

FEB.  
1958

1/6

# TAPE RECORDING & HIGH FIDELITY REPRODUCTION MAGAZINE



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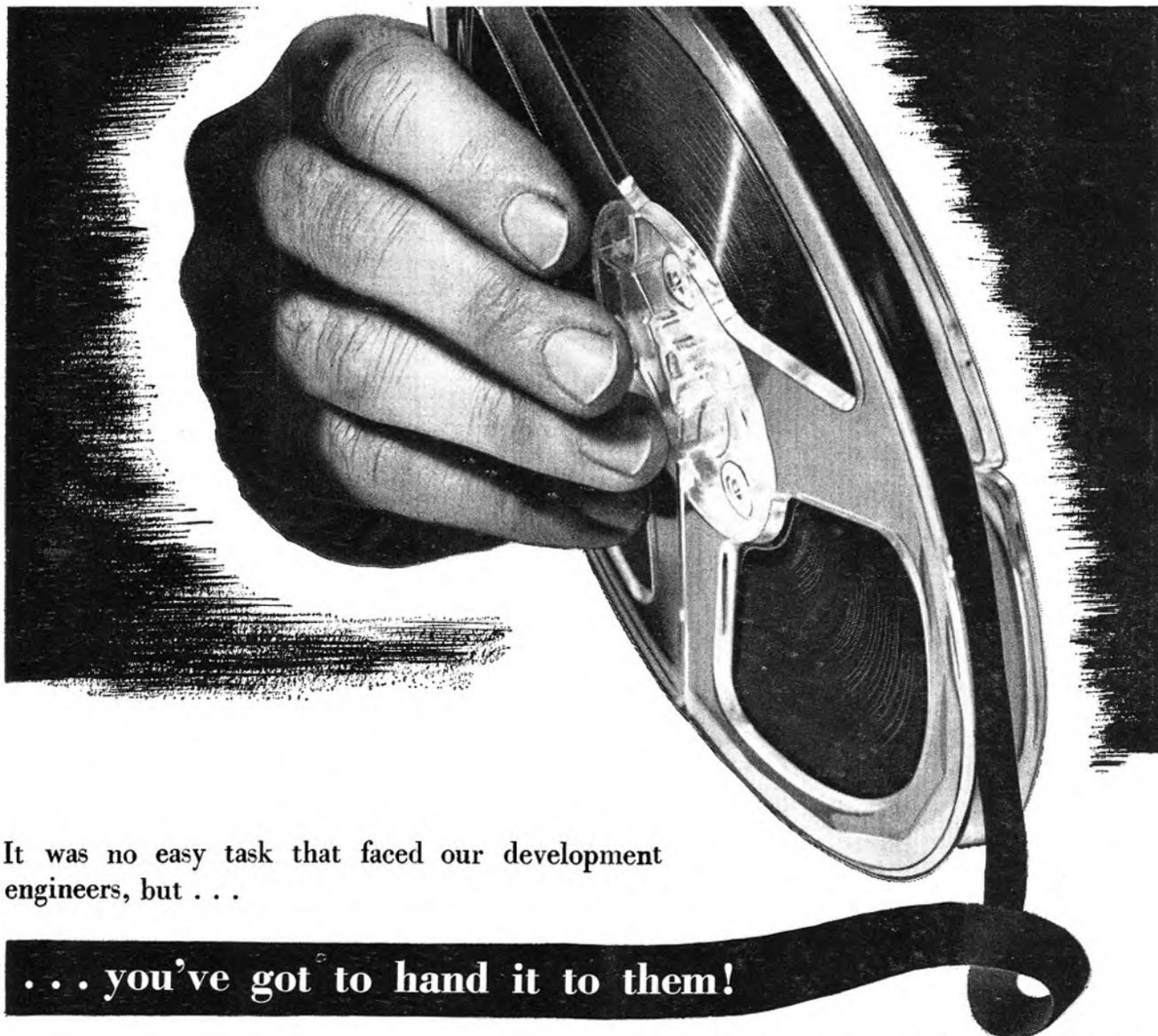
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 NOTE.—All Tapes are Standard Play except where shown as Long Play.

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 NOTE.—All Tapes are Standard Play except where shown as Long Play.

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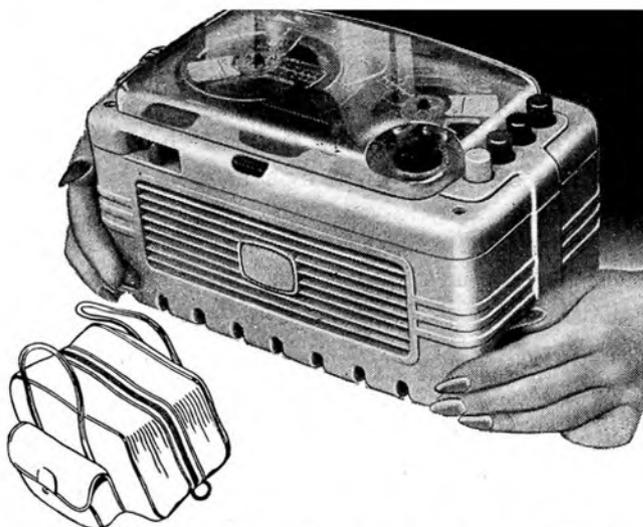
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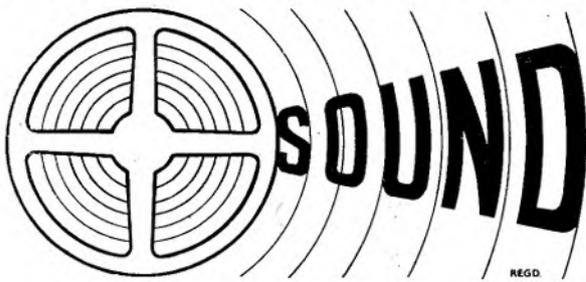
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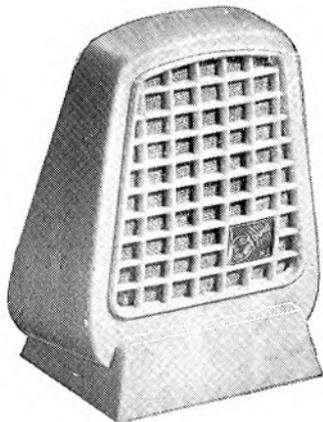


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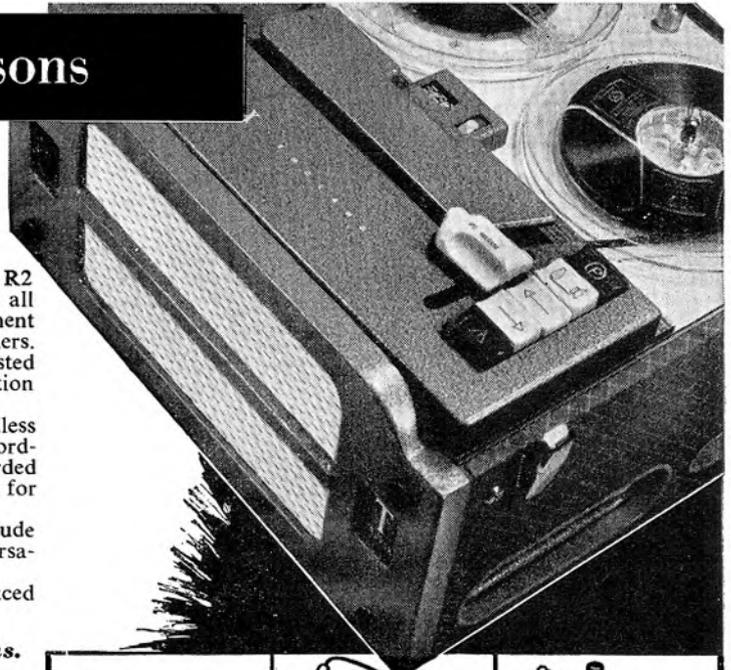
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tape

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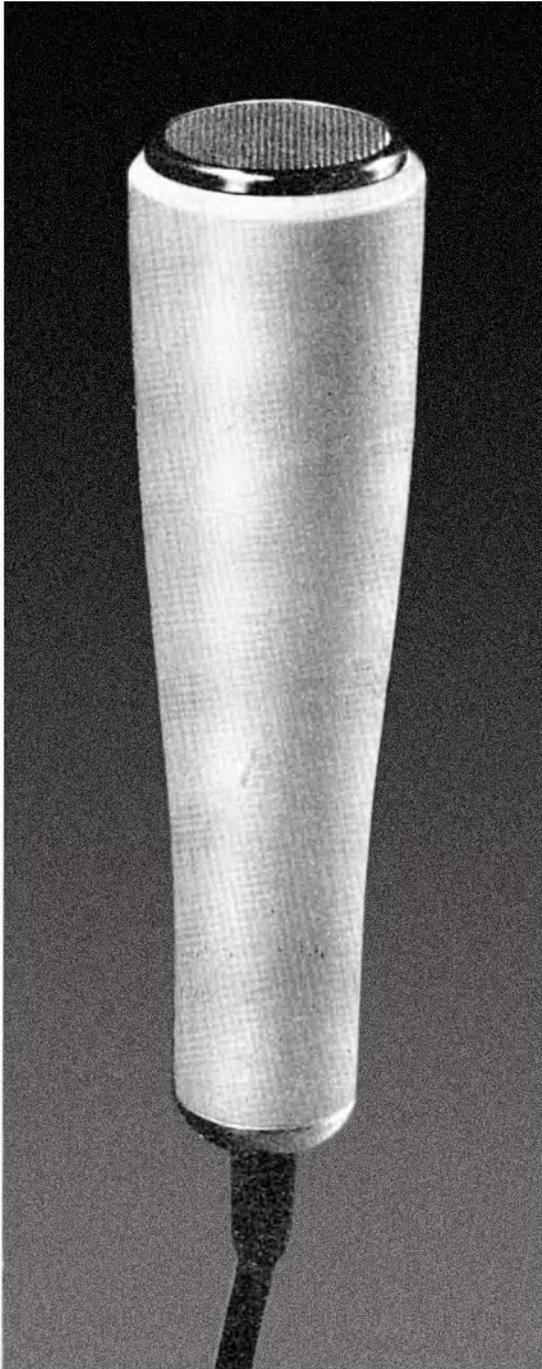
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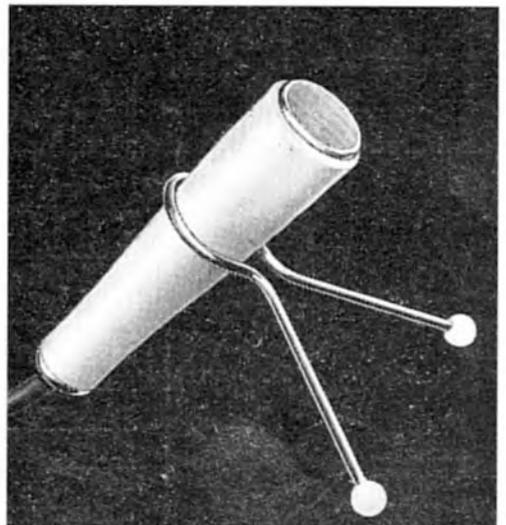
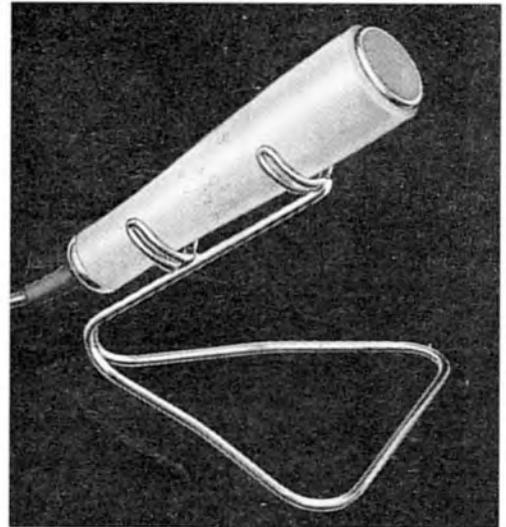
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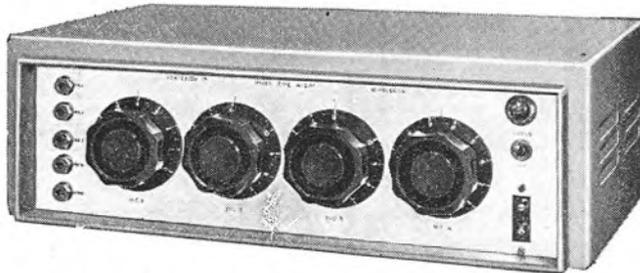
**T.R.G.10 MINIATURE AMPLIFIER AND VERSATILE PRE-AMPLIFIER.** A modern miniature amplifier, measuring only  $4\frac{1}{2} \times 5$  in. over front panel and projecting  $10\frac{1}{2}$  in. to the rear. Uses C core transformer material to obtain low external magnetic field and has less than 0.1% harmonic distortion at 10 watts output. The amplifier response is level 15 c/s to 50,000 c/s. within 0.2 db. The 3-valve pre-amplifier will operate direct from recorder heads with correction networks for difficult tape speeds and switched inputs are provided for radio, microphone and gram with correction for all recording characteristics.

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★ A power plug is provided for a radio feeder unit, etc. Variable bass and treble controls are fitted for control of the play back signal.

★ The power output is 4 watts heavily damped by negative feedback and an oval internal speaker is built in for monitoring purposes.

★ The play back amplifier may be used as a microphone or gramophone amplifier separately or whilst recording is being made.

★ The unit may be left running on record or play back, even with 1,750 ft. reels, with the lid closed.

**CP20A AMPLIFIER.** This standard amplifier for extreme tropical use will operate from 230 v. A.C. mains or 12 v. car battery and give 15 w. output for a consumption of 5.5a. Inputs for 3 ohms balanced microphones, M.I. P.U. and Cr. P.U.

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Two lively arguments

TWO RECENT leading articles in this column have attracted exceptional interest, and we propose to return to the subjects which they discussed.

The first is postage on tape messages sent abroad. In a letter on page 16, a spokesman of the G.P.O. states the official view. The over-riding consideration seems to be that we are bound by international agreements.

But if the international regulations become outdated by technical developments, Britain should give a lead in getting them amended.

The principal reasons for reconsidering the situation are these: that tape recordings are not *letters*, by any reasonable definition; and that insistence on regarding them as such simply encourages all sorts of rather miserable subterfuges which make the regulations seem foolish. It must surely have occurred to our Post Office pundits that what can be said in a letter—but for the introductory few phrases—can be equally well cast as a documentary “feature” or a “diary” or a “topical talk.” It would then cease to be a verbal personal communication and could be sent at the cheap rate.

The introductory phrases, contained on a few feet of tape, could be sent separately, without spool, so that the recipient could splice it on at the end of the longer tape. Presumably, the Post Office would then be happy. No one who puts common sense first is likely to be.

Our second subject is after-sales service on tape recorders. On this we propose to quote from a letter we have received from a Northern retailer. He insists that the good retailer should provide a period of “free service” after sale, to cover any inherent faults and make necessary small adjustments. “This, of course,” our correspondent writes, “is an expense for the retailer which he must charge against his profit. There are, indeed, very many occasions on which the conscientious retailer—*anxious to retain the goodwill of his clients and to build up a reputation for himself and for the product he is selling*—pays for the mistakes of the manufacturer and the clumsiness and inexperience of the user.” He argues strongly that this must be a *local* service and that the efficient retailer cannot afford it *in addition* to “free credit” and “free gifts.”

