorporated, and this provides a power output rated at 200 Mw. The power supply is six UM1 (1½ volt) batteries with an estimated life of twenty hours.

It measures 9½ x 8½ x 3½ inches, and weighs 5½ lb. A dynamic microphone with remote control facilities is supplied. The price is still to be announced.



The second new machine, the UT-33 (illustrated centre) is a rim-driven half-track recorder averaging 3½ ips. The maximum spool size is three inches, providing a playing time of approx. ten minutes for 200 ft. of tape. The frequency response is given as 250-4,000 cps, with signal-to-noise ratio as 25 dB at 1,000 cps, and wow and flutter as 0.8 per cent.

The power output, through the 2½-inch round loudspeaker, is rated at 180 mW. Measuring 7½ x 7½ x 2½ inches, it weighs 2½ lb. Again a crystal microphone with remote control facilities is supplied. No price is available.

The third of the new machines, UT-50 (illustrated bottom) is a rim-driven half-track recorder with variable speed control. The quoted frequency response is 200-7,000 cps, signal-to-noise, 24 dB at 1,000 cps, and wow and flutter is given as 0.3 and 0.7 per cent. The power output through the 2½-inch round loudspeaker unit is given as 250 mW.

Two 1½ volt batteries (UM2), plus one 9 volt unit (006P) provides the power supply, which lasts twenty hours. Weighing only 3 lb., it measures 8½ x 8½ x 2½ inches. A remote control crystal microphone and telephone pick-up are supplied.

Uroko Sangyo Kaisha Limited, New Tokyo Bldg., No. 2, 3-chome, Marunouchi, Chiyoda-ku, Tokyo, Japan.

STUZZI MODELS HAVE BUILT-IN RADIOS

THREE of the recently introduced Stuzzi recorders are the 604, 203, and 504 (illustrated right) and briefly described in our June issue.

The first is a four-track recorder (seen at the top of our photograph) selling at 50 guineas. Monitoring and superimposition facilities are provided with the two speeds of 7½ and 3½ ips, and the frequency response is given as 40-20,000 cps.

The 203 (centre) has a single speed of 3½ ips, will accommodate up to seven-inch spools with a playing time of 64 minutes on each of its four tracks using standard-play tape. A radio designed for local radio reception is incorporated in this machine which costs 55 guineas, including P.T. It measures 13 x 10½ x 6 inches, weighs 16½ lb., and its features include monitoring and superimposition. The frequency response is given as 40-15,000 cps.

The third machine (illustrated bottom) also incorporates a radio, with medium and light-wave reception. Two speeds are available, 7½ and 3½ ips, and with accommodation for seven-inch reels a playing time of 32 minutes is available





on each of the four tracks at the top speed using standard-play tape. It costs 66 guineas, including P.T. The frequency response is 14-20,000 cps.

Recording Devices Limited, 44, Southern Row, Kensington, London, W.10.

GLOBAL ANNOUNCE BULK TAPE ERASER

A BULK tape eraser designed to erase the programme from a tape in seconds has been introduced by Global Products.

The new unit, the Global Speed-Erase, works from AC mains and can be used effectively to reduce the magnetic signal on an over-modulated tape without having to repeatedly run the tape through a recorder in the "record" position.

It can also be used to de-magnetise the recording heads on machines without the removal, in the majority of cases, of the recording head protective covering.

The reel of tape to be erased is placed face downwards on a flat non-metallic surface. With the push button depressed, the eraser is held face down on the tape reel and passed over the entire area of the reel. On an over-modulated tape two operations may be necessary.

The eraser is then lifted clear of the tape (3 ft at least) before the switch is released. The procedure should be repeated on the reverse side of the tape for complete erasure.

To demagnetise a tape recording head the Speed-Erase is passed several times

over the area of the recording head, again moving the unit three feet away from the head before switching off.

The Speed-Erase costs 42s. 6d. or 45s. including postage.

Global Products, 13, Stanley Street, Rothwell, Northamptonshire.

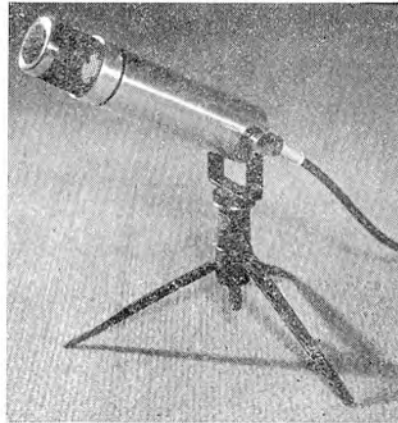
DO-IT-YOURSELF KIT FOR MICROPHONE

RECENTLY announced by Chateau Productions is a condenser microphone kit available either as a ready-made unit at 25 guineas, or in kit form at 20 guineas. The Microkit (illustrated below) is supplied complete with a comprehensive manual incorporating unique step-by-step instructions.

