

# TAPE

RECORDING MAGAZINE

JUNE 1964

2



## IN THIS ISSUE

**Special features on battery portable recorders and their uses ● Drama productions on tape ● Building an echo chamber ● News of new products ● Reviews of tape records ● Equipment tested ● News from the clubs**

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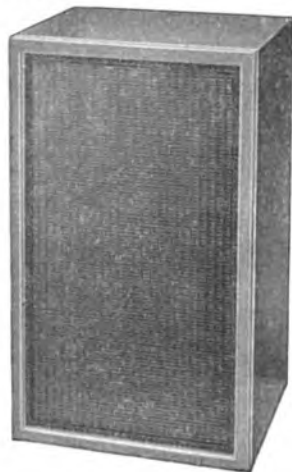
# TWO FOR TAPE FROM WHARFEDALE

## MODEL W2

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

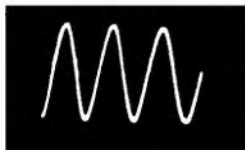
**Size:** 23½ x 14 x 12  
**Weight:** 37 lb. complete  
**Frequency Range:** 30-17,000 c/s.  
**Max. Power:** 15 watts  
**Impedance:** 15 ohms.

£27.10.0 in whitewood.  
£29.10.0 fully finished with a choice of oak, walnut, or mahogany veneers.

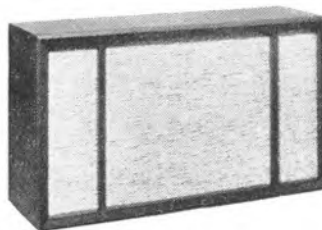


As the waveform shows the enclosure gives distortion free performance down to 30 c/s with 4 watts input.

**FREE LEAFLET  
ON CABINET MODELS  
ON REQUEST**



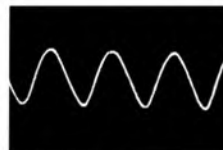
## BOOKSHELF 2



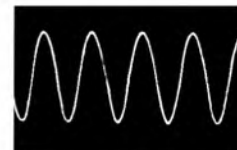
Where space is limited or where mobile external speakers are required for use with a mono or stereo Tape Recorder or Record Player, the "Bookshelf 2" gives remarkable performance judged on a size/price/mobility basis. **Units:** specially designed **Size:** 19 x 11 x 6½ deep. **Impedance:** 8-16 ohms.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

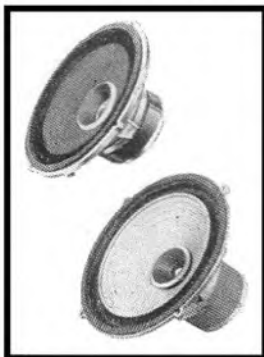


60 c/s.

**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.

### SUPER 10/RS/DD

Impedance 10/15 ohms. Flux density 16,000 oersteds  
Max. input 10 watts rms or 20 watts peak.  
Frequency range 30-20,000 c/s.  
Aluminium voice coil. Roll surround and double diaphragm.  
Base resonance 38/43 c/s.  
Price: 218/8 inc. P.T.

*Cabinet construction sheets available free on request.*



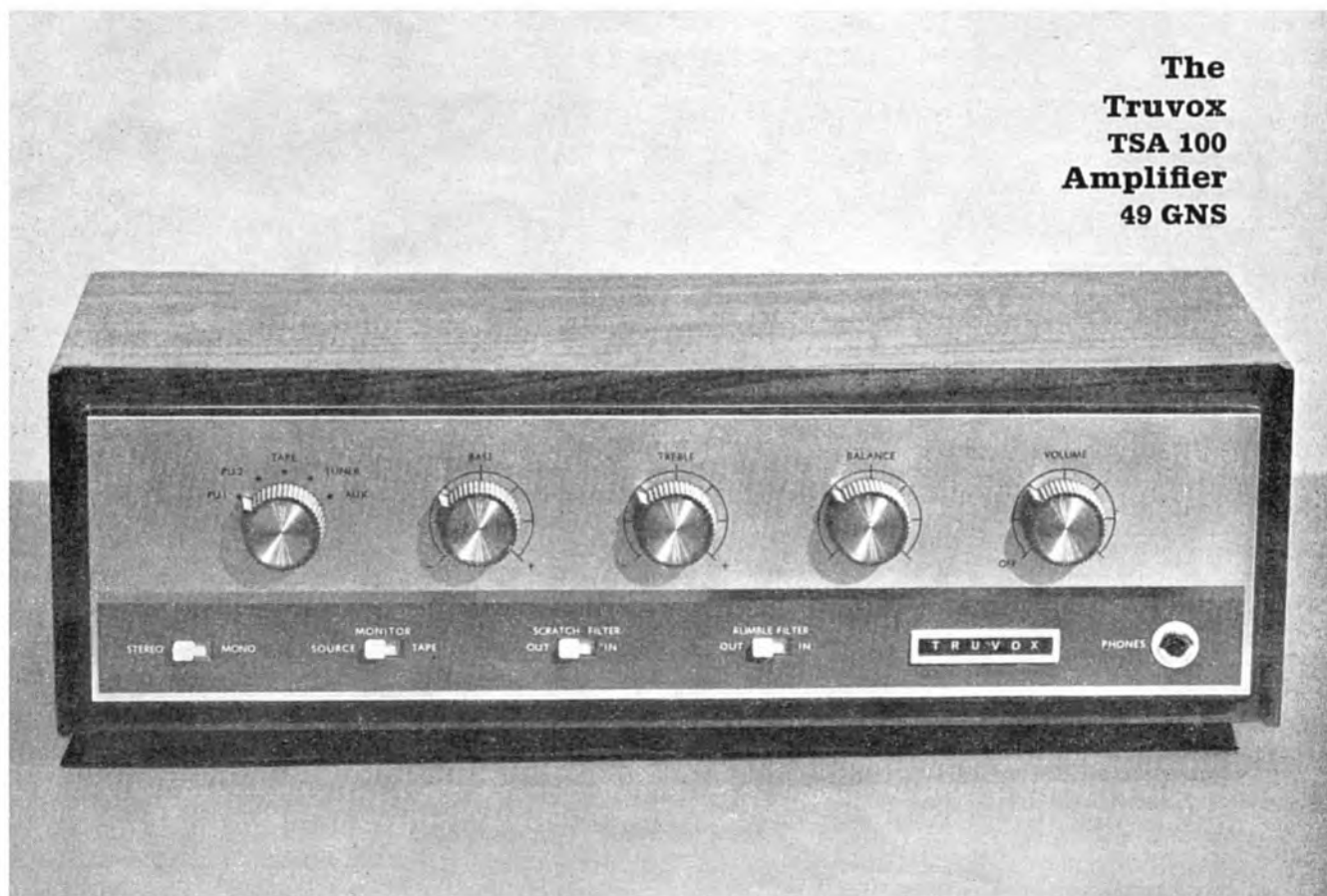
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# Truvox announce an important new amplifier

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.

<b>Semi conductor complement:</b>	20 transistors, 4 diodes	
<b>Inputs:</b>	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	" "
<b>Tone Controls:</b>	Bass — plus or minus 15db at 50 cps. Treble " " " 15db at 14 kcs.	
<b>Frequency response:</b>	Plus or minus 1db from 15 cps — 30 kcs at 1 watt " " " 1db " 20 cps — 20 kcs at 10 watts	
<b>Power output:</b>	10 watts per channel across 15 ohms. 12 " " " " 8 " 15 " " " " 8 "	
<b>Filters:</b>	Scratch filter —10db at 12 kcs commencing at 6 kcs Rumble filter —14db at 20 cps commencing at 70 cps.	
<b>Crosstalk:</b>	-50 db at 1 kcs.	
<b>Tape out:</b>	200mV	
<b>Hum noise:</b>	P.U.1. and P.U.2. -55db, tape, tuner and auxiliary -60db	
<b>Power required:</b>	100—250V A.C. 40-60 cps 45 watt max.	
<b>Dimensions:</b>	16" wide x 6 $\frac{1}{2}$ " deep x 5 $\frac{3}{4}$ " high	
<b>Other facilities:</b>	stereo/mono function switch, tape/source monitor switch, balance control, stereo headphone output socket.	

**The  
Truvox  
TSA 100  
Amplifier  
49 GNS**



For full information about this amplifier and the Truvox Tape System, please write: **TRUVOXLTD NEASDEN LANE LONDON NW10**

# WORLD RECORD CLUB OFFERS YOU THE CHOICE OF ANY 3 PRE-RECORDED TAPES



**85** Beethoven's magnificent Emperor Concerto. A brilliant virtuoso performance by Yuri Boukoff with L'Orchestre des Concerts de Colonne under Pierre Dervaux. Also in stereo.



**74** Superb Sarah Vaughan in ten great numbers. If I Loved You, Saturday, It's Delovely, You'll find me There, etc. Every one a hit.



**83** Brilliant Devy Erlich gives dazzling performance of Mendelssohn's Violin Concerto, plus Kreisler Memories. Ernest Bour conducts Sudwestfunk Orchestra.



**58** The fabulous, dynamic Duke Ellington himself in eight great numbers, including Stomping at the Savoy, In the Mood and Honey-suckle Rose.



**81** Some of Chopin's loveliest melodies magnificently played by world-famous pianist Fou Ts'ong—The Four Ballades, Nocturne in F Sharp Major, etc.