“But this is a young industry,” he goes on. “It has not acquired the mature wisdom which time has, of necessity, installed into the retailing of other electrical and mechanical equipment. It is still cursed with price-cutting, which in other similar fields—such as radio and television—has long been recognised as the bane of good service.

These are thoughts well worth pondering over.



# DEVIL'S BOX

By  
RITCHIE CALDER



**T**HE Hudson's Bay Post factor on Victoria Island, in the Canadian Arctic, called it my "Devil's Box." K'luk, my Eskimo guide, called it *Nalaut*, which means the "voice-listener." By any name—and I thought up a lot of unprintable ones myself—my tape-recorder was a confounded nuisance in the Frozen North.

Perhaps this is ungrateful, because I brought back a great deal of useful sound material, not only on tape but on wire, and have produced over a dozen radio programmes from the recordings. But, under the actual conditions of the Arctic, I wished that recording machines had never been invented. Try splicing frost-brittle tape in an igloo, or knotting a wire two-thousandths of an inch thick with a pair of horse-hide mittens on!

On the survey of the Canadian Arctic, which took me to the North Pole itself, I "hitch-hiked" over 40,000 miles. At the end of it, I totted up that I had flown in no less than thirty-seven different types of aircraft. That was apart from dog-sledges, snow-mobiles and "cat-trains," those sledged wagons pulled by caterpillar tractors.

For such improvised travel every piece of equipment becomes a burden, and you cannot "travel light" in the Arctic. My wardrobe, for sheer survival, consisted of thirty different pieces of apparel, including my fur-trimmed parka and my heavy sealskin boots. I had to carry emergency rations and my indispensable typewriter, as well as my recording equipment.

Usually on these trips I have a sound engineer with me, but the logistics of moving a team over the face of the Arctic defeated me, and I decided I could travel faster and farther alone.

The Canadian Broadcasting Service, for which (and the B.B.C.) I was collecting actualities, provided me with a hand-wound, battery-powered portable recorder, of an early make and highly temperamental. For a different purpose, I took with me a Minifon, that trim little wire recorder with a two-and-a-half hour spool. This was not intended for radio purposes (although I did transfer some of it to tape with satisfactory broadcasting results). I wanted it merely for note making. When you are travel-

**Ritchie Calder, C.B.E., one of Britain's best-known science writers and author of "Men Against The Desert," "Men Against The Jungle" and "Men Against The Frozen North," describes his adventures with a tape recorder on an expedition to the Arctic. This was a survey for the United Nations of the natural and human resources of the area. The author also made recordings of a disappearing Eskimo culture.**

ling in the Arctic at 30° below zero you cannot whip off your mitts and make notes—not if you want to keep your fingers.

The EMI engineers fitted the Minifon with a remote control which I could operate through the thickness of my parka. And so I was able to wear the Minifon, as the Eskimo mother "wears" her baby, snugly next my chest under all my clothes. I had, in addition to a buttonhole microphone and a wristwatch (Gestapo) microphone, a laryngaphone. This throat mike could be worn under my scarf and neck furs, so that I could talk to myself as I went along. The glottal noises provided me with notes no more difficult to decipher than my shorthand would have been. I used to transcribe the Minifon records each night in a hut or an igloo, and in this way I kept a pretty complete journal.

Even this innocent note taking was not without its hazards. On one occasion during a caribou hunt when I got over-heated on the chase and unwisely undid my neck coverings the mike froze to my throat and left me with a nasty scar. The other risk was that as I went along talking to myself I might have run into some strange Eskimos. Two things rank as justifiable homicide in the Eskimo code—killing someone who steals or disposing of someone who is mad!

★ ★ ★

Incidentally, the Minifon was a great social success. It provided an amusing diversion for the Eskimos and for the lonely settlers of the North—except when I had to enlist their help in knotting that almost invisible wire, which had a habit of breaking and "clewing." I hope that the Arctic trials of this machine has helped to overcome some of the snags.

Plastic tape also presents problems at low temperatures. It becomes brittle and breaks easily. On the particular machine I was carrying it also had a nasty habit of sticking on the driving drum, and "clewing" and "wowing." This was largely my fault. I was inclined to open the lid to watch the tape, and frost would form on the drum.

I learned a lot about tape-recording on that trip. I know now that I shall never be a good peripatetic recordist. For one thing, I am too interested in the subject matter that I am recording. I do not notice background noises and forget that the microphone is not as selective as the human ear. Some of my best subject recordings were spoiled on this account. For example, I made recordings in igloos. An igloo makes an admirable sound studio because (as people so often forget) it is not an *ice-house* but a *snow-house*, and the air-filled crystals of the snow blocks makes

an excellent absorbent material. But the human breath, when it freezes, forms tufts of crystals on the roof of the igloo and these break off with a tinkle and a scuffle which makes a very curious effect on a tape recording. I learned to take care of that.

★ ★ ★

But I had a worse misfortune with an igloo recording of a conversation with a Mountie on one of the Polar islands. What he had to say was extremely interesting but, when I reproduced it in the radio studios at Edmonton, there was an extraordinary background effect—a hissing which sounded like a machine which had no right to be in an igloo in an Eskimo seal camp. Indeed, the C.B.C. engineers were extremely suspicious about the "actuality" of this interview. It took me a long time to realise that the sound was made by our Primus stove. Had I had a sound engineer with me, he would have spotted that at once.

I also discovered how careful you have to be in faking an "actuality." I had gone off on a long and very uncomfortable dog sled expedition with two young English-speaking Eskimos. We went musk-ratting on "Lonely Lake," in the foothills of the Yukon. It was very lonely. The ice-bound lake and the mountains were muffled in deep snow. The Eskimos were two very bright boys and I recorded their own description of what they were doing on that musk-rat hunt. I knew it was jolly good stuff. But, when we got back to the settlement and I played it back, I discovered that just at the most interesting part the recording "got lost." I think the explanation was quite simple—our breaths had frozen in the microphone and muffled it.

★ ★ ★

I was very disappointed and I suggested to the boys that we should try to reproduce the conversation in the deep snow at the back of our log cabin. They did an excellent job. It might have been Lonely Lake—except that in the middle of it there was a clock striking six!

There was another recording of which the engineers were suspicious. This was not a fake but it took a lot of explaining. It was made on a very noisy aircraft—a commentary by me. On the play-back there were strange bursts of engine noises and strange absences. The explanation was perfectly valid. I was wearing a very heavy parka, with a padded hood, with a wolverine-fur trimming. In the trimming was a wire. This enabled the hood to be

(Continued on page 15)

# 'Here's the tape recorder for YOU!'

## says JACK JACKSON

Take a tip from Britain's most popular TV and Radio taster—  
'If you haven't heard the Walter 303, you're in for a pleasant surprise  
... it has the performance of a machine 10 times its size!'  
On our stand at the Radio Show you can make a record of your voice  
and play it back *on your own* without anyone to overhear you.  
Don't miss this chance to try the wonderful Walter 303.

### Here's Why You'll Want A WALTER 303 Too!

#### SIMPLE CONTROLS!

There are only *two* knobs: one for Volume, the other—the exclusive all-in-one Walter 'joystick'—for Record, Play, Fast Forward and Fast Reverse.

#### SUPERB QUALITY!

Full orchestral frequency response (40 to 10,000 cycles). Delivers 3 watts through large (9-in.) elliptical speaker—more than you want to fill the largest living room!

#### MARVELLOUS VALUE!

The Walter 303 gives you everything you want in a tape recorder, yet it costs only 39 gns. including microphone and 60 min. reel of tape!

# 39 gns

Try it yourself on our Stand at the Radio Show  
or go and see one at your local dealers NOW

# Walter 303





Left: Ritchie Calder made recordings of the Eskimo music for these Huskie dances, when the drums speak of caribou hunts, trapping and fishing. Right: Eskimos cutting a hole in the 7ft. thick ice to lay a fish net in the water

## Devil's Box (Continued from page 13)

closed up (against blizzards) into a snorkel-like breathing snout. To blanket the engine noise, as I talked, I had put the microphone inside the hood and closed the snorkel. The gusts of engine noise were recorded whenever I "came up to breathe."

But an innocent like myself has sometimes the advantage over the real expert. For my flight to the North Pole I had the idea of recording the inter-com conversations between the pilots and the navigators, so that we could have an actuality of what really goes into finding the Pole. I asked the C.B.C. engineers how I could plug my battery recorder into the inter-com. They said it was impossible. I asked the Air Force engineers, when I was about to make the flight, and they too said it was impossible. When, however, I boarded the aircraft and fitted on my flight helmet with its inter-com connections I realised there was no problem whatever. I just squeezed the microphone into the sponge earhole of the helmet, and, of course, without any electrical gimmick, the microphone heard exactly what I did.

★ ★ ★

On that flight I learned another lesson. When I had made the inter-com recording crossing the Pole I realised that, for the ordinary listener, it was a lot of goobledidook—unless the exchanges and the terms were explained. So, in the aircraft, I asked the Chief Navigator to explain what had been happening. (Notice it was "had been happening"). He did a good job.

When, however, I came to prepare the programme for the C.B.C., I realised that the flight over the Pole ought, dramatically, to end with the Pole itself. A postscript explanation would have been an anti-climax. But the navigator's description was in the past tense.

Don't tell anybody—we took that tape and, using the navigator's own recorded words, we edited it into future instead of past tense—made him describe what was *going to* happen and not what *had* happened. From now on, I shall never trust a tape recording.



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Our recent editorial 'Memo to P.M.G.' has aroused wide interest. Here is the official Post Office point of view (with a comment) on

# THE COST OF MAILING TAPES

**T**HE General Post Office starts from the point of view that the ordinary letter post used for personal communication is the basic postal service and the letter postage rate the basic rate.

Other rates, for printed papers, samples, etc., are reduced rates, many of them concessionary, given for a particular purpose. The condition common to all these reduced rates is that the packet should not contain a "letter" as commonly understood.

This is essential, because if it were once lost sight of, we would soon have everything, letters included, being posted at the reduced rate, with disastrous financial results. For this reason, we lay a great deal of store by maintaining this distinction between letters as normally understood and other items which may be sent at lower rates.

This point is just as important in the overseas as in the inland postal service. There is an international agreement which governs the exchange of international mails and by which we, as signatories, are bound to abide. This actually specifies that, for example, Small Packets may not contain current and personal correspondence.

The principle applies to recordings in the same way as it does to the written word. If a recording contains a current and personal message, then it is due to be paid for as a letter; where it does not (e.g., a normal commercial recording of a piece of music or of a recitation), it can go as a Small Packet. It is in fact not the inclusion of spoken words as such which make a particular recording a "letter," but the nature of the

message. To take the example quoted in your editorial, a recording of home atmosphere would be eligible to be sent overseas as a Small Packet provided that it contained no current or personal message directed at the person to whom it is sent. The analogy is with a snapshot or film of family life.

If, however, a recording contained such an actual message at any point, it would be chargeable at the letter rate: This would be rather like sending someone a book with a letter written inside it.

It is quite true that, in general, the counter clerk must accept the word of the sender at the time of posting about the nature of the recording: but it will readily occur to you that there are other cases, too, where this unavoidably applies. One obvious example is provided by the various items which are prohibited from despatch in sealed letters at all.

I do hope this explanation will help to clear up any misunderstanding. It seems evident that the difficulties have been pinpointed by the increases in surface postage rates made on 1st October, combined in the case of the USA, with the withdrawal of the reduced Commonwealth rate.

We regretted having to take this step, but the increases were essential to meet our heavily increased costs, and it was a fact that the USA withdrew her reciprocal concessionary rate to us many years ago.

A. H. RIDGE.

General Post Office,  
St. Martin's-le-Grand,  
London, E.C.1.



or similar apparatus you will, if you are wise, insure it with the Norwich Union. This policy covers accidental loss or damage, fire and burglary.

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Union Policy for  
tape recorders, etc. .... T.R.3

**I** WAS just about to write to you concerning my experience in regard to the new postal regulations and charges when I saw your editorial. You more or less confine your remarks to the anomalies applicable to packets transmitted to America by air, but surface mails are also affected—in proportion, to a greater degree.

For instance, I have been sending a five inch reel weighing approximately seven ounces for about 8½d. and I am now told that the letter rate charge is 2s. 6d. for the identical package. On enquiring whether my tapes could not be sent as a "small packet," the rate for which I had observed to be 10d. for a minimum of 10 ounces, I received the following reply from the local Head Postmaster:—

"I should perhaps explain that a reel of magnetic recording (conversation) tape is inadmissible for transmission by overseas small packet post. However, other sound recordings on phonograph discs, tapes or wires other than spoken message, for example, recordings or music, are allowed."

This situation is quite fantastic, of course. I send many reels containing complete church service recordings; are these to be classified as "spoken messages" when the speech is interspersed with hymns and organ music?

I am asking my tape exchange organisation to take up this issue officially with the postal authorities.

S. A. SEDDON.

Southport.

**K**ODAK 8 mm reels make excellent tapesponding reels since they are light and virtually unbreakable—both important these days, with our GPO services!

Do not throw away these plastic reels when you splice up your films and transfer them to bigger reels. Take a couple with you on your next visit to your local dentist. He can drill out in two minutes the slots to enable you to turn them over for a second track.

MACDONALD BLACK, L.D.S.

Dundee.



Programme for an exciting year

## THE RECORDING CONTEST

**A**RRANGEMENTS for the 1958 British Amateur Tape Recording Contest are now being speedily completed. The link-up with the International Contest has now been confirmed with the Swiss organisers of this year's event.

Manufacturers and the trade in this country are again giving full backing to the Contest. We can now announce

## THE AUDIO FAIR

**T**HIS year's Audio Fair is to be held at the Waldorf Hotel, London, W.C. 1, on April 18 to 22.

Preliminary details will be published next month. TAPE RECORDING AND HIGH FIDELITY REPRODUCTION MAGAZINE will have its own stand in the Fair, and we are planning a number of unique features which will make it a centre of attraction to all who visit the event.

Our May issue will be available at the Fair and will be on general sale on April 20, and this will be a special bumper Audio Fair number, with full details of all new equipment which will be on show for the first time.

## THE YEAR BOOK

**W**E shall publish the first British TAPE RECORDING AND HIGH FIDELITY REPRODUCTION YEAR BOOK this summer, to be on sale at the time of the Radio Show.

It is planned to include photographs and full technical details of all tape recorders available in this country.

Associated high fidelity equipment will be comprehensively reviewed. There will be details of tape organisations here and abroad.

The Year Book will include a series of authoritative articles on every aspect of tape recording—a review of the past year's developments, simple explanations of tape recorder design, discussion of legal problems, and advice on the varied uses of tape recorders.

Further information, including the price—which we aim to keep at a very reasonable level—will be published shortly.

## BINDERS

Arrangements are being made for binding, including the supply of an index, for the first volume of TAPE RECORDING MAGAZINE.

Details will be given next month.

*When writing to manufacturers for leaflets or information, please mention that you "saw it in T.R. Magazine"*

that a silver cup is to be donated by E.M.I. Sales and Service Ltd. for competition annually. A miniature replica will be retained by each year's holder of this award.