Measuring 8 x 1½ inches, it is fitted with swivel bracket for use with a camera stand with a standard ¼-inch bush. Other adaptors can be supplied to order.

The output voltage is approx. 150 mV for average speech input. In practice the radio or high impedance input of a tape may be used with excellent results without using additional pre-amplifiers or transformers.

Long connecting leads may be used, the output impedance being 600 ohms, cathode follower output. The polar characteristic is substantially omnidirectional but cardioid in axis of capsule. The capsule is electromagnetically screened and not susceptible to R.F. interference.



Also available is a compact and self-contained power supply. This has inputs of 110-220-245 V, 50-60 cycles. The power consumption is approx. 11 watts. A mains switch and pilot lamp are featured, and all connections are made by non-interchangeable connectors. Flexible multicore cable is used for microphone-power supply connection.

The kit carries a one-year free-service guarantee and unlimited personal advice.

Chateau Productions Limited, 25, Denmark Street, London, W.C.2.

COSSOR CR 1604

IN the announcement of the Cossor CR 1604 (July issue), we incorrectly described it as a two-track machine. Confusion may also have arisen regarding the Multiplay and Duoplay features on this four-track recorder. These features are of course only available if the machine is used with an additional pre-amplifier which also enables the playback of stereo tapes.

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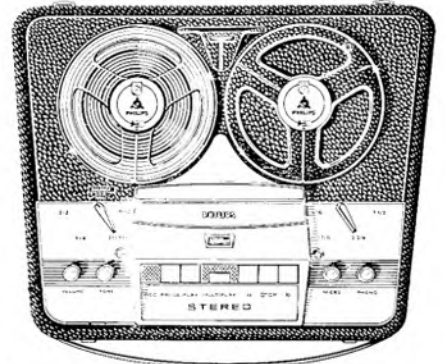


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New Philips de luxe stereo tape recorder has a brilliant exclusive—multiplay—the feature that lets you record as many times as you like—and play all the sounds back together! (You listen to your previous recording on stereo headphones while adding each new sound.) Other exciting new features include: all-transistor amplifiers that eliminate warm-up time; and four tape speeds—including $\frac{1}{8}$ ips that permits 32 hours' recording on one 7" reel of DP tape, 4 hours' on a 3" reel. All this, plus brilliant four-track stereo and mono recording and reproduction and two big speakers—one in fully detachable lid! What a list! What a tape recorder! Hear it today.

*Five isn't the maximum number by any means. But how else do you describe a quintet?

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AYR

A selection of past winners in the British Amateur Tape Recording Contest was held at the May 15 meeting of the Ayr club when Mr. Pat Copinger, 1958 "Tape of the Year" producer presented a programme on making competition tapes. Using his Simon SP4 he explained the different approaches to the problem, and provided valuable advice for the members who were currently producing their entry for this year's contest.

Earlier, practice in competition tapes had been obtained by members for their "Five minutes or else" session. Recordings varied from sound effects and musical items to a message from Canada and a humorous tape on how to make better recordings.

Visits to local establishments have provided members with much recorded material for use in their recently organised hospitals tape service. This has proved rather popular—a questionnaire sent to the Ward Sisters in several hospitals suggested a 95 per cent audience. Among the recordings the patients have heard have been a visit to a carpet manufacturer, the opening of the new Fire Headquarters, and Prestwick Airport control tower.

Visitors have also been welcomed to the club meetings. A representative of Grundig demonstrated their range of equipment at the May 29 meeting, and other guests have provided technical instruction on subjects as varied as editing and splicing, acoustics, and general recording techniques.

Secretary: S. J. Hourston, 25, Forehill Road, Ayr, Scotland.

BOURNEMOUTH

The trials, tribulations and eventual rewards of recording correct sound-effects were discussed at a recent meeting of the Bournemouth club.

Roy Dunn provided the lecture and referred to the BBC controversy about the excessive use of sound effects in plays and documentary programmes. His theoretical session was followed by a practical demonstration of making sound-effects, paying particular attention to the compilation of effects when associated with cine work.

