

MAY 1964

TAPE

RECORDING MAGAZINE

2½



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- British Amateur Tape Recording Contest 1964—Entry form and contest rules ●
- Buying a second-hand recorder ● News of new products ● Recording music ●
- Tape in education ● Equipment tested ● Club news ● Reviews of tape records

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- In education—languages are learned faster in electronic classrooms controlled by tape.
- Aircraft instrument readings and controls recorded on tape help promote safety in flight.
- Telephonic announcements of time, forecasts and events are pre-recorded on tape.

- Shock waves registered on high quality tape speed the location of oil and so help increase the efficiency of modern industry.
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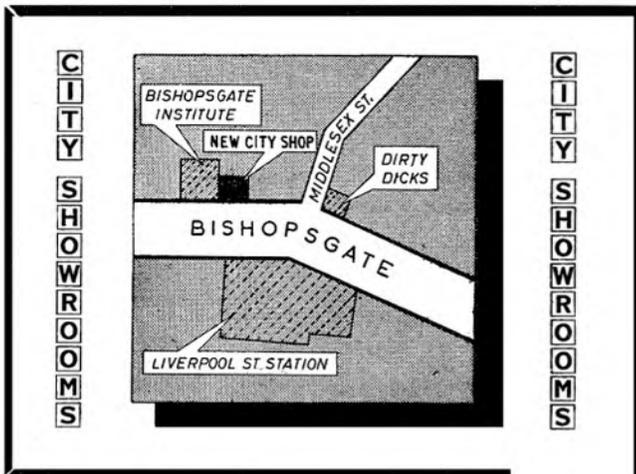
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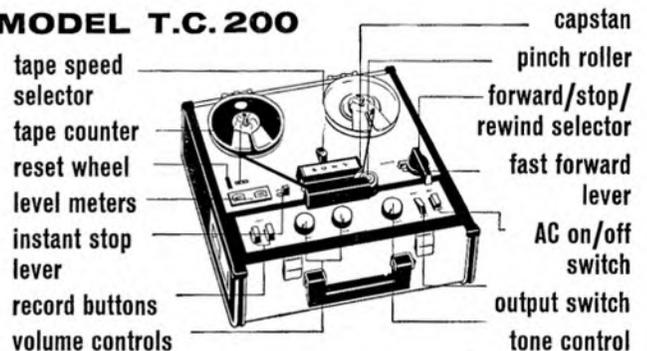
228 Bishopsgate, E.C.2 Opp. Liverpool St. Station. B.S 2609
 232 E. India Dock Rd, E.14 (Adj. Blackwall Tunnel). EAS 5978
 2 Maryland Station Stratford, E.15 (Adj. Station). MAR 5879
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MODEL T.C. 200

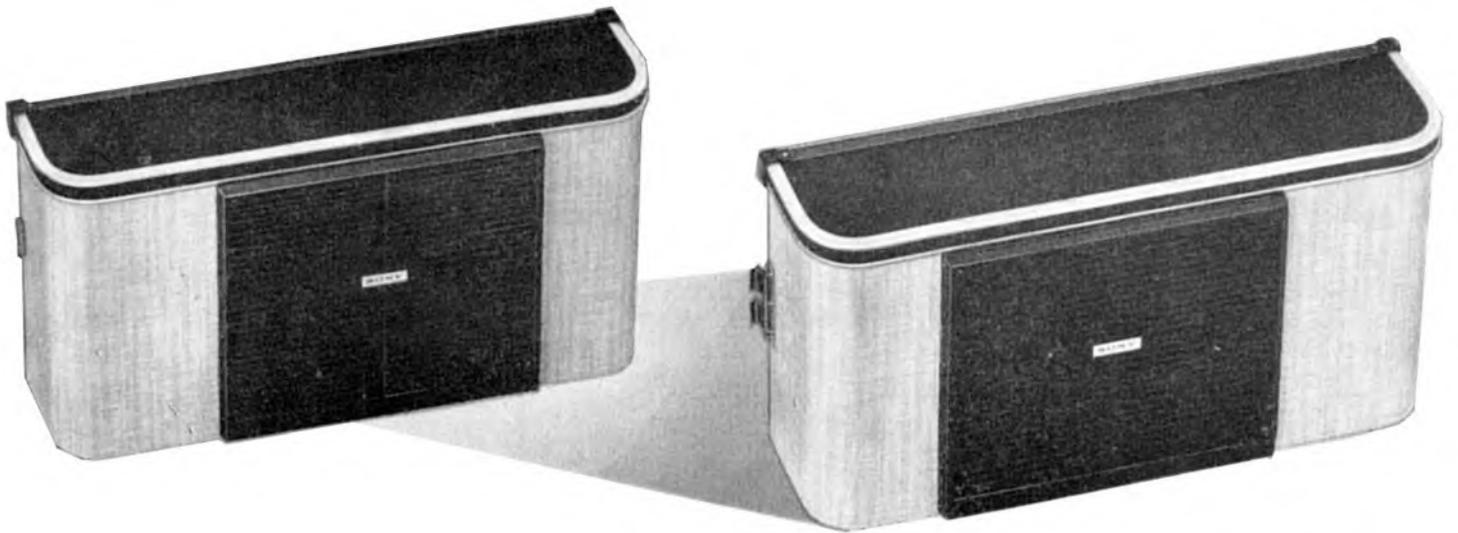


All this at **79 GNS**
 complete with every accessory

For a detailed specification of this fabulous recorder, write to the sole U.K. concessionaires

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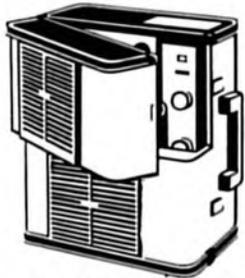
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a better deal
when you

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TAPE RECORDER or
HI-FI EQUIPMENT

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How clean is Clean ?

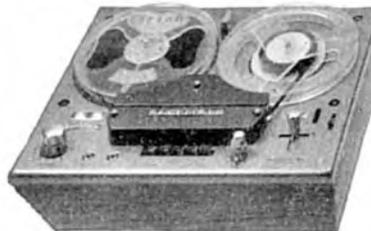
When comparing tape recorders special note should be taken of "Signal-to-noise Ratio" i.e.:—the noise level on a tape which has been erased by the recorder's oscillator, compared with the signal from the tape when fully modulated. This is expressed in decibels (d.b.).

In every field of scientific endeavour really outstanding performance is only achieved today by the most careful selection of materials, the highest standards of workmanship and design, combined with the most careful attention to detail. To fully appreciate what Tandberg have achieved, with a Signal-to-noise figure of minus 56 d.b. the following table should be studied.

with a recorded signal output of 1 volt :—

— 40 d.b. = 10	millivolts of noise
— 45 d.b. = 5.6	" " "
— 50 d.b. = 3.2	" " "
— 55 d.b. = 1.8	" " "

"The reproduction remains CLEAN even by immediate comparison with the original, and this, to my mind, is infinitely preferable to another octave or two of frequency "with whiskers on". (A. Tutchings reviewing Tandberg Series 6).



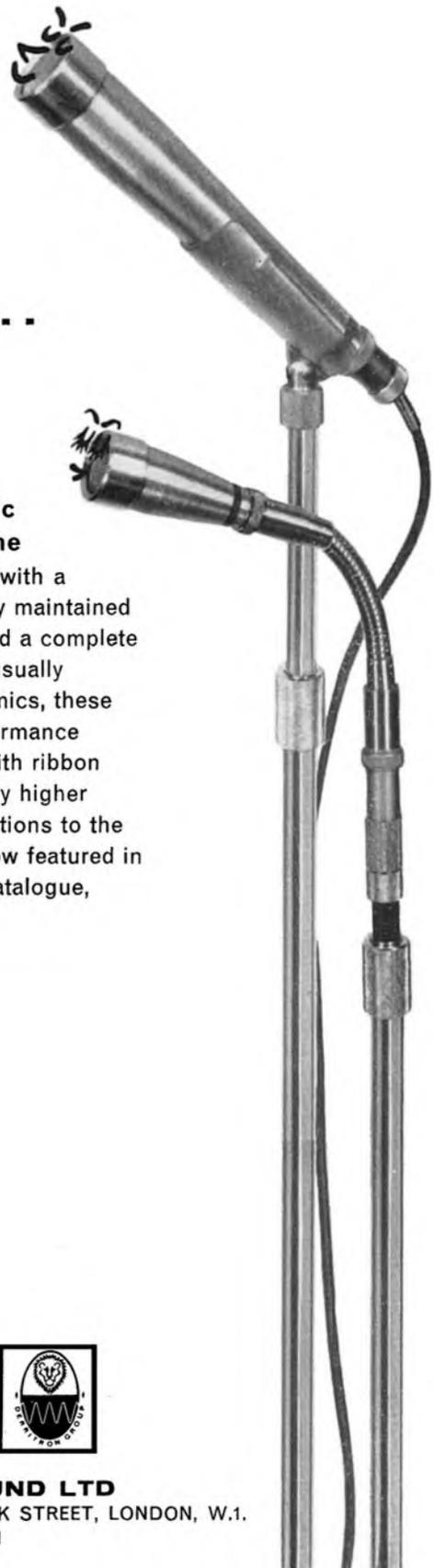
Write for details of
Tandberg Series 6 & 7
Tape Recorders and
28 page booklet of
Technical Reviews.

Tandberg

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New faces . . .

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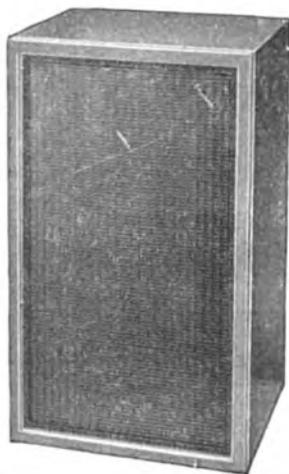
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MODEL W2

A really compact loudspeaker system giving full range performance on mono and stereo.

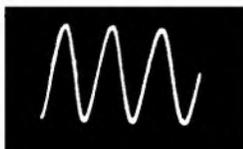
Size: 23½ x 14 x 12
Weight: 37 lb. complete
Frequency Range: 30-17,000 c/s.
Max. Power: 15 watts
Impedance: 15 ohms.

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£29.10.0 fully finished with a choice of oak, walnut, or mahogany veneers.

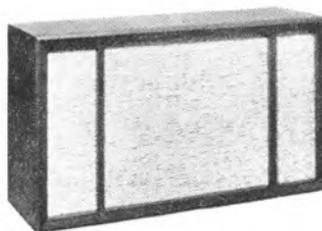


As the waveform shows the enclosure gives distortion free performance down to 30 c/s with 4 watts input.

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ON CABINET MODELS
ON REQUEST**



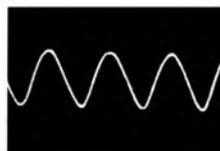
BOOKSHELF 2



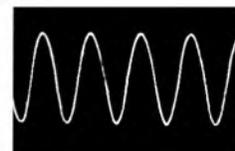
Where space is limited or where mobile external speakers are required for use with a mono or stereo Tape Recorder or Record Player, the "Bookshelf 2" gives remarkable performance judged on a size/price/mobility basis. **Units:** specially designed **Size:** 19 x 11 x 6½ deep. **Impedance:** 8-16 ohms. **Weight:** 18 lb.

10 in. and 5 in. Speakers are fitted with Wharfedale Silver Magnets 12,500 lines flux density. Polished Walnut, Oak or Mahogany Veneers. **£16.10.0.**
Unpolished **£15.15.0.**

The clean low-frequency performance is clearly illustrated by the wave form oscillograms taken with an input power of three watts.



50 c/s.

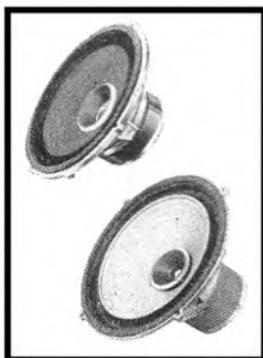


60 c/s.

Load Matching: When used with a set or tape recorder with small output at 2/3 ohms a WMT 1 transformer is worth fitting for optimum results.

FOR THE DO-IT-YOURSELF TAPE MAN

Two loudspeakers from the Wharfedale Super Range which will give excellent results on mono or stereo.



SUPER 8/RS/DD

Impedance 10/15 ohms.
Ceramic Magnet
Flux density 14,500 oersteds. Total flux 60,000 maxwells
Aluminium Voice Coil
Max. input 6 watts rms or 12 watts peak.
Frequency range 40-20,000 c/s Bass resonance 50/60 c/s.
Price: 134/2 inc. P.T.

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Frequency range 30-20,000 c/s.
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Spotlight on versatility...

MODEL STB1

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1	Record and monitor - upper track	8	Transfer of upper track recording to lower track
2	Record and monitor - lower track	9	Transfer of lower track recording to upper track
3	Record stereo with monitoring	10	Transfer of upper track to lower track, adding a synchronised signal
4	Record on lower track with monitoring whilst playing back upper track	11	Transfer of lower track to upper track, adding a synchronised signal
5	Record on lower track <i>without</i> monitoring	12	Replay only upper track
6	Record on upper track with monitoring whilst playing back lower track	13	Replay only lower track
7	Record on upper track <i>without</i> monitoring whilst replaying lower track	14	Stereo playback

The above table of functions gives some idea of the versatility of this brilliant new design from Brenell. The recorder is built as one unit and can be removed bodily from the carrying case for transfer to a Hi-Fi Console.

For details of this and other models, write to sole manufacturers:

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Telephone: HOLborn 7356/8



A TAPE RECORDER IS ONLY AS GOOD AS ITS DECK

This one is very good indeed

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MODEL 3204
TAPE RECORDER
4 tracks, 2 speeds



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Controls. Volume/Recording level. Tone combined with mains On/Off. Piano-key tape motion controls comprising: Play/Record, Pause (temporary stop), Fast Forward, Fast Reverse, Stop. Record button interlocked with tape motion keys. Playthrough/Superimpose button. Track Selector push buttons. Speed Selector switch. Digital Tape Position Indicator with instant zero reset button.

Speeds. 3 $\frac{3}{4}$ i.p.s., 1 $\frac{7}{8}$ i.p.s.

Spool Size. 5 $\frac{3}{4}$ " maximum.

Tracks. Four. Recording sense to generally accepted standards (1st and 3rd tracks left to right).

Playing Time. Using four tracks and maximum spool at 1 $\frac{7}{8}$ and 3 $\frac{3}{4}$ i.p.s.
Standard Tape 3 hours 6 hours
Long Play Tape 4 hours 8 hours
Double Play Tape 6 hours 12 hours
Rewind time 2 $\frac{1}{2}$ minutes either direction (850 ft.).

Power Supply. 200-250 Volts (50 cycles), 60 watts power consumption.

Audio Output Power. 3 watts.

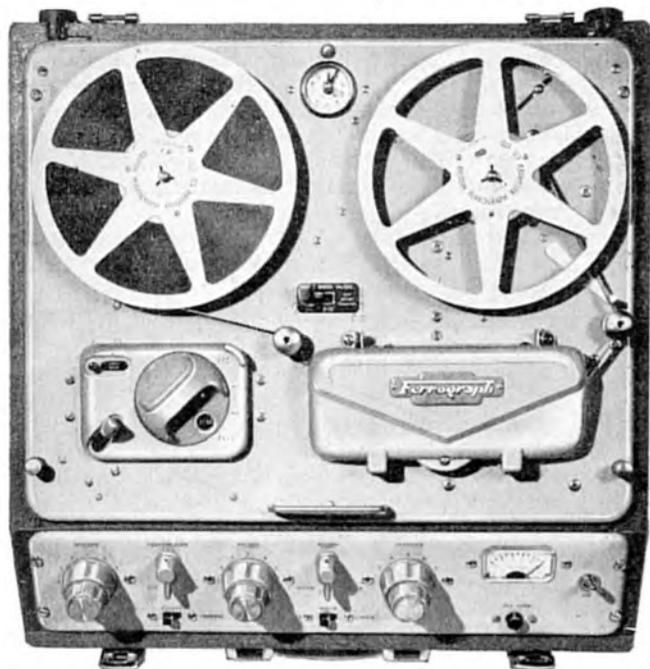
Loudspeaker. High sensitivity 7" x 3 $\frac{1}{2}$ " permanent magnet elliptical.

Cabinet. In two-tone blue simulated leather with chromium fittings. Size: 13 $\frac{1}{2}$ " wide, 12" deep, 6 $\frac{1}{2}$ " high. Weight: 19 lbs. complete.

Sockets. Microphone input (on deck cover), Radio input, Pickup input, Output to radio or amplifier, External Loudspeaker (internal loudspeaker automatically muted), Accessories — providing power for various accessories including transistor-operated units.

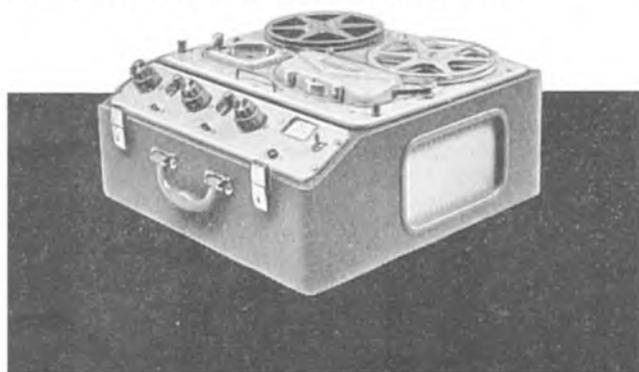
It's got other talents, too! This tape recorder is a twin set and can be used in partnership with the Ferguson 3006 record player, acting as an extension amplifier/loudspeaker for the playing of stereo records.

The Incomparable *Ferrograph*



The Ferrograph is much more than a tape recorder; it is a carefully designed instrument for sound recording – the product of 15 years experience and specialisation.

We believe – and Ferrograph owners endorse – that the Ferrograph sets a standard in accord with the highest traditions of British engineering skill. Write today for descriptive literature and name of your nearest stockist.