We hope to be able to announce next month a similar award to be made in the special schools category which is being introduced for the first time. This will go to the school which submits the best 20-minute tape on the subject of "Discovering the World."

The four other categories in the Contest will be as detailed in our last issue.

Judging of the British Contest will take place during August. Again a distinguished panel of judges is being assembled. Miss Josephine Douglas and Mr. Tony Gibson, who were popular members of last year's panel will be among them. Again there will be a special luncheon at the Savoy Hotel given by E.M.I. Later the same day the presentation of prizes and the play-back of winning tapes will take place at a major public function.

These events will be on Saturday, August 30.

Copies of the rules and regulations and entry forms for both the British Contest, and the International event with which it will be associated, are now being printed, and applications will be filed and dealt with as soon as possible.

## MAGNAFON FRS.

Almost every week new tape recorders are announced by one manufacturer or another. It has always been our policy to stock the latest Models as soon as they are available, but only if they come up to the high standards of quality and performance insisted upon by Quality Mart.

One such tape recorder is the Magnafon FRS.

This design is built round the Collaro three-speed tape transcriptor and is fitted with twin speakers—A 9in. by 5in. elliptical and a 4in. moving coil tweeter. The Amplifier, which can be used with Tuner Unit or pick-up, has an output of approximately 4 watts. Other worthwhile features include a place indicator, pause lever, and storage space in the lid for two spare spools and microphone. Complete with microphone and spool of tape 55 gns:

**Tape Recorders, Gramophones, Tapes, Speakers, Amplifiers, Gramophones, Records**

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# Plan your programmes when you put

**R**ECORDING children on tape can be very rewarding. Once they have overcome any initial suspicion of the instrument, most of them are voluble enough and the only difficulty is in deciding which chatter is most worth preserving for the family archives.

There is much to be said for a well organised documentary approach. For example, a large reel of tape can be set aside for one child to make a five- or ten-minute recording every month or every three months, Junior participating in the planning according to age and ability. The important thing is to keep to the schedule, so that tapes are not swallowed up too rapidly, and so that a genuine historical record emerges.

Avoid concentrating on current achievements, which seem less important as time goes by, even to proud parents—although the odd few bars of the latest song or piano success can be fitted in somewhere to advantage. The object is not to show off, but to record, and attention should be paid mainly to the things in which the child is really interested at the time. He, or she, might perhaps report in diary form on special events that have occurred in his world since the last "broadcast."

Much of the eventual interest of this tape will be found to reside in the evidence of subtle changes of voice and ideas which pass unnoticed at the time.

## Plays and Pictures

**A** WEST COUNTRY reader has written to me enthusiastically about an experiment he has tried with a group of children who are too young to read except in a very halting fashion. He wrote a play, with their co-operation, and he put it on tape by reading their lines out to them with the pause control on, releasing it in time for the "actor's" voice to go on the tape. He reported that the whole thing was a huge success and sounded quite smooth on playback.

If you have any good ideas on this subject of recording children, I shall be pleased to hear about them and to pass them on.

And, while we are about it, I am looking for interesting, entertaining or generally appealing photographs with a tape recording connection for publication on this page. Any published will be paid for at our usual rates. Don't forget you can work wonders indoors with almost any camera if you fit a Photoflood bulb into the nearest lamp-holder in place of the normal bulb. Why not try it?

## Poem of the Week

**A**RE you fond of poetry? If so, here is an idea from a reader in Coventry. Every week-end he and his wife make a point of dipping into their volumes of

# TOMMY ON TAPE

poetry and fishing out hitherto undiscovered, or inadequately remembered, gems and putting them on tape. Then, every evening during the week, they play them back, usually shortly before going to bed. The result is that the pieces—or, at least, some of the best lines—are committed to memory without effort. I have taken up this idea myself and I very warmly recommend it, especially because I can now look my poetry shelf in the face, in the knowledge that it is no longer suffering from the criminal neglect of pre-tape days.

There is a good variant of this. You can select portions of a play, ancient or modern, and give yourselves two or,

## HOMO TAPIENS

by

*Douglas Jardine*

at a pinch, three parts each, cultivating suitable changes of voice to achieve the distinction. This can provide a lot of incidental amusement as well as aesthetic pleasure; and, once again, playing the tape back four or five times gives you a sense of familiarity with the piece out of all proportion to the modest effort that goes into the operation.

There is no need to stress that these pastimes can be applied with equal success to the grimmer work of getting people through the 11-plus.

## Meet Your Hi-Fi Friends

**T**APE enthusiasts have a natural tendency to get together and share resources. It is worth while, however, thinking of a slight extension of this activity—collaboration between tape recordists and non-tape high-fidelity enthusiasts.

Not that there is, as a rule, anything but a temporary distinction between the two. Most tape people who are not yet so equipped hope one day to possess the entire audio works, and hi-fi is becoming more and more closely identified with tape every day.

Nevertheless, there must be in many cases a considerable gap between desire and fulfilment, and collaboration is the next best thing—often a very good thing,

too. If you have good tapes, home-made or pre-recorded, they will be well worth hearing through a high-fidelity amplifier and speaker system, and the hi-fi man will also enjoy hearing the new material.

At the same time you can both learn a great deal about the other half of the world, which will be useful when you are ready to buy more equipment.

## Best of Two Worlds

**T**HE ideal tape recorder, I feel, must be not only self-sufficient and reasonably portable, but designed so that it can fit into a more elaborate reproduction system, bringing out the finer shades of sound inherent in pre-recorded music tapes.

This is not as easy as it may sound, because the designer is inevitably dealing with some unknown factors, and a degree of responsibility falls on the owner to take reasonable care in matching the equipment and arranging the connections. In some cases manufacturers are blamed for inadequate results, when the fault really lies in the external connections or in the wrong choice of associated equipment.

Theoretically, the simple answer is: "Ask your dealer about it," and very often that is the right answer. Unfortunately, however, good technicians are not as common as one might wish, and it is not easy to find one who is familiar with the wide range of modern high-fidelity equipment. Listing good technicians and encouraging them to give more attention to tape represents a very useful task for local tape clubs.

## Scotland Likes Tape Clubs

**S**COTS and tape, I am beginning to suspect, are made for each other. The first two postcards we received expressing support for the idea of starting local tape clubs came from north of the Border—one from Dundee and one from Dumbarton. Bearing in mind the pioneering work of Edinburgh, this must be significant!

I should like to hear as quickly as possible from other tape recorder owners in these two areas so that the Scottish initiative can be followed up as it deserves to be.

Leamington Spa and Sutton Coldfield are spotlighted for attention in England. Any more volunteers from these places!

Wherever you live, if you would like to have a tape club in your district send me a postcard with your name and address (and telephone number if you have one) thereon. Write the name of your town or centre at the top and add "Tape Recording club supporter" to indicate what it is all about.

The first reader to respond in any town will be sent all cards from the same area arriving subsequently. His only task will be to co-ordinate plans for a first meeting.

# Tape Types

by Alastair



\* Alastair 59

# IN SYNC. WITH CINE



## 'AUTOMATION' FOR AMATEURS

*Last month the author dealt with simple methods of achieving cine tape sync. by a strobe on the projector spindle lit by A.C. light flicker, and by a strobe on the tape deck lit by light spilled from the projector lens. This article tells of gadgets which make the sync. automatic, so that the strobe does not have to be watched during projection.*

**T**HE simplest method of automatic synchronisation is an electric governor on the projector motor, so that the speed is fixed at, say, 16 frames a second, and cannot vary. You make cue marks on tape and film, thread both with these marks in their proper places near the gate and the sound head, make your recording, and, when you play back, everything is simple. You can put recorder and projector where you like, with no juxtaposition needed, and it sounds delightfully easy.

If your playback is not in sync. immediately after making it, this means that the tape deck speed varies for some reason, and this should be checked and put right.

If your playback is out of sync. later on, this may be due to that bugbear, tape stretch, to which there would appear to be no answer except better tape, or the tape with sprocket holes recently introduced in the United States. Mylar tape stretches hardly at all, but, so far as the author knows, it is not obtainable in this country, except in the thin long play tape. The base is polyester, not acetate.

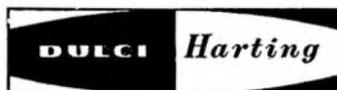
It is not generally realised that acetate absorption of humidity is nine per cent, compared to Mylar's 0.3 per cent. Paper tape does not stretch, but it went out a long time ago (though I still have boxes of it, bought before the introduction of plastic tape). If normal room humidity is increased from 20 per cent to 92 per cent RH, a 30-minute programme on Mylar tape will gain only 1½ seconds, but an acetate will gain as much as 20 seconds. It follows, therefore, that to get back into sync. something must be done.

Recently I made experiments with one of the popular Bell and Howell sound projectors and found that, by taking the jack plug of my recorder into the amplifier, I got wonderful sound; clear as a bell and ample volume for any large hall. But the silent speed of this projector is set at 18 frames a second (to give more light and less flicker in a small room, say the makers) and I wanted 16 frames—the speed at which my tapes were made. The Rank Organisation said it was easy to reset the speed to give 16 frames, by removing the motor end cap, and turning the grub screw of the silent make and break (there is another governor for the sound speed of 24) until the hand setting knob rotates at a speed of 960 r.p.m., tested with a tachometer, or rev. counter. The silent governor points can be distinguished by observing the coloured wiring,

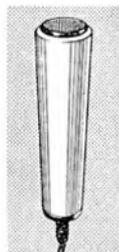
## HERE'S

*the precision Tape Unit* combining superb performance and presentation.

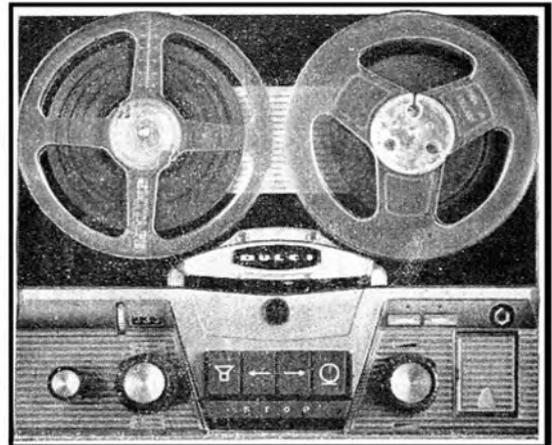
The brilliant new



### High Fidelity Tape Unit



Recommended microphone. 5 gns. extra.



Here's something that everyone interested in sound reproduction will want to see . . . a completely new Tape Unit, all ready for addition to an existing Hi-Fi system. It's packed full of attractive features! Recording amplifier is incorporated with erase and bias oscillator. Playback equaliser and pre-amplifier is integrated with the deck.

The control panel is superbly styled in modern high impact polystyrene to give a streamlined design. *And note these refinements!* A precision numerical position indicator, electronic recording level band indicator, plus a bias control and erase cut-out switch. This allows compensation for characteristics of any tape, plus advantage of superimposition *without* automatic erasure.

**55 GNS.**

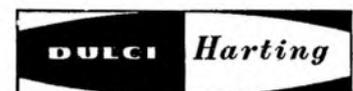
including tape and spare spool

★ 2 speeds — 7½"/sec. and 3½"/sec.

★ With calibrated compensating control, for various tape characteristics.

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## STANLEY JEPSON, ARPS, explains automatic methods of synchronisation for cine enthusiasts

comparing with the switch from silent/sound. I found by trial and error the grub screw wanted about one turn down.

I was then delighted with the ease of this automatic sync., which kept accurate step over 30 minutes. But when I had a film break I couldn't easily get back into sync., probably lost through not stopping both machines simultaneously. I set about to discover how to do this. You can switch while in operation from the silent speed of 16 to the sound speed of 24 frames, which brings up the picture, if it is lagging behind the sound. The reverse is not so easy, but it is possible on a picture without action, by throwing the clutch for a second or two, thus halting the picture. A title is a convenient spot.

"Messing about" with the tape, when running, is not advisable, or you may have tape break. But it is possible, in an emergency, with *some types* of machine, to place a finger lightly on the feed spool for a second or two. If you overdo it, of course, there will be terrible sound distortion! On one occasion when tape was known to be behind picture by several seconds, I switched down volume, put tape "fast forward" for a moment, switched up volume, and all was well!

The advantage of a governed projector speed for sync. has been realised by Messrs. Specto Ltd., makers of one of the popular light projectors, who are now marketing a device for governing their motor in this way, with a handy gadget for switching off the governor for a time if you are out of sync.

But there are other snags. In the second sync. method outlined last month, the tape pulley provides for *any* projector and *any* recorder, though it is not automatic.

If you are certain your projector speed is 16 frames and that your tape deck runs at exactly 7.5 ips, then your film can be shown with tape on any other pair of such machines of known accuracy; or on a tape deck with variable speed, such as the Levers Rich.

But not otherwise! Hence the need for standardisation.

There are various methods of linking the projector and the recorder to keep sync. automatically. I have a Celsonic synchroniser which provides a cable from the top of the tape capstan to the projector sprocket spindle; it can be attached and detached quickly. This gadget relates the speed of the capstan to the speed of the projector, and an electric cable brings into play a resistance which slows down or speeds up the projector motor. For a second or two after starting, with the common projector/recorder master switch, the two machines are linked mechanically, but then the electric control comes into play.

It works very well indeed, and, if you have lost sync. through tape stretch, you can compensate by manual control to the extent of some frames. I have even brought off bugle blasts and quick sounds like rifle shots, though I do not recommend using such a tight-fitting recording. I find the speeds of this machine (3.75, 7.5 and 15 ips), very accurate, probably due to the heavy flywheel of about 10 lbs. Reproduction is through a separate speaker/amp.

The best test of speed accuracy of tape equipment is a clock to time a measured film. Another method is a strobe

on the rotating capstan top. This is a 50-bar strobe, lit by the 50 cycles AC flicker for 7.5 inches, which gives a capstan speed of 120 r.p.m. Such a strobe is a useful check on capstan speed, if the capstan top is large enough for it to be attached.

There are on the market similar gadgets for keeping sync., operated by the tape, with electric control to the projector motor. From what one hears they work well.

A friend of mine is working on the idea of electronic pulses on the second track of the tape keeping the whole thing automatically in sync. He has met with much success, but we have yet to see such an idea on the market.

Another idea, worked successfully by a friend in South Africa, is interwound tape and film on a single spool. Filming and projection at 24 frames matches closely enough tape speed of 7½ ips. The automatic part is in the movement of a lever operating a resistance through the tape. If there is much tape over this lever it speeds up the film, and so the two keep in step. The projector is placed on top of the vertical tape deck.

Perhaps I should assure my readers that all these things are really simpler than they sound on paper . . . and they can be great fun.