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



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



**84** Schubert's Rosamunde, Kurt Redel, conducting the Munich Symphony Orchestra, has just the lightness of touch needed for this enchanting and ever popular music.



**76** Unforgettable Art Tatum in person plays Tenderly, Body & Soul, Without a Song, Begin the Beguine—12 superb numbers from the greatest-ever jazz pianist.



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



**77** In the Mood, Bugle Call Rag, Chattanooga Choo-Choo, Serenade in Blue—9 original tracks by the immortal Glenn Miller and his band.



**54** Tchaikovsky's last and greatest symphony, is here given a splendidly moving rendering by the Sinfonia di London conducted by Muir Mathieson. Also in stereo.



**80** Dynamic Billy Daniels sings his greatest hits including Summertime, Old Black Magic, On the Street Where You Live, Kiss of Love, and 11 more.



**69** The exquisite playing of the Virtuoso Ensemble matches the beauty of Schubert's celebrated Trout Quintet, which contains some of his most famous melodies.



**65** Our Love is Here to Stay, The Nearness of You, Gully, and nine more great hits, all with America's top vocal group, the fabulous Four Freshmen.



**72** The magnificent Platters bring you Sixteen Tons, My Dream, Mystery of You, You'll Never, Never Know, One in a Million—10 superb numbers.



**32** Star cast and orchestra stage all the famous songs. Getting to Know You, Hello Young Lovers, I Whistle a Happy Tune, Shall We Dance, etc. Also in stereo.



**89** The one and only Dakota Staton sings If I Love Again, On Green Dolphin Street, Pick Yourself Up, Meet Me at No Special Place, etc.



**63** Cuban Carnival, Yesterdays, Blues in My Heart, and eight more great numbers played by George Shearing with vocals by Dakota Staton.



**60** Chabrier's colourful Espana, with Suite Pastorale, Joyeuse Marche and Bourree Fantastique. Paul Bonneau conducts Champs Elysees Theatre Orchestra.



**30** Ian Carmichael, Joyce Blair, star cast orchestra. As Long as He Needs Me, Consider Yourself, all the hit numbers from Lionel Bart's great show. Also in stereo.



**61** The world's 3 greatest sonatas—Beethoven's Moonlight, Pathetique and Appassionata—superbly played by famous T.V. pianist Joseph Cooper.



**25** Ian Wallace, Joyce Blair and chorus. Some Enchanted Evening, I'm In Love With a Wonderful Guy, Bali Hai, and all the unforgettable songs from this great musical. Also in stereo.



**48** Deep in My Heart, Drinking Song, Serenade—all the old favourites fresher than ever with Marston Gramkali, Linden Singers and Orchestra. Also in stereo.



**59** The silken voice of Nat King Cole in Walkin', Because You're Mine, You'll Never Grow Old, Baby Won't You Say You Love Me and 8 more.



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



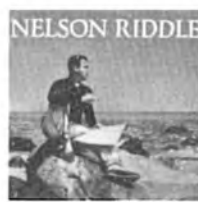
**73** Born to be with You, Mad about the Boy, Tomorrow but not Today, That old Feeling—and six more hits by the brilliant and beautiful Patti Page.



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



**91** Barbara Leigh with all-star cast and orchestra sings It's Never Too Late, I could be happy with You, We said We Wouldn't Look Back, 12 in all. Also in stereo.



**71** The smooth sound of the Nelson Riddle Orchestra in Touch of Your Lips, Body and Soul, The Tender Touch, As You Desire Me—11 favourites in all.

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Every World Record Club release is hand-picked by an independent panel of Britain's top musical authorities. The Countess of Harewood, Lord Montagu of Beaulieu, Sir Arthur Bliss, Richard Attenborough, Cyril Ornadel, Ray Ellington, Leon Goossens, Malcolm Arnold, Steve Race, John Hollingsworth, Antony Hopkins—and, as special adviser on tape, Miles Henslow.

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A 48 page magazine, packed with fascinating musical articles, reviews, news and pictures, is issued free to all members.

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#### 6. FREE BONUS TAPES.

The more you buy, the more you save! After fulfilling the minimum membership obligations, you earn another tape of your own choice free for every extra three you buy!

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Revolutionary new STEREO 21 pre-recorded tapes (7½ ips twin-track) are issued exclusively by World Record Club. But they are offered without membership commitments of any kind. The first list of all new STEREO 21 releases is now available. It features 30 superb stereophonic tapes ranging from Beethoven's *Eroica* with Josef Krips conducting the LSO, to a lavish full-cast production of *Oklahoma*.

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SEND NO MONEY NOW

3½ ips pre-recorded tapes	12" LPs
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Tick what you want

Please send me, without obligation, on 7-day free trial, the three selections indicated. (Your 3 selections must be either all tape or all disc.) If satisfied, I will pay you 30/- plus 3/- postage, packing and insurance. Only at that stage may you enrol me as a full member of World Record Club, entitled to all the benefits described. My only obligation as a member would be to agree to purchase 4 more top quality 3½ ips tapes over the next year at the special club price of 29/- each (or 12" LPs at 26/6). If I am not completely satisfied with my 3 selections, I will return them to you within 7 days, in good condition, and owe you nothing.

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Please send me your free colour brochure, showing the full range of your new STEREO 21 releases.

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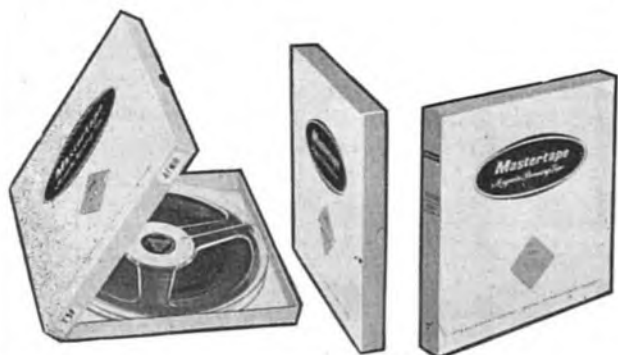
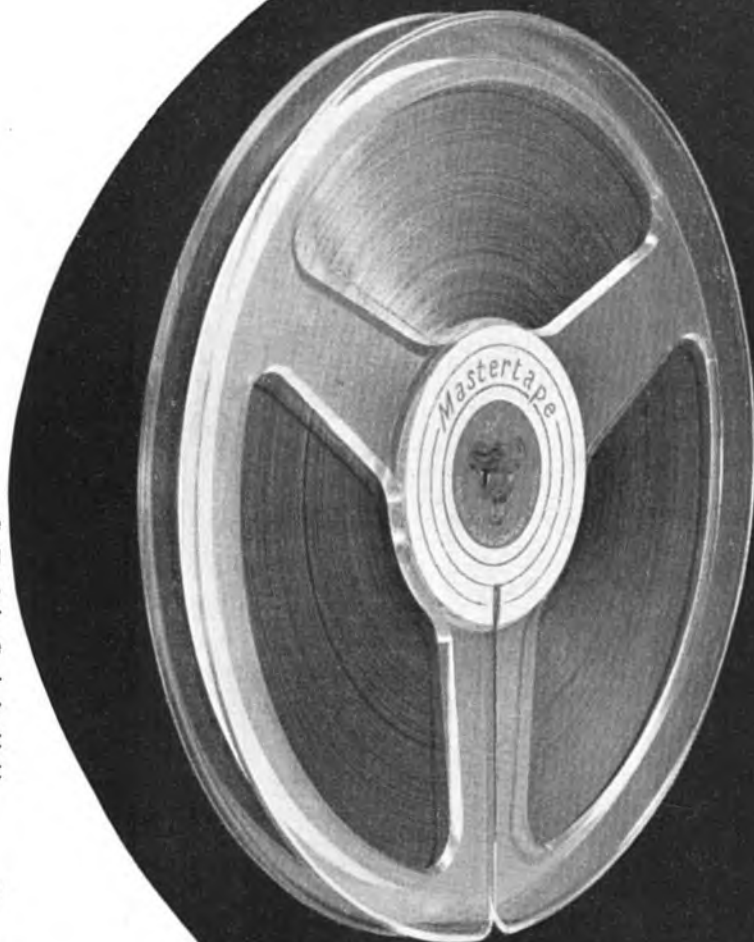
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Two tracks to international standard ■ reel size: up to 5" ■ four tape speeds:  $7\frac{1}{2}$  ips,  $3\frac{3}{4}$  ips,  $1\frac{7}{8}$  ips,  $\frac{15}{16}$  ips ■ frequency response ( $\pm 3$  db): 40-20,000 cps at  $7\frac{1}{2}$  ips, 40-17,000 cps at  $3\frac{3}{4}$  ips, 40-10,000 cps at  $1\frac{7}{8}$  ips, 40-4,500 cps at  $\frac{15}{16}$  ips ■ contrast ratio: 55db ■ wow and flutter:  $\pm 0.15\%$  at  $7\frac{1}{2}$  ips (audible frequencies only) ■ output power: 1 watt (push-pull power stage) ■ power supply: five flashlight cells (1.5 volts each) or "dryfit" storage battery model Z 211 or model UHER Z 111 mains-operated power unit and battery charger or an automobile battery via automobile adaptor cable ■ inputs: Micro 0.1 mV at approx.  $2k\Omega$ ; Radio 1 mV at  $47k\Omega$ ; Phono 25 mV at 1 megohm ■ outputs: 2 volts at 4 ohms: 1 volt at  $15k\Omega$  ■ operating time: intermittent operation of approx. 12 hrs: continuous operation and intermittent operation respectively from the "dryfit" storage battery —approx. 10 hrs. ■ dimensions approximately: 11" x 8" x 3" ■ weight without batteries approximately 6lbs.