Please send me full details of the Ferrograph range

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TR8

TAPE RECORDING MAGAZINE

Vol. 8

No. 5

May 1964

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COVER PHOTOGRAPH: Gerry Marsden's hit tune "I'm the one" was recorded before Gerry had written the lyrics. He used his Stella ST 471 battery-operated recorder to build up the tune in hotels and dressing rooms while he was on tour with The Pacemakers. Our photograph, by Dezo Hoffman, shows him in the A-R TV Studios putting the finishing touches to the song. Gerry says: "I'm stepping up my song-writing work from now on, and I'm going to stick to this way of making up new numbers. When I'm working out bits of a new tune on my guitar it is easy to forget the best ideas—but if everything is there on tape there's no problem."

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Back numbers, if still in print, are available at 2s. 6d. per copy.

Address all communications

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EDITORIAL

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R. DOUGLAS BROWN

ADVERTISING

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MISS PAMELA DURHAM
Assistant Editor, FRED CHANDLER

Tape trends and tape talk

By the Editor

MORE OVERSEAS exhibitors than ever before have come this year to recognise the importance of London's Audio Fair and the event now fully justifies its "International Festival" label.

One wonders what picture will be presented by the exhibits at the Fair of 1974. My own impression is that the giant manufacturers are making rapid strides now and that the smaller, specialist firms are going to have a tough battle to survive. But I hope I am wrong about that.

It cannot be denied, however, that some of the most exciting tape recording equipment at this year's Fair comes from abroad.

And yet the tape recording public in Britain seems to be exceptionally sophisticated and enthusiastic.

There is no other country in the world with the number of tape recording clubs we have here. Certainly not the United States, where the local club is still a rarity. Not even in Germany.

And I have just heard from Japan that the club movement there is in its tender infancy, with little general appreciation of the type of tape activity that is possible for amateur enthusiasts. We have commissioned a special article from a Japanese amateur who is trying to correct this situation and it will appear in an early issue.

The technical skill of the Japanese in designing and producing recorders is, however, becoming increasingly evident. I hear that the Ampex Corporation of America is forming a joint company in Japan with Tokyo Shibaura Electric Company and this move is seen in some informed quarters as a stimulus to development of a home video recorder.

In New York there is current expectation that announcements of domestic video equipment by

Ampex, 3M, RCA and Sony cannot be long delayed.

It is, of course, the pioneering success of Norman Rutherford and his Telcan team which has triggered this speculation. Mr. Rutherford seems to be spending most of his time now in the United States, where Cinerama have promised to market Telcan in the near future.

There are a lot of fascinating questions to be asked and answered immediately the first domestic recorder hits the shop window.

Here are three of them, with the first tentative answers:

Will it be possible for the amateur to edit video recordings?

In the early days, precise editing may not be possible. The image on the screen does not appear until the tape is near its operating speed of 120 inches per second, so it is impossible to "rock" the tape back and forth across the head to find the exact point at which to splice.

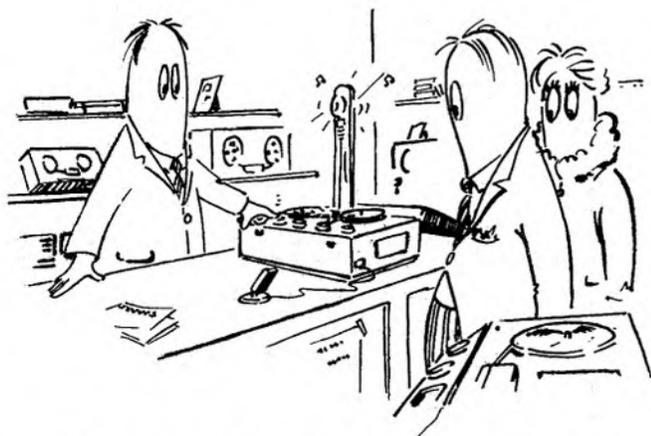
What about head wear?

With the Telcan machine, heads may have to be replaced every 100 hours. The intention is to make it simple for the owner to do this himself. Heads will be inexpensive.

Will the limited continuous recording time available on the early Telcan machines be improved upon?

Almost certainly. Other manufacturers' equipment may not operate at the same high speed as Telcan, which gives a maximum 22 minutes of non-stop recording. And the Telcan team are working on a sensing device which will automatically reverse tape direction when one track has been used.

LAUGH WITH JEEVES



"And this model has the very latest thing in recording-level measurement"

AT THE AGE OF 72 Gilbert Briggs remains one of the most lively and stimulating personalities in the world of audio. I should have drawn attention before now to his latest book, published a few months ago, called "Audio and Acoustics" (Wharfedale, 10s. 6d.). It is a book which every reader of this magazine will enjoy.

Mr. Briggs' books sell like hot cakes. This volume is a revision of one part of his earlier work, "Sound Reproduction." That book sold 47,000 copies, which is much better than most novelists ever achieve.

I have already praised "Audio and Acoustics" in the BBC "Sound" programme and I shall not attempt a detailed description of its contents here. Its chapter headings include: Resonance, Echo and Reverberation, Room Acoustics, Transient Response, Stereo, Concert halls and studios.

All very orthodox for a book on the subject, you may think. But no one else has, in fact, written a book like this, with its fascinating illustrations, its anecdotes and personal reminiscences, and its apt poetical quotations.

Treat yourself to a copy now.

Readers will be familiar with the request for advice from intending purchasers of second-hand tape recorders. This article summarises the guidance that may usefully be offered.

The essentials for success

By R. G. JONES

THOUSANDS of recorders are lying idle because their owners have lost interest. The need for extra cash or storage space often precipitates their sale. In order to attract a buyer without the aid of a shop window or hire purchase facilities, the price is usually featured as a major attraction. Even a brand new machine sealed in the manufacturers carton must drop at least several pounds. The pearls are yours for the finding.

To enable you to make a successful purchase, it isn't necessary for you to understand the complex electro-mechanics, any more so than you need to be versed in automobile engineering when buying a car. Advice to help you choose wisely will be found in tape magazines where both articles and advertisements contribute to an overall picture of what can be obtained for a given sum.

Of course a friend in the trade would be most invaluable, but recourse can be made to your local tape club where enthusiastic members will gladly demonstrate their machines and provide a wealth of useful information. Perhaps you have already seen a model advertised, and cannot take time to accumulate comparative data. Here are some practical tests that will enable you to sum up any machine.

The first step is to look it over carefully, and then ask yourself a few questions. Are the fittings cheap and

pretty or robust and practical? Do the press buttons resemble a row of raw recruits on a barrack square? This often happens when plastic buttons are mounted on vertical metal strips which bend slightly. Although their functions are unimpaired, they look cheap and may indicate shoddiness elsewhere. Watch the clock or digital counter (if one is fitted), see that it moves whenever the tape is in motion. Another feature plainly seen before you even touch anything, is the head cover. Unless this can be removed easily you may need to remove the deck or in some instances the whole case to clean the heads.

Next, listen. Can you hear hum, crackle, hiss or motor rumble especially when volume is increased? These are the noises you will have to tolerate during pianissimo passages or lulls in programme material. On sustained notes can you detect a warble? This is known as "wow" or "flutter" according to frequency. Apart from oxide deposits on the motor spindle, some common causes are flats on rubber tyres and eccentric motor spindles. Replacement is the remedy. Are you prepared to pay if necessary? Check the microphone for sensitivity. Will it record and replay satisfactorily voices from a few feet away? Most people record music from the radio for private use, perhaps a demonstration could be arranged.

Lastly, feel the controls. Does a depressed button, when its operation is cancelled, jump into the air like toast announcing its presence from an automatic toaster? Operating the recorder will give an indication of whether you will enjoy using smooth, well engineered controls or putting up with clumsy, stiff or difficult operation. Try winding operations. Does it run well without being helped manually near the ends?

If you intend taking your machine with you when visiting, be sure its weight and bulk will not reduce you to a physical wreck when you arrive. Watch the tape transport. If the tape scrapes the spool once per revolution deterioration will result, in addition to the annoyance. Spool replacement is usually the cure. A constant rubbing is caused by the spool carriers being out of alignment with the tape guides. Usually this can be corrected by a service engineer making a small adjustment.

There are two aspects, however, which when considered together may be the most important of all. The first is the reputation of the manufacturer. Choose the names that you know to be synonymous with quality and reliability in preference to the attractive and perhaps ostentatious machine of doubtful origin.

Secondly consider the treatment received by the machine, which can be assessed to some degree by the condition. Dirty heads and capstans indicate lack of maintenance. Cracked, chipped, scratched, or otherwise defaced deck or casework may result from rough handling. These defects may be visible signs of a dropped microphone, overloaded amplifier or botched repair work, not immediately evident.

Now we come to the final question of spares and service. Of course, if the model is still in current production the problem should not arise. If you are buying an older machine, difficulty may be experienced in obtaining parts. You should therefore take this into consideration when estimating the price you are prepared to pay. Manufacturers or distributors usually keep a limited stock of deck parts, while electronic components are generally available over the counter of your local dealer.

Before parting with your money, ascertain whether a reel of tape, empty spool, and microphone are included. See that the instruction booklet is not forgotten, if there is one as it may not be replaceable.

With this information, you should be in a position to avoid the scattering of cheap and shoddy, get-rich-quick manufacturers products. Set your sights high and enjoy the thrill of bringing home a model that has all the features you desire.

Musically yours

Some suggestions to help make possible good musical recordings

By A. S. CARPENTER,
A.M.I.P.R.E.

AS is well known a microphone is not the ideal medium through which to make good musical recordings, an actual physical connection between programme source and tape recorder being preferable.

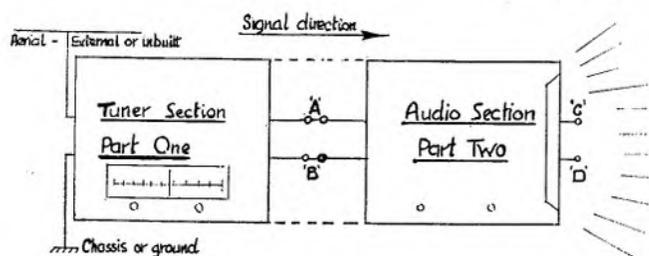


Fig. 1. Block diagram of typical radio receiver

Programme sources are rather more plentiful than might at first be imagined and as may be gathered from Table I at least one source is likely to be present in the average household.

A radio receiver no matter what make or type, including transistor types, can theoretically be "broken down" into two main sections as illustrated in Fig. 1 with perhaps bits added for the user's

convenience. For example, if gramophone pick-up sockets are fitted these will be positioned between the sections—at A and B—whilst sockets for an extension loudspeaker would be situated at points C and D.

"Part One" will normally be of either AM or FM/VHF design but "Part Two" will function equally well with either. The whole, or any one part, can be either a transistorised or valved version and it will now be clear that instead of having a complete radio receiver contained within a single cabinet it is possible to possess either (a) a separate tuner or (b) a separate audio amplifier, or both.

SIGNAL EXTRACTION

Because some distortion is frequently inevitable in complete receivers of relatively simple design recording signals are best picked up from points A and B. If a pair of high impedance headphones are experimentally connected to the pick-up sockets of a conventional broadcast bands radio receiver, low level signals will be heard when a strong transmission is tuned in. If the headphones are exchanged for the input leads of a tape recorder adequate modulation will be achieved. It should be noted, however, that a satisfactory signal will not be obtained if a set intended for use with an external aerial is operated without one for then internal noise and "mush" will result. Fitment of an aerial will enable

the receiver's AVC system to be loaded and this will cause the noise to disappear leaving a clean signal for recording purposes. No aerial is required on many modern receivers though since these are fitted with inbuilt specimens.

The pick-up sockets at points A and B may also be used at "playback" provided the tape recorder has a suitable outlet. The recorded signals applied to

the audio section will appear at the receiver loudspeaker greatly amplified and if Part Two (Fig. 1) is a separate high fidelity 10-12 watt amplifier superb results can be anticipated. More particularly so if the final link in the audio chain is a well designed loudspeaker system. In cases such as this the record-

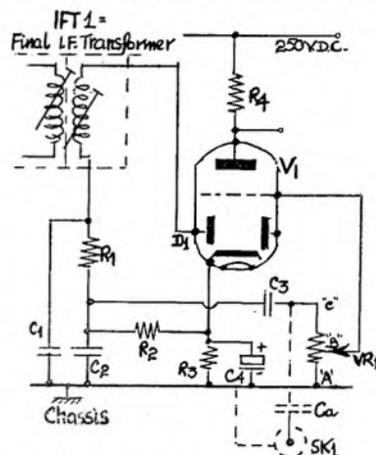


Fig. 2a. Typical demodulating circuit in a mains-powered AM receiver

ings are frequently made via a tuner and this is excellent provided some means of monitoring the recording signals is available.

USING A SOCKETLESS RECEIVER

It is not unlikely that a receiver you would like to use or experiment with has no suitable signal take off points and although fitment is not difficult some care is needed. If the receiver is of either types 1, 6 or 8 (Table I), and an inspection reveals no pick-up, loudspeaker or other sockets it might be of the "Universal" or AC/DC type. A warning notice to this effect might also be printed on the cabinet back! Do not attempt to modify or make external connections of any kind to such a receiver under any circumstances or danger to life might result!

The chassis of such receivers are usually in direct connection with the mains supply when switched on—and this also applies to the receiver's speech coil. This might not itself be connected direct to the mains supply, but it could be indirectly connected if the output transformer secondary winding is chassis-connected at the end as is usual. The warning also applies to television receivers. A connection can be made but should only be done by an experienced radio and television engineer.

Sometimes however "safe" mains-powered receivers have no suitable outlet sockets fitted. These either having been omitted for economy reasons or because the maker did not consider the apparatus suitable. For example, it would hardly be worthwhile providing pick-up facilities on a midget receiver

RECORDING SIGNAL SOURCES

Item No.	Radio Equipment Available	Active Elements	Type	Powering
1.....	Receiver	Valves	A.M.	Mains
2.....	Tuner	Valves	A.M.	Mains
3.....	Receiver	Valves	A.M.	Batteries
4.....	Receiver	Transistors	A.M.	Battery
5.....	Tuner	Transistors	A.M.	Battery
6.....	Receiver	Valves	F.M./V.H.F.	Mains
7.....	Tuner	Valves	F.M./V.H.F.	Mains
8.....	Receiver	Transistors	F.M./V.H.F.	Battery

A.M.—Amplitude modulated. F.M.—Frequency modulated. Other sources are: Record player, Television receiver.

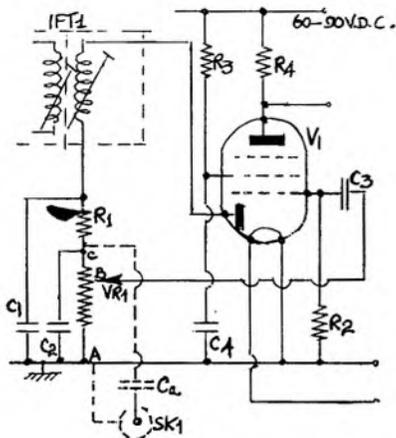


Fig. 2b. Typical demodulating circuit in a battery "all-dry" type AM receiver

because its tiny cabinet and small loud-speaker would not allow good results. Such a receiver could in all probability be used quite well for recording purposes. Receivers of type No. 3 and 4 (Table I) can also be used satisfactorily and many brilliant recordings have been made from comparatively simple transistorised specimens, which is a statement that might cause some eyebrows to be raised!

Fortunately from the recording angle at any rate, the distortion apparent in many type 3 and 4 receivers is introduced by the circuits *after* the demodulating diode and can thus be avoided. Tran-

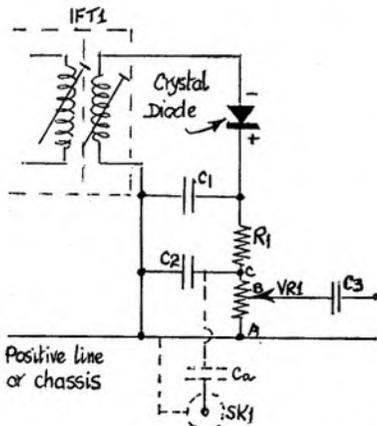


Fig. 2c. Typical demodulating circuit in a transistorised AM set

istorised FM/VHF receivers are also appearing in greater numbers and these too can be used successfully provided adequate signal strength exists at the particular location.

FITTING A RECORDING SOCKET TO A RADIO RECEIVER

Even comparatively inexperienced persons can fit a socket successfully. In practically all cases the receiver's volume control is a suitable place at which to

make a connection and, provided the receiver is a "safe" one as described earlier, only a few items need be purchased. These are: a surface mounting TV-type co-axial plug, with mating socket; a fixed capacitor of approximately 0.01 uF (micro-farads); a short length of thin TV co-axial cable; and two quarter-inch wood screws, or alternatively, a pair of 6BA half-inch bolts with nuts.

Nowadays radio receivers are more or less standardised in their various types and if the set to be used is a mains-powered AM specimen the relevant circuitry around the volume control might well resemble that depicted in Fig. 2(a). Signals are demodulated by the diode. *DI*, filtered of unwanted residual I.F. by *R1* and *R2* and are then passed—although now in audio form—to the volume control, *VR1*, via a blocking capacitor, *C3*. The desired amount of audio signal is taken off from the slider of *VR1* and fed back to the valve where it undergoes amplification. In a great many receivers *V1* is the penultimate valve—ignoring the inclusion of any

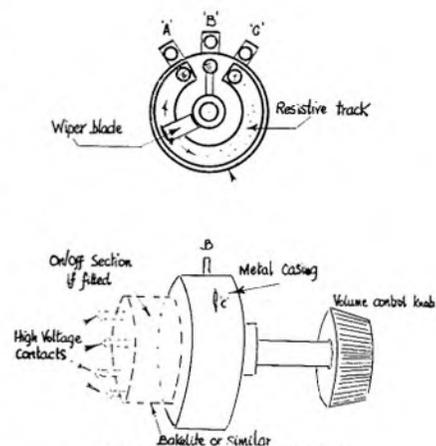


Fig. 3. A volume control

needed when making any connections to it. The other sections of Fig 2 show the circuitry associated with various types of receiver as listed and although some discrepancies may be found these will not normally be large. It will be appreciated that not all manufacturers employ exactly the same connections.