Next month: **PROBLEMS OF MAKING SYNCHRONISED TAPE.**

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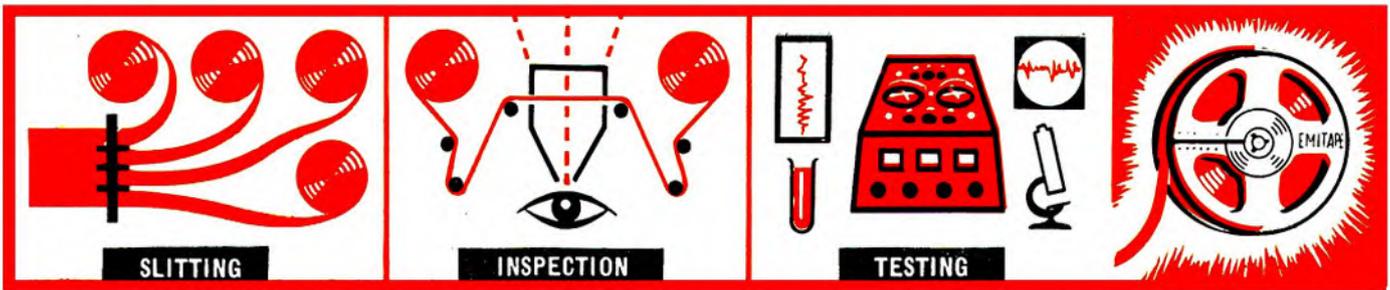
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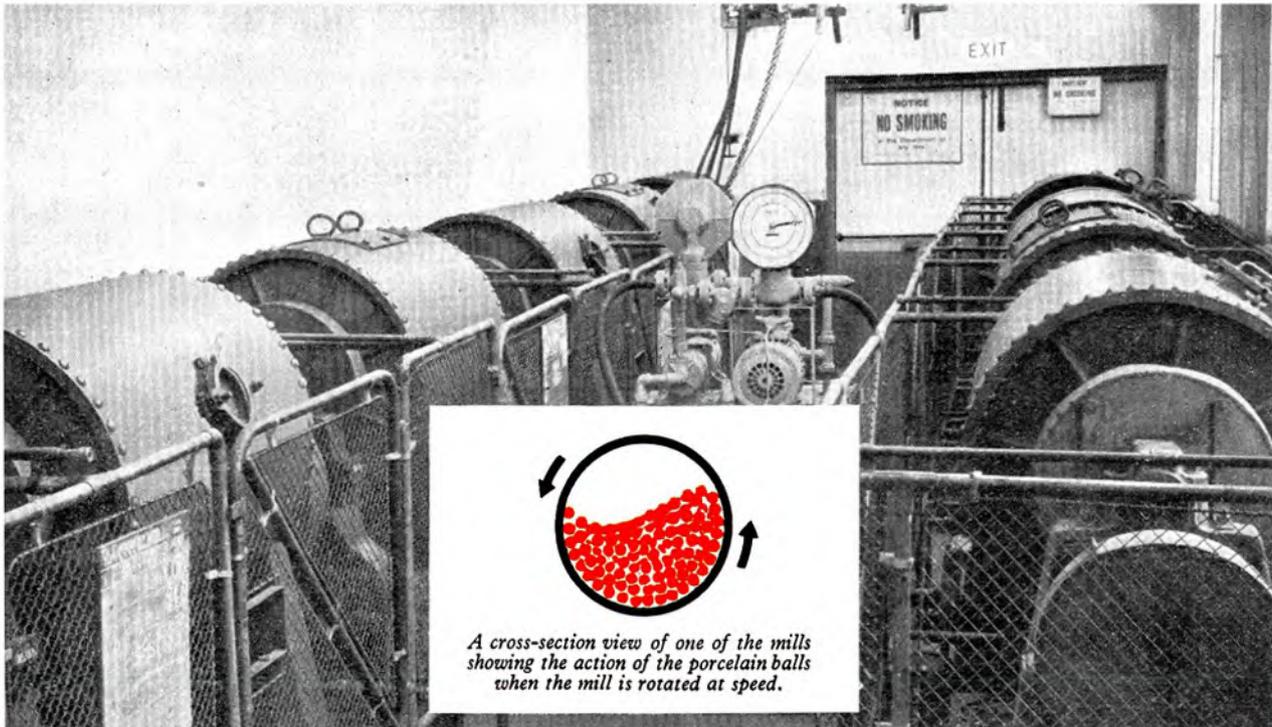
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# THE MAKING OF EMITAPE

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*A cross-section view of one of the mills showing the action of the porcelain balls when the mill is rotated at speed.*

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# PLAYS



on



# TAPE



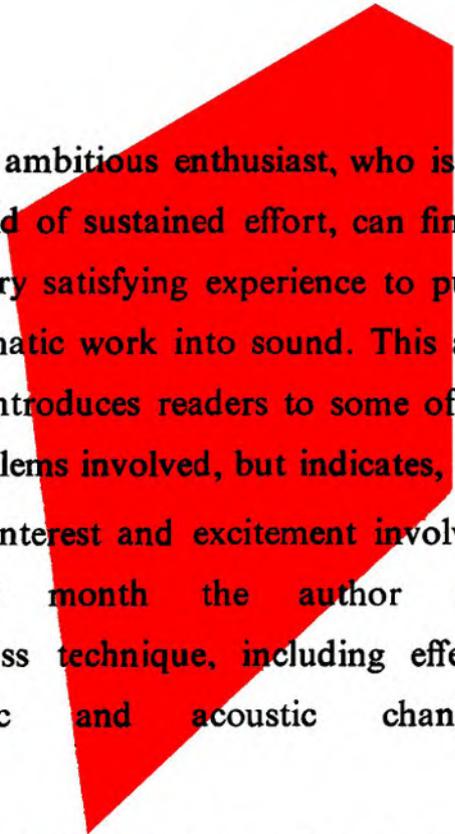
**W**HEN you produce your first radio play you will want to emulate the BBC in making the fullest use of the medium of sound, filling your play liberally with effects and music, and making it sound like "the real thing." But it is a fallacy to think that, to achieve professional-sounding results, you have to use comparable methods. Whereas the professional radio producer can broadcast or record his play as a single continuous uninterrupted unity, with effects, music, and changes of acoustic all coming in at the right moment and at the right level; most amateurs will find this an impossible and frustrating task.

The two enormous advantages the amateur has—the tremendous flexibility of tape recording as a medium, and the fact that he is not normally working to a strictly limited time-schedule—become the keystones of the technique he is forced to employ: a technique of doing his production "in bits." This, at any rate, is the technique which I have evolved out of continual experiment and constant error and much bitter experience of trying to approximate to the "professional" method: and one which I offer as a suggested approach for the beginner. I do not claim it to be, by any means, perfect, and I will be grateful for any suggestions for improvement which other enthusiasts may be able to offer; but it is a way of getting results that seems to me to combine a fairly high degree of efficiency with a minimum of complication.

\*

Before I explain in detail, I should like to suggest some general hints that will be useful when you do a production for the first time. First, about your choice of material. The two extremes to avoid are, on the one hand, plays written for stage production which offer very little scope for exploitation of the medium of sound; and, on the other, scripts which are extremely complex (technically) and which are full of difficult production sequences.

It is wise to choose a shortish piece—20 or 30 minutes is quite long enough for your first effort—and something that lends itself to radio treatment and offers scope for experiment with effects and music, without being so full of them



The ambitious enthusiast, who is not afraid of sustained effort, can find it a very satisfying experience to put a dramatic work into sound. This article introduces readers to some of the problems involved, but indicates, too, the interest and excitement involved. Next month the author will discuss technique, including effects, music and acoustic changes.

as to get you bogged down. If you write your own script, bear these points in mind and build your play round them.

Or you can take a middle course and adapt a short story. Here you will find a vast and confusing ocean of material, but, in general, tales that appeal to the imagination—fairy tales, ghost stories, science fiction, fantasy of any kind of fact—will prove profitable hunting grounds. Writers like Wells, Poe, Wilde, Thurber, and many others have a lot to offer to the radio producer.

Having chosen or written your play (and I should mention that adaptation is a lengthy, as well as a fairly specialised business that requires a lot of time and thought) you will need to prepare enough copies of the script for your cast and technicians. If you can afford it, have them duplicated (and allow a few to spare—you'll always need them): or at least clearly typed. The BBC format seems to me unbeatable (see illustration on opposite page).

Casting differs from stage casting only in that for radio drama you judge on voice alone; and always cast "on mic" if you can. First rehearsals, or "read-throughs," are straightforward for the most part, and matters of interpretation and performance are the main concern. I always do two or three full "table" rehearsals (i.e., without microphones), particularly when the play demands subtlety of approach and carefully worked out characterisations by the actors. But if your play is fairly simple and your actors good enough, you may prefer to go straight on to microphone rehearsal almost immediately.

Now, in my opinion, the one particular in which it is essential for the amateur to emulate BBC technique, if at all possible, is in having a separate control room. The trouble of fitting up a talk-back and cue-light system is more than compensated for by the overwhelming advantages the set-up yields. You are able to hear your cast at full volume over a loudspeaker (your judgments are much

**HAROLD ROTTESMAN, the author, has packed a wealth of recording experience into his short career and has spread his enthusiasm to many students at Oxford University. Plays on tape have been his special interest, as the following details show.**

*The author is 21, and consolidating his final year's work in English at Oxford. He has had a "passionate fascination" for everything connected with the reproduction of sound for as long as he can remember, and a preoccupation with radio plays and production.*

*About his own recorded productions, he says: "The first—it was so impromptu and slap-happy that it can scarcely be called a production. It was an affair called Expedition Into Space, a brief parody of a certain radio programme, and done with no script, no rehearsal, and entirely vocal or manual sound effects.*

*"Recorded versions of The Waste Land and The Pardoner's Tale at school, produced by our English master (now with the BBC) were valuable experience in learning techniques. At Oxford John Darglish and I devised A Visit to King's College, Oxford (a satirical fantasy, during the recording of which I acted, worked the recorder, gramophone and effects machine, and*

*monitored through headphones) and I'm the Dragnet, a slick burlesque of the American crime series.*

*"This was followed by my adaptation of James Thurber's The Thirteen Clocks for the Experimental Theatre Club, a production which nearly killed me. I then wrote Third Term Dream (another play set in Oxford); together with I'm the Dragnet, it was played to the E.T.C., with Mr. Archie Campbell, of the BBC, as Guest Critic.*

*"My most recent production, a dramatisation of Thurber's The White Deer was heard by the E.T.C. last November, with Mr. Trevor Hill (BBC) as Guest Critic."*

*Mr. Rottesman has also done "documentary" and "feature" programmes; and broadcasts on the BBC North Region. His script of The Thirteen Clocks was produced in the Home Service on November 4, 1956.*



more objective); and it gives cast and technicians, as well as producer, far greater freedom, removing all kinds of emotional and physical inhibitions. A battery-worked cue-light, by the way, will ensure freedom from "clicks" and "plops" that mains-worked lights induce. And remember that your talk-back key or switch must cut your monitor speaker (or your cast mikes), or feed-back will occur. Alternatively, you can so place your talk-back speaker and adjust its volume that feed-back won't arise.

Unless your play is of the very simplest kind, a mixer will be essential. It need not have more than two channels (though four is a good number), but you won't be able to manage without it—unless, of course, your recorder incorporates mixing facilities. I have found that a Grundig mixer unit works perfectly well with a Ferrograph recorder, and there were no noticeable differences between sequences recorded with the Grundig and others with an electronic mixer.

If you can get hold of ribbon microphones for the cast, do so: they give excellent reproduction of the voices and are more tolerant of obtrusive room acoustics than, say, a crystal type. Moreover, the bi-directional qualities of ribbon mics are exploited by drama producers for the ease with which "approaches" and "recedes" are obtained. The effect of an actor speaking a line while moving round from the dead to the live face of the microphone is that of approaching from a great distance.

And, in general, always use the best equipment you can get hold of. There will be technical problems enough, without the added difficulties of unreliable plugs and cables, faulty faders, temperamental stop and start mechanisms, unstable motor speeds, non-matching mics and speakers, and so on.

It is also a good plan to make your technical set-up as "standard" and consistent within itself as possible. In other words, where you have more than one turntable

(Continued on page 26)

-44-

1 JORN: (After a silence) She named you Valiant, and placed the crevice in your armour not too near the heart.

2 MUSIC (Hold under:-

CUE: 3 NARRATOR: Prince Jorn helped the old man to his feet and staunched the blood and bound the wound. The figure of Duff of the Dolorous Doom clanked slowly away and was lost among the trees.

(Music out.

The Prince hurriedly refilled the chalice with the scattered rubies, and a moment later he was riding swiftly for the castle of his father, with the silver chalice shining in his hand.

(Bring up:-

4 EFFECTS: GALLOPING HOOVES, FADING INTO THE DISTANCE

Mixing with:-

5 MUSIC (Fade.

(ON ECHO:

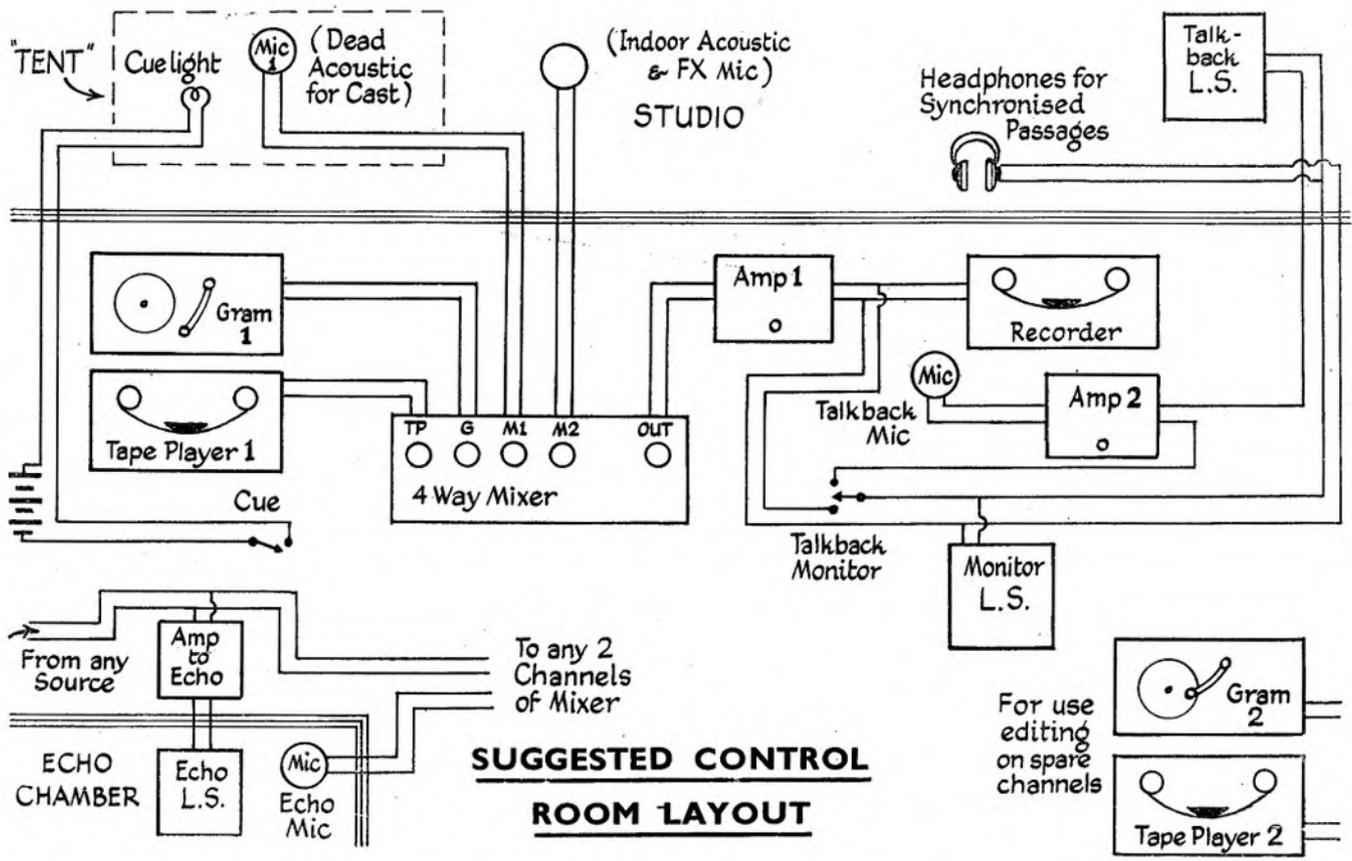
CUE: 6 SPOT F/X: KNOCKING ON DOOR

7 PRINCESS: (Off mic) Come in.

8 SPOT F/X: DOOR OPENS, AND CLOSSES

9 PRINCESS: Good evening, Sire.

10 CLODE: (Approches) We come before you -- the Royal Recorder, the Royal Clockmaker, the Royal Physician and I, with three bitter things to say: a fact, a tale, and a conclusion.