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Total Price £15.18.0 kit



FM TUNER

#### HI-FI AM/FM TUNER. Model AFM-1

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Total Price £26.10.0 kit



AM FM TUNER

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MALVERN

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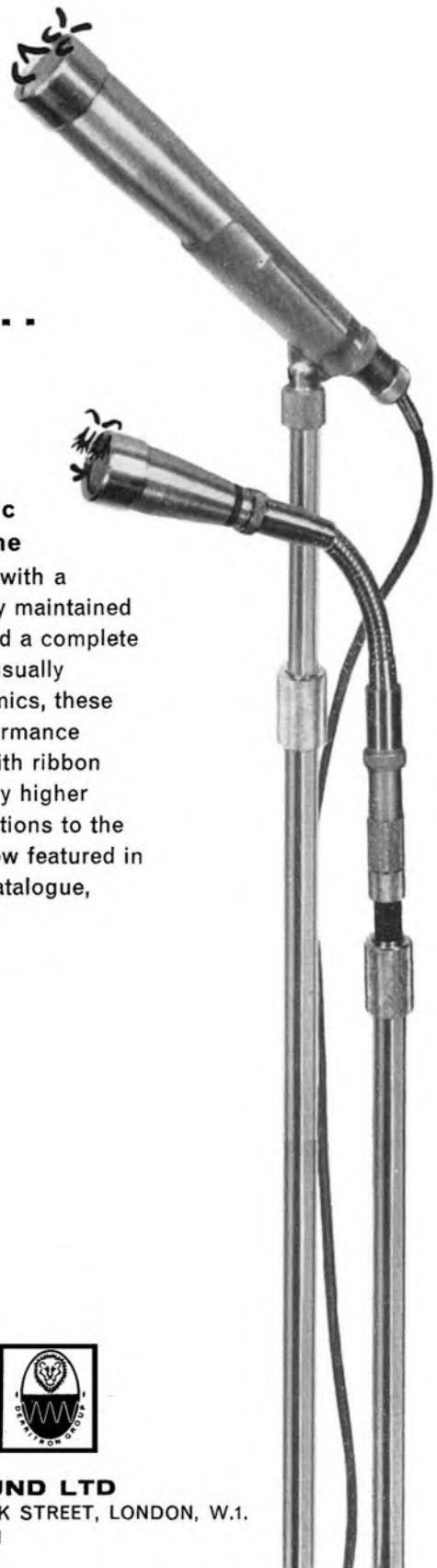
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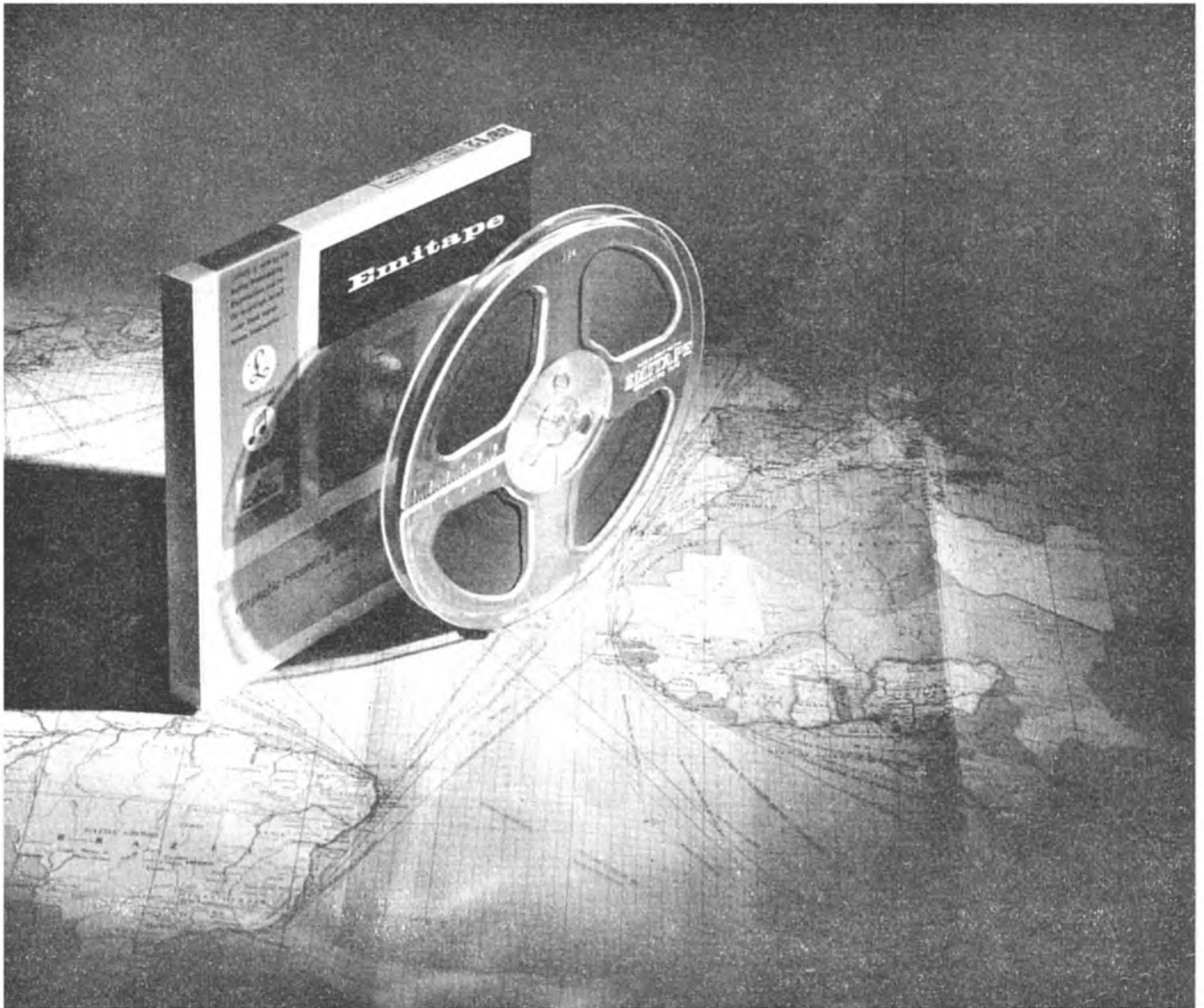
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# TAPE

RECORDING  
MAGAZINE

Vol. 8

No. 6

June 1964

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**COVER PHOTOGRAPH:** The charming study on the front page this month shows the Grundig TK6 being used to provide musical entertainment on a picnic. This is just one of the uses of a battery-operated portable tape recorder, other ideas are given on pages 232 and 233, and reviews of three battery models begin on page 234.

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### EDITORIAL

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R. DOUGLAS BROWN

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# Tape trends and tape talk

By the Editor

THE MOST awe-inspiring forecast of what will be done with magnetic tape in the long-term future that I have read so far is made by Dr. Marvin Camras, of the Illinois Institute of Technology in an article published recently in the *Audio Times*.

Dr. Camras has been projecting his mind forward to 2013 A.D. By then, he believes, there will be recording apparatus no larger than a box of playing cards, with no mechanically moving parts, capable of recording and reproducing vast quantities of information. The information of entire libraries will be condensed into a few cubic feet. And it will be possible to add information, to keep the information packs up to date. When all this is possible, our daily lives will be revolutionised in a number of ways.

Visual, as well as aural, signals will be stored in the memory packs. The housewife who wants to go on a shopping spree will not need to leave her home. Memory packs will serve as catalogues, throwing pictures of the whole range of products on to large screens in the home.

The home viewing console will be for entertainment and for a host of purely practical purposes. The images will all be in colour and with three-dimensional quality.

There will be no question of going out to buy a disc—or even a tape record. The enthusiast who wants a recording for home use will ring up and it will be transmitted over a direct line to the memory pack in the home.

If you find this prospect bemusing, just wait for Dr. Camras's final vision. "With memory packs

providing such a free flow of goods and services directly to the consumer or industrialist, the citizen of 2013 may no longer need currency as a medium of exchange," he remarks blandly.

"Wages and earnings will be credited directly to his bank account, and purchases will be charged directly against his account.

"He will carry with him for these purposes a magnetic credit card, on which the latest balance and a record of his purchases will be recorded when the card is presented at the bank. For every transaction, the appropriate tax will automatically be deducted."

Who is this Dr. Camras? Oh, yes, he's an expert all right. He has been a pioneer of magnetic tape techniques from the earliest days—and of wire before that. He holds a number of basic patents on tape and tape recorders. And now he's working on a slow-speed video recorder for the home and a compatible automatic tape cartridge system.

So though a vision of fifty years hence must depend largely upon the imagination, there is no man who can keep his imagination better disciplined by expert knowledge of all the facts.

\* \* \*

FROM A VISION of the distant future to the prospects of the near future. I hope you heard the last BBC "Sound" programme discussing the prospects for stereo radio. If you missed the first transmission, you can hear it repeated on Sunday, May 24, in Network Three.