A typical volume control is shown diagrammatically in Fig. 3, the actual con-

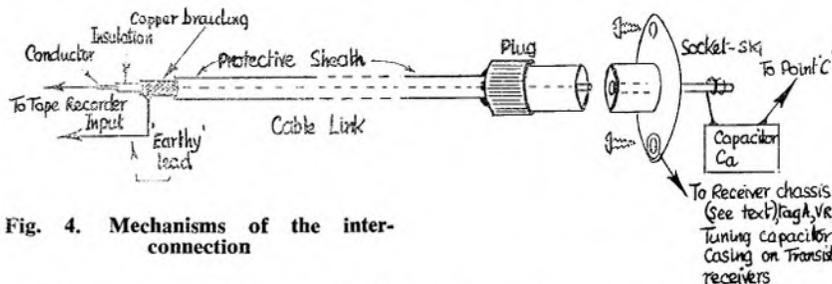


Fig. 4. Mechanisms of the inter-connection

rectifiers—and may also contain another diode, the function of which need not concern us here.

Finding the volume control is not usually very difficult—although take care not to get confused with a tone control if fitted. Quite often, in mains driven receivers the "on/off" switch is integral with the volume control so some care is

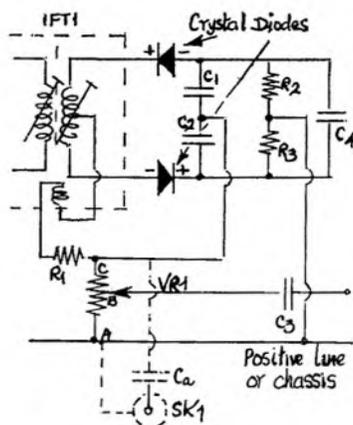


Fig. 2d. Typical demodulating circuit in a VHF/FM set

control tags emanating from the casing as shown and being three in number. The end-on interior view shows how a wiper blade—in connection with point *B* is adjustable via the control knob along a circular resistive track. If any doubt arises regarding which of the outer tags is the correct one to use, i.e., Point *C*, switch on the receiver and set volume to about half. Now touch points *A* and *C* in turn with a penknife blade; a loud crackle from the loudspeaker will indicate the correct one the other being "dead."

It is then merely necessary to decide exactly where to place the socket for convenience. The scheme is outlined in Fig. 4 but it may be noted that only in cases where the socket *SK1* is mounted on a wooden or plastic cabinet need the "chassis" lead be connected; if the socket is located on the chassis itself an automatic connection results. In making the electrical joints first twist the component or other lead out wires together as tightly as possible, afterwards applying a hot soldering iron and cored solder to make a reliable union. If in

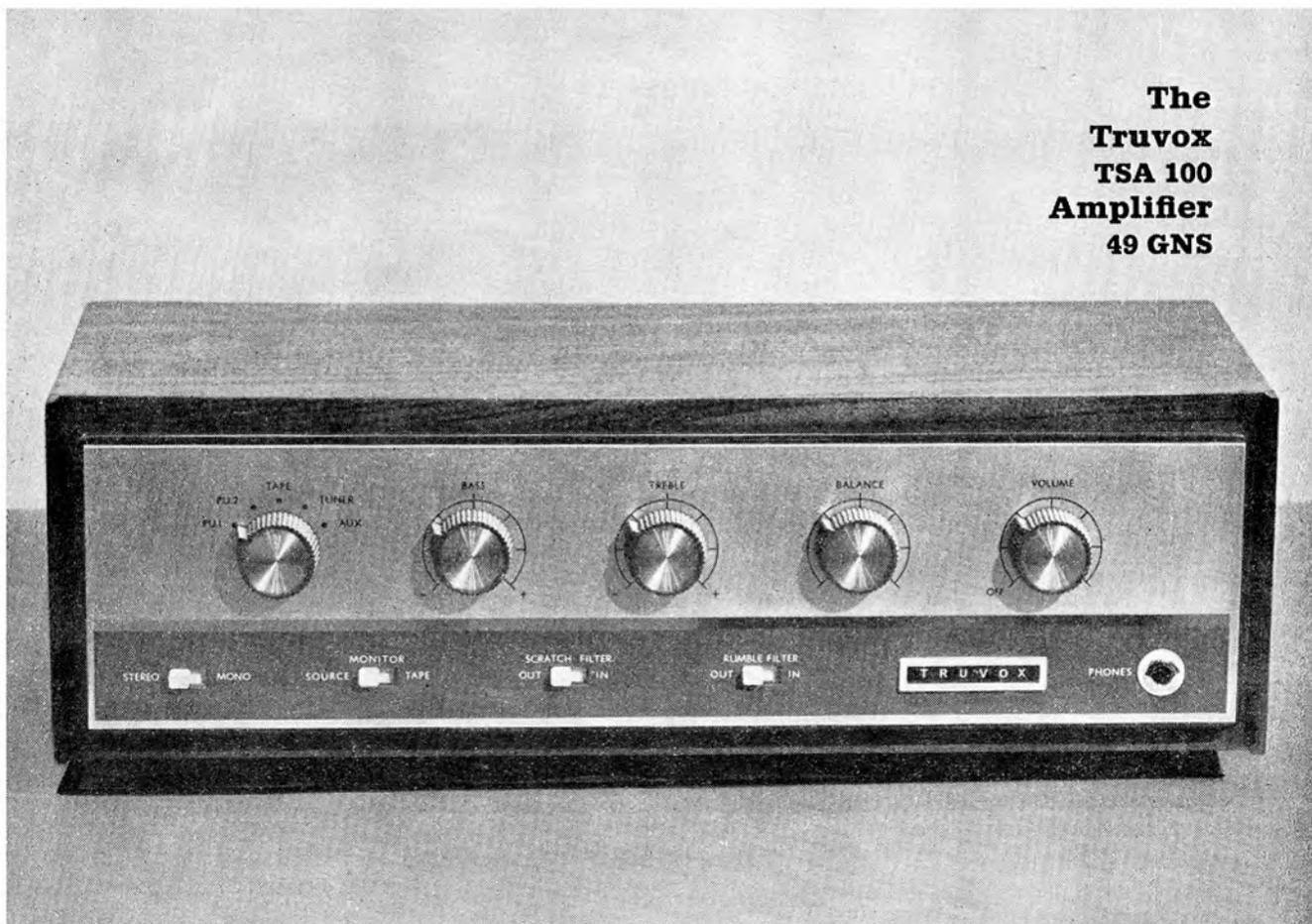
(Continued on page 203)

Truvox announce an important new amplifier

Hot on the heels of the outstandingly successful series 90 recorders comes another new pace-setter from Truvox. An amplifier. A completely new amplifier. A fully *compatible* amplifier—the TSA 100. The TSA 100 is a complete, integrated, transistorised, stereo amplifier designed and built for extremely high performance. Perfect compatibility does away with all matching problems; the TSA 100 can be used successfully with any disc, tape or tuner equipment on the market. The fascia panel is simple and elegant and all sockets are fitted at the rear. The TSA 100 makes a handsome free-standing unit as it is housed in an attractively-finished afrormosia plinth. Alternatively it can be built in. A brief specification of the TSA 100 Amplifier is given alongside.

Semi conductor complement:	20 transistors, 4 diodes	
Inputs:	P.U.1 — 25 mV at 50K	R.I.A.A. characteristics
	P.U.2 — 3 mV at 50K	" "
	Tape — 250 mV at 100K	flat "
	Tuner — 100 mV at 100K	" "
	Aux. — 100 mV at 100K	" "
Tone Controls:	Bass — plus or minus 15db at 50 cps. Treble " " " 15db at 14 kcs.	
Frequency response:	Plus or minus 1db from 15 cps — 30 kcs at 1 watt " " " 1db " 20 cps — 20 kcs at 10 watts	
Power output:	10 watts per channel across 15 ohms. 12 " " " " 8 " 15 " " " " 8 "	
Filters:	Scratch filter —10db at 12 kcs commencing at 6 kcs Rumble filter —14db at 20 cps commencing at 70 cps-	
Crosstalk:	-50 db at 1 kcs.	
Tape out:	200mV	
Hum noise:	P.U.1. and P.U.2. -55db, tape, tuner and auxiliary -60db	
Power required:	100—250V A.C. 40-60 cps 45 watt max.	
Dimensions:	16" wide x 6½" deep x 5¾" high	
Other facilities:	stereo/mono function switch, tape/source monitor switch, balance control, stereo headphone output socket.	

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Dramatape

miscellany

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No gag. Perform a play on tape and you enter the realm of drama-in-sound. Your audience won't see anything—all they do is listen. They listen as they would do a play on the radio. Action and scenery are suggested by sound-effects.

"But you said it was a complete theatre," says the newcomer. "What about the audience? Who wants to sit in serried ranks listening to a tape recorder?"

These familiar questions are easy to answer. We don't want "serried ranks"! An idealist gets his listeners to sit and relax—as in a drawing-room. They sit in easy-chairs—in casual but tested positions. There are shaded lights; a carefully-chosen *décor*; even tropical fish. . . .

All these arrangements have one purpose: to preserve the intimacy of mood between each listener. Such conditions establish a unique theatre—with an atmosphere of its own. The characters and scenery are certainly invisible; and the theatre is undoubtedly small. But it's a complete theatre in its own right—and entitled to the name.

At the most, you need an extension-loudspeaker for best results; but the speakers of recent recorders are now adequate enough for casual listening. You can, of course, go to great lengths over an invisible theatre presentation. It would be possible, for example, to mount a large public performance. This would be the ultimate expression of theatre-in-the-round—with a physical stage completely dispensed with. We would sit in the arena with the sound of battle literally "about our ears." The possibilities of this form of drama have by no means been fully explored. One day,

perhaps, there will be a professional invisible theatre. . . .

But the opportunities for amateurs are more simple. The charm and delight is in having a small, highly-personal audience. This is just as rewarding as a large, anonymous gathering. More so, perhaps. The presentation is really a form of hospitality—quite different from normal theatricals.

Don't get the wrong idea. Drama tape recording ("dramatape" for short) isn't a substitute for the amateur stage. It's a fascinating sideline. It gives you a chance of further dramatic expression—without trouble and expense. All you need, basically, is that tape recorder. . . .

So, if you're a newcomer and interested in drama, welcome to the forum. This monthly Miscellany is intended for your questions and opinions.

MESSING ABOUT

Try this experiment. Switch on your recorder and stand near the microphone. Call out "Who's that downstairs?" Leave the tape running. Go downstairs and call back (in an assumed voice): "I'm just the burglar, mate. Go back to sleep."

Return to the recorder and switch off. Now cut out the intervening tape between the two voices. The result (on playback): one voice answers another "from the distance."

This is more than a simple example of aural perspective; it's an example of how you make solo dramatapes. Suppose you're playing all the parts in (say) a court scene. You'll have to address the microphone from selected distances; this will create the impression of appropriate positions. As judge, you speak from the fireplace; as the prisoner, from out on the landing. But there's no need to dash from one position to the other. Take your time—and cut out the surplus

tape afterwards. You'll then get your sharp differentiations in sound levels—which, of course, you'll test beforehand.

Always set your gain-control for the voice nearest the microphone. This "close-microphone" position should almost shut the magic-eye, leaving just a tiny gap. Any other voices are then "in perspective" to this level. Don't raise the gain for any outlying voices—test them and bring them forward if they are too faint.

This solo work will stand you in good stead when you set out a proper cast. Working out such perspectives is a most absorbing pastime—and too little known. It's a sort of geometry-cum-chess. All sorts of complex movements can be created in one studio—in and out of imaginary rooms and gardens . . . up staircases . . . along battlements. Without this perspective technique, all our plays would lack movement and dimensions; they would be mere recitations.

But perspective has one predominant value—that of controlling the listener's "viewpoint." Returning to our burglar-and-householder exercise: the microphone is upstairs, and so, therefore, is the listener. Both he and the "householder" hear the "burglar" downstairs. Using the same dialogue, how would you reverse the listener's viewpoint?

POST-FADES

Mrs. Lesley Fettes of Bristol is shortly moving to Birmingham, where she will set up a Shakespeare-in-sound Society. She writes: "What, if any, is the procedure for altering or adding fades and mixes after the recording? My machine is twin-track."

It's not feasible to alter existing fades and mixes. But fades can be *added* (say) for rounding off a scene and joining it to another. Procedure: cut out the exact

(Continued on page 204)

Two-minute tape sketch by David Haines

SOUND-EFFECTS on disc are very popular. Why not buy a selection? They make an amusing novelty during a "record evening."

But FX discs can provide a further form of entertainment. Simply re-record the disc and accompany it with a bit of dialogue.

From time to time we shall include typical examples in this series; the one below is surely the simplest. Your party-guests will soon think up alternative gags for the separate "bands."

For this sketch you will require the HMV disc of an express train passing, with whistle. (HMV 7FX9 (45 rpm) Side 1, Band 1.)

"OH, SIR JASPER . . ."

(Express train passing with whistle.)

SIR JASPER: [close-microphone] So, me proud beauty, you won't marry me?

GIRL: [away-microphone] Never, Sir Jasper! Never. . . .

SIR JASPER: Then stay as you are—tied down, hand and foot, across the railway line. Ha, ha! You can't escape me, m'dear. The express is due at any moment!

GIRL: Oh, Sir Jasper!

SIR JASPER: Let me just check my Bradshaw. Ah, here it comes! Ha, ha!

(Disc: train approaches, with whistle, and thunders off into the distance. Pause.)

SIR JASPER: [gloomily] This is one of those days when *nothing* seems to go right.

GIRL: Try tying me to the *other* line, Sir Jasper.

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Interviews with children

By MICHAEL POLLARD

IT is not only teachers who find themselves from time to time interviewing children at the microphone as part of some tape recording project. Children often appear in the carnivals and hospital recordings with which so many amateur recordists are concerned, and indeed the child's point of view often adds a refreshing dimension to almost any subject.

Successful interviews with children, however, demand the development of a different approach from that to adults. This is something which even the BBC, where interviewing is studied and taught as a science, has not entirely mastered, as one can occasionally hear. How can the amateur hope to succeed where even the professional may fail?

The answer to this apparent dilemma is that, as has been pointed out before, the amateur has an asset often denied to the professional—time. The amateur has no one baying at his heels for studio space, or waving a deadline at him. There is time for patience, for the building of confidence, for endless experiment, for trial runs and re-takes.

It can fairly be claimed that, of all aspects of recording, work with children is one of the most difficult to do successfully and one of the most rewarding when done well. Children find it difficult to achieve the balance between natural sincerity and "performance" to the microphone which is the basis of good recording material; the natural diffidence of anyone faced with the microphone for the first time is magnified in children; and technically, the child's voice, with its inestimable variations in pitch and power, is in itself a problem.

Probably the most common mistake on the part of the interviewer especially if he is unused to dealing with children, is to "talk down." There is nothing more likely to close a child up like a clam than patronage. Children are as much entitled to respect as anyone else, and they themselves will respond to someone whom they respect.

This does not mean that one should make no concessions; respect includes, in this case, the constant awareness of a child's limited understanding of language and ignorance of technical terms. This is why plenty of time should be allowed to explain in simple terms what is required, and plenty of time, too, to

obtain it. Given time to get used to the idea, most children will talk more freely to the microphone than the average adult. Don't be too anxious to start the tape rolling; before you touch the recorder, make your interviewee thoroughly at home and get him accustomed to your equipment. Start by giving him a general idea of what you're after; for instance: "I'm going to ask you a few questions about what you can remember of your first day at school; what it felt like to be away from home for a whole day for the first time; how you got on with the other children, and so."

Whatever you can do by preparatory questions to stimulate the child's imagination or memory, as the case may be, is valuable, but beware of putting words into his mouth, or your recording will turn out to consist of your ideas spoken in a child's voice. Very few adults can entirely conceal in their conversation phrases or ideas they have picked up from someone else; in children's conversation, alien ideas stand out like headlamps on a dark night. From your preliminary conversation and questions you should be able to discover exactly what you want from the recorded interview. Note any particular incident, turn of phrase or reaction you want to include so that when recording starts you can steer the questions towards it.

Incidentally, if there are several children to be recorded at one session, it is best if possible to see and record them separately, as almost invariably each successive interview will take on the pattern of the first. Children make use of their imitative talent to help them out of difficulties under the stress of recording, just as they will, unless checked, quite naturally copy when in trouble during an exam.

While you do not want to produce a recorded series of elocution test-pieces, you may wish to iron out some faults of speech—to soften a particular vowel sound or curb a sibilant "s." It is as well, in any case, to give each child a trial run and let him hear his voice back. This can be done at the same time as you make your own checks for level and microphone placing, and in view of the enormous variations in the power and pitch of individual children's voices this must be done separately for each interview.

After he has heard himself speak, you can point out and correct such things as unnecessary movement in relation to the microphone and any other faults which emerge. I suggest, by the way, that during your trial

recordings you break away from the subject of the actual interview and discuss something quite different. This will help your eventual recordings to sound spontaneous.

By this time you should have your control settings right, and noted if necessary, your microphone properly placed, and some idea, in note form again, if possible, of the lines on which you are to steer the interview. You should, in fact, be ready to record. Don't, by the way, be tempted to let a child have a script or even notes if this can be avoided. Far better, if necessary, to record in several short bursts, revising any appropriate names, dates or other facts between each session.

You will be lucky if your first attempt to get the interview on tape is completely successful. All the same, keep it, as your best final result may well be obtained by marrying together bits of several separate recordings. However unsatisfactory the first attempt, and however slow progress appears to be, do keep your patience and give your young "victim" every encouragement.

Beware, unless you have really, positively reached the point of no return in the direction of exasperation, of accepting a second-best result with the excuse that "they're only children, after all." Such a result, so far from reflecting your willing attempt at a difficult subject, will reflect only your lack of patience and inability to match up to your chosen material.

Recording with children can produce some of the most delightful, refreshing programmes to be heard on tape, but it is not a pursuit to be rushed or taken on in any other frame of mind but one of understanding, infinite patience, and unhurried calm.

NEWS IN BRIEF

TAPE RECORDER MAINTENANCE LTD. announce that they now hold a wide range of parts for the Minivox battery-operated tape recorders. They can also supply a few components for certain models in the Walter range; and drive belts in sets for nearly any make of tape recorder.

Tape Recorder Maintenance Ltd., 323, Kennington Road, London, S.E.11.

PRISE changes, effective from April 1 are announced by Politechna (London) Ltd., U.K. agents for the German AKG microphones. In the domestic range the following price changes apply. D11C dynamic cardioid microphone from £6 10s. to £6; D12, dynamic cardioid microphone from £34 to £28; D58 close-talk microphone from £11 10s. to £10 10s.; and the D77 stereo cardioid microphone from £15 10s. to £13.