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microphone, or recorder, you will find that using the same kind is a great aid to efficiency and to good results. For *The White Deer* I was lucky enough to have the use of three Ferrograph recorders, a four-channel electronic mixer, one three-speed turntable, and three Reslo ribbon mics, as well as sundry extension cables, speakers, etc. For my talk-back I used an Acos 22 crystal mic, amplified through a Vortexion amplifier.

Again, a general rule in the cause of quality: if you can afford it, always record at 7½ ips. This may double your cost of tape, but will greatly facilitate editing, and the improved quality will be valuable when your dialogue has to undergo two or three dubbing sessions (as it will). But you can economise by recording on used, spliced tape if necessary. Even if the splices are not perfect they will pass unnoticed when you record at 7½ (certainly for dialogue, and often for music).

Your tape consumption will always exceed your estimations. For *The White Deer* (a 100-minute production) we recorded on just under four miles of tape! Standardise your tape-type too, and use the same kind throughout your production.

It is a good self-discipline to aim at thoroughness and perfection at every stage; hurried and faulty work only piles up troubles for later on. And, finally, always, when planning, allow at least twice as much time as you think necessary for all stages, especially those involving technicalities. In particular, aim at setting up and testing your equipment and studio at least a day before you need to use it. Things will go wrong—and it's much harder to cope with them when you've a studio full of impatient and cynical actors at the same time.

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## SUGGESTIONS

### GETTING AN ECHO

**R**EADER G. A. Wilson asks about producing an echo effect (*Jan. issue*). While I have not tried this, a friend in Johannesburg says he has discovered that with his machine with monitoring facilities he monitors the tape through a speaker, and as this is played  $\frac{1}{4}$  sec. after the original signal it can be picked up by the mike while he records.

He adds that "provided the settings are critical an echo of 5 to 6 cycles" can be picked up.

He finds however, it is almost impossible to talk against his own echo, but with a mixer pre-amp this can be fed back electronically. It occurs to me if he used a second recorder for the voice, previously recorded, he wouldn't have this talking problem against an echo. It would seem useful for such items as dream sequences.

With regard to Mr. Dyer's "Problems of an M.C." I would refer him to the article you published on the use of a recorder for a party in your issue a few months back.

May I congratulate you on your new and improved magazine, which is now very fine value.

S. JEPSON

Jersey, C.I.

**M**R. WILSON and other readers may care to know that the January issue of the Midland Counties Tape Society Sound magazine contains a good feature on the echo effect. Two methods, other than with an echo chamber, are demonstrated.

Anyone interested should write to me and I will be delighted to give full details.

JOHN R. WALTERS

29, Pitt Street,  
Broadwaters,  
Kidderminster,  
Worcs.

Readers are responding enthusiastically to our new feature. Here are some more interesting problems and helpful suggestions.

## THE IDEAS POOL

**M**R. WILSON may find the following method of interest.

I fit an extra record/playback head to my tape deck in place of the erase head, so as to enable me to monitor the actual recorded material.

The monitoring is done using a separate amplifier; output by either phones or speaker.

The method for echo effect using microphone, which is the same for any other recording, is as follows: recording is made through the microphone, the recorded sound, via the monitor head, is fed to the monitor speaker. The microphone picks up the recorded sound from the speaker whereby the sound is again recorded, thereby giving the echo effect.

The record level and distance of the microphone from the speaker is soon found by trial. The "length" of echo is effected by a gadget fitted on the deck, near the record heads, which pulls the tape out thus increasing the length of tape passing in front of the heads. This enables the echo to be "regulated" from  $\frac{1}{4}$  sec. to approx.  $1\frac{1}{2}$  sec.

M. H. ALLEN

York.

### SPLICING TECHNIQUE

**I** WAS interested in Mr. Jepson's letter on splicing.

When I first started tape recording in 1954, I found the same trouble. Where I joined tapes and had not used them for some weeks, the next turn of tape had stuck so hard to the part that had been spliced, that rather than unstick, the tape would break.

However, subsequently "Scotch Boy" marketed a jointing tape which I found much better. This is available in coils 7/32 in. by 66 ft. at 3s. per roll or  $\frac{1}{2}$  in. by 66 ft. at 4s. 9d. per roll. E.M.I. also produce one at 7s. 6d. per coil.

However, I now think that there is nothing to beat jointing fluid. I use Emitape AP77 for any base of tape in conjunction with a "Bib" tape splicer (a necessary instrument with any kind of splicing) and a camel hair brush. I find no trouble at all, and have a joint which is "welded" together and not "stuck".

It is interesting to know that no commercial firm that I know of uses the contact adhesive form of splicing

P. G. LEADER

London, N.W. 10.

## AND QUERIES

**I** AM a professional puppeteer and my whole performance is recorded on tape. There will be about a hundred splices on some of my tapes as after the recording is made I have to "time" it. That is lengthen some pauses and shorten others. This is done by splicing in leader tape.

I find that the ordinary commercial jointing tape supplied by the dealer is best. I do not put it on at an angle but just as straight as I can. Then I trim the edges with non magnetic cutters. If a little crack appears in time and makes a sticky click I open the joint and re-do it altogether. This is no trouble as it so seldom happens.

I have become able with practise to cut a tape between two words and make a pause. I use a lot of children's voices in my show and I make such recordings. I find that some children do not do their best with a friend looking on; so I get a child to record all his part at one session with me. When I have all the parts recorded I spend hours splicing it all together. In that way a child holds a conversation with someone he has never seen.

Finally, may I say what an asset tape recorders are to me as a puppeteer. I use a Simon SP/2 and find it is a delightful instrument to work with.

G. RUTHERFORD

Edinburgh

### RECORDING THE SEA

**I** AM looking forward to spending a long holiday at the seaside very soon. I want to make some really good recordings of waves breaking, gulls flying overhead and similar effects. Have any readers any experiences or advice to offer to me?

E. JONES

Hampstead.

## TAPE IN THE SCHOOL!

By H. A. Parks

**T**APE-RECORDED commentaries for use with filmstrips quite definitely help to avoid unnecessary verbiage and contribute to a smoothly-flowing lesson, in which one can concentrate on the children's reactions to both pictures and commentary.

As with nearly all modern teaching aids the teacher does not have less work, but more. At the same time his satisfaction is greater, because his lesson is made more effective. Maybe this is heretical, but I feel that a teacher should consider variety for himself as well as for his pupils. Finding new ways of preparing and putting over lessons does one good—so long as one does not become a mere gadgeteer.

The commentary can be recorded at home where, with any luck, it is easier to concentrate. First, consider the notes supplied with the strip, if there are any. Though these are frequently excellently prepared and of very great use to the teacher (especially the non-specialist), it will probably be better to make up one's own commentary. Write or type this in the most concise but legible form possible. Commentaries are most effective when they are in narrative form, rather than a catalogue of pictures in verbal form.

Two more practical points need to be mentioned. It is very helpful if the tape has a coloured leader at each end. Mine is a machine on which the tape is turned over physically when changing track so that both ends of the tape lead in turn. I therefore have a red leader at one end and a white at the other. If the join between leader and tape is placed immediately in front of the sound head you know exactly when your commentary will begin and this helps to make the start of the lesson "smooth." If you add to this precaution that of having a reasonable gap between frame commentaries you provide warning for yourself when operating the projector. These points may sound petty, but they greatly ease for the teacher the mechanical actions necessary to the success of the lesson.

While there is nothing epoch-making in what I have described, it is a rewarding method of lesson preparation and is worthy of a place in the teacher's "tool chest" for regular, if not frequent, use.

Here is a less frequently used "tool"—the tape commentary for a mute film. I know of at least one area where silent projectors still predominate and many schools still have these machines all over the country.

Most mute films have with them a full script of the sound version commentary. You need this, or you need to draft your own commentary. You also need the co-operation of two colleagues. Let me relate the details of my own experience in attempting this task.

One colleague projected in a classroom with a glass-panelled door. He ran the film through and switched

# Adding Sound To Film Strips

off immediately the title frame showed on the screen. I set up my tape recorder in the adjoining room (having the door closed). My second colleague acted as "manager," staying in my room and developing a most efficient tic-tac code to let me know if I showed signs of falling behind or getting ahead with the commentary. I stood where, by holding the script well up, I could read it and glimpse the film as well, and then our manager started both projectionist and reader with a sign. The manager concentrated eyes on the picture and ears on the reader. The film was *Mediaeval Castle* which has an excellent commentary.

This procedure is not recommended for frequent use, but it is worth a trial and it can be entirely effective. Not only can it be used for supplying a commentary for a mute film, but also for putting a simplified commentary to a film in which the visual is suitable but the sound too advanced for your class.

Within recent weeks I have found another use for my tape recorder. This was to interview someone who had had intimate connections over a number of years with a colony listed for treatment in my history syllabus. The gentleman concerned was very ready to co-operate and we soon arranged an interview. It was quite spontaneous and a complete failure. Yet I knew exactly what I wanted and he had more than ample information at his finger tips. The result was a slow-moving dialogue that would not do for the classroom.

We arranged another meeting. In the meantime I drafted two copies of my questions and sent them to my friend, who added his answers to both copies. He was co-operative and very keen on education. We both realised that our vocabulary must not be too far above the thirteen-year-olds in my class. Yet we found that there were some forty difficult words which needed explanation by the time we had finished trying to be as simple as possible. This is a real problem in a task of this kind.

There is, surely, a common factor in the three uses of the tape recorder outlined above. It is the simple truth that careful preparation is at least eighty per cent of the battle.

HEARD IN THE HOME

# NEW GERMAN BATTERY RECORDER

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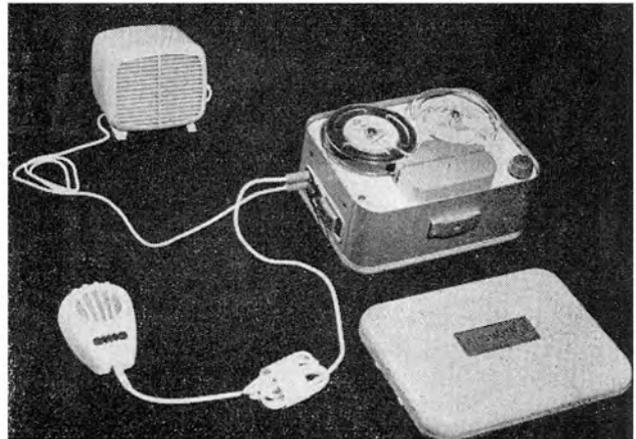
**B**ATTERY-OPERATED tape recorders are comparatively rare, and for this reason alone, tape enthusiasts will study with great interest the West Germany made Phonotrix all-transistor portable now being marketed in this country by GBC Electronic Industries Ltd., 119, Edgware Road, London, W.2.

Outstanding features are its low price of 26 gns., complete with microphone, separate speaker, tape and simulated pigskin carrying case, and its lightness and compactness. With batteries, the total weight is 11 lbs; and the size of the Phonotrix in its case is 11×4×6 ins. The size of the tape recorder on its own is 6½×4½×3½ ins.

There are natural limits to the quality to be looked for in a machine of such a size and price, but a TRM home test produced results that exceeded expectations. This test confirmed that although music is not within its proper scope, the reproduction of speech is distinct enough to be labelled "very satisfactory," a particularly useful feature being the automatic volume adjustment. A conversation recorded well with one voice twelve inches from the microphone and the other twelve feet away.

Bearing in mind the potentiality of such machines as this for obtaining some of the outdoor material for feature tapes and so on, we recorded a tape on the Phonotrix and played it back on more expensive equipment—including a fairly large loudspeaker.

The quality in this case was good enough to prompt the conclusion that the Phonotrix could, in fact, be very usefully employed in this way, both for interviewing etc., and for recording such things as folk songs. Mechanical noise was evident at first but this was reduced to a perfectly tolerable level by placing this recorder on a soft instead of a hard base. At one point, also, a slight residue from a previous recording was detected.



The Phonotrix recorder, loudspeaker and microphone

It should be noted, however, that the Phonotrix has a variable speed control (from approximately 1 ips to 8 ips) to compensate for loss of power as the batteries are used, and this must necessarily complicate transference of material recorded on it. It is not difficult, however, to find by experiment a setting of the speed control that, with fresh batteries, corresponds as closely as is necessary for most purposes to 3½ ips. Alternatively, dubbings can be made by taking a lead from the loudspeaker socket.

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	Price			Deposit			Payments		
	£	s.	d.	£	s.	d.	C.S.	H.P.	
Brennell Tape Deck Mk. II.....	18	18	0	2	1	6	9 of 41/6		
Brennell Pre-Amp...	18	18	0	2	1	6	9 of 41/6		
Collaro Tape Deck	22	10	0	2	10	6	9 of 48/10		
Collaro Pre-Amp....	21	0	0	2	6	6	9 of 46/2		
Bradmatic Tape Deck	42	0	0	4	13	0	9 of 92/4		
Bradmatic Pre-Amp	75	0	0	8	5	0	9 of 165/0		
Truvox Tape Deck Type III-U	23	2	0	2	11	5	9 of 50/9		
Truvox Pre-Amp Type "C"	16	16	0	1	17	4	9 of 36/11		
				8	8	0	H.P. 12 of 15/9		

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	Price			Deposit			Payments		
	£	s.	d.	£	s.	d.	C.S.	H.P.	
Vortexion 2A	55	0	0	6	1	0	9 of 121/0		
Second-hand				27	10	9	H.P. 12 of 51/6		
M.S.S. Type	65	0	0	7	3	0	9 of 143/0		
PMR/DE				32	10	3	H.P. 12 of 60/11		
Simon Type SP/2...	65	0	0	7	3	0	9 of 143/0		
Spectone 120 Shop-soiled	72	0	0	32	10	3	H.P. 12 of 60/11		
Spectone 122 Shop-soiled	58	0	0	7	19	6	C.S. 9 of 159/6		
Elizabethan '57.....	68	5	0	36	0	0	H.P. 12 of 67/6		
Vortexion 2A.....	92	0	0	6	7	9	C.S. 9 of 127/7		
Ferroglyph 3 A/N...	82	19	0	29	0	6	H.P. 12 of 54/4		
Grundig TK8.....	75	12	0	7	10	1	C.S. 9 of 151/1		
Grundig TK830.....	105	0	0	34	3	4	H.P. 12 of 63/11		
				10	3	0	C.S. 9 of 202/4		
				46	0	0	H.P. 12 of 86/3		
				9	3	1	C.S. 9 of 182/5		
				41	9	9	H.P. 12 of 77/9		
				7	11	10	C.S. 9 of 166/3		
				37	16	0	H.P. 12 of 63/2		
				11	11	0	C.S. 9 of 231/0		
				52	10	3	H.P. 12 of 98/5		

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## New Walter on the way

**WALTER** Instruments Ltd., have completed plans to market a completely new tape recorder, the Model 505, "incorporating all the extra features and refinements required by the hi-fi enthusiast."