The following meeting centred on a talk by Tony Rawlins and Cliff Rees who discussed the elementary electronics of a tape recorder.

Further discussion of the use of sound-tracks with cine programmes was given by a guest speaker, Mr. Gerry Hooper of National Radio Supplies, who visited the club at a later meeting. He described the very early days of the "talkies" when the projectionist had to wind the disc to maintain synchronisation with the film, and completed his talk with a description of the recently introduced "Circorama" the 360-degree film now showing in London.

Secretary: Mrs. D. E. Robertson, 62, Branksome Hill Road, Westbourne, Hampshire.

EDINBURGH

After a "sleeping-period" the Edinburgh club has revived its active nucleus and attempts are being made to restore the club to its former glory. One of the first local clubs to be formed, it has had an exciting history marred only by the recent drop in membership, and a lack of willingness on the part of its remaining members.

A full programme has been planned which will keep the members occupied until the early winter months. Quizzes, dubbing nights, outside recording, tape/slide shows, constructional evenings, and sessions with battery portables have already been organised. A monthly newsletter has also been arranged and the first edition sent to members.

Members now meet on the first and third Monday of each month. The various venues can be obtained from the secretary.

At the first of the rejuvenated meetings members spent the evening dubbing. This was followed by an amusing night sorting out entries in their internal contest for which members had to record the voices of three well-known personalities. The recordings were then jumbled up and the final guessing of voices proved quite hilarious.

One of their first location recordings was to have been a report on the progress of the Forth Road Bridge. However, this was too dangerous

News from the Clubs

for on-the-spot recording, and the idea has been temporarily shelved. Instead, they went out one evening to Waverley station and collected many interesting and weird noises. Another night was used to record all the chiming clocks in Edinburgh.

At the request of one of Edinburgh's prominent churches, members recorded a baptismal service. Another church heard the recordings, and the members have now been asked to make regular recordings for elderly folks unable to attend services.

The members are requesting good recordings of Church bells. Can any club help them with this?

Secretary: J. Gordon Cochrane, 7, Gardiner Road, Blackhall, Edinburgh 4.

ERITH

A club has been formed in Erith, Kent. Designed mainly for the 14-21 age group, it is also available to older tape enthusiasts.

The group meets on alternate Wednesdays at the South Reach Boys' Club, Manor Road, Erith. Further information can be obtained from the group's secretary, Mr. F. Brett, at that address.

GLASGOW 1

The Glasgow club has been making considerable progress particularly since they have moved to their new club rooms at 91, Hanover Street, where they have excellent facilities for making and listening to recordings. Membership is rising steadily and meetings have been full and varied.

Competitions have provided some amusement for members, particularly one for the best commercial advertisement. Their sound magazine for the blind has been circulating for two years and is increasing in popularity. Their edited recordings on the last days of Glasgow's trams has been in great demand and copies have been sent to all parts of the country in response to requests from individuals interested in the event.

Secretary: B. Dryden, 32, Daisy Street, Glasgow, S.2

GLASGOW 2

New club rooms for the second tape club to be formed in Glasgow have been found. Having moved in, members are now meeting on most nights of the week, although Monday is still the official club night. The new rooms, at 336, N. Woodside Road, are currently being modified and a sound-proof studio is being constructed in the basement. This will accommodate 15 members, while the main room will hold up to sixty persons.

At a recent meeting a talk was given on microphone placing. The following day members recorded the closing ceremony of a local music-hall, and the tapes recorded will be used as part of the sound magazine for the blind. A tape and slide show was next on the list for the members. This was followed by club interviews, and they completed a hectic month by visiting the Edinburgh Zoo to make further recordings. At a later meeting the material collected was edited and composed into the sound magazine.

An "Any Questions" session started off their most recent meeting which was attended by a representative of Recording Devices Ltd, who demonstrated their range of Stuzzi recorders.

Further outside recording trips were then made, and members made a day trip to Dunoon where they recorded electric trains, a paddle steamer, a trip on a car ferry, and a steam train; and were shown around the BBC's Glasgow studios.

Secretary: A. McCallum, 9, Glendevon Square, Glasgow, E.3.

Yearbook list of Club addresses

THE 1964 Yearbook is currently in preparation. Secretaries are requested to provide the name and official address of their clubs for insertion in the special list for this section of the Yearbook.