Certain types in their professional range of dynamic and condenser microphones have also been reduced, and particulars of these can be obtained on application.

Politechna (London) Limited, 3, Percy Street, London, W.1.

DENHAM & MORLEY announce a price reduction for their mains/battery operated MT5 tape recorder. This will now sell at 59 guineas instead of 66 guineas.

Denham & Morley Limited, 173-175, Cleveland Street, London, W.1.

We offer our apologies for publishing incorrectly the price of the new Magnetophon M300 tape recorder ("New Products," April issue). This machine will sell at 59 guineas, as stated in the Audio Fair preview of the same issue.

THE BIGGEST TAPE RECORDING CONTEST EVER!

1964

RULES OF THE CONTEST

1. Only bona fide amateur recordists may enter and the production of tapes submitted must be entirely the work of the person submitting, both as regards recording and editing.
2. If recordings are of singers, players, actors, etc., the quality of their performance in these roles will not affect judgment of tapes.
3. No tapes submitted may contain anything taken from radio or TV transmissions or commercial recordings. Any competitor who has fully or in part used any literary or musical production of which he is not the author or composer and which is still in copyright, must obtain authorisation from the author, composer or organisation owning or controlling the copyright and must produce proof of such authorisation. This proof must be submitted with entry forms and must state expressly that the author, composer or the organisation owning or controlling the copyright forgo any payment by the broadcasting organisations which transmit the recording. (This does not imply that, in the countries where they apply, the normal rights of payment arranged by the organisations owning or controlling the copyright are relinquished.)
4. Only individuals may submit tapes in Groups 1 to 5 (Compositions, Documentaries, Music, Actuality, Technical Experiment); group efforts are excluded. Groups are catered for by the Clubs section for a 15-minute feature tape. There is also a special section for School entries only.
5. Only one tape in each category may be submitted by any single individual. (Duration: Compositions, 15 mins.; Documentaries, 10 mins.; Music or Speech, 4 mins.; Actuality recordings, 4 mins.; Technical Experiment, 4 mins.). Though the competitor may indicate the category in which he wishes his entry/entries to be entered, the jury is at liberty to allocate the recordings to other categories or even to create new categories with appropriate prizes.
6. Tapes must not include any matter other than that which forms the entry. The programme must commence at the beginning of the tape and only one track may be used (when judging, there will be no reversal of spools to hear second tracks). Tape should be prepared between white or coloured "leader" tapes.
7. Recordings may have been edited in any way desired, but entry forms must give details of all equipment used.
8. Recordings must be made at either 7½ ips or 3½ ips. No other speeds can be accepted. Stereo recordings may be entered, but they must be of the "stacked-head" type.
9. The British jury will select a maximum of five recordings (monophonic or stereophonic) in the category or categories it chooses, plus one recording (mono. or stereo.) in the schools category, to represent Britain in the International Contest. Those responsible for such recordings will be required to provide a script where one is called for. The International Jury, which consists of a maximum of four delegates from each National Jury, will only adjudicate on the recordings submitted by National Juries.
10. All tapes will be returned to competitors, provided adequate return postage is sent with entries. But the Contest organisers will retain copies of the winning tape and of the runners-up tapes. Copyright of these will be the property of their owners, but the Contest organisers reserves the right to arrange for the publication of the whole, or parts, of any or all of them, by radio, disc or tape, or by any other means. In such event, half of all payments received will be retained by the sponsors of the contest and the other half divided between competitors proportionately to the use of their tapes.
11. The decision of the judges will be final and no appeal may be made, nor correspondence entered into.
12. The closing date for receipt of tapes will be Friday, 31st July, 1964. No entries received after that date can be considered in any circumstances. The winners and the runners-up will be notified immediately judging is completed.
13. Every tape entered must be adequately packed and properly stamped and must be addressed to the British Amateur Tape Recording Contest, 7, Tudor Street, London, E.C.4. An entry form, fully completed, and return postage, must be included with the tape. Name and address should also be written on a small label firmly affixed to the tape spool and to the containers, and the title of the entry written on the leader tape.

ENTRY FORM

British and International Amateur Tape Recording Contest

Name and Address (in block letters).....

 Age..... Occupation.....
 How long have you been doing amateur recording?.....

 Special interests.....

 Data on the attached recording:—

1. Title—if there is one.....
2. Exact duration.....
3. Category in which you wish it to be entered.....

4. Make of recorder used
5. Recorded at a speed of.....inches per second.
6. Make of magnetic tape used.....
7. Any other equipment used (i.e., microphone, mixer unit, tape splicer, etc.). Give details and manufacturers
-
-
8. When and where was the recording made.....

9. Titles of works used. Names of authors or composers, duration etc.....

10. Names of any assistants and how they helped in making the recording.....

I declare that the enclosed tape feature is entirely my own work, that I have no professional status as a sound recordist, and that I have not included on the tape any copyright material from radio, commercial recording, or any other source. (See Rule 3).

Signed.....

THE BIGGEST TAPE RECORDING CONTEST EVER!

The British Amateur Tape Recording Contest of 1964 is the biggest event of its kind ever organised for tape enthusiasts in any country. For the first time, the Contest is sponsored by a Committee representing all the leading firms marketing magnetic tape in Britain—Agfa, BASF, EMI, Kodak, MSS, 3M, Philips and Zonal.

A vigorous promotion of the Contest has begun at the International Audio Festival and dealers and clubs all over the country have been asked to co-operate. A record number of entries is anticipated. But the organiser emphasizes that this is a Contest that any keen amateur can enter with hope of success, provided that some thought and effort is devoted to it.

THESE ARE JUST
THREE OF THE
MANY HANDSOME
SILVER TROPHIES



THE MOST EXCITING PRIZE-LIST EVER

There will be more prizes in the British Amateur Tape Recording Contest this year than ever before.

First there will be cash award of FIFTY GUINEAS to the "Tape of the Year"—the best tape entered in any category. And with this will go, of course, the handsome Emitape Challenge Cup, to be held for one year.

Now many other firms have decided to donate trophies for award to class winners and these will be allocated as follows:—

- Compositions class winner: the Philips Shield.
- Documentaries and Reportage: the Irish Trophy.
- Music or Speech: the Acos Cup.
- Actuality: to be announced later.
- Technical Experiment: the Kodak Shield.
- Schools Section: the B.A.S.F. Trophy.
- Clubs Section: the Amphlett Shield.

Each class winner will also receive an illuminated scroll.

All will be invited to London for the official presentation ceremony, at which the best of the tapes will be played.

It is hoped that, as in past years, extracts from winning tapes will be broadcast by the B.B.C.

And six British tapes will be selected by the judges as the official British entries in the International Recording Contest (C.I.M.E.S.), which will be judged in Switzerland in October. In this event they will have a chance to win other valuable prizes, including substantial cash awards.

If you fancy yourself as a recording engineer, a news commentator, a script writer, a producer of documentary and drama features, or as an artist in the manipulation of electronic sound. . . .

If you can compose or play beat music or think yourself talented as a folk singer. . . .

Or if you just think you have captured a striking "portrait in sound" of your home, your children, your holiday or your job. . . .

THIS CONTEST IS YOUR OPPORTUNITY.

Start planning your entry now. The closing date is Friday, 31st July, 1964.

The Contest is divided into two main sections: the first for individuals; the second for group entries for tape recording clubs and schools.

The section for *Individual* entries comprises five separate categories, as follows:—

1. Compositions (Radio plays, drama, sketches, etc.)—not exceeding 15 minutes.
2. Documentaries and "Reportage"—not exceeding ten minutes.
3. Music or Speech (solo singer or player, orchestras, choruses, poems, etc.)—not exceeding four minutes.
4. Actuality Recordings (unusual voices, historic moments)—not exceeding four minutes.
5. Technical Experiment (electronic music, etc.)—not exceeding four minutes.

The two sections catering for *Group* efforts are:—

6. Schools.—Features illustrating any aspect of school life or children's interests made with the participation of groups of children, not exceeding 15 minutes' duration.
7. Tape Recording Clubs.—Feature tapes on any subject and of any type, not exceeding 15 minutes' duration.

TAPE RECORDERS AND THEIR USES:

Three readers describe their experiences with tape recorders and how they operate them at work and play.

Tape recording and religion

By a youth club leader

I HAVE always had a feeling in my mind that the tape recorder could be an untold blessing in Christian Youth work. As the Branch Secretary of an interdenominational youth movement, I began to formulate many ideas of what we could do if we were ever fortunate enough to get hold of a machine.

Finances were on the low side and most of our members are mostly teenagers in school or just about to embark on their first job. All we seemed to be able to do was to indulge in wild dreams and window shopping; until we were offered a Grundig T.K.20 at bargain price. Our dreams had come true!

Remembering that we are only amateurs—I'd like to tell you how we set about making the best use of our bargain.

First we recorded several tapes of background music. We have some talented members in our group—one plays an electric guitar, two play harmonicas and another the piano. This music is well suited to provide a background before meetings whilst the members are arriving. We also have the tape available to play when we have special meetings in town to which outsiders are invited. It is surprising how many modern teenagers enjoy well-known and even old-fashioned hymns played on modern instruments and in modern rhythm.

Next we answered an advertisement in *TAPE* and borrowed, free of charge, a series of messages on the Christian faith given by famous preachers. Very few of us would ever have had the chance of hearing these men and it was therefore a great thrill to have them—disembodied as it were—in our own little youth meeting.

We lamented the moving from the vicinity of one of our talented girl singers; so as soon as she could manage a few days' holiday, we arranged for her to record a collection of her favourite solos. The congregation of many a little village church is now quite surprised when the leader of the service announces "I've brought a soloist with me tonight" and then proceeds to plug in the recorder. As they listen, somewhere in a

lonely farmhouse on the Cotswolds, where she lives, Margaret is remembering us whilst we conduct the service. "She being absent—yet singeth!"

Many of our young teenagers have been "rescued" from lives of aimless drifting round pubs and coffee bars and have found peace and satisfaction in the Christian message. Many of them have stories to tell about their experiences and we felt it would be a wonderful record to keep if they had their words taped. Our recorder was even to be the means of impressing someone who had hitherto been sceptical about our work.

I invited this sceptic, an electrician, to replace a faulty piece of wiring in our house. Whilst we drank a cup of coffee we got talking about various mutual acquaintances. The family of one of our more "out-standing" members came into the conversation. "Do you know the son?" the electrician asked me. "Why yes," I replied, "he comes regularly to our meetings."

The effect was shattering. "Wot 'im," said the man, "never in this world... why he's... he's a Teddy boy!"

"Not any more," I informed him.

"I can't believe that; I can't believe that he would ever go to a meeting like you have."

"Do you want proof?" I asked.

He eyed me suspiciously while I set up the recorder and found the place on the tape. When the former "Teddy boy" had described how he had found God and what it meant to him and also how he was helping to win his pals over, too, the electrician's sole comment was "well, I'm blown." As a result, for the rest of the morning he worked on the wiring and listened to the whole spool of similar stories.

"If only I could believe like they do I'd be a different man," he said wistfully. Just how our conversation developed after that

TAPE RECORDING YEARBOOK 1964

The latest edition of the ever-popular TAPE RECORDING YEARBOOK is now on the bookstalls, or available direct from the publishers using the form below.

CONTENTS INCLUDE

★The only available up-to-date catalogue of every tape recorder on the market with full specifications, price, etc. plus photographs.

★A review of tape developments during the past year

★A chapter on the basic facts concerning tape recording

★Technical, creative and organised activity

★Glossary of technical terms, "at-a-glance" tabulated catalogues of microphones, radio tuners, mixer units and associated equipment

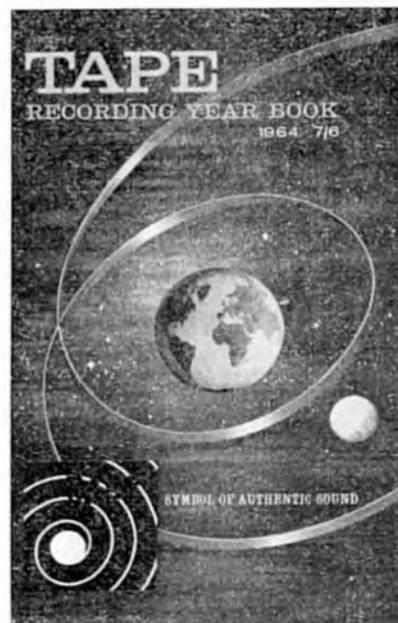
★Manufacturers, dealers and club secretary addresses

PRICE 7s. 6d.

POST NOW to: TAPE Recording "Magazine,"
7, Tudor Street, London, E.C.4.

Please send me.....copy(ies) of Tape Recording Yearbook 1964 at 7s. 6d. a copy(including postage) (\$1.25), I enclose remittance herewith.

Name Address.....



is not relevant to this article, but I will add that in this case the recorder became a "servant of the church," in no uncertain terms.

Our most recent venture has been a "play on tape." Each youth group in town had been invited to present a play in this way, and our group wanted to use their opportunity to bring the Gospel message to the audience of teenagers who were to hear the final results. They wrote their own script, adding lots of colour and humour and sound effects mixed in with suitable verses of scripture. Our youngest member, aged eleven, took charge of the sound effects and worked the whole thing out for himself.

A few weeks ago some one much more advanced in all this recording business came to see us, bringing a series of Kodachrome slides of his work amongst youth in the West of England. He brought a wonderful tape recorded commentary which had been "mixed" with music and other exciting sound effects. As we watched the slides, the commentary proceeded and for a whole hour our crowd sat spellbound. It has certainly stimulated them into further action with our own recorder.

We now have plans of trying to produce some "modern parables," using colour photographs and writing scripts with sound effects and perhaps taking them round to other groups or even running them through in a local school where the headmaster is very co-operative.

The future for our tape recorder and its young friends certainly seems to hold much promise.

Hearing aid plus microphone

By Stanley Jepson

IT was when I went to record bird sounds along a quiet old railway track now called "The Garden Walk" in Jersey, that I felt the need for greater sensitivity than I had in the microphone of my baby portable—a Fi-Cord. I wished to make a colour film of this walk, so had a 16mm. cine camera slung on one shoulder and the Fi-Cord around the neck.

Experiments with an aluminium pudding bowl to serve as a parabolic failed! I should imagine that the focusing of the sound to the exact spot is a matter of greater precision than the hit-and-miss methods I employed at this stage.

A friend with more electronic know-how suggested that a little box pre-amplifier with transistors—part of the Gramdeck equipment—might be introduced between the microphone and the recorder.

Experiments with this, when we got the link-up correct, were very successful. Even with the volume control set one quarter of maximum I was able to record quiet sounds like footsteps a dozen yards away in the next room.

But I couldn't see myself walking around with a cine camera plus small tripod and meter, etc., a portable and this transistor box as well! The box was the last straw to spoil the pleasure in such a stroll. For the primary object was recreation and more often than not I obtained no film and no sounds—or so many sounds that the bird

noises were obscured. Low-flying aircraft were too frequent at times, though the locale was sufficiently rural to eliminate most traffic noises.

At this period I acquired one of those expensive little hearing aids that fit into the waistcoat pocket with a small earpiece. I didn't intend to wear it always but thought it would be useful for meetings when it was important to hear folks with poor diction who talk without opening their mouths fully. I also found I could save on cinema seats by sitting at the back of the circle instead of the front where slightly defective hearing had formerly led me.

It took some time for me to grow used to the fact that this aid magnified *all* sounds without any selection; a neighbourly nose-blowing, for instance, gave the impression of a sudden earthquake. I found it most useful in church, however, for if the sermon proved boring I could just switch it off!

Why not use this tiny amplifier, not as large as a box of matches, to increase the sensitivity of the portable recorder's microphone? I experimented and got an almighty howl; of course, the two little speakers were opposite. I soon learned how to avoid this.

When the little microphone was held two inches from the earpiece of the aid, the results were surprisingly good. With tests on the radio, turned really low and many yards away, I found it possible to record the signal quite distinctly even when the volume was in the first, or lowest position. The aid volume had also to be regulated low of course.

But now the main problem was to position the little microphone two inches from the earpiece of the aid, which had had the plastic ear fitting removed.

I solved this problem by cutting a section from an old rubber garden hose—about half-inch in diameter and about 3½ inches long. This I slit with a razor blade lengthwise, so that it formed a soft gripping housing.

Now I could carry the aid in my waistcoat pocket along with the piece of hose in an extra microphone wallet on the portable's strap. I could even walk along with the whole affair in position, so that recording could be done at a moment's notice (an important point this if you don't want to miss anything) by simply pressing the microphone switch controlling the motor.

I recorded a cuckoo at a long distance one early morning, and without the aid I could only just hear it.

But this outfit could not, of course, take the place of a parabolic which can be aimed at the sound through a sighting gadget. But it was much more portable, and proved most useful in the early morning when unwanted noises are at a minimum.

A tyro in tape

By Rev. A. L. Jones

IT all started last Spring when I was persuaded to permit a bride to have her wedding service recorded. Some weeks later, at her first "At Home" I was to have the salutary experience of hearing my own voice for the first time. What a humbling experience! Such was my first introduction to the tape recorder. It was in a newsagents shop a week or so later that the second stage followed, when

the words *TAPE Recording Magazine* caught my eye. Curiosity caused me to buy a copy.

Reactions to the first reading were mixed; some of the most common technical terms were so very odd. "Wow" seemed a rather rude word; "ips" was vaguely familiar—perhaps a Latin word I had forgotten; "flutter" was more familiar, but in the context obviously nothing to do with Bingo or Racing.

But before long a picture of the recording world began to emerge—a world of bewildering variety of choice, from the "Rolls-Royce" to the "Mini" recorder; a world of pre-recorded tapes, classical and popular; of bird-recording: of tape clubs and world-wide tape exchanges. It was a revelation, and I know now just how Stout Cortez felt as he gazed at the Pacific for the first time.

The sequel was inevitable. Equipped with the knowledge gained from the careful reading of a few issues of *TAPE* from cover to cover, and briefed by an excellent little booklet for beginners, I took the plunge and purchased the model of my choice. This choice I have never regretted, although it must be admitted that as one progresses in the art one *does* wistfully read the specifications of the "Rolls-Royce" models in the advertisements.

With the accumulation of a dozen or so recorded tapes of varying content and quality came the need for bringing order out of chaos, and a visit to the dealer for the useful splicing and editing equipment. What an anxious moment is that of the cutting of one's first tape! But all was well, and one comes to acquire increasing precision with experience.