The 303 will be continued and even larger sales figures are expected this year.

A recent follow-up order from New Zealand for Walter tape recorder equipment reaches a total value of £100,000. The firm's chief engineer, Mr. J. Nolan, flew out to Vancouver to supervise its arrival and advise on technical details and servicing.

★

An Elpico-Geloso tape recorder, won by Mr. C. R. Welch of Barnet, in a recent edition of the popular ITV programme "Take Your Pick," was presented to him by Mr. Michael Miles. A similar prize went to his "Air Partner," and a further two machines were presented on the Radio Luxembourg radio version of the programme.

★

Arrangements have been made by Technical Supplies Ltd. for the Pullin Optical Co. Ltd. to act as their sole distributors to the British photographic trade for their complete range of high-fidelity equipment, including Harting tape recorders, amplifiers, FM tuners, loudspeakers and enclosures.

# NRS CONCERT GRAND

**T**HERE is obviously a considerable future for the type of comprehensive equipment that can take over, in modern tape-plus-hi-fi terms, where the radio-gram leaves off; and Northern Radio

Services Ltd., 11, Kings College Road, London, N.W.3, have directed their considerable technical resources to the task of producing an outfit that can satisfy very exacting demands in this field.

With their NRS Concert Grand Reproducer Kit they have clearly made an important contribution, especially since the complete outfit can be acquired for about £130, including tape, disc and FM facilities played through a triple-cone speaker assembly.

The Concert Grand kit, when complete, consists of the following:—

No. 2 Symphony amplifier, with remote control, £19 19s.; Studio pre-stage £3 3s.; Lenco GL50 transcription unit £21 17s. 6d.; Switched FM tuner from £15 15s.; Truvox Mark IV tape deck £30 9s.; Truvox tape amplifier £17 17s.; Concert Grand cabinet £19; Lorenz triple-cone loudspeaker £15 4s. 6d.; Symphony 12 in. bass reflex cabinet £11 10s.

The items are available separately and can be varied to suit individual requirements.

The Concert Grand assembly heard and handled in room conditions gave excellent reproduction on all channels, and a very satisfactory feature was the quickness and ease of switching to the various facilities, no plugging in and out being called for. The equipment cabinet is very handsome and clean in design and, with the matching loudspeaker cabinet, can be had in various finishes.



The NRS Concert Grand

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type  
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RONETTE developed the type 44 microphone especially for use with portable tape recorders. The plastic housing in "American" style has a loaded base. It can be supplied with any of our various inserts, but it is regularly supplied with the type DX-12. On quantity orders the RONETTE badge may be changed for your own trade mark. Fitted with 6½ ft screened cable.



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# THE DESIGN AND CHARACTERISTICS OF MAGNETIC HEADS

*We print this month the first in a series of occasional articles by technical experts. These will deal in detail and in the most authoritative way with aspects of tape-recording design and development. The enlargement of the magazine makes possible this new service and readers who have only a general interest in tape will continue to be fully served by our more popular features.*

**T**HERE are three types of magnetic heads used in tape recording machines: (1) the record head, which transfers the electrical signal to the tape in the form of a magnetic record; (2) the replay head, which extracts a signal from the magnetic record on the tape; and (3) the erase head, which removes the magnetic record from the tape and leaves it ready for the next recording.

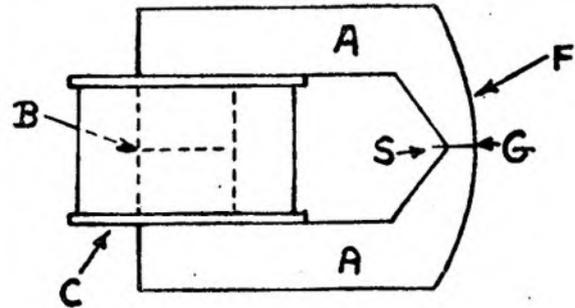
The basic construction of each type of head is very similar, but the erase head has a wider gap spacer, usually a different impedance, and often uses a very different core material. The record head and replay head are often identical in construction, and in domestic machines it is common practice to use one head to perform both functions.

Reference to diagram 1 shows the core A, which is composed of a stack of thin laminations of high permeability magnetic material, made in two halves, enclosing a coil of insulated copper wire C. The core has a front gap G and a back gap B. The back gap may not be necessary, but the front gap is vitally important, as the tape passes over the face of the head F and the magnetic flux produced by the head impresses itself on the tape at this point.

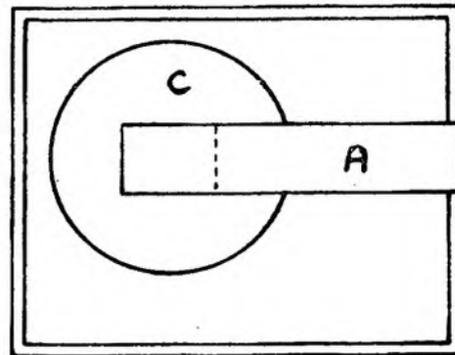
To ensure that the front gap is straight and uniform, a piece of non-magnetic material, known as the gap spacer S, is inserted between the two halves of the core, as shown. In order to reduce the reluctance of the core magnetic circuit to a minimum the back gap B is made as small as possible by honing the abutting surfaces of the core flat before assembly. The face of the head F is ground to a uniform cylindrical shape and polished so that the surface of the tape can make good contact with it.

Diagram 2 shows one method of construction, where the head assembly is potted with special compound which secures the core laminations and gap spacer as a rigid assembly.

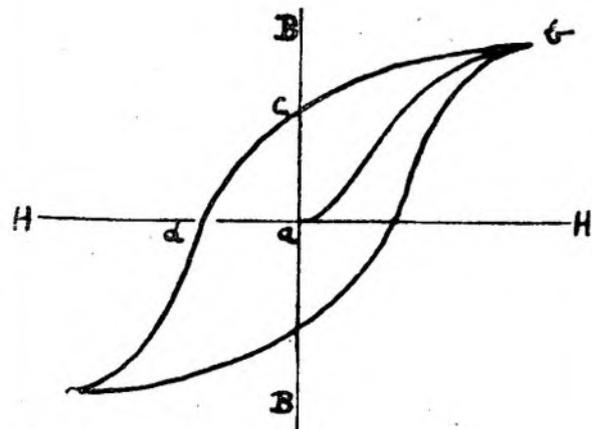
When a current is passed through the coil C it produces



1. Head-Basic construction



2. Head in case (side view)



3. Hysteresis current curve

# THE DESIGN AND CHARACTERISTICS OF MAGNETIC HEADS

By **M. R. JACKSON, Grad. Brit. I.R.E.**

(Recording Development Section, E.M.I. Sales and Service Ltd.)

a magnetic flux in the tape which is non-linear with respect to the current.

Diagram 3 shows how the flux in the tape varies with the head current; the figure produced is known as a hysteresis loop. Assuming that the tape is completely unmagnetised, the magnetising force  $H$  set up in the core by the current produces a flux  $B$  which follows the curve from "a" up to point "b" when saturation occurs. When the magnetising force is reduced, the flux follows a new path back to "c".

At "c" the magnetising force is zero, but the flux is represented by the length AC. This is, therefore, the amount of flux remaining on the tape. If the head were operated in this manner, there would be considerable distortion of the recorded signal, for in one direction a change of magnetising force would produce a small increase in flux, while in the other a large decrease.

To overcome this, a direct current bias can be applied to the head along with the signal current. This raises the operative portion of the hysteresis curve to a flat portion, so that the flux on the tape is proportional to the recording current. In this way each element of the tape becomes magnetised according to the strength and variation of the current. It is now common practice to use high frequency AC bias, which results in a more linear recording and a much better signal-to-noise ratio. The method of DC bias is described here because of simplicity in illustration.

The sensitivity can be described as the ratio of flux on the tape to recording ampere turns of signal. The sensitivity depends on the working permeability of the core and

the width of the gap spacer. It is therefore desirable to have a high permeability magnetic material such as Mu-metal for the core.

The frequency response of the head depends on a number of factors, the chief of which are gap width, hysteresis and eddy current loss in core and spacing between head and tape. To obtain a good high frequency response the gap width must be small, but it can be larger than the replay head. The trailing edge of the gap, however, must be well defined and straight, as this has considerable effect on resolution. Hysteresis loss is reduced to a minimum by using a suitable quality magnetic material for the core and annealing it properly.

The low frequency response is slightly affected by the shape of the head face and the "tape lap"—that is the length of tape in contact with the face of the head. This effect is not usually important in domestic machines, but may be significant in heads used on professional machines, where a more exacting frequency response is desired.

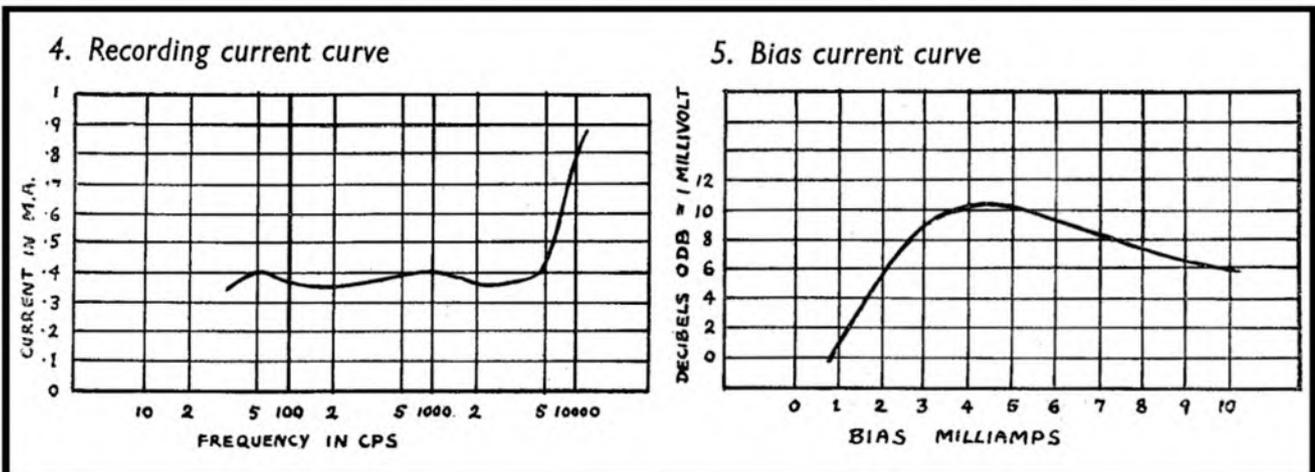
The graph 4 shows a typical recording current curve for a type of low impedance head used with a tape speed of 7.5 ips to produce a constant induction tape.

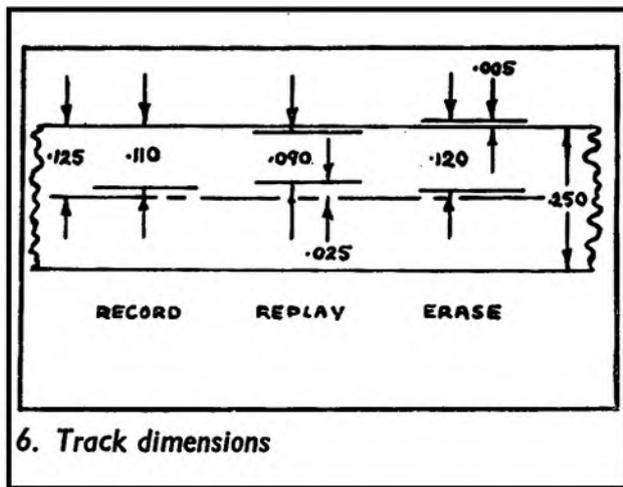
As the bias current is increased, the recorded signal increases and then reaches a maximum, this characteristic is shown by the graph in diagram 5.

Usually the bias applied to a head is adjusted for minimum distortion; this usually occurs when the bias is a little more than that required to produce a maximum signal.

The replay head is similar in construction to the record head but where a separate head is used the lamination stack is usually shallower. Diagram No. 6 shows the standard track dimensions of the record replay and erase heads in relation to the tape.

(Continued on page 34)





6. Track dimensions

(Continued from page 33)

The tape carrying the recorded signal passes over the face of the head and induces a changing flux into its core. The e.m.f. produced across the coil is proportional to the rate of change of flux; this means that for a constant induction tape the response of the head rises with frequency at the rate of 6 dB per octave. This rise is maintained only at low frequencies, the output reaching a peak when the wavelength is about twice the gap width. With a gap width of .0005 in. and a tape speed of 7.5 ips this wavelength will be .001 in. or a frequency of 7,500 cps. In practice the peak will occur at a lower frequency

because of eddy current and hysteresis loss in the core and imperfect contact between head and tape.

The tape is brought in contact with the head either by means of a pressure pad or by slightly stretching the tape across the head.

It can be shown experimentally that the loss caused by a gap between the tape and the head is proportional to  $55 d/Y$  dB, where  $d$  is the gap and  $Y$  the wavelength. It can be seen, therefore, that even a gap of .0001 would cause a loss of 5.5 dB at 7.5 Kc/s using a tape running at 7.5 ips. Arising out of this effect is one cause of noise modulation of the signal; that is, noise appears when a signal is present, because of changes in contact between head and tape.

The graph 7 shows a typical response curve of a half-track head using a constant current recording running at 7.5 ips.

Because of the characteristics of the head, the amplifier used with it must have a bass boosting circuit which rises so that the resultant output is approximately flat within the required bandwidth. As the output of a head is measured only in Millivolts even at 1Kc a high degree of amplification is required at low frequencies. As a result, the head is very susceptible to hum pick-up and it is therefore usual to enclose it in a Mu-metal screen which forms the case of the head. A further screen may be necessary to reduce the hum to the required level.

The erase head can be constructed in a similar manner to the record head; the essential difference is a much wider gap of approximately .020 in. The core A may be a stack of laminated Mu-metal or it may be a solid ferrite core in two pieces. The ferrite core is a more recent development. It is more efficient and makes the construction of the head simpler. The impedance of the coil C is usually about 1/10th the value of the record or replay head coil.