Dr. G. J. Phillips, of the BBC's Research Department, gave us the current situation with Zenith-G.E. quite simply and plainly, and Richard Marriott, Assistant Director of Sound Broadcasting, freely answered questions about the prospects.

I was left with two very definite impressions after compering this programme. The first was that we are not likely to get regular stereo transmission in normal programmes for a couple of years—unless the Germans or some other Continental radio break the present understanding, in which case the BBC will doubtless go ahead, too.

My second impression was that those responsible for sound radio at Broadcasting House are, in fact, very enthusiastic about the prospect it offers for serious music. They are certainly not dragging their feet.

Frank Gillard, Director of Sound Broadcasting, in a lecture recently, spoke of the benefit that stereo would bring to radio drama, as well as music. "We would not envisage a continuous stereophonic service, but rather the stereophonic transmission each day of selected items which seemed best suited to that kind of treatment," he said.

Mr. Gillard foresees that "stereophonic broadcasting could well become an important part of the radio service in Britain towards the end of the sixties."

## LAUGH WITH JEEVES



"But honestly, I wasn't feeding the animals."

# The requirements of a battery recorder

By H. BURRELL HADDEN

**T**HE bright sunshine which appeared, quite unexpectedly, one weekend recently, made me think, as one does at such times, that a walk in the fresh air would, perhaps, be good for my health. I soon found myself browsing, with, it seemed, several thousand other seekers of sunshine, in one of London's most interesting markets, the Antique market in the Portobello Road.

Here one can find furniture, trinkets, and bric-a-brac from every corner of the world, and from almost any period from the Ming Dynasty to the beginning of this century. Not only tangible objects, but the very sounds of bygone ages are there, I almost said "for a song," from the musical instruments of the ancient east to the post horns and hunting horns of the last century. I had been listening with considerable pleasure to several barrel-type musical boxes, and to a Victorian Polyphon—that interesting instrument which can fairly be said to be the ancestor of the modern Juke Box—when just a little further along I saw it! There was no mistake, it really was, a portable recording machine! With its cover on it looked rather more like a portable sewing machine from the years around the turn of the century, but the ornate inscription on the side of the case said quite clearly: "Edison Standard Phonograph."

It must have been made around 1902, and at that time domestic sound recording was getting the biggest boost and the biggest press, almost of all time. It really was news! The first practical recording machine had been demonstrated by Edison only about twenty-five years earlier, and home recording was by the turn of the century a flourishing hobby. This particular machine sold at the then quite high price of about £5, and was one of a family of recorders available at the time. It was still working, and I was amused to hear it play a cylinder of military band music, yet another sound from the receding years. I wonder what

sort of studio the musicians assembled in to make that recording? And whether they realised that they would still be heard nearly seventy years later.

It may seem a far cry from the Edison Phonograph to the portable tape recorder of today, but I have no doubt that our present-day models give us just as much pleasure as the primitive machines of the past. The link is not quite such a tenuous one, however, since the first magnetic recordings were made at about the same time. Valdemar Poulsen demonstrated the first magnetic recorder in 1897, and only a few days ago I was listening to his voice, and that of the Emperor Franz Josef of Austria, recorded on his machine. However, enough of this ruminating about the past—the portable tape recorders available *this* year, 1964, are capable of performing almost any task the most exacting recordist can set them. They are smaller, lighter in weight, and capable of better quality results than ever before, and we are developing techniques of using them that would have been unheard of only a few short years ago.

What are the requirements of a portable recorder? Well, surprisingly enough, the first and most important is that it shall be portable; so many of the machines sold under this label in the past have been, to say the least, only "transportable"—they really did need some transporting! The universal acceptance of the transistor has changed all that, and portable machines can now be made so small that they are no bigger than a matchbox. So far as the amateur recordist is concerned, however, such sub-miniature machines are still a dream of the future; but most, if not yet all, of the portable machines at present available really deserve their name.

Apart from portability, what else? As with so many other choices, this largely depends on the individual user, and on the type of use to which the machine is to be put. Take the question of tape speed; a single speed is usually all that is required, and for most amateur purposes the best would appear to be 3½ ips, giving reason-

able frequency response with economic use of tape, and a sensible playing time. So far as I am concerned, quality comes before all else, and so I would expect my portable to run at 7½, or even 15 ips. This of course will run me into more expense, both in the initial cost of the machine, and in the running cost of tape. Indeed, there is only one machine presently available which will operate at 15 ips, the Nagra, selling at £321.

There are several machines available operating at 7½ ips; the Uher 4000s, the Fi-Cord 202, and the EMI RE321 being typical examples, albeit in the price range between £65 and £125. The EMI machine, the descendant of the first battery-operated machine, can hardly be termed portable, with its dimensions of 14¼ x 7¾ x 8¼ inches and weight of 17½ lb. The Uher and Fi-Cord machines are much lighter, weighing 6 and 6½ lb. respectively. The Uher machine has the best of several worlds, in that it will operate at 3½, 1½, and 15/16 ips as well as 7½ ips. The Fi-Cord will also run at 3½ ips.

There are a dozen or so other machines operating at 3½ ips, and among these the Butoba range and the Optacord are worthy of mention in the price range between £40 and £80. At the bottom end of the price range, between £20 and £40, there are a number of machines operating at the slower speed of 1½ ips. Whilst these machines cannot of course give the same quality of reproduction as the higher speed, higher priced machines, they are nevertheless very capable of producing quite acceptable results especially on speech. And, let's face it, most recordings made on a portable machine will be speech, interviews and the like. They are also giving a good account of themselves recording background sounds for use in the making of many amateur movie films; indeed I myself used the elegant little Philips EL 3585 for this very purpose recently. This machine, incidentally, sells at just over £25.

One word of warning—some cheaper machines, selling at less than £20, and more especially some selling at less than £10, do not have a constant speed drive; the speed of the tape varies depending how much tape has been wound on to the take-up spool. This of course means that recordings made on these machines cannot be played on any other machine, or they will run at some speed different to that at which they were recorded.

What about other facilities? Well for myself I do not really want anything from a portable machine than that it shall record well from a microphone, and so no other facilities are necessary. However, portable machines are becoming so good as far as quality goes that they are being used as static machines at home as well, often with external amplifying and loudspeaker equipment. In this case, it is obviously desirable that they should have means of connecting radio and gramophone inputs, and suitable outputs to feed the external equipment. Furthermore, they should be capable of operation from the mains. Many of the recorders mentioned above have these facilities, and some of them can be made the basis of a fully comprehensive domestic sound system.

So that is the present position. The portable recorder in the past year has really come of age and is now capable of doing all, well perhaps almost all, that its big brother the mains-operated machine can do. But it is interesting to remember that it has taken over three-quarters of a century from the beginnings of the hobby, when "Mr. Edison's Speaking Machine" first recited "Mary had a little lamb."

## Modifications to an inexpensive recorder

By B. E. WILKINSON

### HOW I USED MY RECORDER

By G. Rutherford

SOME years ago I wrote about "Tape in the Puppet Theatre." Since these happier days I have become blind, and thought that this would end my use for tape recorders. I was thinking of at least reducing my equipment when instead I got a battery-operated portable machine, the small Clarion. I attached a shoulder strap, and made two holes in the plastic top so that it would start and stop by putting my Braille style through.

At first there were a lot of failures, and a lot of overloaded tape but I eventually got the hang of things and achieved a great deal of pleasure and happiness—and my tapes are getting better.

One of my earliest ventures comprised a trip, with a friend, from Leith to Aberdeen by sea, and I now have my holiday ready to hear at any time. A conversation with the steward in the lounge as we approached Aberdeen harbour at midnight; our very charming hostess for the week; our fellow guests; all are there for ever.

We visited the famous fish market, and even in that busy place buyers stood aside so that the calls of the auctioneer could be recorded. And the cry of seagulls brings to me again the smells of that wonderful place.

My friend described the salmon nets being put out in the River Dee; and we also recorded a description of a wreck on the rocks at Girdleness with the sounds of the sea breaking over it.

Our footsteps as we climbed the inside of Girdleness lighthouse, and the kindly warning of the keeper to "Mind yer heid, George" are with me at any time.

In contrast to that very active holiday I went to one of the loveliest little villages in East Lothian, the village of Gifford. There again my little tape recorder gave me a lasting impression of my stay.

The village clock, that gets faster each time it strikes; the children playing on the

village green; the school bus carrying the secondary pupils to the market town of Haddington, and other memories I like to keep.

When we went to prowl about the ancient Kirk of Yester, my guide recorded all the many features of this lovely little church, and when I found two local lads, George and David, down by the river I found they were not afraid of the microphone. They chattered away about the place and told me about the Goblin Ha—the old manor built by Henry De Gifford at the time of the Crusades. These two village boys have helped me to make tapes I will treasure.

Once my holidays were over I thought I would take the batteries out of my recorder and put it away. However, the same friend who took me to Aberdeen took me to his club, the famous Royal Scots. During my weekly visits I have since made many friends and so has the recorder. Tales of past campaigns, personal comments and of course stories are all now on tape.

Another use for my recorder was found when I went with friends by car to the site of the new Forth road bridge. They have recorded for me the progress being made on the structure, something else I will keep.

When your world is a world of sound then the merest word or bird cry instantly returns you to the spot again, and I find that even a "burn" in another part of the country has a different sound from the river at Gifford, or the sea at Portobello is different from the river Clyde at Greenock.