IPSWICH

John Borwick, author and broadcaster on audio topics, accompanied a representative of E.M.I. Ltd. when he visited the Ipswich society in May to lecture on sound-effects and microphone placing. He played excerpts from his series of Emiguide to tape recording and later projected some colour transparencies accompanied by a sound-track.

At a later meeting Mr. K. F. Russell of Wharfedale Wireless Works visited the club to talk about loudspeaker design and development. He demonstrated a wide range of enclosures incorporating various speaker units.

Another manufacturer's demonstration was presented by Frank Parrington, that stalwart of the round-the-clubs tour. He described the manufacture of magnetic tape as a representative of B.A.S.F. Chemicals paying the Ipswich club a return visit. "The Magic Tape" film was shown together with a new production, "The Rainbow Makers."

Yet another manufacturer visited the club, this time in the person of Mr. G. R. Pontzen of Lustraphone Ltd. He demonstrated his firm's range of microphones and explained the construction of various types of units. He also gave the first club demonstration of the new Radiomic, the radio-controlled microphone.

Secretary: Malcolm Wilding, 49, Tranmere Grove, Ipswich, Suffolk.

LONDON TAPE CIRCLE

A new tape exchange organisation specialising in round-robin tapes to all parts of the world has been formed. Known as the London Tape Recording Circle, its secretary is Douglas N. Gould, 67, Queen's Crescent, Kentish Town, London, N.W.5.

SOUTH DEVON

The most recent meeting of the South Devon club was also the AGM. The secretary, Miss Lyn Wright, was re-elected. During his report to the members, President Donald Aldous, Technical Editor of *Audio Record Review*, suggested the club should join forces with a local cine society to produce a sound film. This is now being planned.

The same evening also saw the judging of the club's annual tape competition. Dorothy Boyd's entry "Spring" was awarded first prize, and she was awarded the club's Silver Spool Trophy, a seven-inch spool of D.P. tape (presented by B.A.S.F. Chemicals Ltd.), and a certificate. The competition was for a 3-15 minute tape on any subject. Second prize went to Gordon Furneaux with "Milestones," and third was "Eyes without Sight" by Laurie Seoney.

At another recent meeting a sound hunt was organised. Two teams armed with battery portables had to collect certain sounds within a specified time in and around Torquay. This was followed by a practical editing session with members having to re-arrange a pre-recorded message to make a completely new meaning.

During National Nature Week members took turns to staff the club's exhibition stand at Paignton Zoo. On show were portable recorders, and recordings of bird song and a recorded tour of the Zoo were played continuously.

Earlier meetings had seen members organising a programme for a local scooter club, with members presenting some of their favourite tapes and a mock "This is Your Life" presentation; interviewing visitors to the club; and discussing members' technical problems.

Secretary: Miss L. Wright, 12, Sherwell Hill, Chelston, Torquay.

YORKSHIRE FEDERATION

Fourteen Yorkshire clubs were represented at the inaugural meeting of the Yorkshire Federation of Tape Recording Clubs held in Doncaster in June. Mr. C. K. Young, secretary of the Doncaster club was elected Federation secretary, and Ken Fulstow of Hull was elected chairman.

Such localised organisations could well represent the views of a smaller number of clubs, and eventually representatives from these local Federations could meet other similar organisations and a more active representation could be formed that would overcome the present mis-understanding of the work of the F.B.T.R.C.

Secretary: C. K. Young, 28, Chelmsford Drive, Doncaster, Yorkshire.

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(Signed)

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8mm. Home Movies. Send 1s. for fully illustrated catalogue. (Dept. 31), Mountain Films Ltd., 1, New Burlington Street, London, W.1.

Good cash prices for tape recorders—Tel: Maryland 5879. (See page 6).

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Tape Exchanges

TAPE recorder owners who wish to contact others with similar interests to exchange news and views by tape are invited to send their name, age, address, special hobby or interest for this section.

The details, given below, also include speeds and spool size to be used, name of recorder, and special areas to be contacted.

(See form page 34)

Betteridge, Sidney J. (37). 16, Lorne Gardens, W.11. Photography. 7½, 3½, 1½ ips. 7-inch spool. Robuk RK3.

Bryson, James M. (34). 15, Langlee Avenue, Galashiels, Selkirkshire, Scotland. Outdoor recording, motoring and pipe bands. 3½ ips. 5½-inch spool. Grundig TK20 and Stuzzi Magnette.