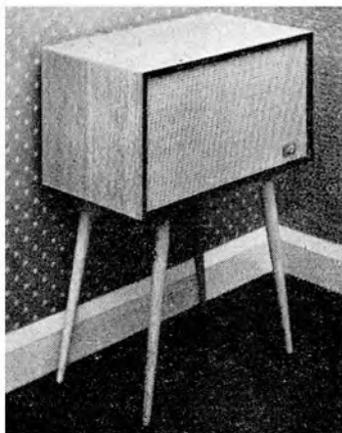
To ensure erasure of all the track, the depth of the core must be greater than the record head. In operation, the coil is supplied with power at a frequency between 50 and 100 Kc/s, the choice of frequency depending mainly on the top audio frequency response and the tape speed.

The high frequency flux threading the tape is made of sufficient amplitude to bring the oxide to saturation; any record signal is therefore obliterated. As any portion of the tape is moving out of the vicinity of the gap, the HF flux applied to it gets gradually weaker. The tape therefore becomes completely demagnetised by a progressive series of weakening alternating flux.

A good erase head is capable of erasing the signal by 70 or 80 dB. To accomplish this, several watts at 100 Kc/s may be necessary. This results in some heating of the head. In heads using ferrite cores the gap spacer is an insulator, because the eddy currents in a metallic one cause it to become too hot and therefore the tape might be damaged.

A typical erase head of 300 yH inductance requires about 250 milliamps of current to produce 70 dB erasure of the signal. After a certain degree of erasure has been

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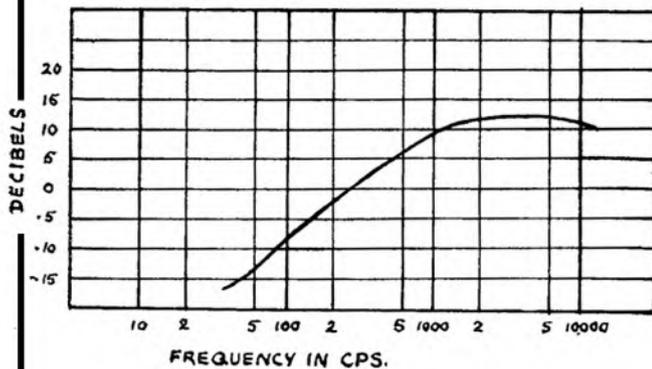
Reviewing C.Q. in September, 1957 *Hi-Fi News*, Ralph West says: "... the C.Q. now ranks with the best loudspeakers available in this country ... [it] was characterised by behaving as a much larger sound source than consideration of driving unit and cabinet would have suggested."

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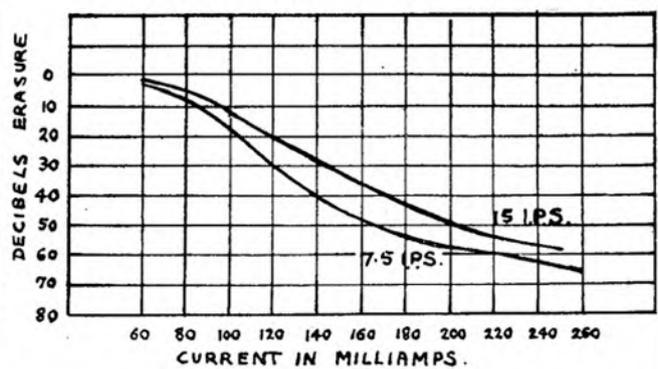
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7. Replay response curve



8. Erase current curve



obtained there is a pronounced saturation effect, so that to double the erasure requires much more than double current. There is also a time lag effect so that erasure on a tape running at 7.5 ips is greater than erasure on one running at 15 ips.

Diagram 8 shows the performance of a typical erase head with the tape running at 7.5 ips and 15 ips.

In general, the manufacture of heads is made more costly by the stacking of small laminations, the accuracy and finish required on the abutting sections of the cores, and the care needed in grinding and polishing the present high permeability magnetic materials in use. The tendency, therefore, is to dispense with laminated core and use some

form of magnetic material having a low loss factor in comparatively large section.

The present type of replay head in use has the fundamental disadvantage of a very low output at low frequencies. This requires high amplification and often calls for elaborate screening of the head and parts of the machine in which it is used. For this reason the flux sensitive type of head, which theoretically has a constant output at all frequencies, may be used, if one can be designed with a good signal-to-noise ratio. Present flux sensitive heads have a poor signal-to-noise ratio or require additional gear for their operation which prohibits their use, except in special machines.

# Magnafon for 1958



MAGNAFON MI 56 gns.



MAGNAFON PRE-AMP 40 gns.



MAGNAFON '58' 62 gns.

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No. 2



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## CIRCUIT DESIGN

THE pre-amplifier stage (6BR7) amplifies all signals fed in via selector switch from R/P head or Mike Input socket. The output is fed into the 1st grid of the double triode (12AX7) via the Master Volume control. The gram input is also fed via Gram Volume control into the 1st grid (12AX7) mixer network.

The 2nd stage (12AX7) contains the tone compensation network between the two triodes, whilst the 2nd anode feeds the EM84 (level indicator) and the record head (in Record position) or if in Amp or Playpack position, to the grid of the output valve (6BW6).

The 3rd stage (6BW6) is designed to operate as an output valve, or HF bias oscillator, the anode being switched either to the output transformer or the oscillator coil, the control grid is also switched to the oscillator coil when in Record position.

The tone control is now a selective negative feedback arrangement to the 2nd cathode of the 12AX7. The monitor is also taken from the 2nd cathode of the 12AX7. The indicator bulbs are on the same heater line as the 6X4 and EM84, with one side switched to earth.

## HOW TO CURE TROUBLES

### WOW OR FLUTTER

First check pinch wheel, this should be free moving, also when engaged with capstan, it should hold tape firmly without allowing slip, a spring attached to Item "T" can be given extra tension if necessary. The centre capstan motor can also give trouble by going off centre, sharp tapping on either side of case will cure. Check that no oil has been applied to drive spring, this will cause slip, pulley and flywheel grooves should be checked and cleared of any oil. Check flywheel and capstan for free running (with spring drive belt off), adjust and grease as necessary.

### IMPORTANT

Tape has been found to be a great offender of wow due to a grease in its base. Clean hands, capstan and pinch wheel, then substitute with recommended Emitape "88".

### PINCH WHEEL

Remove spring clip to remove pinch wheel, clean off all oil from spindle and inside bearing, re-grease and replace. Care must be taken to allow free movement when spring clip is replaced. The makers recommend the use of castor oil (for the pinch wheel, of course).

### PRESSURE PADS

These pads should press tape against heads of an even pressure, slight tensioning may be necessary on occasions. Tape screech can be overcome by the above treatment. If replacement is necessary, secure with bostik.

### NOISY MOTOR

If a motor should develop a rumble, a sharp tap to one side of motor case will re-centre it. Try three sides to find correct setting. Adjustment of securing nuts on rubber bushes can also assist vibration noise.

### SPOOL CARRIER

Height of adjustment is made by locating screws top dead centre of spool carrier, a locking screw is situated on side of brake drum.

### TAPE TABLE STOPS AFTER A PERIOD

First check that the pinch wheel is free on its bearing. Secondly, see that the drive pulley has not become loose on motor spindle. Check capstan for free movement. Make sure that the brakes are not fouling.

### LOOSE HEADCOVERS

When headcovers become slack, remove and gently tap outwards on bottom pins; this will ensure that they fit tightly on top plate.

### SLOW TAKE-UP

First check that the brake shoe is not lightly rubbing on drum. Check that the motor is not off-centre, try re-centring as previously described.

### NO RECORD

First check that the HF bias voltages (AC) are applied to the heads. Apply signal through 1st stage, trace with phones or oscilloscope at (A) and (B) the signal strength at (B) will be very low. If the machine plays back previous recordings, the R/P head must be in order.

### NO BIAS VOLTS

On some earlier models it may be necessary to make a small modification to the circuitry. (1) The 1000pf C.14 should be replaced by 2000pf silver mica type. (2) The 30pf C.16 should be removed altogether.

(Continued on page 38)

He's tough. He sparkles. He's got *zing*. You can see that at a glance. He has a striking performance, as well as good looks. He'll prove a match for any competitor.

We're talking, of course, about the cheeky champ on the right. But, if we were discussing tape recorders, we could use all the same phrases about the WYNDSOR REGENT, a machine that . . . .



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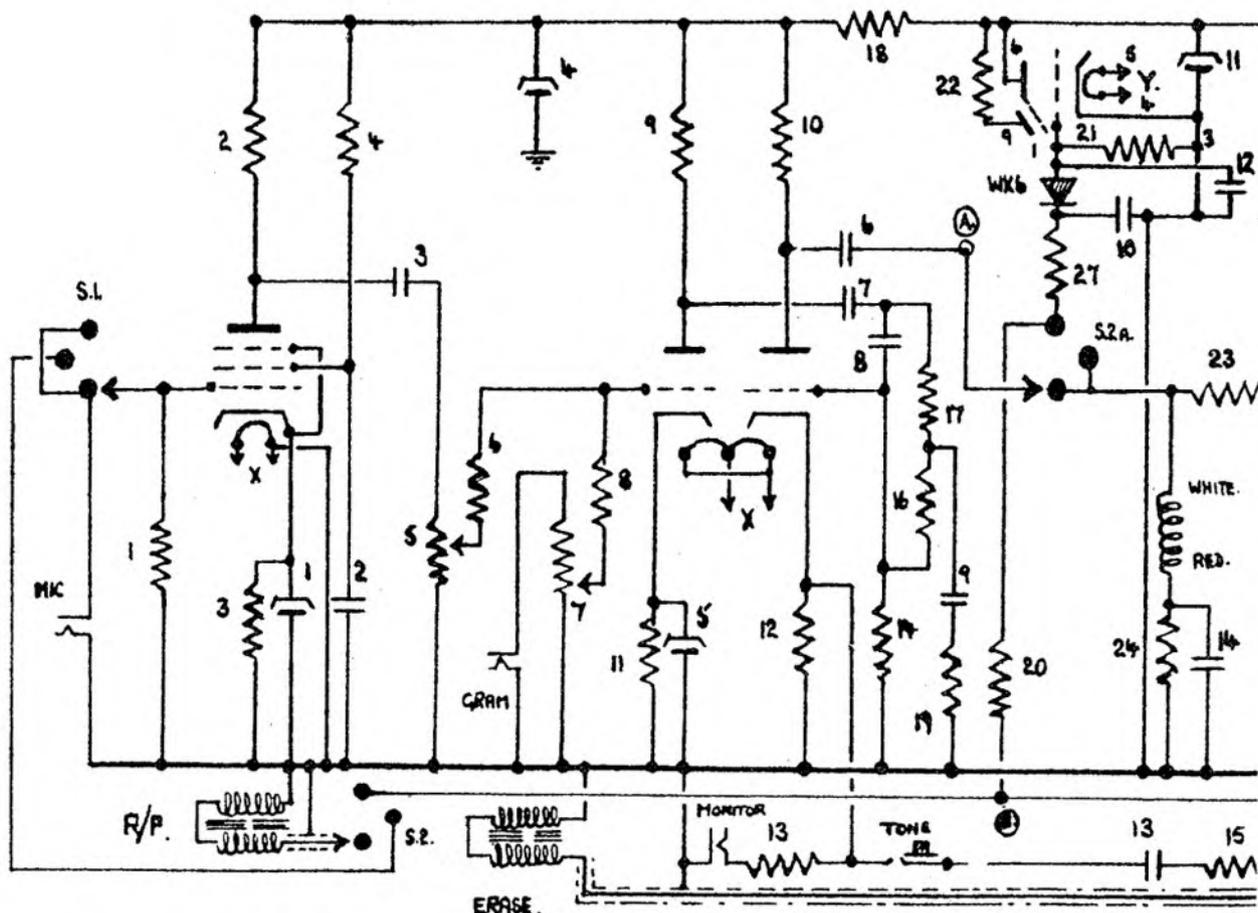
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ENTerprise 2226/7



(Continued from page 37)

### DISTORTION ON PLAYBACK

Check that no deposit is left on heads. check straight through amplifier by feeding signal via Tuner Unit or Gram Unit. If found clear of distortion, the trouble will be found in the HF bias oscillator, i.e., low AC voltages, or freq. dropped below correct setting (40kc/s.).

Disconnect leads from heads, check for short in screened leads, check oscillator coil continuity.

### IMPORTANT

Resistance readings of the Heads should *not* be taken until the last resort, as a voltage will be applied which will cause the heads to become magnetised and noisy. R/P head—180 ohms; Erase head—50 ohms.

### LOW GAIN ON PLAYBACK

- (1) Check amplifier position to ascertain that normal gain is available.
- (2) Make sure that there is an even pressure of the tape against head via pressure pad.
- (3) Check that the R/P head is clean from deposits.
- (4) Check valves and voltages.
- (5) Make sure that the amplifier is not in oscillation.
- (6) Check that the machine is recording correctly.

Note.—The R/P head will very rarely be the offender.

### NOISE

Both 6BR7 and 12AX7 can become noisy or microphonic after use and should be substituted before checking resistors, etc. Where crackle is still prevalent in the amplifier, it is generally found to be resistor noise in the first stage, and occasionally in the second. R.2. 220K has been the main offender and is now replaced by a High Stability type; do not shunt resistors to find noise, but loop in a new resistor. R.9 and R.10 will show when both volume controls are at minimum and no signal feed into the 12AX7. Check 6BW6 and 6X4.

### BAD ERASE

(1) Check to see if the heads are clean, any deposit left will greatly impair results. Heads can be cleaned with a little switch cleaner or carbon Tetrachloride applied on a matchstick or a small piece of cloth. (Take care not to damage pressure pads).

(2) Check to see that there is pressure applied to the erase head via pressure pad.

(3) Make sure that the tape is tracking correctly, i.e., that the tape follows dead in line from the R/P head to the erase head, or a small part of the recording will be left on a position the tape where the erase head does not follow.

(4) Check the HF bias voltage and shorts.

(5) If after all tests erasure is bad, remove head and replace.

### HUM

This trouble will mainly occur in the play-back position where the R/P head is picking up the field from the mains transformer and/or motors. R/P heads are tuned before despatch with a small piece of Mu-Metal which is secured by adhesive on the coils. It should be rarely found necessary to alter the position of this metal unless the mains transformer is moved or the head has "settled down." Care must be exercised when removing the Mu-Metal to a new position in case of damage to the coils. Other causes will be: cathode leakage, electrolytics, or earth loops which may have developed.

### HUM ON MICROPHONE RECORDINGS

This may be due to the chassis not making contact with the metal foil on the bottom of the cabinet.

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# KEY

## RESISTORS

1. 1 meg. ohms.
2. 220K.
3. 2.2K.
4. 1 meg.
5. ½ meg. V C.
6. 100K.
7. ½ meg.
8. 470K.
9. 220K.
10. 100K.
11. 2.2K.
12. 2.2K.
13. 2.7K.
14. 470K.
15. 4.7K.
16. 470K.
17. 100K.
18. 15K.
19. 56K.
20. 100K.
21. 4.7 meg.
22. 100K.
23. 10K.
24. 100K.
25. 330 ohms.
26. 180K (approx.).
27. 1 meg.
28. 330 ohms.
29. 330 ohms.