It was not long before bitter experience in the vexing matter of the multiplicity of plugs necessary for the variety of sockets to be found in various places, required the carrying of a screwdriver in the little pocket of the recorder. This seemed an eminently practical arrangement, until the screwdriver slipped into the base of the recorder, its presence being very audible every time the machine was moved from the vertical to the horizontal. Visions of a diabolical "short" caused great anxiety and the fateful decision to "operate."

To the proud non-technical owner of a new recorder, the removal of the "works" seems fraught with incalculable consequences, but with the service departments closed for the Christmas period it was unavoidable if we were to record some of the feast of Christmas music. True, removal was rather easier than refitting, but no screws or washers were lost, and everything went back—except the cause of the incident! (And having had a close-up of the complicated works, I have an increased respect for the skill and ingenuity of the designers.)

Already I have found my recorder of great value in my work as a clergyman, and an article last year, on the recording of the organ, was extremely helpful. My recorder is also a source of considerable pleasure to my family. We can entertain our friends with either Beethoven or Elvis Presley—according to taste. Moreover, its use is a worthwhile hobby, making demands upon one's initiative and skill if progress in the art is to be made. One is always learning, both by experience and by reading, and there is always the hope that one day ERNIE will smile upon us, so that we can buy the set of our dreams and all the tapes we want.

DO-IT-YOURSELF

An impedance matching unit

For using crystal microphones with transistor recorders

By M. J. Pitcher

THE novelty of owning a portable, transistorised, tape recorder begins to fade when friends ask you whose voice is recorded on the tape. You tell them it is your own, and number them among your ex-friends. Your explanations about the limited frequency response being related to the low price inevitably fall on unenthusiastic ears.

While very little can be done to the circuitry of a tape recorder, short of rebuilding it, to improve the quality, much can be done by replacing the microphone. This is often a magnetic type having an uneven, peaky response which is as unsatisfactory as the "cheap" crystal

types supplied for use with low-priced mains machines.

High-grade magnetic microphones are available with impedances suitable for transistor amplifiers and excellent results can be had by their use. It is a very expensive solution to the problem, however, further expense being called for in the purchase of a transformer in order to use the microphone with other equipment.

The matching unit, described in this article, was built by the writer so that an Acos 39-1 microphone could be used with a Clarion Transitaape portable recorder. The combined response of the crystal microphone and matching unit is very superior to that of the Clarion microphone alone. There is also the advantage that the total cost is far less than that of a moving coil microphone, and, furthermore, the matching unit has other uses.

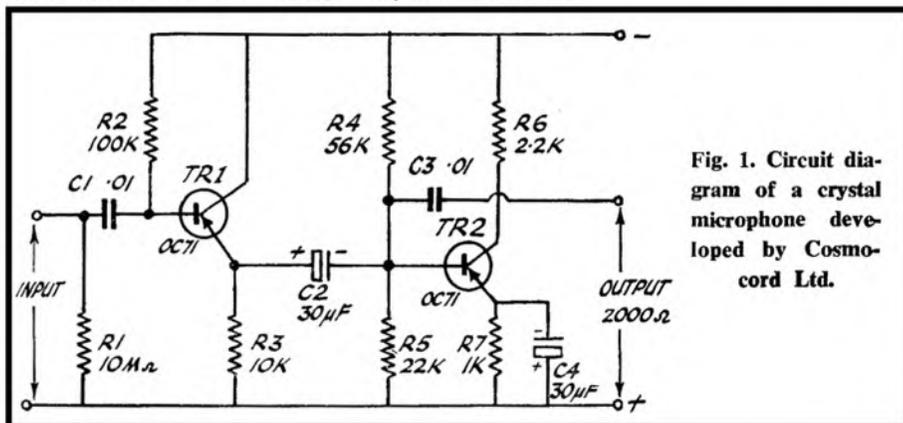


Fig. 1. Circuit diagram of a crystal microphone developed by Cosmo-cord Ltd.

"SLIM-JIM"

BREAKS THE SOUND (and price) BARRIER!

The new "Slim-Jim" speaker enclosure, only 4" depth, marks an outstanding breakthrough in small ultra-slim speaker design. Suitable for use with low output amplifiers, and ideal as extension speaker for recorders.

This speaker has been designed to fill a gap for a speaker having a reasonable response, small in size and competitive in price.

Two of these speakers used in conjunction with stereo recorders (or one if mono) will definitely improve the playback performance and help you get the best from your machine or amplifier.

Due to its very slimness, it will conveniently mount on walls, shelves and narrow ledges. (Mounting brackets fitted.)

SPECIFICATIONS

Size Height 23"
Size Width 14"
Size Depth 4"
Medium walnut finish

Output 5 watts
Twin Cone Speaker
50 cps to 12,000 cps
Available in 3 or 15 ohms

£12 Tax Paid

Manufactured by:

J. J. FRANCIS (WOOD GREEN) LTD.
123 Alexandra Road, Hornsey, N.8

(Dealer Enquiries Invited)

Circuit considerations

The Acos 39-1 microphone is capable of producing very high quality, providing that it operates into a sufficiently high imped-

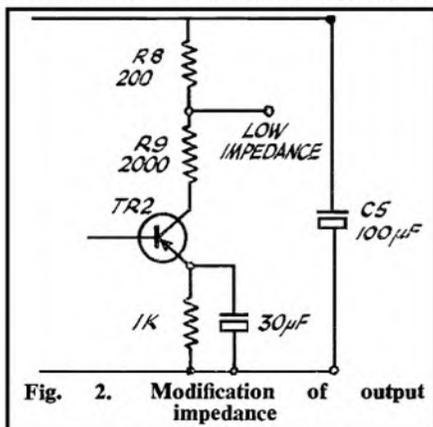


Fig. 2. Modification of output impedance

ance. The bass attenuation, which most readers will associate with use of crystal microphones, is almost always due to the low value of input impedance of their recording machine. Half a megohm is a very common value for the impedance of a microphone socket; some ten times this value is desirable to get the best results from a crystal microphone.

in Fig. 2. This produces a significant improvement in quality at the expense of gain. It may be worth while to experiment with the values of R8 and R9 to find the best compromise. I incorporated two outlet sockets, at the two impedances, so that a choice could be made under operational conditions.

Construction

A small, convenient unit was required and it was felt that a snap-on-lid type of tobacco tin was ideal. It had the advantage of being small, but not so small as to be easily mislaid.

The components were mounted on a miniature six-way tag-board. The lay-out is shown in Fig. 3. Half-watt resistors were used but much lower wattage types may be used since current flow is very low. The transistors were the last components to be soldered into position. This is a wise precaution for it is essential not to overheat them. For the same reason the transistor leads must be gripped in a pair of pliers during soldering.

The circuit was designed to operate from a 1.3-volt Mallory cell, but in my unit a 1.5-volt U 11 dry cell was used as I believe that it is more generally available. In neither case is a suitable holder to be had and the holder I constructed is shown in Fig. 4. A and C are two pieces of spring steel bent at right angles and bolted through the paxolin strips E and F to the case. B is

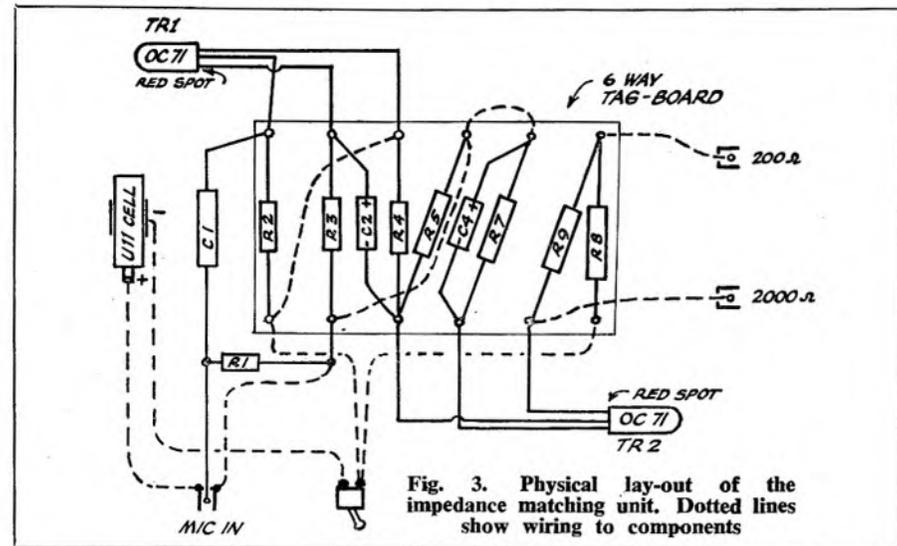


Fig. 3. Physical lay-out of the impedance matching unit. Dotted lines show wiring to components

The circuit shown in Fig. 1 was developed by Cosmocord, the makers of Acos products, and is reproduced with their kind permission. The microphone is terminated by a ten-megohm resistor to assure good bass reproduction. The first transistor is arranged as a grounded collector and produces a gain of less than one. Its purpose is to convert the high input impedance to one sufficiently low to feed the next transistor. The second transistor is a conventional common emitter amplifier with a little A.C. feedback through C3.

The output impedance is 2,000 ohms so that the unit can be used to feed transistorised equipment. It will also operate satisfactorily into the high impedance socket of a mains machine. In each case fairly long lines may be used, if required, without serious degradation of quality.

The input impedance of the Clarion recorder is nominally 200 ohms and a better match, to the unit, can be obtained by splitting R6 into 2,000+200 ohms as shown

another piece of spring steel which is bent to shape and retained by the two recesses filled in E.

The strip A contacts the positive terminal of the cell which is connected to "earth" and hence needs no insulation. C, on the other hand, must be insulated from the zinc case of the cell. A piece of thin paxolin, D, is glued to C for this purpose. The two

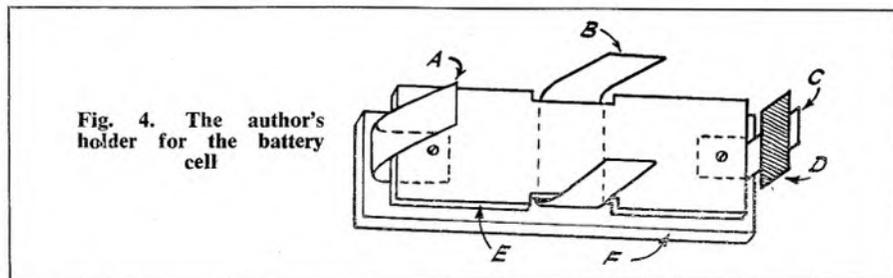


Fig. 4. The author's holder for the battery cell

COMPONENT LIST

Resistors		Condensers	
R1	10 M	C1	0.01 Paper
R2	100 K	C2, C4	30 mfd Electrolytic 15 v wkg
R3	10 K	C3	0.01 Paper
R4	56 K		
R5	22 K	Transistors	
R6	2.2 K	TR 1	
R7	1 K	TR 2	
R8 R9	See text	OC 71	

Three co-axial sockets, one toggle switch and a six-way tag-board.

screws are countersunk. Both A and B were lined with brass foil to make good electrical contact, and to provide a means of making soldered connection.

The leads are connected to the unit by means of standard co-axial plugs and sockets. These are cheap and make an exceedingly firm joint which does not easily separate under the most arduous conditions. The plug to the Clarion machine, in contrast, needs constant checking when the recorder is in mobile use.

Operation of the unit

For mobile use, and especially for bird-song recording, the crystal microphone, matching unit, and Clarion recorder make an ideal combination. The unit gives a useful gain at the high impedance output socket. The low impedance socket provides a slight attenuation which is useful when recording very loud sounds. The microphone can be operated at some distance from the recorder by extending the microphone lead, using well-screened co-axial cable, or by using a long lead from the unit to the recorder. This allows the recorded signal to be monitored over the loudspeaker.

When the unit is used to feed the microphone socket of a mains machine very satisfactory voice recordings can be made. Recordings compare favourably with those obtained using high quality moving-coil microphones. The excellent low frequency response provides the depth, and masculinity, in male speech which is missing when the same microphone is plugged directly into the machine.

A crystal tuner can be fed into the matching unit to make very satisfactory recordings. Clarion recordings of music, which form a very severe test, replay surprisingly well on a mains machine.

A further application of the unit is that it can be used to feed a signal from a monitoring head to the Clarion. This is useful for editing; the mains machine motors can be switched off and the tape spools operated by hand to allow precise location of wanted sounds on the tape.

The current consumption of the unit is so small that the matching unit can be run for a very long period before it becomes necessary to replace the battery.



FERGUSON 3204

By John Borwick

THE Ferguson Model 3204 strikes me as being a most useful addition to the ranks of inexpensive tape recorders. It is compact and easy to operate, two features which help it to make a good first impression. And this impression has been confirmed by measurement and an extended period of trial use around the house.

As you will see from the specification, the Ferguson 3204 operates at the two popular speeds of $3\frac{3}{4}$ and $1\frac{7}{8}$ ips. It is a four-track machine, with the conventional pair of push-buttons mounted above the heads to select Tracks 1-4 or 2-3. Depressing both buttons simultaneously allows you to play two tracks at once.

The idea behind this trick is that you can add background music or spoken commentary to a previous recording. By using a separate track for the second recording instead of mixing or superimposing it on the first one (the Ferguson 3204 also has a superimpose button) you leave the first recording intact. The method is therefore popular in the making of home movie soundtracks and language learning, where several attempts at the second recording might be desirable.

As with most inexpensive recorders which provide this dual-track playback facility, however it is not possible to listen to the first recording while making the second. But the Ferguson incorporates a versatile Auxiliary Socket which supplies a feed from the head winding of the not-in-use track. By adding a suitable amplifier, you could then feed the signal to headphones or a loudspeaker, or even to the second track for re-recording (see my final paragraph).

This Auxiliary Socket is a most unusual and potentially useful feature. Other outputs it provides are a feed of the signal being recorded (without bias) a radio output (1.5 mV into 22,000 ohms) a —30 volts DC (50 mA) supply to operate ancillary transistorised equipment such as a mixer unit, and a Remote Pause connection.

Remote control of the quick halt/run facility associated with the Pause key is even more conveniently provided by a switch built into the microphone. This puts a click on the tape when operated during recording, of course, but it is extremely useful for dictating letters, etc. It also operates during playback.

THE CONTROLS

I have already said that this machine is easy to operate. The main reason is excellent layout of the controls and their fitness for the purpose. But credit must be given



too to the stylish labelling which leaves you in no doubt as to the function of each control.

The type of knob used for Tone and Volume, often a bone of contention with me, is the best I have seen. Between the polished centre hub and the outer ribbed circle is an area of clear plastic carrying a single radial red line. The scale of divisions is actually on the recorder top plate, so you can see at a glance the precise setting of the red line and there is no danger of the scale becoming worn or obscured in use.

A conventional row of five piano keys is used for rewind, pause, stop, play and forward wind. A red button has to be pressed along with the play key for record, and you can press the red button by itself if you want to check the volume indications on the magic eye before going ahead.

A similar grey button labelled "Amp/Sup" turns the machine into a straight-through amplifier, the microphone or gramophone pick-up being reproduced through the internal or external loudspeakers as required. If you make a recording while this grey button is depressed, the automatic erasing current is made

inoperative so that a previous recording is not wiped. Instead it has the new recording superimposed on it.

The three-digit position indicator, with re-set to zero buttons, is quite conventional as are the various input and output connections. All these connections are mounted at the back of the machine except the microphone socket. I heartily approve of the designer's decision to put this on the top panel alongside the volume control and Record button. It always gives me a greater feeling of confidence if I can actually see that the microphone is plugged in before I start recording.

An automatic stop mechanism is fitted, actuated by metallic foil on the tape, to prevent the tape from accidentally running off the spool. The mechanism operates on fast forward and rewind, as well as normal running, and really brings the tape to rest in a few inches no matter how fast it is travelling.

Rewind time for the 850 feet of tape supplied was 2 minutes 48 seconds. The maximum size of spool for this machine is $5\frac{1}{2}$ inch. Using Double Play tape will give $1\frac{1}{2}$ or three hours recording, per track, at $3\frac{3}{4}$ and $1\frac{7}{8}$ ips respectively.

TECHNICAL TESTS

After checking that recording, superimposing, and replay in all available modes operated satisfactorily, I gave the machine the usual frequency response test. As other reviewers will confirm, this test is something of a formality on tape recorders costing less than say £60. Most inexpensive recorders make no claim to being high fidelity instruments (or they shouldn't). We use the test simply to sort out the occasional "snorter."

But the Ferguson 3204 has a very respectable frequency response, as will be seen from the diagram, of which many quite expensive recorders would be proud. The use of a high quality external speaker would therefore be well justified. A good buy at 33 guineas.

Incidentally, additional accessories which have been promised for widening the versatility of this machine include an automatic recording (tape transport) control for dictation or telephone use, a synchroniser unit for slide projectors and facilities for stereo playback and sound-on-sound recording.

Manufacturer's Specifications

Power supply: 200-250 volts, 50 c/s AC.
Output power: three watts.

Input sockets: Microphone, radio and pick-up.

Output sockets: External speaker (3 ohms) and low level (500 mV at 22,000 ohms).

Auxiliary socket: —30 volts DC (50 mA), remote pause, radio output, record output (without bias), head winding (from track not in use).

Dimensions: 14 x $12\frac{1}{2}$ x 6 inches.

Weight: 19 lb.

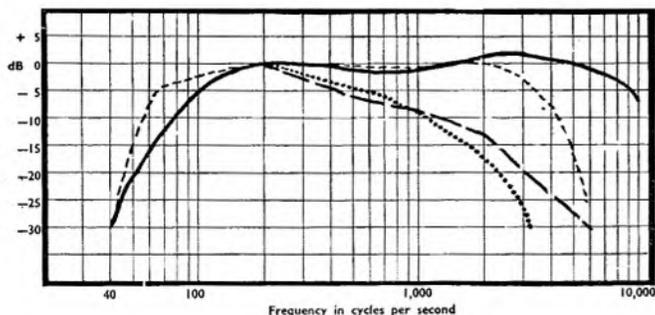
Price 33 guineas.

Manufacturers: Thorn Electrical Industries Ltd., Thorn House, Upper Saint Martin's Lane, London, W.C.2.