Cox, Edwards (40). 62, Cedar Road, Aintree, Liverpool 9. Classical music. 7½, 3½, 1½ ips. 7-inch spool. Truvox and Fi-Cord. **Germany.**

Davies, Miss M. (42). 309, Ansty Road, Coventry, Warwickshire. Photography, music and travel. 3½ ips. 5½-inch spool. Sobell Festival.

DiMaggio, Joe (29). 84, W. Jackson Street, Wilkes-Barre, Penna, USA. Arts, satire, sports, theatre and music. 7½, 3½ ips. 7-inch spool. Regent "Webeor" two-track. **Italy, Spain, England, France.**

Dorrans, William (31). 9, Greenhill Terrace, Crosshouse, Kilmarnock, Ayrshire, Scotland. German languages and music. 7½, 3½ ips. 7-inch spool. Telefunken. **Germany.**

Fowler, Michael (47). 28, Queensborough Terrace, Bayswater, London, W.2. Art, literature, serious discussions and music. 7½, 3½ ips. 7-inch spool. Vortexion. **Overseas only, particularly USA.**

Heyes, Don, 4273798 SAC. (32). 16(f) Squadron, RAF Khormaksar, Aden, BFPO 69. Photography, travel and model-making. 7½, 3½, 1½ ips. 7-inch spool. National (Japanese) and Q703.

Hill, Michael R. (21) 134, Conway Road, Newport, Monmouthshire. Cycling, railways and music. 3½ ips. 5-inch spool. Philips EL3514.

Lyons, D. (30). 30, Trowlock Island, Teddington, Middlesex. Travel, journalism, books and folk music. 3½, 1½ ips. 7-inch spool. Telefunken and Philips EL3542.

Maddison, Ronald (27). 58, Cromwell Road, Stretford, Manchester. 8 mm cine, films and pop records. 7½, 3½, 1½ ips. 7-inch spool. Robuk RK3.

Mitchell, Raymond F. (23). 98, Royal Crescent, South Ruislip, Middlesex. Jazz and C & W music. 7½, 3½ ips. 7-inch spool. Ferrograph 3/AN. **USA, Sweden, Hawaii, Holland, Australia.**

Moore, Barbara (22). Nurses Home, Edgware General Hospital, Edgware, Middlesex. Photography, travel, films and classical music. 1½ ips. 3-inch spool. Philips EL3585. **USA, Canada, Australia, New Zealand.**

Rahman, A. (29). 2, Marloes Road, London, W.8. Photography, light classical and oriental music. 7½, 3½ ips. 7-inch spool. Philips EL3549.

Rowe, Neville T. (23). 45, Voortrekker Street, Malmesbury, Cape, South Africa. Photography travel, films and reading. 1½ ips. 4-inch spool. Philips EL3585.

Scerri, Emmanuel (25). Belfar Flats, 17/4, Bastion Street, Senglea Malta. TV, radio and pop music. 3½ ips. 5-inch spool. Philips four-track.

Sculthorpe, Cleeve (29). 82, Lichfield Road, Coleshill, Nr. Birmingham. Photography, travel, clubs, jazz and pops. 7½, 3½, 1½ ips. 7-inch spool. Robuk RK3, Grundig TK1, Elizabethan FT3. Male, overseas contacts only. **USA, Canada, Middle East.**

Sheppard, Vic (37). 100, Birch Grove, Llanmartin, Monmouthshire. History of films, 1914-1918, aviation. 3½ ips. 5-inch spool. Bush TP50.

Smith, E. Henry (50). 25, Erlesmere Gardens, West Ealing, W.13. Religion, opera, travel and people. 3½ ips. 5-inch spool. Grundig TK20.

Smith, Stewart (24). HQ 1 Division, BFPO 32. Pop music. 7½, 3½, 1½ ips. 7-inch spool. Grundig 42. **North East England.** Letters not required.

Spencer, Brian G. (28). 60, Thornhill Road, Streetly, Coldfield, Warwickshire. Sport, philately, round table, French study, all music. 7½, 3½, 1½ ips. 7-inch spool. Collaro Studio. Letters not required.

Teather, Roy (23). 101, Rotherview Road, Rotherham, Yorks. 35 mm photography, stamps, all music. Club secretary. 3½, 1½ ips. 5-inch spool. H.M.V., Grundig, Alba. **USA, Canada, Alaska, Far and Middle East.**

(Continued on page 3)

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This is a special service for readers of TAPE Recording Magazine. It enables you—without cost—to get fuller information about those products in which you are particularly interested. Fill in one coupon below for each inquiry, writing in your name and address in each case. Then cut out the whole of this section, following the dotted line, fold as indicated overleaf and post to us.