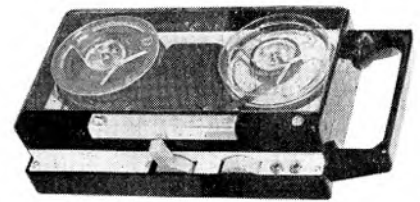
As far as the practical side of my recording activities are concerned, I thought it would be better to use extra long play tape. However, LP tape is inclined to tear if it catches in the head. The shorter all purpose standard-play tape seems to be harder wearing for my purpose.

The batteries should be kept fresh or you will find that one day a prize recording which you intended to send to the BBC is so fuzzy and distorted that it is useless.

If you are not able to monitor the recording it is best to adjust the recording level to be on the low side rather than overloaded.

Another idea I find useful is to record on track one of five three-inch reels and then retrace my way from track two of reel five to end with track two of reel one. In that way I have recorded a full seven-inch reel ready for storing.

I am sure that more and more adventures lie ahead of me and my tape recorder. In fact I will have to stop writing now as some children are due to take me on a recording trip to the boating pond. So long!



WHEN I bought an inexpensive transistorised Japanese tape recorder, I was not concerned with any real quality of reproduction, as the machine was to be used entirely as a dictation recorder. There were, however, certain requirements I had in mind if the instrument was to be as versatile as I needed, and these were all fulfilled by some minor modifications.

It was quite necessary that I should be able to use the instrument in any position and without much preliminary setting up. The reels were held on to the platforms by their own weight, and the first task was to get them fixed so that they would not readily drop off when the tape recorder was turned over. I found several ways of doing this, but the simplest was to wrap a small length of adhesive tape around the spigots which lock the reel on the platform. Too much and the reel will not fit, but the right amount—determined by experiment, and the reel is held tight enough to prevent it falling off.

Although the recorder would play with the lid closed, there seemed to be some virtue in opening it, so that one could see how much tape was left. I decided to fit a transparent window in the lid, which I planned to secure more firmly than the existing arrangement allowed. The lid was made of black polystyrene, and the window was made by cutting out a rectangle. This was effected by marking off with a scriber, drilling around with an  $\frac{1}{8}$ -inch drill, and cutting the blank out with a warding file. I resisted the temptation to use a hacksaw directly, owing to the tendency for the plastic to crack if the saw sticks. The



window, which was made of  $\frac{1}{8}$ -inch thick perspex, fitted as precisely as possible, the area cut out. It was stuck with plastic cement. One has to be careful with this compound and use it sparingly, as dropped on the case, it cannot be wiped off without leaving an unsightly mark.

The two metal clips fixed to the lid, did not secure the lid too effectively, and as there would now be no reason for opening it every time the machine was used, I decided to hold the lid with 2BA bolts. These passed through the plastic lid and threaded into captive nuts under the deck. The method by which the lid is held is



shown in Fig. 1. A hole to clear the 2BA bolt, is drilled in the deck, and the nut is stuck to the underside. I used an epoxy resin—Araldite to secure the nuts, though the strength of this compound is much greater than is needed in this application. The plastic spacer between lid and deck, is stuck to the lid, and was cut from a ball-point pen.

As I received it, the recorder would play a three-inch reel of long-play tape in eleven minutes. The use of triple-play at once doubled this time, but I felt that it could well be improved upon. The electric motor drive in recorders of this type, is generally to the take-up reel directly. I found there was little possibility of altering the speed ratios as the motor shaft diameter could not conveniently be reduced, and the rubber tyre on which it ran could not be altered.

Electrically, the situation was more promising. At its slowest speed—i.e., all

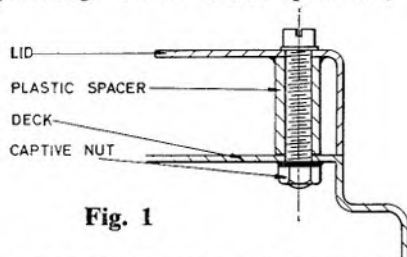


Fig. 1

the tape on the supply reel, it was making about four inches per second. The speed was made adjustable by fitting a 25 ohm preset slider resistance in series with the 1½-volt battery. The photograph shows the component in position just above the loud-speaker. Barely two inches long (excluding its leads), the resistance was incorporated without any structural alteration to the recorder, and fitted easily into the space below the deck. The simple motor circuit is shown in Fig. 2.

The reel speed was now variable, though I finally fixed it to give an initial tape speed of about two inches per second, the total playing time for a three-inch reel of triple tape being about forty minutes.

Reducing the tape speed has the disadvantage of slowing down the rewind speed, but I overcame this by fitting a small

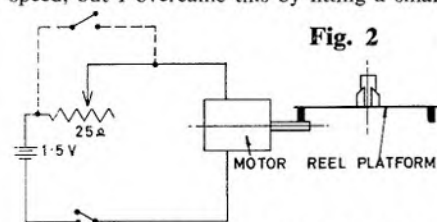


Fig. 2

press switch, which short-circuits the 25 ohm resistor, and is held closed during the rewind function. The switch and its associated leads are shown dotted in Fig. 2, since at the time the photographs were taken, this modification had not been completed. The switch only remains closed while the button is depressed, and has been positioned at the side of the instrument.

The power output of the recorder is small—about 30 milliwatts, and reducing the tape speed does of course reduce the volume available, although this was not as much as I had anticipated, and in a particularly noisy environment, the earphone can be used comfortably.

A final innovation, which I considered would assist the slow-running take-up reel, was increasing the take-up reel platform's inertia, and this was effected by sticking inertia rings cut from thin lead sheet to the recess in the platform.

An established radio journalist gives some advice to beginners

## Are you taking your recorder on holiday?

By PAUL BEARD

**H**AVE you ever considered taking a battery portable tape recorder away with you on holiday to record the precious memories of days spent on, say, the Costa del Sol or high in the Alps? Most people seem to take a camera away as a matter of course, but the tape recorder for some unknown reason gets left behind. Yet a holiday spent at home or abroad can so easily be recalled during the dark days of winter simply by playing back that reel of tape you had so much fun recording in the heat of summer.

The first essential is to try to plan your "holiday programme" in as much detail as possible before actually leaving home. By consulting guide books you can usually find out in advance what sort of sounds you are likely to be able to record on your trip.

It is wise to take with you a set of spare batteries (these are often difficult to obtain away from home) and a good supply of tapes. Two other essentials for making a successful sound picture of your holiday are a microphone windshield—most of your recording will be done out of doors—and a diary or notebook which will later form the basis of your commentary.

While it is often useful to be able to record a commentary as the event is actually taking place, if you are not sure you can keep up a steady flow of words then it is better to record just the effects, and add the commentary later. This is the way the majority of BBC Feature programmes are put together. But this method does involve the use finally of two recorders, one for replaying the tape and the other for recording the mixture of commentary and effects.

There are two good ways of beginning your programme: with some theme music of the country or region you are visiting; or with the sound of a boat leaving harbour or plane taking off. It is essential, however, that these effects are of the correct length so that listeners will realise at once what the sound is. A recording made of a train simply leaving a station platform may not sound very impressive, but if this recording is preceded by a station loudspeaker announcement and the train hoots as it moves off, this adds considerably to the reality of the recording. It is better to have more of the sound than you will need, rather than insufficient.

Portraying particular towns or cities in sound is certainly not an easy task, but beside the usual street sounds there are also the sounds that are unique to particular places. The sound of Big Ben is automa-

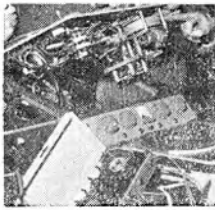
tically associated with London, cow bells or alpine horn blowing suggests Switzerland, and accordion music would most likely transport the listener to Paris. But often it is necessary to supplement these effects. This is when interviews with local characters and the spot descriptions are useful. Any special event that is taking place such as a carnival or fête make ideal subjects for recording of course. Often though it is quite common sounds that make up a good programme.

Recently I was doing a report from Finland, and some of the most interesting sounds were recorded at a funfair in Helsinki. The screams of Finnish teenage girls as they came down the big dipper, the music of a steam organ and the chattering of the crowd as I jostled my way through. All these provided greater reality to the finished programme.

When you return home, listen carefully to your recordings and decide which to use in your sound album. You should then edit your tapes and dub them on to a single reel, preferably separated by short lengths of leader tape. Next, with the aid of the notes you made while away on holiday, write your script. This need not be too professional but should be written in an easy flowing style so that there will be no difficulty in reading it at the microphone. Your script should contain notes when sound effects are to be used, so that the person operating the second machine knows exactly when to cue in the various effects.

If it is possible to have the second (effects) machine in an adjoining room so much the better, for then your commentary is unlikely to include any annoying clicks as the effects machine is switched on and off. Alternately if both recorders have to be in the same room, your commentary should be spoken as close to the microphone as possible so that the microphone level can be kept relatively low. Some form of monitoring the effects, preferably headphones, should also be used in preference to the built in loudspeaker. Once you have the microphone and effects levels correctly adjusted you can begin recording. It is important, in most cases, that effects should be gradually faded in or out. Sudden bursts of sound sound unnatural. The only exception to this is when introducing an interview or on the spot commentary.