STEREOMASTER

By H. Burrell Hadden

THE Stereomaster tape recorder, which I reviewed in last month's issue can form the basis of a complete sound entertainment system. The importers, St. Aldgate Warehouse Ltd., very kindly sent along the complete outfit, and very glad I was to have the opportunity of



living with this equipment for a few weeks; indeed I have grown to rely on it so much that I shall be very sorry to have to return it, as return it I must! Not only does this equipment produce an extremely attractive sound, it is most attractive to look at as well, and its clean design would grace any room.

Each item of the system is housed in a beautifully made teak case, and the equipment sent in addition to the Stereomaster itself consisted of two loudspeakers, a VHF radio tuner, and a Transcription quality record player. Monophonic and stereophonic figure-of-eight ribbon microphones, with a chromium plated telescopic floor stand, were also supplied.

The loudspeakers were of the now familiar medium small size, in fact they measured $27\frac{1}{2}$ inches high by $11\frac{1}{2}$ inches wide, by $11\frac{1}{2}$ inches deep; small enough to stand unobtrusively in the opposite corners of the room, or even to sit lengthwise on wall-mounted shelves. This lightweight, but well damped, cabinet contains two loudspeaker units, a 10×6 inch elliptical covering the whole frequency range—at least no attempt is made to restrict its response—and a four-inch round tweeter fed via a series capacitor. The cabinet acts as a vented enclosure for the larger loudspeaker.

The response of the loudspeaker as a whole can hardly be said to be of an exceptionally wide range, it is somewhat lacking in both extreme high and low frequencies, but the sound it makes is well balanced, and pleasing to the ear. The pair provided were capable of giving a very good account of themselves with any material I could find to play on them—mono or stereo tape or disc, or from radio. They seemed to be just right, in size and output, for the small rooms of modern living. Smaller loudspeakers are also supplied for those who cannot even find room for these, and a rather larger unit, with somewhat better response, as might be expected, for those fortunate enough to be able to accommodate it.

To turn now to the tuner. The model supplied was the Minette, a VHF only tuner, covering the band from 87 to 100 Mc/s. This tuner is provided with its own self contained power supply, and requires only connection to the mains, and to the radio input socket of the Stereomaster. A Band II aerial is also desirable, for best results, but the extreme sensitivity of this receiver enabled it to work most satisfactorily on a simple wire dipole in my London flat.

So long as the signal is in excess of four microvolts the receiver is perfectly happy, and under the conditions described it was possible to tune to three BBC transmissions for each of the three services; those from the London, West of England, and Midland transmitters. Incidentally, it was easily possible to tell the difference between the three transmissions of the same programme material: the frequency response from the London (Wrotham) transmitters was noticeably better, on programmes originating in London, due to the losses in the land line network. Continental VHF stations were received at full entertainment strength on numerous occasions.

The receiver has only two front panel controls. On the left hand side is the mains "on/off" switch, which is coupled with a function selector, enabling mono or stereo reception to be selected, and also the choice of automatic frequency control or not, depending on the strength of the desired signal.

The receiver as supplied is not fitted with

the multiplex decoder necessary for stereophonic reception, but this will be available as an accessory when regular transmissions begin. The Automatic Frequency Control is a very useful feature, keeping the receiver perfectly in tune on strong local stations, but of course means of disabling it must be provided so that these stations can be tuned in in the first place, otherwise the automatic device chases the manual tuning. This disabling is conveniently accomplished by means of a switch on the tuning knob, the right-hand control. Slight pressure on this knob is all that is required to remove the AFC, normal operation being restored when the knob is released. The AFC can be permanently disabled by the switch provided when it is desired to receive a weak station very close to a strong one. If the AFC were to be used under these conditions the strong station would always override the weak one.

An additional control is provided, screw-driver operated, under the base of the receiver, so that the output level can be ad-

justed for the varying needs of different amplifying equipment.

The record player unit has a twelve-inch diameter turntable and an accurately balanced pick-up arm. It was supplied with a stereophonic cartridge, but monophonic ones can also be obtained. The turntable was exceptionally rumble free, and the reproduction was first class. The accurate balancing of the pick-up made perfect tracking possible, with the playing weight as little as two grams, even if the turntable was not absolutely level. Indeed little deterioration in quality was audible when the turntable was tilted to a quite alarming angle, and the pick-up would actually stay safely on the disc at this playing weight with the turntable vertical—yes, vertical!

To sum up, with the possible exception of the loudspeakers, this equipment should satisfy the most discriminating listener and sound recordist. Its good looks should even satisfy the lady of the household; and who can say more than that!

Musically yours

(Continued from page 191)

difficulty contact a service man. The plug fitted to the far end of the linking cable will depend on the type of socket used on the tape recorder. Output could also be extracted at point B (Figs. 2 and 3) but is not generally advisable since the recording level then depends upon the volume control setting. Using the method described enables the receiver to be used as a monitor via its loudspeaker and the sound level can be turned down to zero when not required without in any way affecting the recording.

LIMITING FACTORS

Unfortunately AM equipment does not always provide a good signal source and between dusk and dawn "monkey chatter," sideband splash, TV interference and so on prove serious hazards. Mains driven receivers are particularly

FM/VHF does not always provide an answer either especially in a "fringe" area or on a busy main road.

In these cases use of a transistorised superhet receiver (not a pocket size version) can prove beneficial for such a set is not in connection with the domestic mains supply. Further benefit is derived too from the inbuilt aerial it contains since the set can frequently be orientated to advantage. The danger of hiss is present, however, and care should be taken to use a receiver of high sensitivity. In general the choice of radio recording signal source must be considered in relation to the quality and type of music, etc., required at the particular location.

DISC TO TAPE RECORDING

Recordings can also be made by taking signals from the crystal pick-up of a record player but some disappointment might be felt unless the recorder is fitted with compensation. Some discs are deficient in the bass register and should be fed to the tape recorder input via a suitable C/R input filter. The filter will introduce attenuation but this is usually desirable with modern high output crystal pick-ups. Inspection of the underside of a record player usually reveals a pair of thin leads perhaps with red and black insulation if a monaural type soldered to a tag strip the leads themselves running away up into the actual pick-up arm and thence to the crystal cartridge. A fixed resistor of about $1M\Omega$ and a capacitor of approximately 680 pF are usually adequate for the filter and may be connected along the lines depicted in Fig. 5. If on a recording "top" seems weak or woolly exchange the capacitor for one of say 330 pF and try again. In some cases the resistor can be made double the value quoted with advantage, and it is interesting to experiment along these lines to suit one's taste.

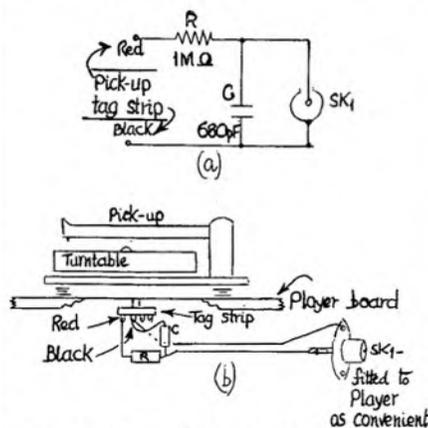


Fig. 5. Record player network socket details

susceptible and not all vacuum cleaners are suppressed! In some urban locations much interference is found from fluorescent shop lighting systems and other "modern" devices and it is virtually impossible to record anything well—except perhaps on a Sunday!

John Borwick asks:

WHO wants hi-fi/stereo by radio? In company with about eight notabilities in the field of High Fidelity, journalists and manufacturers, I gladly accepted an invitation to visit the BBC on March 17.

Mr. L. W. Turner, BBC Engineering Information Officer, was prompted to ask these eight gentlemen along to meet BBC sound engineers socially and at work, because of a series of caustic letters and editorial comment they had recently published in the semi-technical press. And, although I have taken no part in the controversy, he kindly put my name on the list as he said "a kind of ex-busman's holiday."

In a nutshell, it seems that an outspoken minority of audio enthusiasts want the BBC (a) to improve the technical quality of its sound broadcasts, and (b) to start regular stereo broadcasting on multiplex. Instead of leading the world, they complain, this country has fallen sadly behind the United States, Germany, Japan, etc., etc.

The BBC's answer of course is that these improvements would cost money. And, since the only money the BBC has to spend is public money (the licence revenue, or that part of it doled out to them by the Government), they have to satisfy themselves that a sufficient mass of the general public both want these technical improvements and have radio sets capable of appreciating them.

Hence my original question at the top of this page. If you feel strongly that wide band UHF radio links should replace the network of GPO landlines at present linking up BBC stations (a major cause of the restricted frequency response on many broadcasts) then write to the BBC about it. And if you have purchased a Multiplex adaptor and want to agitate for regular stereo programmes, put pen to paper. Given a sufficient weight of genuine evidence (and not just the biased gripings of hi-fi equipment manufacturers and scribes) I have no doubt that the BBC would go ahead.

One thing that our visit certainly proved was that the sound quality at the studio end can be superlatively good. We saw (and heard) the BBC Symphony Orchestra in rehearsal and the latest drama and con-

tinuity studios. We also visited the quality checking rooms, where keen-eared engineers and studio managers keep a watch on all outgoing programmes.

By the way, this is also where tapes submitted by amateurs and other outside sources are given any "doctoring" that may be necessary to bring them up to broadcasting standards. Frequency correction and filtering are commonplace, and there is a variable-speed power supply that can even restore tapes recorded on portable machines with the batteries running down.

* * *

WHAT is a cross field head?

Tape recorders have started to appear in America with "a revolutionary new type of recording head." This is based on a patented idea by Marvin Camras of the Armour Research Foundation, and is designed to improve the high frequency performance of tape machines at slow running speeds.

It has always been known that the ultrasonic bias mixed with the programme signal during recording has a tendency to erase high frequencies. Camras found that this tendency got worse as the record/replay head became worn. The effect of wear is to reduce the head inductance and so give a steeper rise in the bias than in the programme current. And the consequent loss in high frequencies is particularly noticeable at slow tape speeds such as $3\frac{1}{2}$ or $1\frac{1}{4}$ ips.

His solution was the cross field head in which the bias is fed through a separate coil/core mounted on the opposite (shiny) side of the tape (see sketch). In fact this bias head never comes into contact with the tape, and moves out of the way completely during playback. So it is not subject to wear, and trouble with high frequency losses is avoided.

Representatives of two firms using versions of this technique, Roberts Electronics and Concord Electronics, believe that it will help to establish $1\frac{1}{2}$ ips as a future standard speed for music. But I for one rate the poor wow and flutter performance of most machines at these slow speeds to be even more of a drawback on music than the limited frequency response. So I think I'll be sticking to $7\frac{1}{2}$ ips for some time to come.

* * *

WHO needs a mobile discotheque?

I wonder if you were amused as I was to read in the newspapers about Robert Morrison who runs the only mobile discotheque in this country. A discotheque, it appears, is a club where you dance to Top Twenty and foreign records.

Mr. Morrison's idea is a travelling disc jockey hire service. For 25 guineas (extra of you live more than fifty miles from London) he will turn up and supply all the music for your party. He brings about 200 discs and the latest audio equipment including two turntables, so there's no pause while records are changed. Officially the party is over at 4 a.m., but he isn't the one to break up any party that is in full swing.

The two things about this that amused me were, first, the reasons given for hiring a disc jockey, including "... the workings of a tape recorder baffle many." And second, that the musical copyright people now have something else to worry about besides the perennial, and still unresolved, problem of how to make we tape recording enthusiasts pay for the privilege of dubbing from radio and gramophone records.

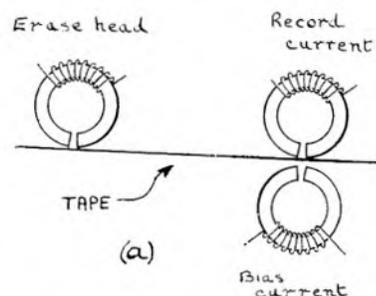
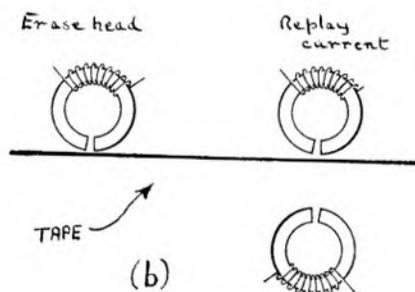


Fig. 1. In a cross-field head, separate windings are used for the record and bias currents. In (a) above, the bias core assembly is on the opposite side of the tape, and in (b) below, is completely withdrawn during playback



DRAMATAPE MISCELLANY

(Continued from page 193)

section requiring the fade, cutting at the nearest pause. Now splice leader-tape on each end of this section—this makes it easier to handle. You'll now need two machines. Copy your tape-section on to a second tape, adjusting the gain-control for the fading effect. Measure this dubbed tape against the initial section and cut it to the same length. Now splice the dubbed section into the master tape.

But if the second track is to be preserved, the dubbed section must be re-dubbed on the initial section. This is then spliced back into the master tape—thus matching up the second track. Avoid making secondary cuts when splicing; use the one primary cut and carefully peel off the jointing-tape for re-matching ends.

Post-mixing of fades follows much the same method, except that three recorders are needed. It's advisable to practice these techniques—adroitness and accuracy are essential. It's better to get the transitions right during the first recording; but adding post-fades is a useful trick in emergencies. If you can't beg or borrow the extra recorder(s), then you can always adjust the volume-control during normal playback.

When replying to advertisements please mention you saw it in "TAPE Recording Magazine"

READERS' LETTERS

Our club is not 'lethargic'

JOHN BORWICK asks (*March issue*): "Does the keenness of the clubs increase as you get farther from London," and then calls the London bound enthusiasts numbingly lethargic.

There is such a population mass in London that the capital's tape clubs can easily find an outlet for their talent in local fields. Magazines on tape for the blind, hospital work, recording local instrumental and choral groups, sound effects for the many dramatic societies in the area, etc., etc.

There is no need, nor time, to go outside the area to discuss and find artificially-created realms of tape recording interest. We are all whacked out thoroughly enjoying ourselves doing things on tape in our immediate vicinity without having to go to other organisation's meetings, such as F.B.T.R.C., as well.

When further contact is required for the purpose of widening experience with others of the same interests a nearby tape club—there is always one nearby—is invited to a quiz or discussion on tape matters. If we get an occasional free evening, a manufacturer is invited to show us his equipment for severe appraisal.

London tape clubs lethargic? John Borwick, pay us an uninvited visit one Wednesday night—you'll see. Our club room on meeting nights is seething with so much enthusiastic activity organising the week's recordings, you probably won't be noticed until our reception team for new members sees a stranger in our midst and your non-London accent is heard.

SINCLAIR G. SCOTT.

North London Tape and Hi-fi Club.

Weekly meetings are not sufficient

I THINK John Borwick is right. Our club members found one night a week not enough for keen tape recordists, so we decided to go full time.

We found some manufacturers were not keen to come up to Glasgow to give lectures and demonstrations, and apart from two dealers in the city we had no one to turn to for demonstrations. So we drew up a plan whereby the committee would give lectures, demonstrations, and organise practical evenings. Everything is now geared up so that we do not have to worry about filling-in if one of the committee members fails to arrive.

We would never turn down a visit from any manufacturer, in fact it is a pity more will not come to Scotland.

Always looking for further outlets for our tape recording activities, we jumped at the chance to join the Radio Club of Scotland. What next?

A. McCALLUM.

Secretary, Tape Section of the Radio Club of Scotland.

Truvox models in America

IT has been a great pleasure to read your March issue, and of course to see so many references to our products. This does indeed emphasise to me the extent to which our products have been gaining ground in recent months.

I should like to refer to John Borwick's paragraph about selling tape recorders successfully in the United States. Truvox have in fact been doing this since the last two years, and we are obviously in a position to endorse the remarks made that an intensive study of this tough market is an essential, and that the most stringent demands are made on the manufacturer. Indeed, our Chief Engineer, Mr. R. Bishop, has recently returned from a trip to New York where he has been endeavouring to consolidate our interests.

All our thinking has been influenced by the American market, with the result that the Series 90 is the most successful range in its price bracket on the Home market. There is a tendency for our own concepts of technical excellence and stylistic perfection to follow those current in the United States at a gap of some eighteen months to two years. In the process, the more vulgar aspects of American styling are deleted, and a first class British product emerges.

Turning to Mr. H. Burrell Hadden's review of our R92 recorder, we would like to thank him for his excellent appraisal of our product. Two points only call for comment: that the "end of tape" stop does not in fact operate on fast wind or rewind, and that there was a misprint in quoting Wow and Flutter which is in fact better than 0.15 per cent at 3½ ips, not 0.5 per cent as stated. We do not think that anyone would be confused by this misprint, as we achieve 0.25 per cent or better at 1½ ips.

Finally, it was pleasing to note the publicity given to the Rank Language Laboratory, which is a project of which we are justly proud.

O. S. PRENN.

*Managing Director,
Truvox Limited.*

Tape exchange material for South Africa

I WOULD like to appeal to your readers to send me tapes suitable for playback at our next Hobbies Fair to be held in May. We particularly wish to receive tapes depicting the popularity of tape exchanges.

It would be appreciated if postcards and/or photographs are sent with the tapes. I will reply to each sender, and also provide photographs if required by any tape exchange enthusiasts.

FRANK MULLER.

*183 Stilfontein Road, Stilfontein,
Transvaal, South Africa.*

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Tape records reviewed

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recording

CLASSICS



By Edward
Greenfield

SHOSTAKOVICH. Symphony No. 5,
Opus 47. New York Stadium Symphony
Orchestra conducted by Leopold Stokow-
ski. WRC (TT 281), 3½ ips, mono. 29s.

In the days before and during the war
Stokowski did more than any other con-
ductor to popularise the work of the brilliant
young Shostakovich. There is now no lack
of champions for the Soviet composer, but
this recording shows that his first advocate
on record is still one of the most impressive.
It was Stokowski's old 78 recording with the
Philadelphia Orchestra that first alerted
people that Shostakovich had developed into
a formidable symphonist with depth as well
as brilliance.

This is a marvellous work. It was written
immediately after Shostakovich's first dis-
grace at the hands of Stalin and the Soviet
art pundits, and the need to provide a work
that was both immediately attractive and
also honest and profound acted as a
challenge. There are more tunes in this one
symphony than in a half a dozen by some
modern composers, and they are presented
with a richness of orchestral effect that
recalls the great Russian romantics like
Tchaikovsky.