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Tape Exchanges

(Continued from page 33)

Thompson, Peter, 3a, Warrington Road, Prescott, Lancashire. Humour (Goonery), motoring people and pop music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$ ips. 7-inch spool. Philips EL3542.

Washbourne, Alec (36). 38, Upper Walthamstow Road, Walthamstow, E.17. Boys clubs, amateur dramatics, films, shows, most music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Philips EL3549 four-track. **UK, USA, Australia, Canada**. Male contacts only.

Wilson, George Albert (27). 6, Hafton Road, London, S.E.6. Theatre, show and latin-American music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$ ips. 8 $\frac{1}{2}$ -inch spool. Ferragraph 4A/N. **USA and South America**. Letters first please.

Wilson, Ray Norman (23). 9, Oaksway Carshalton Beeches, Surrey. Short-wave radio, camping, rock-climbing. 3 $\frac{1}{2}$ ips. 5 $\frac{1}{2}$ -inch spool. Fidelity Argyl Major, four-track. **USA, Canada**.

TEENAGE EXCHANGES

Bowness, Gary (16). 49, Lindsay Avenue, Poulton-Le-Fylde, Nr. Blackpool, Lancs. Sound effects, unusual tapes, classical music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Elizabethan LZ29. **UK, USA**.

Brindley, Terry (15). 13, Barnard Green, Welwyn Garden City, Herts. Films, dancing, pop music. 3 $\frac{1}{2}$ ips. 5 $\frac{1}{2}$ -inch spool. Fidelity Argyl Minor. **USA, USSR**. Letters not required.

Buxton, Roy (17). Cullercoats Road, Hylton Castle Estate, Sunderland. Keen on cars, pop music (not jazz). 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Elizabethan LZ29. Letters first please.

Inglis, Malcolm (18). 47, Belmore Avenue, Hayes, Middlesex. Science fact and fiction, goon humour, pop and classical music. 3 $\frac{1}{2}$ ips. 5 $\frac{1}{2}$ -inch spool. Grundig TK20. Female contacts preferred.

Kimberley, R. M. (13). 41, Keepers Farm Close, Windsor, Berks. Photography, various collections, and most music. 3 $\frac{1}{2}$ ips. 5-inch spool. Cossor CR1603.

Lomas, Peter (14). 13, Delaware Road, Styvechale, Coventry. World affairs, sport and pop music. 3 $\frac{1}{2}$ ips. 3-inch spool. Elizabethan Bandbox. **USA, Australia**.

Washbourne, John (16). 38, Upper Walthamstow Road, Walthamstow, E.17. Cinema, travel, camping, pets, first aid, pop music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Philips EL3549 four-track. **UK, USA, Canada, Australia**. Male teenage contacts only.

FAMILY EXCHANGES

Burn, T. R. (48). Paxton House, 20, Westwood Drive, Swanpool, Lincoln. Photography, languages, psychology, criminology, Salvation Army, music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. **UK, Europe**.

Eyre, Peter (33). 48, Davenport Road, Derby. All music. 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Cossor CR1604, four-track. **South Africa**. Letters not needed.

Martin, Mr and Mrs (30). 38, Park Road, Bromley, Kent. Photography, cars, records, and music. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Civic Studio. **UK, USA**.

Nye, Mr and Mrs R. J. H. (26). 49, Ousdale Close, Lewes, Sussex. Music, records, handicrafts. 7 $\frac{1}{2}$, 3 $\frac{1}{2}$, 1 $\frac{1}{2}$ ips. 7-inch spool. Elizabethan FT3, four-track. **UK, USA, Belgium, Holland, Sweden, France, Germany, Norway**.

Rolfe, L. (39). 54, Silver Road, Norwich, Norfolk, NOR 43R. Family, all music (not pop). 3 $\frac{1}{2}$ ips. 7-inch spool. Philips four-track. **UK**. Letters not needed.

Tape recorder owners wishing to make contact with others of similar interests are invited to complete and return this form. (BLOCK LETTERS PLEASE).

Name

Address

Age

Special interests

Speeds to be used..... Spool size.....

Recorder owned.....

Special areas to be contacted

(Unless otherwise stated, I am prepared to accept tapes from any part of the world).

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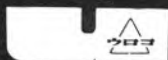
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