If background music is included it should be kept low and not allowed to overshadow your own commentary. Should you have to cough or repeat yourself don't worry as this can be edited out afterwards. You may not achieve a perfect recording at your first attempt, but practice does make perfect, and think what interesting listening it will provide in the years to come.



# Three battery portables examined

## TELEFUNKEN M300

By H. Burrell Hadden

**T**HE Telefunken Company were among the first tape recorder manufacturers to produce recording machines using plastic based tape after the end of the war and it is to be expected that their first venture into a small portable machine for domestic use should be both technically well designed and also pleasing to the eye.

The Magnetophon 300 is a small light-weight machine, with dimensions of 10½ x 11 x 3 inches. Its weight (less batteries) is 8 lb. It is housed in a plastic and die-cast alloy case of contemporary design and all the controls are easily accessible.

Power supply for the M300 can be of several varieties. A small panel on the bottom of the machine removes to give access to a compartment which will hold either five flashlight batteries ("U2" type) or a special rechargeable dry accumulator which can be obtained as an accessory from the manufacturers.

The dry cells will give up to fifteen hours' intermittent operation and the dry accumulator up to seven hours of continuous operation. The accumulator can be recharged using a mains charger unit also available from the manufacturers as an extra. As an alternative to battery operation the mains charger unit can be connected directly to the machine so that it can be operated from the house power supply. Adaptors are also available for 6V and 12V car battery operation. This machine can therefore be used both out of doors or anywhere where no mains supply is available, but can equally well be used as a mains operated machine, if necessary feeding high fidelity amplifiers when at home.

The M300 is a half-track recorder operating at the single tape speed of 3½ ips. It will

accommodate reels up to five inches in diameter. The makers recommend the use of either double play or triple play tape, giving 60 or 90 minutes playing time respectively on each of the two tracks, though of course the machine will operate on standard or long-play tape. Fast forward and reverse wind are provided. A five-inch reel of long-



play tape took three minutes and 40 seconds to rewind, rather slow as rewind times go, but the tape was wound very evenly—a distinct advantage.

The operating controls on this machine are very simple: four "piano key" press buttons control the tape motion. From left to right these are rewind, record, playback, and fast forward. The record function can only be obtained when both the record and playback buttons are depressed together. There are only three other controls; a single volume control operating as record level control whilst recording and volume control on playback; a pause button, cunningly mounted in the handle so that it can easily be operated by the thumb of the hand that is carrying the machine; and a small slide switch for muting the internal loudspeaker.

Five sockets, two on the left-hand side of the machine and three on the right-hand side cater for all input and output connections. On the left-hand side of the machine, next to the loudspeaker muting switch, is the socket for an external loudspeaker. By the side of this is the socket for the mains charger unit and car battery adaptor. On the right-hand side of the machine the first socket accepts the microphone plug; the second the normal continental lead for

record and playback from other equipment such as a radio receiver; and the third a socket for headphones for monitoring purposes both on record and playback.

No microphone was supplied with the machine, but the comprehensive instruction manual, which incidentally is written in four languages, lists a selection of five which are obtainable from the manufacturers and cover a variety of requirements. The most interesting of these is the reporter microphone TD300, having cardioid characteristics, and incorporating a level meter, a record gain control and a voice/music switch. It must be the first time that an interviewer has been able to watch his recording level whilst holding the microphone in front of his subject! The use of this microphone in one hand with the recording machine with its convenient pause control in the other hand should make for much easier reporting.

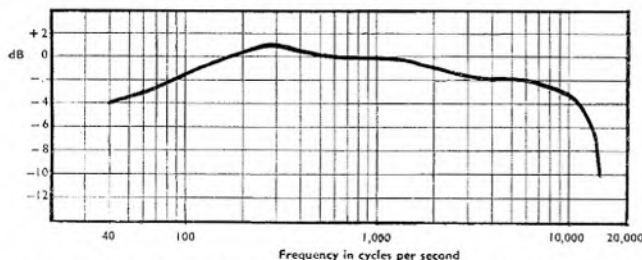
The machine was given the usual technical and practical tests. It was used to record a variety of subjects from speech to popular and serious music and in every case performed well. No wow or flutter was audible on music. Although the response on the small internal loudspeaker was limited in frequency range, particularly in the bass, when the machine was used to feed high quality reproducing equipment the wide range of frequencies present in an organ recital was reproduced without difficulty. The frequency response measurements are shown in the accompanying graph and can be seen to be within the manufacturer's specification of 40-14,000 cps. No tolerances were given by the manufacturers for these frequency limits, but as can be seen from the curve the equipment is within ± 3 dB between 60 cps and 10,000 cps. The signal to noise ratio was perfectly adequate and the machine coped with the wide dynamic range of the organ recital without difficulty.

All in all this machine is a most attractive piece of equipment for the serious recordist who needs an instrument for operation under all sorts of conditions; and with the wide range of accessories available, it can become the basis of a very versatile recording system. I have no hesitation in recommending it as a good buy at 59 guineas.

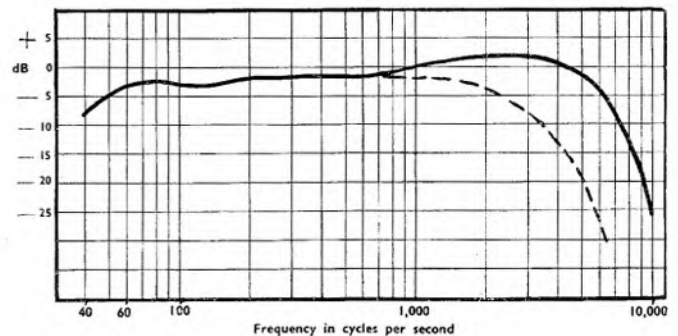
### Manufacturer's Specifications

- Tape Speed: 3½ ips.
- Number of tracks: Two.
- Maximum spool size: Five-inch.
- Frequency response: 40-13,000 cps.
- Wow and flutter: Better than 0.2 per cent.
- Signal-to-noise ratio: Better than 50 dB.
- Power supply: 5.5 to 7.5 volts from five 1½ volt dry batteries; or re-chargeable accumulator; mains power pack.
- Power output: One watt.
- Price: 59 guineas.

**U.K. Agents: Welme Corporation Ltd., Lonsdale Chambers, 27 Chancery Lane, London, W.C.2.**



Above: Record/replay characteristics of the Telefunken M300 tape recorder. Right: Record/replay response of the Stuzzi Disc-Corder, showing range of tone control.



# STUZZI DISC-CORDER

By John Borwick

**T**HE Stuzzi Disc-Corder is really three units in one. At a first glance it is a portable tape recorder with 4½-inch reels. But the demonstrators created a mild sensation at the recent Audio Festival by turning the machine over on its back—when it is seen to be a player for seven-inch 45 r.p.m. records. Add the sensitive Medium Wave radio, and you will begin to appreciate that this is an unusually versatile instrument.

Taking the tape recorder section first, I began by making a few recordings through a microphone. No microphone is supplied with the Disc-Corder, but any low impedance type should work satisfactorily. Low impedances are of course usual with transistorised equipment and have the real advantage of allowing you to use very long connecting leads.

The quality of the recordings was fairly good, within the restricted frequency range we associate with the recording speed of 1½ ips and a just noticeable background sizzle. Listening on the built-in loudspeaker gave plenty of volume, but supplied with the machine for review was the Stuzzi combined Mains Adaptor and Extension Loudspeaker. This measures 8½ x 7½ x 3½ inches and, while too small by high fidelity standards, gave an appreciable improvement in the quality of reproduction. The Disc-Corder has a tone control, which also incorporates a loudspeaker on/off switch, and the accompanying graph shows the response over the tone range. These confirm the good performance as judged on programme material.

## THE CONTROLS

Operation of the recorder is plain sailing. A row of five keys controls playback, recording, stop, rewind and fast wind. The 4½-inch reel of tape supplied took 4½ minutes to rewind and to wind on. If this seems slow, bear in mind that this was a double-play tape, which gave the fantastic playing time of 2½ hours per track at 1½ ips. The conventional two-track system is employed, and the recording level meter is the familiar red and green type which serves also as a check on the state of the batteries.

The battery complement is four type U2 or equivalent. The leak-proof variety are of course recommended in the instruction booklet. This also points out the advisability of checking the voltage before recording or playing back. However, even if the needle does not indicate that there is sufficient power for recording this may not interfere with operation of the radio receiver.

With a mains adaptor, of course, it is possible to get the best of both worlds, running from the mains indoors and only using the batteries when you are travelling around. Besides the combined mains unit and loudspeaker which I have already mentioned, there is a simple mains unit available and a special lead for running the Disc-Corder from a car battery.

## THE BUILT-IN RADIO

Next I tuned in the radio section, and made a number of recordings from it. An unusually wide tuning range is covered—from at least 190 to 580 meters—quite enough to bring in Radio Caroline, for example as well as many stations on the Continent. The best quality recordings



were made on local BBC stations, where an adequate signal was being received at a low volume setting.

There are no connections for recording from the radio. You simply press the "Record" key. One feature that takes a bit of getting used to is that the loudspeaker volume is deliberately reduced during recording. You can still listen fairly well, but the makers recommend you to plug a headphone into the external speaker socket if you want to monitor.

There is also a special "diode lead" available to allow you to record from an external radio. This is easiest fitted to Continental radios which often have a "diode" connection brought out to a special socket. But it is usually possible, on all but AC/DC sets, to effect the same connection on any make of radio by taking a tapping from the top end of the volume control. The Disc-Corder will also record satisfactorily from the external speaker sockets of a radio or record player, etc.