As in his other symphonies Shostakovich
avoids a conventional symphonic allegro in
the opening movement. It is a slow
Moderato with a long broad-breathed
melody taking over the function of second
subject. Yet it still provides a really weighty
argument.

World Records has issued a number of
fine recordings of great soviet symphonies
such as the Sixth and Ninth of Shostakovich
and the Fifth of Prokofiev, but this is even
finer. Stokowski understands the need to
play this music for all it is worth, as though
it really was by Tchaikovsky, and nowhere
does that come out so clearly as in the
finale. It is a characteristic piece of Soviet
rumbustiousness, and many conductors seem
to apologise for its vulgarity. Not so
Stokowski who has one cheering by the end
as though at a May day parade, and achieves
this magic partly by giving a rare tension and
warmth to the contrasting lyrical section.
The recording is superb and the play-
ing characteristic of a Stokowski-trained
orchestra.

MONTEVERDI. Psalms and Anthems
including Beatus Vir, Laudate Dominum
and Lauda Jerusalem. Singers of St.
Eustace, Paris. WRC (TCM 48), 3½ ips,
mono. 29s.

For years Monteverdi was more a name
in the history books than a composer whose
music was performed, but helped by records

a wider public has now realised how vital
and fresh and still modern much of his
music sounds. He has many claims to be
regarded as the first composer who fully
shook off the shackles of the middle-ages
and captured the Renaissance spirit. He is
best known as the "father of opera" and
when such an opera as "The Coronation of
Poppeia" is performed at Glyndebourne,
one marvels that it could have ever fallen
into neglect.

His operas and madrigals remain his most
characteristic works, but he also wrote a
great deal of church music, and the wonder-
ful pieces on this disc show what a revolution
he brought about in that field too.
There are many echoes of the operas and
madrigals, and the approach is very different
from the severely polyphonic style of Pales-
trina, only a few decades earlier. The
emotion here is so much more overt, with
the grand setting of "Beatus Vir" conveying
secular as well as religious joy. I am sure
that anyone venturing on this will be
astonished that music written over three
and a half centuries ago should be so alive.

The performances are appropriately bright
and vigorous (Monteverdi requires that and
not tactful half-heartedness) though one is
well aware from an occasional curious
timbre that these are French singers. The
recording is very good indeed.

DVORAK. Serenade for Strings; Nocturne
in B. GRIEG. Holberg Suite. Sinfonia
of London conducted by Alexander Faris.
WRC (TT 51), 3½ ips, mono. 29s.

These are two of the most delightful yet
two of the strongest works ever written for
string orchestra. Dvorak and Grieg both
knew how to make stringed instruments sing
in uninhibited melody-making. Almost
every tune is wonderfully memorable, yet
using a limited group and with few sym-
phonic pretensions both composers were at
their most positive. The opening of the
Serenade shows Dvorak's ability to begin a
work gently as though the music has only
just emerged into human hearing. The
Grieg has a grander start, and in all five
movements he deliberately harks back to
the conventions of the eighteenth-century
suite using dances such as Sarabande,
Gavotte and Rigaudon.

Faris's conducting is firm and enthusiastic.
In the first movement of the Dvorak he
could have pointed the transitions with
greater charm (one remembers what a master
like Beecham did) but the unfailing vigour
makes amends and the slow movements of
both works have great warmth. The record-
ing, made several years ago, still sounds
quite well, though it does not always flatter
the players' tone. It makes it sound rather
thin.

POPULAR



By Fred
Chandler

Two more
tapes
by
Joe
Loss

GO LATIN WITH LOSS. Joe Loss and
his Orchestra. HMV (TA-CLP 1697),
3½ ips, mono, 35s.; and MUSIC FOR



LEISURE. Type 8. Joe Loss and his Orchestra. Encore (TA-ENC 5050), 3½ ips, mono. 35s.

Two recent issues of Joe Loss's long-playing discs. Both are for listening or dancing, and the former features two tunes each for tangos, sambas, rumbas, Paso Dobles, Cha-Chas, a Bossa Nova, and the newer La Bamba. Included in this tape is *Sucu Sucu* which was one of his "single" success.

The Music for Leisure series tape includes sixteen numbers including the ever popular *Malaguena, It happened in Monterey*, and *Lovely to look at. Ramona, If you knew Susie* and a medley of waltzes including *Always, All Alone*, and *What'll I do* are also featured.

This tape

**is
a
jazz**

'Who's who'

JAZZ



By Mike J. Gale

JAZZ AT THE PHILHARMONIC PRESENTED BY NORMAN GRANZ (Vol 1) Verve (TA-VLP 9045) 3½ ips, mono. 35s.

The credits read like a jazz "Who's-Who" with Stan Getz, Cannonball Adderley, Dizzy Gillespie, Art Davis, J. J. Johnson, Roy Eldridge, Coleman Hawkins, Benny Carter, Don Byas, Jo Jones, Lalo Schifrin and Chuck Lampkin.

My immediate liking for this record came because I always favour the atmosphere created by a concert performance. It is a purely personal matter, but when hearing a violin concerto on record I always feel "let down" at the end of a tremendous finale because of the long cold silence. In a concert performance there is nothing like the thrilling applause which rounds the whole programme off. The same principal applies, in my opinion, to any form of music and this record opens with the personnel exchanging comments interspersed with laughter from the audience.

The result is, one is already sitting in the audience as *Bernie's Tune* gets under way, and you identify yourself with the applause for each solo. It helps, I think, to make the record more interesting.

The real attraction is the way each soloist restrains himself from making the occasion a personal performance and instead contributes to the very fine team-work. It is impossible to single out any one performer without going into a detailed account of the music.

THE WOODY HERMAN SEXTET. W.R.C. (TT 323) 3½ ips, mono. 29s.

Woody Herman is a name that should not need any introduction. Over the years he

has become recognised as a master of experiment favouring small combos when large bands were the rage, and leading large groups when everyone thought they were finished.

On this record we find him with a small outfit of five with Bill Betts, bass; Jimmy Campbell, drums; Eddy Costa, piano and vibes; Charlie Byrd, guitar; and Nat Adderley, trumpet.

This is a wonderful record with a wide selection of contrasting tunes and mood music; each item stands individually, yet blends perfectly with the others. Indeed, one of the outstanding features of this record is the faultless programming.

Even if you are not inclined towards jazz, I would suggest that you should at least hear what I consider to be a "must" for any balanced tape library.

The selection ranges from *Petite Fleur*, a fascinating rhythm background by Bill Betts and Jimmy Campbell, to *Black Nightgown* where the Group's enthusiasm and enjoyment shows through and excites the listener.

I liked *Moten Swing* with Herman at his brilliant best, but most of all I liked the classic *Lullaby of Birdland* performed in a wonderfully original way with an interpretation that makes other versions seem to lack something.

I only hope this record gets the publicity it deserves.

KING OF JAZZ. ART TATUM. W.R.C. (TT 279) 3½ ips, mono. 29s.

The renowned Art Tatum died in 1956 at the tragically early age of 46 still triumphant, though over a near lifetime of blindness. It is a well-known lesson of life that people with handicaps often compensate for it by developing their other senses to an astonishing degree. Tatum, like Ray Charles, not only made up for blindness, but reached further and achieved International recognition.

One criticism of Tatum was that his brilliant dexterity went too far and for too long. This record seems to demonstrate it.

Although I prefer him playing with a group where more restraint is self-applied (on this record he is solo) I tried to listen without any bias. Even so, I did not enjoy it as the melodic explorations became too remotely involved. I admired his brilliant talent, his harmonic perfection and his amazing technique but with the exception of *There Will Never Be Another You* and *September Song* on tracks one and two respectively, I felt it all seemed to go on too long.

This record is the result of a private party in California, and Tatum, obviously relaxed, allowed his improvisations complete freedom. Despite the admiration he commands, it will only suit those with a specialised taste.

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

"Encore," "Verve"; E.M.I. Records Ltd., 20, Manchester Square, London, W.1.
"W.R.C.": World Record Club, Box 11, Park-bridge House, The Little Green, Richmond, Surrey.

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NEW PRODUCTS

**TAPE, DISC AND
RADIO
UNIT BY STUZZI**

FIRST news of a combined tape recorder and disc-player, was recently announced by Recording Devices Ltd. agents for the Austrian made Stuzzi recorders.

The new model, the Disc-Corder, measures only 10 x 9 x 3½ inches, and weighs 7 lb. It is a battery or mains operated transistorised unit with a recording speed of 1½ ips, and a disc-playing speed of 45 rpm. It will sell at 59 guineas including PT.

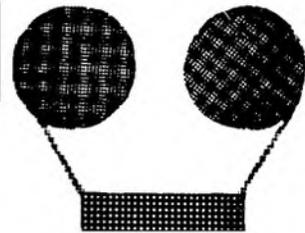
The design, as shown by our illustration, has the tape recorder and disc-playing units back to back, although both units can be operated simultaneously. Also incorporated in the Disc-Corder is a medium wave radio tuner.

The frequency response of the tape unit is 60-8,000 cps, with the signal-to-noise ratio given as 40 dB approx. Maximum spool



size is 4½ inches, providing a playing time for each of the two tracks, of over two hours using triple-play tape. This section also features a meter recording level indicator.

Among the features are inputs for microphone, pick-up, radio, and telephone adaptor; with internal connections for radio, tape, or pick-up to tape. Outputs are provided for carphones and external loudspeaker. The power supply is four U2 batteries, or a mains unit. Transistor line-up includes three AC125, two AC126, one AC127/128, and two AC128, plus two diodes, OA70 and BZ100. A four-inch round loudspeaker is incorporated, and the loudspeaker switch is built into the continuously variable tone control. Also incorporated is a meter battery state indicator.



The tuner section includes three AF127 transistors. It has an intermediate frequency of 452 Kcs; and the medium wave band covers 515-1,600 Kcs (190-580 metres).

Push-button operation is used throughout. The approx. current consumption is given as 140 mA for record and replay; 170 mA for fast wind; 40 mA for radio only; and 130 mA for record player only.

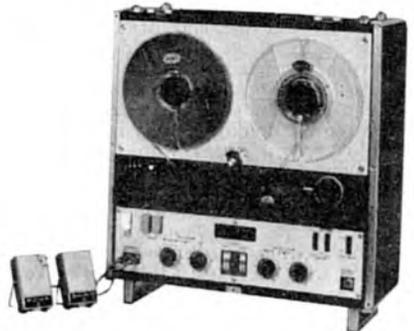
Recording Devices Ltd., 44, Southern Row, Kensington, London, W.10.

**SONY ANNOUNCE
NEW
STEREO RECORDER**

SHOWN for the first time at the Russell Hotel Audio Fair is the latest in the Sony range of Japanese manufactured tape recorders.

This is the TC600, a four-track stereo tape recorder with tape speeds of 7½ and 3½ ips. The quoted frequency response is 30-18,000 cps (50-15,000 ± 2dB) at the top speed, and 30-13,000 cps at 3½ ips. Wow and flutter is given as less than 0.15 and 0.20 respectively, and signal-to-noise ratio is given as better than 50dB.

Accommodation is provided for up to seven-inch spools, providing a playing time of 64 minutes per track using standard-play tape at 3½ ips. Other features include a three-head system to permit comparison monitoring of the input signal with the signal on tape; hysteresis synchronous drive motor; separate microphone and line recording level controls for professional mixing; sound on sound facilities; transistorised pre-amplifiers; two VU recording level indicators calibrated to NARTB stan-



dards; automatic shut-off switch; digital rev. counter with zero reset button; and vertical or horizontal operation.

Inputs include low impedance for microphone (250 to 1 kOhms, sensitivity—72dB) and high impedance auxiliary inputs (sensitivity 0.08 volts). A high impedance (max. 1.5 volt) line output is provided, plus a binaural monitor output socket.

Its dimensions are 18 3/16(D) x 16 3/4 (W) x 10 1/2(H), and it weighs approx. 48 lb.

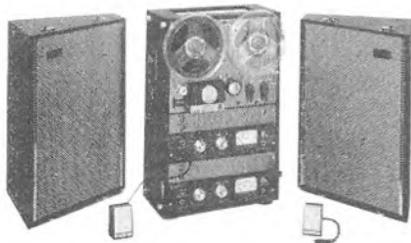
The price, which includes two Sony F-87 dynamic cardioid directional microphones, is 137 guineas.

Tellux Limited, Avenue Works, Gallows Corner, Colchester Road, Romford, Essex.

FOUR MORE MODELS FROM JAPAN

PULLIN OPTICAL, who took over the marketing of the Japanese-manufactured Akai tape recorders since the last Audio Fair, introduced four new recorders this year.

First of these is the Model M-7 a two and four-track stereo recorder with three tape speeds of 7 1/2, 3 3/4 and 1 7/8 ips. Accommodation is available for up to seven-inch spools, providing a playing time of 64 minutes for each track, using standard play tape at 3 3/4 ips. It will play two or four-



track stereo or mono tapes, and record stereo or mono four-track.

The quoted frequency response is 30-23,000 cps (50-21,000 ± 3 dB) at 7 1/2 ips; 40-20,000 cps (40-18,000 ± 3 dB) at 3 3/4 ips; and 40-13,000 cps (40-10,000 cps ± 3 dB) at 1 7/8 ips. Wow and flutter at the three speeds are respectively better than 0.15, 0.25, and 0.35 per cent (RMS). Signal-to-noise ratio is given as 40 dB below the recorded signal. Channel separation is rated at better than 80 dB at 1,000 cps +3VU.

Among the features are automatic tape end stop; two VU meters; interlocked operating controls; vertical or horizontal operation; digital rev. counter; pause control; and a built-in 7 x 5 inch speaker for mono sound monitoring.

The Model M-7 measures 20(H) x 13(W) x 9(D) inches and weighs 47 lb. The price, including two dynamic microphones, recording leads, seven-inch spool of tape, and a zipper case for accessories, is £139 13s. 0d.

The second new model is the Akai 903, a two speed two-track recorder with accommodation for seven-inch reels. The quoted frequency response is 40-12,000 cps at 7 1/2 ips, with wow and flutter given as less than 0.1 per cent. At the slower tape speed of 3 3/4 ips, the maximum playing time per track available is 64 minutes using standard-play tape (1,200 ft). Rewind is accomplished within 2 1/2 minutes.

Among the features are facilities for mixing and monitoring; a VU meter recording level indicator; digital rev. counter; pause control facilitating spot editing, and vertical or horizontal operation.

Power requirement is 100-117 volts, 50 or 60 cycles, with the consumption rated at 50 watts. The size is 15 1/2 x 13 1/2 x 8 1/2 inches, and it weighs 28 1/2 lb.

The price, including dynamic microphone,

five-inch reel of tape, spare spool, 50 cycle adaptor, and splicing tape, is £84.

The third new machine, the Model 707, costs £88 4s. This is a two-track mono recorder incorporating tape speeds of 7 1/2 and 3 3/4 ips. The quoted frequency response is 30-12,000 cps ± 3 dB, wow and flutter is given as better than 0.15 per cent, and signal-to-noise ratio as more than 50 dB. Accommodation is available for seven-inch reels, and using standard-play tape 64 minutes playing time per track is possible at 3 3/4 ips. The rated output power is six watts maximum, three watts undistorted.

The 707 measures 18 1/2(W) x 13 1/2(H) x 9(D) inches, and weighs 37 lb.

Pairs of speaker systems designed for use with the above recorders have also been introduced by Pullin. Full details and specifications are available on request.

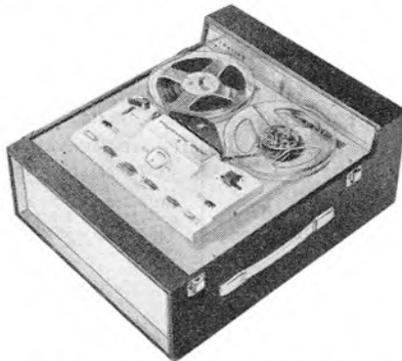
Pullin Optical Co. Ltd., Ellis House, Aintree Road, Perivale, Greenford Middlesex.

FIRST RECORDER WITH NEW BSR DECK

FURTHER specifications of the Fidelity Playmaster Major, announced in the February issue, are now available. The Playmaster Major is a three-speed recorder incorporating the recently introduced BSR TD10 tape deck.

It will accommodate seven-inch spools, providing a playing time of 64 minutes for each of the four tracks using standard-play tape at 3 3/4 ips. The quoted frequency response is 60-15,000 cps at 7 1/2 ips, 60-10,000 cps at 3 3/4 ips, and 60-7,000 cps at 1 7/8 ips. Wow and flutter is given as 0.15 per cent, 0.25 per cent, and 0.35 per cent respectively, and signal to noise ratio as 50 dB down at 1,000 cps.

Among the features are digital rev. counter, meter recording level indicator, 9 x 5 inch loudspeaker, and facilities for superimposition, mixing, and monitoring. Inputs are provided for microphone (2 mV),



and radio pick-up (60 mV), and outputs include a socket for connection to external amplifier for stereo tape records.

A 9 x 5 inch loudspeaker is built-in, providing a power output of five watts. Use of the extension speaker socket (3-5 ohms) mutes the built-in unit.

Mains supply is 200-250 volts, AC only, 50 cycles. Power consumption is rated at 90 watts.

A crystal microphone with 8 ft. lead, spool of tape, recording lead, and spare spool are included in the price of 35 guineas.

The Playmaster Major measures 19 1/2 x 16 1/2 x 8 inches, and weighs 28 lb.

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Total Price £26.10.0 kit



AM FM TUNER

Equipment Cabinets



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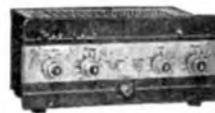
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T.2



News from the Clubs

BRISTOL

A light-hearted holiday comedy film, complete with an excellent soundtrack has won the Annual Silver Cup in a contest organised by the Bristol Amateur Cine Club. The film was made by Anne Griffiths, a member of the Bristol tape society, and entered only one week after she joined the cine club.

The tape club specialises in programme presentation, and Anne praises the tape club's instruction which played a large part in the making of her film.

Secretary: R. F. Beaton, 109, Westbury Lane, Sea Mills, Bristol, Gloucestershire.