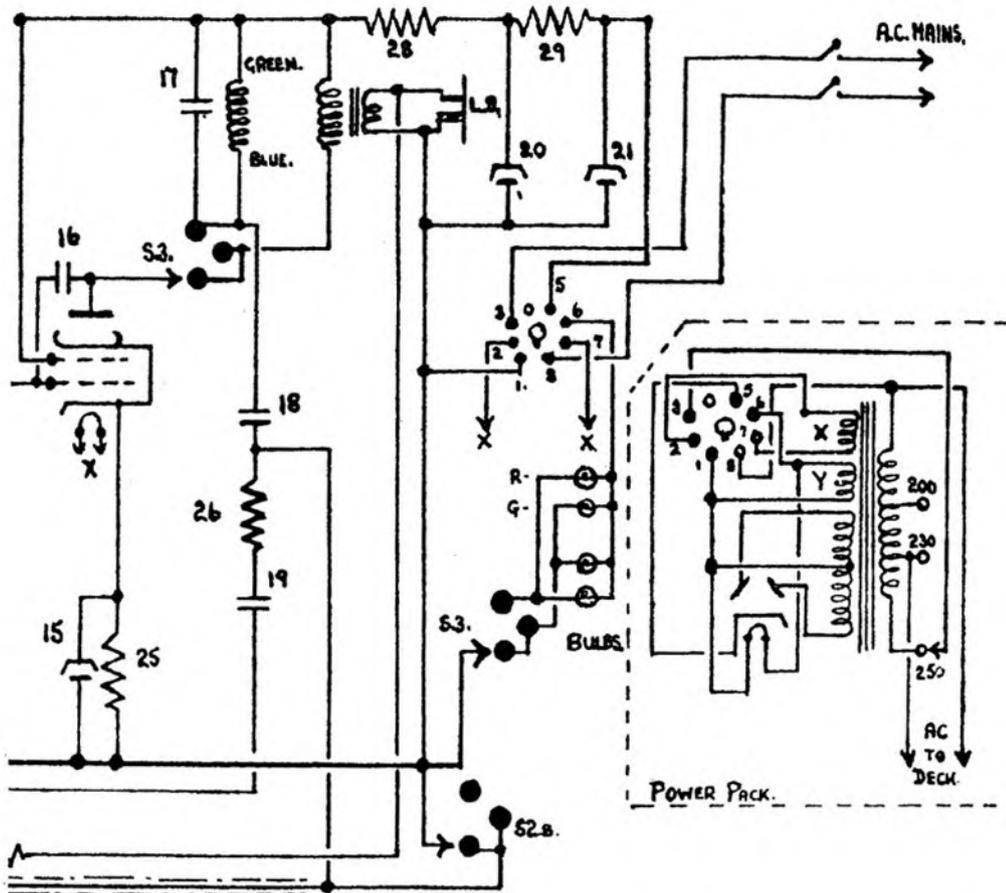
## CONDENSERS

- |              |               |
|--------------|---------------|
| 1. 50 mfd.   | 11. 32 mfd.   |
| 2. .1 mfd.   | 12. .02 mfd.  |
| 3. .1 mfd.   | 13. .05 mfd.  |
| 4. 32 mfd.   | 14. 1000pf.   |
| 5. 25 mfd.   | 15. 25 mfd.   |
| 6. .1 mfd.   | 16. 30pf.     |
| 7. .1 mfd.   | 17. 3000pf.   |
| 8. 55pf.     | 18. .01 mfd.  |
| 9. .005 mfd. | 19. .001 mfd. |
| 10. 50pf.    | 20. 32 mfd.   |
|              | 21. 32 mfd.   |

### WHEN YOU ARE WRITING

The address for all editorial matters is TAPE RECORDING MAGAZINE, 426, Camden Road, London, N.7.

But all advertisement communications, including Classified Advertisements, should be sent to Advertisement Manager, TAPE RECORDING MAGAZINE, 1, Crane Court, Fleet Street, London, E.C.4.



## REMOVAL FROM CASE

**T**O facilitate easy servicing, the R/P amplifier in the "Regent" has been designed to be removed from the front of the cabinet by means of two self tapping screws only, thus leaving the tape table in situ whilst still running.

### TO REMOVE R/P AMPLIFIER

Two ¼in. self tapping screws are situated behind perspex panel and are accessible through the two black eyelets, left and right of small control knobs, these must be unscrewed to their fullest extent; make sure that the two sliding doors are pushed back before withdrawing chassis, also care must be taken not to trip doors whilst removing same. (Two small wedges could be pushed under each door so as not to allow their unlocking.) It will be found that a small wooden platform secures the rear end of the chassis which just tucks under a ridge.

### TO REMOVE MAGIC EYE

First remove chassis to allow room to slide out the EM84 from between the front panel and pilot lamp strip, the EM84 is held by a self tapping screw spring clip which allows the valve to be drawn through it.

### PILOT LAMPS

The four lamps (two red—two green) are Philips 6.3v.—3a. These are held by clip type lamp holders. Take care not to push lamps too far forward on to panel and so damage the paint by heat contact.

### FRONT PERSPEX PANEL

This is held by two 6BA screws and locking nuts and should not normally be removed even for volume control change, if however it is removed, the correct spacing from perspex panel to amp. panel is ¼in. The master volume control knob can be removed from front of panel, whilst the grub screws of the two smaller knobs can only be released between the two panels care must be taken to replace correct settings.

### TO REPLACE AMPLIFIER

Take care that all leads are free from rear end of chassis, or it may be difficult to push amplifier back into its wooden bracket, where they could get trapped. Do not tighten both self tapping screws individually, take them up alternatively a few turns at a time. Gently squeeze top of perspex panel under ridge as the panel is almost screwed back in place.



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## Sputnik Tape

FROM South Africa, Cliff Johnson reports the passage of the first "Sputnik tape." This is the name given by South Africans to a round-the-world tape.

This satellite was launched in the U.S.A. by Roy Howard and went via England and Holland to South Africa. It has now passed on to Japan and will return to U.S.A.

Instead of a dog, this "Sputnik" carries a message of goodwill and its object is to bring peace and understanding. Cliff Johnson suggests that other readers may like to launch a tape satellite to make friends throughout the world.

From the roster of one of the tape clubs choose six persons in six different countries around the world who have similar equipment to your own. Send air letter cards inviting them to be on the orbit in your satellite's path. When they accept, advise them in advance the time to be taken up by each person on the tape and the subject to be discussed. In Roy Howard's tape the subject was "World Peace" and each person spoke for ten minutes. When this tape returns to Roy he will send it off on its second and last trip so that each contributor can hear what was said by the others.

But the subject could be a hobby or any other mutual interest. For stamp collectors this is a "must"!

## London Progress

THE London Tape Recording Club is now firmly established and has held four meetings. Twenty-four enthusiastic founder-members have drawn up a

## NEWS FROM THE CLUBS

constitution, elected a committee and laid plans for the future.

As announced, the Club's first bite at the world was a recorded challenge to the Edinburgh Tape Recording Club. It is hoped that this may be the fore-runner of many friendly contests and challenges between similar clubs up and down the country.

Meetings are held once a month, usually on the first Thursday in the month, in central London, and a tape recorder is always present. One feature of each evening is "Members' Tape Time." This part of the proceedings is reserved for those members who have brought along short and interesting tapes to play.

The Secretary of the Club is E. Roger Aslin, 269, Green Lanes, Finsbury Park, London, N.4.

## Antarctic Messages

A REQUEST has been received by the British Amateur Tape Recording Society for assistance in passing on tape messages to relatives from members of the crew of H.M.S. Protector in the Antarctic. BATRS members in towns where relatives are living are arranging to co-operate.

A recent affiliation to BATRS is South Shields (Trinity House) Hospital Broadcasting Group, the secretary of which is J. R. Tyzack, 101, Birchington Avenue, South Shields.

## Eight Counties

EIGHT counties are covered by the Midland Counties Tape Society, newest of the tape organisations that are now springing into existence. The counties are Warwickshire, Worcestershire, Staffordshire, Derbyshire, Leicestershire, Northamptonshire, Oxfordshire and Gloucestershire.

From June this year the society will be run by a committee of representatives drawn from each of these counties and elected by the members of the counties they represent.

Elections will take place annually, in June, and the Annual General Meeting will be held in December each year, when the President and Officers of the Society will be elected (Secretary, Treasurer and Sound Magazine editors).

The present secretary is John R. Walters, 29, Pitt Street, Broadwaters, Kidderminster, and the treasurer is R. F. Arnold, 92, Ridgeway Road, Edgbaston, Birmingham, 17. J. Crane Kidderminster and E. V. A. Holmes, Stafford, are co-editors of the Sound Magazine.

A special feature of the first Sound Magazine, issued in mid-January, is a talk by H. A. Frampton, M.I.Mun.E., together with a performance on the famous organ in the Kidderminster Town Hall.

Plans for the future, in addition to the encouragement of tapesponding, include overseas club exchanges and a special magazine for school groups.

We regret pressure on space has forced us to hold over other club news, including the list of new BATRS members.



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EMI TR.50 Tape Recorder 7½-15 ips complete. Excellent condition, portable. New £150. Sale 95 guineas or best offer. King, 6 Sackville Gardens, Hove.

PLAYS ON TAPE can be hired at moderate rentals, Details—"Tapeplays" "Santa Barbara" Maufant, Jersey, C.I.

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FRIENDLY FOLK ASSOCIATION, 87, Terrace, Torquay.—Leading International Correspondence Hobby Club since 1943. Now included, facilities for Tapesponding. Details free.

Cash on the Spot for secondhand Tape Recorders, Amplifiers and Hi-Fi equipment. Highest prices given in part exchange. All leading makes of Tape Recorders etc. in stock, SOUND TAPE VISION LTD. (Dept. T.R.) 69-71, Praed Street, London, W.2. PADDINGTON 2807. TAPE RECORDING

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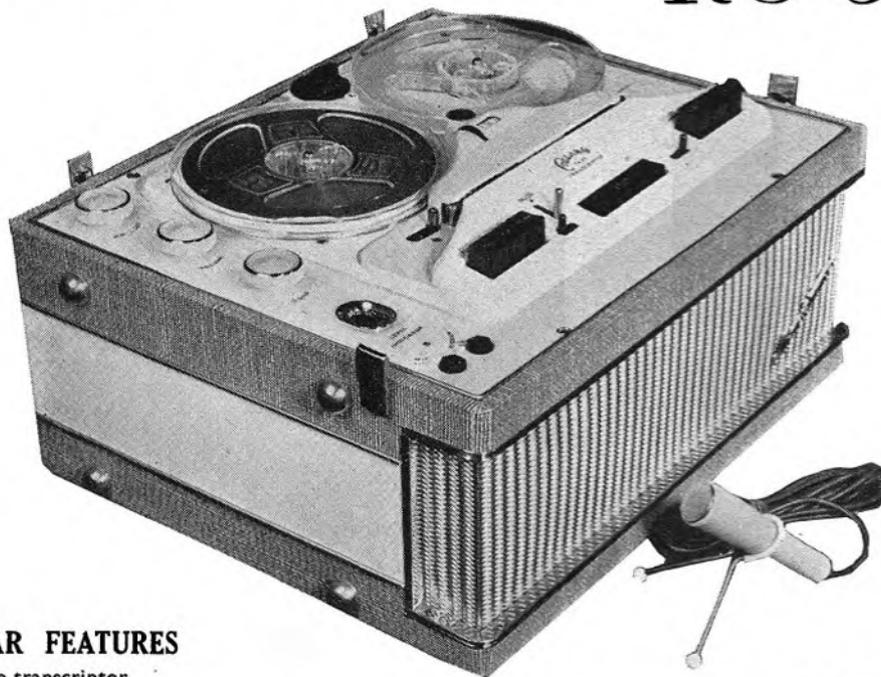
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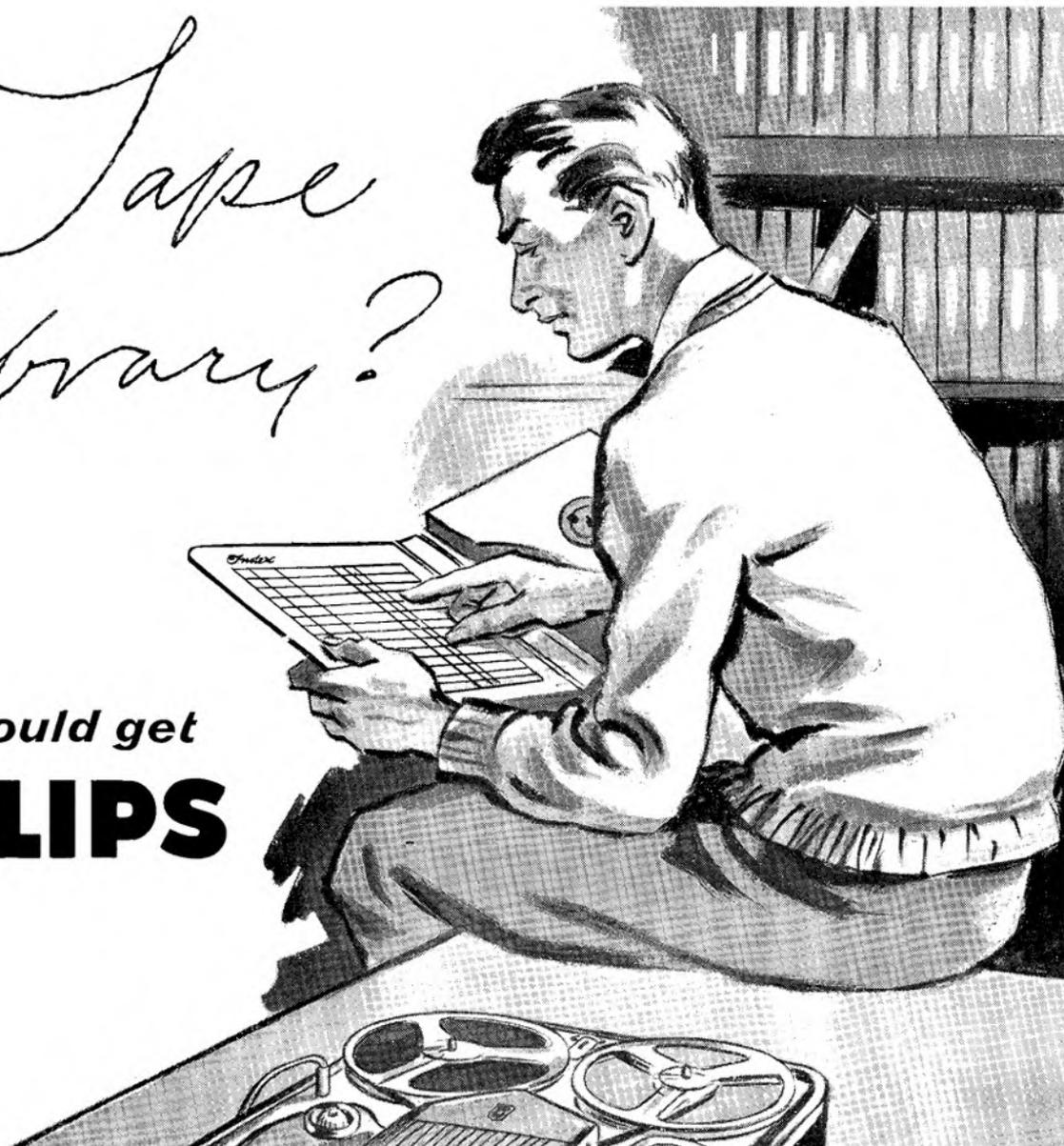
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