## GRAMOPHONE RECORDS

You convert the Disc-Corder to a record player just by turning it upside down and removing a black plastic cover. I played a wide selection of 45 rpm discs and found the quality to be only a little poorer than from the radio or tape. Bass frequencies were lacking and the treble could be only partly compensated on the tone control. A fairly elementary type of pick-up arm is

fitted, which rests on a foam rubber pad when not in use.

Some low frequency wow was noticeable on records such as the Zampa Overture, etc. for "pop" discs, however, for which the machine is mainly intended, the rather harsh, tippy quality did not seem to matter very much, nor did the speed fluctuations.

Recording from gramophone records is usually an infringement of the Copyright Act but for discs which are exempt from this restriction you can "dub" either from the Disc-Corder's own record player or from an external machine. I found that the discs copied from the built-in record player were of adequate quality except for a slight tendency to flutter.

This is no doubt explained by the fact that the tape deck is upside down during this operation, so that tape spools rub against the plastic cover. This position makes it a little difficult to start recording too, since you have to make the machine overhang the edge to get at the Record key and perhaps use a mirror to see the level meter.

## TO SUM UP

Apart from my reservations about the disc facilities, which you should regard as a temporary expedient for allowing you to play records on picnics, etc., I feel that this new machine is a useful addition to the tape recorders in this country. The radio works very well, though it has the usual directional frame aerial and so has to be turned to face the transmitter, and it is a great convenience to be able to record broadcast items as soon as you hear them without having to plug in connecting cables. The grey leather carrying case which was supplied with the review machine added greatly to the ease of taking tape/radio/disc facilities from place to place.

## Manufacturer's Specifications

- Tape speed: 1½ ips.
- Power supply: Six volts DC from four 1.5 volt type U2 batteries.
- Output power: 400 mW.
- Input socket: Microphone/radio, etc.
- Output socket: External speaker, etc.
- Bias and erase: High frequency, 42 Kc/s approx.
- Transistor radio tuning range: 190-580 metres.
- Record player: 45 rpm, seven-inch discs.
- Dimensions: 10 x 9 x 3½ inches.
- Weight: 7 lb. without batteries.
- Price: 59 guineas inc. Purchase Tax.
- Accessories: Mains adaptor extension speaker, adaptor/speaker combination and plastic or leather carrying case.
- Distributors: Recording Devices Ltd., 44, Southern Row, Kensington, London, W.10.

# GRUNDIG TK6

By John Aldred

**T**HE latest recorder in the popular Grundig range is the TK6, a vertically styled battery portable with a built-in mains unit. This universal machine records half-track at 3½ and 1½ ips, accommodates 4½-inch spools, is push-button operated, and runs off six U2 type dry cells. The recorder is complete with a push-pull output stage and six-inch internal loudspeaker, which can be used for monitoring whilst recording.

All memories of the earlier Grundig portables, the Cub and the TK1, should

(Continued on page 243)

## NEXT MONTH

**WATCH** for exciting news of an important new development in battery-operated midget recorders.

One of the largest manufacturers will be introducing a recorder using one-eighth-of-an-inch wide tape in a plastic cartridge, recording half-track at 1½ ips. "TAPE Recording Magazine," on sale on June 17, will be the first tape journal to carry full details and a photograph of the new model.

Our "Test Bench" feature will include a review on the recently introduced Sanyo battery/mains operated recorder.



MARK 5 Series 2

## Spotlight on quality...

*Specification:*

4 speeds  $1\frac{7}{8}$ ,  $3\frac{3}{4}$ ,  $7\frac{1}{2}$  and 15 ips • frequency correction at all 4 speeds • 3 independent motors • exceptionally low wow and flutter content • double-gapped ferrite erase head to minimise erase noise • narrow-gapped record/playback head to give extended frequency response • pause control • superimpose control • recording level indicator (meter extra) • takes  $8\frac{1}{2}$  in. dia. reels • fast rewind (1200 ft. in 45 seconds) • digital rev. counter.

The Mark 5 Series 2 tape recorder is a high quality machine capable of making outstanding recordings.

It is tastefully finished in medium grey with chromed fittings, and designed not only for use as a complete portable recorder but for incorporation into a Hi-Fi installation.

(Deck, amplifier and power unit are available as separate items). A low-level compensated output socket is provided for driving an external Hi-Fi amplifier.

***Brenell***

**BRENELL ENGINEERING CO., LTD**  
1a DOUGHTY STREET, LONDON W.C.1.  
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## An echo chamber for the amateur enthusiast

**E**NTHUSIASTS who compile and record their own programmes on tape or disc, may often have felt the need to produce an "echo" or long-reverberation effect, to heighten the realism or dramatic quality of certain parts of the programme. Such a device is of use, particularly when an effect of "hollowness" is required behind speech or effects; for example, the sound of a person speaking in a cellar or footsteps sounding in a deserted passageway.

The effect required, in such instances, is somewhat different from the true "echo" effect, where the sounds are repeated after a definite interval of time; the required sound is that produced by the sound waves reaching the ear (or microphone) by a number of different routes of various lengths, added to a natural "ringing" or reverberation produced by an enclosed but empty space.

Three methods can be used conveniently for the production of "Echo" and reverberation effects. These are, briefly: (a) The

use of an additional reproduction head on the recording machine, the output of which is fed back and mixed with the input from the microphone; (b) The use of a separate loop of tape or a magnetic disc recorder, operating on a similar principle to (a); or (c) The use of an echo chamber.

Of the three methods, the first is particularly suited to producing a simulated "echo" effect as there is a definite and sometimes "rhythmic" time delay between the first recorded sound and the resulting "echo," and in amateur equipment particularly, it is difficult to reduce the time lag below a certain factor because of the necessary physical separation between recording and reproducing heads. On the other hand, the cost of a true "echo chamber" is normally beyond the means of the average enthusiast, even if he had the space available for one.

### USING A SMALL SPACE AS AN ECHO-CHAMBER

Experiments carried out by the writer, indicate that very worthwhile results can be obtained, using the principle of the echo chamber, but on a very reduced scale, thus solving not only the problem of cost, but also that of space. Naturally, the results

cannot be expected to compare with those produced by a full-sized, professional chamber, but with a little care, they can be made sufficiently good to be a real asset to the amateur.

The method used, is to turn any available room, attic, loft, cellar, or even a cupboard or an outhouse into an echo room that, whilst it will probably be in use only from time to time, is nevertheless permanently wired for sound and can be switched in or out of circuit as required, from the control position. In certain cases, the choice of a particular room or space will mean that its use will have to be shared for other purposes by other members of the household. In practice, this is not such a drawback as it may appear, since the required effects can always be recorded at some favourable time and edited into the main programme later, and a little domestic organisation should be all that is necessary. It is as well, however, to choose a room or space which does not suffer too heavily from extraneous noises. It is not, for example, a very good idea to install the pick-up microphone next to a cold-water tank, unless one can be certain of a maximum of family co-operation before the recording begins! The results naturally depend very largely upon the size and characteristics of the space chosen, but quite successful results have been obtained from a wooden garden shed that measured 7 ft. by 5 ft. by 5 ft. 6 in., and from a bathroom measuring no more than 10 ft. by 6 ft. with a low ceiling.

### PRINCIPLE OF OPERATION

Essentially, the "echo chamber" is energised by a loudspeaker fed by an independent amplifier, and the sound, together with the reverberations produced by the chamber, are picked up by a microphone, amplified and fed back into a mixer circuit. The effects can be varied by the use of variable frequency-response circuits in the amplifier.

With this system, it is essential that feed-back loops between the microphone and speaker circuits be avoided, and certain of the valves in the circuit described have the function of "trap valves." Fig. 1 is a block diagram of the complete circuit. The signal from the input (which is here assumed to be a studio microphone, but which might equally well be another signal source), is first amplified by a single pre-amplifier stage, *V1*. It is then fed to the two halves of a double-triode amplifier valve stage, *V2* and *V3*. Of these, *V2* operates as a trap-valve stage and carries the straight-through signal, via the Mixer-potentiometer *RV1*, to the output amplifier stage *V5*; *V3* is the first stage of a complete power amplifier that is used to drive the speaker *L.S.*, in the echo chamber. The amplifier has an independent gain control *RV2*, and frequency-response controls *RV3* and *RV4*, which enable the frequency characteristic of the amplifier to be changed at will to produce particular effects. The microphone *M2* is the pick-up microphone, installed in the echo chamber, and for preference, it should be of the low-impedance, moving-coil type to avoid losses and hum pick-up such as would be involved with the use of a high-impedance connecting line. If the line is reasonably short, it should be possible to connect the microphone directly to the input transformer on the amplifier chassis, as in the circuit shown. If the distance is too great for this arrangement to operate satisfactorily, it may be necessary to use a balanced, 600 ohm line to make the connection with suitable transformers matching the amplifier and the microphone to 600 ohms, respectively, at the appropriate

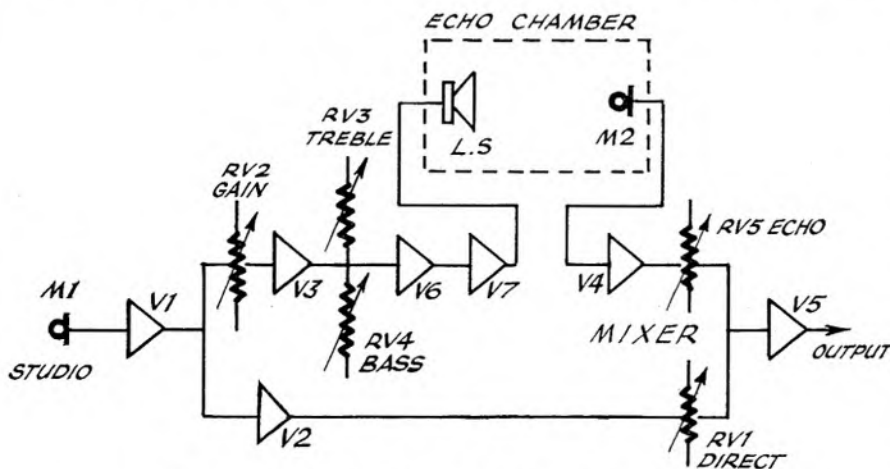


Fig. 1. Block diagram of complete echo-chamber system.