COTSWOLD

Former chairman of the Cotswold society, Ernest Morris, has gone abroad on a world tour. Accompanied by his Fi-Cord battery recorder, he is expected to make available many good recordings, not to mention the colour photographs members are expecting. His office has been taken over by Mrs. June Turner.

At their most recent meeting, Peter Duddridge and Peter Turner gave a talk and demonstration on "The approach to live recording." Mr. Turner began the programme by demonstrating various microphones and describing their general characteristics and polar patterns. He then played recordings showing the effect five different microphones have, under identical conditions, to a speaker's voice.

Later experiments, with the hitherto unused AKG D19C microphone, were made using the same piano and piece of music; but altering the position of the microphone favouring, first, the treble strings; then the bass; at a distance from the piano; behind the performer; and, finally, beneath the piano. After the correct balance was demonstrated several short pieces were played using the club's newest arrivals, the Revox F36 with a Radford BLS speaker system.

Peter Duddridge then took over the demonstration to speak about outdoor recording, with special reference to birdsong. He demonstrated equipment and technique incorporating the use of a parabolic reflector.

The society's programme "Cotswold Roundabout" now has a monthly audience of about 600. Special short features about various Homes and Hospitals are being included, together with the regular request programme of tunes. One of the Homes on the club's list is asking for a twice-monthly programme, but resources within the club prevent this at the moment.

Secretary: Peter D. Turner, Pike Cottage, Frampton Mansell, Stroud, Gloucestershire.

COVENTRY

Peter Warden and Stan Day, of the Coventry tape club, recorded a talk on "Coventry, its History and Position in the International Sphere," given by the Town Clerk, Mr. Charles Barratt, at the March AGM of the Coventry Committee for International Understanding. The assignment followed a previous engagement at the Council when the two members made recordings during a visit by the Mayor of Volgograd (formerly Stalingrad and Tsaritsin) to Coventry. Peter Warden also recorded a discussion between the chairman and secretary of the Holbrooks Townswomen's Guild. Copies of the tape are to go to the American towns of Coventry, Waynesboro, and St. Louis with the object of contacting similar organisations.

News in this column (December Issue) of Cyril Stanley's home-built parabolic

reflector was read by a Mr. J. S. Adams, of Equator Farm, Kenya, who then wrote to Mr. Stanley c/o the club secretary. The correspondence is mentioned in the *Coventry Newsletter*, together with the information that details of the reflector are on their way south, and suggesting an exchange of tapes. It is nice to feel we serve as a "parabolic reflector" of sorts.

Further indications of the awareness of the Coventry club's activities is given by a letter received by Roy Reynolds from the Editor of the *Coventry Standard*. He desires to initiate the reading of his newspaper for the blind, and is prepared to give dictation for taping its contents immediately it comes off the presses. The Editor has also volunteered replacements for the exercise when he is otherwise engaged.

The club announces the acquisition of a lady member. Recently enrolled was Miss Freda Shields, who, although confined to a wheelchair, takes an active interest in the club's activities. She reads for the blind, assists with letter-typing, and recently accompanied members on their visit to the Rugby club.

Secretary: Roy V. Reynolds, 1, Thurlstone Road, Coventry, Warwickshire.

DERBY

The February 12 meeting of the Derby tape club was held in their new headquarters at the Genevie Coffee House, Gower Street, Derby. A record attendance was achieved, members and visitors being treated to the judging of their monthly tape competition.

This was won by chairman Mr. M. Nicholls with his entertaining "Story in Sound." The club's blind member, Mr. S. Hassall, presented another tape entitled "All your own," and Mr. H. Burton played his talk "How a tape recorder works."

In his series "An introduction to classical music," Mr. A. Stanway chose opera as his subject, and demonstrated with excerpts from "Madam Butterfly."

Secretary: Miss E. Hassall, 52, Richmond Road, Derby Derbyshire.

KIDDERMINSTER

At the AGM of the Kidderminster tape society the new chairman, Mr. E. Tallis, outlined a programme of events for the first quarter of 1964. Outstanding event was the proposed visit to a local cinema for a backstage look at the sound system of Cineramag. In January they had planned a visit to a commercial recording studio, and in the autumn a tour of the BBC sound studios. A number of live recording sessions have been arranged for members to test their skill.

The secretary then reviewed the highlights of the past year, including the full coverage of Stourport Carnival, a visit to a local tape deck manufacturer's factory, and a visit to the President's home to record his Hammond Organ.

More recently the members carried out a recording session at Kidderminster Town Hall, where the Borough organist gave a recital.

Secretary: R. F. Drew, 87, Brindley Street, Stourport-on-Severn, Worcester-shire.

LONDON

The February meeting of the London club saw their rooms at the Marquis of Granby packed to capacity with an urgent demand for extra chairs from the bar downstairs. The meeting had been organised by Mike Avel who had arranged a visit by Mr. Pyatt and Mr. Walker of Ferrograph. Publicity in this column led to many Ferrograph owners visiting the club for the meeting, and three new members were enlisted.

At the March meeting, Jimmy Neil used his Uher battery/mains recorder to illustrate his practical use of the tape recorder.

At their April meeting, members were to see a winning entry from the "Top 8" Cine competition presented by Dave Pollard with striped soundtrack on the film. It was also arranged

for a comparison of synch. and non-synch. soundtrack on tape. Latest news is that Norman Paul's "The Rest is Silence" filmed version of his award-winning tape was also to be shown.

Secretary: Douglas J. Morris, 80, Tangier Road, Richmond, Surrey.

PRESTON

The Preston club started its new session in 1964 with a demonstration showing the difference between a restricted and an extended frequency range. Another member then demonstrated his Ferrograph 4A/N, Uher 4000 Report S, and KEF Duette loud-speaker system. A Wharfedale transformer was used to match the latter two models.

The previous session of the club included evenings devoted to a technical talk, humour on tape, discs, speech recording, music, members' equipment, and dubbing a school tape. Some recordings were made for a local church which was making a film, whilst a few of the younger members built a mixer using the Mullard circuit.

Secretary: D. McGhee, 14, Houldsworth Road, Fulwood, Preston, Lancashire.

RUGBY

Members of the Coventry club attended the February 27 meeting of the Rugby society which was devoted to a playback of the entries in the Rugby club's tape competition. The theme had been "Christmas Spirit," and the Coventry judges elected blind member Jack Willis's tape the winner. He was awarded the Terry Davis Challenge Cup which he will hold for one year, and a cheque for 30s. from club funds.

Earlier that evening a tape from the Millom (Cumberland) club was heard. This announced details of their new recording studios. Stan Day, Coventry's chairman, then provided a tape/slide feature on Paris.

The first appearance of the club's Paraline speaker unit brought many complimentary remarks from members of both clubs. The unit had been built for club use by Bob Pick, Peter Scott and Len Stephens. The final construction of the cabinet and grill was entrusted to the eighty-year-old father of Len Stephens who is a retired master woodworker.

Seven members of the society had visited the Coventry club on the previous evening, and had been entertained by Mr. A. C. Griffiths, Recording Manager of World Record Club, who had attended the Rugby club last December.

A Convention of Midland Clubs, arranged annually at Rugby, will this year take place on Friday, June 12 (7-11 p.m.). Club members and individual enthusiasts interested in attending are invited to contact the Rugby secretary or Ron Barret, 47, Bath Street, Rugby. A free buffet at 7 p.m. will be followed by a short programme at 8 p.m., and an address will be given by Mr. Charles Parker of the BBC at 9 p.m.

Secretary: Mike Brown, 219, Clifton Road, Rugby, Warwickshire.

WALTHAMSTOW

Cramming into seven days of their outdoor recording activity "Initiative Test," a visit to a brewery at Romford, a session of the regular hospital request programme, and a visit to A-R TV studios at Wembley, gave members of the Walthamstow society one of their busiest weeks of activity since the group was formed over five years ago.

Residents in the town were surprised to find themselves facing the society's microphones to answer a variety of questions on local topics. Launderettes, cafes, garages and public houses were invaded to obtain authentic replies, and members and public alike seemed to enjoy the experience.

The Ind Coope brewery at Romford entertained members who were conducted around the 26-acre site, one of

the world's biggest bottling plants. The highlight of the visit—sampling the finished product in the local "Liberty Arms." During their visit to the Wembley studios of A-R TV, members paid special attention to the videotape equipment; seeking professional hints and tips for possible future application.

Secretary: Tony Norton, 22, Lechmere Avenue, Chigwell, Essex.

WORLD TAPE PALS

The U.K. Section of World Tape Pals is organising their AGM and annual get-together in the Midlands this year. The venue is Sutton Coldfield, and the date Saturday, May 30.

Enthusiasts interested in attending are invited to contact the U.K. Representative for details of times and place.

U.K. Representative: John N. Davies, 19, Wythenshawe Road, Sale, Cheshire.

TAPE EXCHANGES

TAPE recorder owners who wish to contact others with similar interests, to exchange news and views by tape are invited to fill in and return the form on page 166, giving their name, age, address, special hobby or interest for this section.

Details given here also include speeds and spool size to be used, name of recorder, and special area to be contacted.

Bardot, Robert L. (22). Mountview, Bracken Mount, Basildon, Essex. C&W music, esp. Bluegrasses. 7½, 3½ ips. 7-inch spool. Uher Stereo III, Nashville and England.

Batchelor, Reginald (60). 14, Quainton Road, Waddesdon, Buckinghamshire. 35mm photography, and organ music. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan, Robuk and Regentone recorders.

Beacham, E. M. (28). 7, Woodfield Road, Balby, Doncaster, Yorkshire. Swimming, sport, classical music. ¾ ips. 7-inch spool. Philips EL3541, four-track, and Grundig TK1 battery portable.

Brown, Anne (22). 38, Kings Avenue, Bromley, Kent. Judo, journalism, and dog training. 1½ ips. 4-inch spool. Stella battery portable. New Zealand.

Buck, Ron (28). 41, Newry Road, St. Margarets, Twickenham, Middlesex. 8mm photograph, travel. ¾, 1½ ips. 7-inch spool. Stella ST458, four-track. Male contacts only in Norway and New Zealand.

Capon, Michael (26). 242, Haydens Road, Wimbledon, London, S.W.19. Photography, music, cinema, art. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan LZ29. Male contacts only.

Chalklin, A. F. J. (37). 126, Camden Road, Tunbridge Wells, Kent. 8mm cine photograph, travel, radio, and music. ¾ ips. 7-inch spool. Philips EL3542. Israel, Australia, USA. Letters not required.

Clelland, Mrs. J. (23). 12, Bothwell Street, Edinburgh, Scotland. Photography, cooking, knitting. 7½, 3½, 1½ ips. 7-inch spool. Golden Spinney recorder.

Cornworth, Tony (29). F 57, Du-Cane Court, Balham, London, S.W.17. Theatre, most music. 7½, 3½ ips. 7-inch spool. Sony TC500, stereo. Male contacts only.

Docherty, D. (22). 7, Eaton Gardens, Dagenham, Essex. Boat building. ¾ ips. 5½-inch spool. Philips recorder. UK.

Everard, Geoffrey (36). 25, Grove Gardens, Teddington, Middlesex. Opera, horse-riding, driving. ¾, 1½ ips. 5½-inch spool. Telefunken, four-track. Male contacts only.

Hardingham, James (28). 396, Norwich Road, Ipswich, Suffolk. Sound effects, humour, jazz. 7½, 3½, 1½/15/16 ips. 7-inch spool. Philips EL3549, four-track. USA, Canada, Germany.

(Continued on page 212)

CLASSIFIED ADVERTISEMENTS

TAPE EXCHANGES

(Continued from page 211)

Hetherington, R. J. (26). 13, Braidburn Terrace, Edinburgh 10, Scotland. Photography, music. 3½ ips. 7-inch spool. Philips EL3541. **Ireland.** Letters first please.

Hay, Alex (22). Ury House, 32, Fraser Road, Aberdeen, Scotland. Guitar and pop music, driving. 7½, 3½ ips. 8½-inch spool. Ferrograph Series 5. Female contacts only in UK.

Jordan, Arnold P. (34). 8, Regent Street, Melton Mowbray, Leicestershire. 8mm and 35 mm photography. 3½ ips. 5½-inch spool. Stella ST456, four-track. Repts R10. **UK, esp. Scotland and Ireland.**

Miller, Terry (35). Merchant Seaman, 45, Whitehall Road, Crayford, Kent. Cine and 35mm photography. Travel and music. 3½ ips. 7-inch spool. Korting MT157, Stella ST458, Aiwa battery portable. Male contacts preferred.

Miller, Carol (22). 86, Durham Road, London, N.2. Theatre, films, music. 7½, 3½ ips. 7-inch spool. Akai M6, four-track mono or stereo. **Europe.**

Mills, Peter (25). 48, Sieberd Road, Greenwich, London, S.E.10. 35mm photography, electronic music. 3½ ips. 7-inch spool. Philips EL3541, four-track. **South-East England.**

North, Nelson (27). P.O. Box 341, Bienenheim, New Zealand. 35mm colour photography, sailing. 3½ ips. 5½-inch spool. Philips recorder.

Pepperell, Eric (26). 11, Plumtree Avenue, Bewsey, Warrington, Lancashire. 8mm cine photography, theatre, films, music. 15, 7½, 3½, 1½ ips. 10½-inch spool. Brenell STB1, Telefunken 97, Philips battery portable. Male contacts only.

Poland, Harry (32). 41, Braemar Road, Tottenham, London, N.15. Cine photography, pop music. 3½ ips. 7-inch spool. Philips EL3541. Female contacts only.

Rowe, Eric (42). Stowey Court, Warden Road, Minehead, Somerset. Spanish music, radio, physical education. 7½, 3½ ips. 7-inch spool. Grundig TK8.

Smith, Malcolm (30). 1, Dendy Street, Balham, London, S.W.12. Photography, sports, music. 7½, 3½ ips. 8½-inch spool. Vortexion CBL and Philips recorder. Male contacts preferred.

Waldemar, Chang (22). 81, Kettleby House, Barrington Road, London, S.W.9. Photography, cycling, folk music. 3½, 1½ ips. 5½-inch spool. Telefunken 77, stereo, four-track. **USA, UK and Europe.**

Watt, William (31). 13, Bright Terrace, Edinburgh 11, Scotland. Humour, radio, mod. jazz music. 7½, 3½, 1½ ips. 7-inch spool. Philips four-track recorder. **UK, USA, Canada and Europe.**

Wilson, George (38). 23, Highfield Street, Cemetery Road, Pudsey, Yorkshire. 15, 7½, 3½, 1½ ips. 8-inch spool. Philips EL3549. Male contacts in **UK.**

Rate.—Sixpence per word (minimum 5s.); Trade, ninepence per word (minimum 10s.); box numbers, one shilling extra. Payment with copy. Copy should be sent to Advertising Department, "Tape Recording Magazine," 7, Tudor Street, London, E.C.4.

TEENAGE EXCHANGES

Adamson, Miss Janet (17). 19, Bellamy Drive, Stanmore, Middlesex. Pop and classical music, cinema. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan LZ29. Male contacts preferred, in **UK, Continent.**

Baker, Terence Edward (20). Cavallier, 453, Stratford Road, Sparkhill, Birmingham, Warwickshire. Photography, guitars, The Beatles. 7½, 3½ ips. 7-inch spool. Grundig TK8. Female contacts in **USA.**

Dallen, Melvyn (16). 21, Doric Avenue, Rochford, Essex. Cars, films, pop music and mod. jazz. 7½, 3½, 1½ ips. 7-inch spool. Civic T62. Female contacts preferred in **England.**

Dobie, Philip (15). 11, Hartburn Road, North Shields Northumberland. Electronics, hiking, cycling. 3½ ips. 5½-inch spool. Defiant, four-track. **France** (French contacts studying English).

Fishlock, Derek Herby (16). 20, Rodbourne Road, Corston, Malmesbury, Wiltshire. 3½ ips. 5-inch spool. Philips EL3541. Female contacts only in **UK.**

Fleming, John (18). 13, Rosemount Drive, Wallasey, Cheshire. Pop music, literature, cycling. 3½ ips. 5½-inch spool. Bush TP50, four-track. French or Spanish-speaking contacts required.

Fletcher, Albert Roy (19). 6/190, Clifford Street, Lozells, Birmingham 19, Warwickshire. Pop records. 3½ ips. 7-inch spool. Philips EL3541.

Hoggett, David (16). 49, Linley Crescent, Romford, Essex. Astronomy, pop music and science fiction. 7½, 3½, 1½, 15/16 ips. 7-inch spool. Philips EL3549, four-track. **USA, Australia, Canada.**

Kemp, Graham L. (19). 8, McEwan Street, Camp Hill, Brisbane, Australia. Electronics, radio. 7½, 3½, 1½ ips. 7-inch spool. Collaro deck, home-built amplifier. **UK, USA, Australia, Hawaii and Canada.**

Langley, Brian (18). 8a, Kenton Park Mansions, Harrow, Middlesex. Motor cycle sports, and records. 3½ ips. 5½-inch spool. Ferguson 445. Female contacts preferred in **Australia, USA, Scandinavia.**

McKay, Bill (17). 26, Wallace Crescent, Pleau, Stirlingshire, Scotland. Hi-fi, pop music, football. 7½, 3½, 1½ ips. 7-inch spool. Civic 48 de luxe.

Palmer, Charles E. (20). 2, Fraser Street, Grahamstown, South Africa. Hi-fi equipment and jazz music. 7½, 3½ ips. 7-inch spool. Lafayette 137A recorder. **Overseas contacts required.**

Roland, Sally (17). 64, Exeter Road, Exmouth, Devon. Films, music, reading. 3½ ips. 5½-inch spool. Elizabethan 200. **France, Britain, and Forces members.** Letters first please.

Stagg, Ernest (19). 45, Fairview Road, Basildon, Essex. Pop music. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan LZ29, Fidelity Major. Female contacts only in **France, UK.**

Wilson, John A. (18). 21, Allington Street, Liverpool 17, Lancashire. Photography and C&W music. 7½, 3½, 1½, 15/16 ips. 7-inch spool. Philips EL3549, four-track. **Overseas contacts preferred.**

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April 1964

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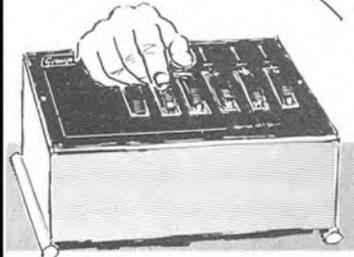
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