Continued on page 238

## An echo chamber for the amateur enthusiast

(Continued from page 237)

ends of the cable. In this event it is usual to have some kind of a pre-amplifier at the microphone end also; in short, a somewhat different version of the unit is required for long-distance working.

The circuit diagram of the complete amplifier appears as Fig. 2, and from this, it will be seen that the signal from the echo-chamber microphone is fed via the input transformer T4, to the grid of one half of a

(Continued on page 241)

### RESISTORS, FIXED

R1 Carbon 10M	1/2W	R16 Carbon 330K	1/2W
R2 Carbon 220K	1W	R17 Carbon 5K	1/2W
R3 Carbon 1.2M	1/2W	R18 Carbon 320	1W
R4 Carbon 33K	1W	R19 Carbon 5K	1W
R5 Carbon 3K	1W	R20 Carbon 5K	1W
R6 Carbon 500K	1/2W	R21 Carbon 100K	1/2W
R7 Carbon 220K	1W	R22 Carbon 220K	1W
R8 Carbon 100K	1W	R23 Carbon 3K	1W
R9 Carbon 1K	1W	R24 Carbon 720	1W
R10 Carbon 100K	1/2W	R25 Carbon 5K	1W
R11 Carbon 10K	1/2W	R26 Carbon 47K	1W
R12 Carbon 10K	1W	R27 Wire wound 5K	1.5W
R13 Carbon 2K	1W	R28 Wire wound 5K	1.5W
R14 Carbon 100K	1W	R29 and	
R15 Carbon 7K	1W	R30 Carbon 150K	1.5W

### RESISTORS, VARIABLE

RV1 Carbon min. pot. .5M	RV4 Carbon min. pot. 1M
RV2 Carbon min. pot. 1M	RV5 Carbon min. pot. .5M
RV3 Carbon min. pot. 100K	

### CAPACITORS, FIXED

C1 Paper tub. .02uF	125V	C15 Paper tub. .05uF	300V
C2 Paper tub. .03uF	300V	C16 Electrolytic 16uF	300V
C3 Paper tub. .5uF	300V	C17 Electrolytic 100uF	50V
C4 Electrolytic 16uF	300V	C18 Electrolytic 4uF	390V
C5 Paper tub. .5uF	300V	C19 Electrolytic 16uF	300V
C6 Electrolytic 16uF	300V	C20 Electrolytic 100uF	50V
C7 Paper tub. .25uF	300V	C21 Paper tub. .05uF	300V
C8 Electrolytic 100uF	25V	C22 Electrolytic 100uF	50V
C9 Electrolytic 16uF	300V	C23 Paper tub. .1uF	350V
C10 Paper tub. .005uF	125V	C24 Electrolytic 20uF	400V
C11 Paper tub. .02uF	125V	C25 Electrolytic 20uF	400V
C12 Paper tub. .005uF	125V	C26 Electrolytic 40uF	400V
C13 Paper tub. .02uF	125V	C27 Electrolytic 40uF	400V
C14 Electrolytic 100uF	50V		

Fig. 2. Circuit diagram of the echo chamber amplifier unit. Note 1. V4 and V6 are shown as the two halves of a double-triode valve, but individual, single triodes can be used if more convenient. (This also applies to V2-V3 and V5a-V5b, but additional space will be required on the chassis.)

Note 2. The stage gain of V2 is controlled by R6. Gain can be increased by increasing the value of R6 and vice-versa.

### TRANSFORMERS

T1 Output transformer, ratio to match speaker impedance to EL95. Centre tapped secondary.  
T2, T3 Mains transformers: Primary to suit mains voltage. Sec. 1. h.t. 260V 120mA. 2. 6.3V 2A.  
T4 Microphone transformer 100 : 1 with Mu-metal screen.

### MISCELLANEOUS

Valves:

V1 EF86	V5 ECC82
V2, 3 ECC81	V7 EL95
V4, 6 ECC81	

FS1 Fuses with holders.

FS2 Chassis mounting type, Fused at 1A.

SW1 Mains switch, toggle, D.P.S.T.

MR1, MR2 Full-wave rectifier—elements, selenium, 300V at 150mA each.

SK1, SK3, SK4, SK5 Screened connectors, co-axial or other suitable type.

SK2 Heavy duty type (output) connector. (Screw down type suitable.)

LP1 Lamp holder and lamp 6.3V (green).

The following items are not shown on the circuit diagram:

Four valve holders type B9A with skirt and screens.

One valve holder type B79.

One chassis and panel, aluminium or steel, drilled (see layout drawing).

Quantity Mains cable, three-core, length as required with three-pin plug.

Quantity connecting wire, nuts, screws, washers, bolts, etc. as required for assembly.

1 Pair 2 1/2in. x 2 1/2in. panel brackets.

Quantity Co-axial cable for microphone and internal screened connections as required.

Quantity Heavy (mains type) cable for loudspeaker connections etc., etc.

Three ten- or twelve-way tag strips.

One Cabinet, metal or wood to house unit if required (ventilated).

Also required for the installation:

One extension loudspeaker with suitable baffle (see text).

One moving coil or other low-impedance microphone.

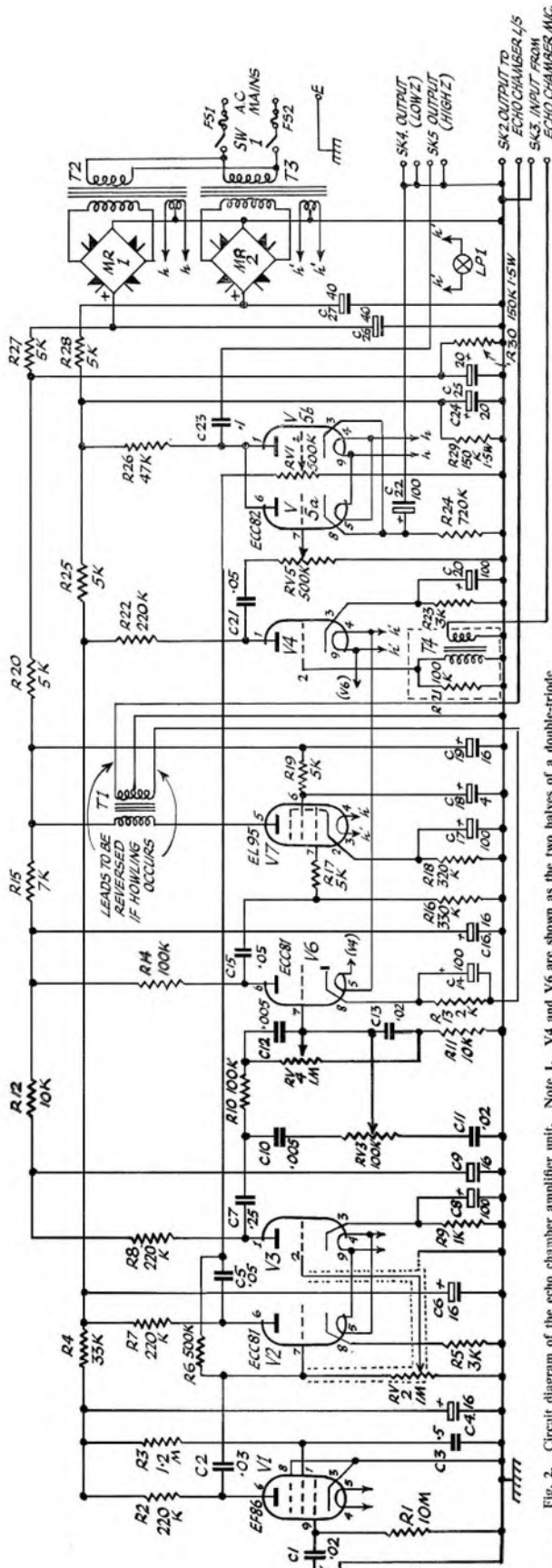


Fig. 2. Circuit diagram of the echo chamber amplifier unit. Note 1. V4 and V6 are shown as the two halves of a double-triode valve, but individual, single triodes can be used if more convenient. (This also applies to V2-V3 and V5a-V5b, but additional space will be required on the chassis.)

Note 2. The stage gain of V2 is controlled by R6. Gain can be increased by increasing the value of R6 and vice-versa.

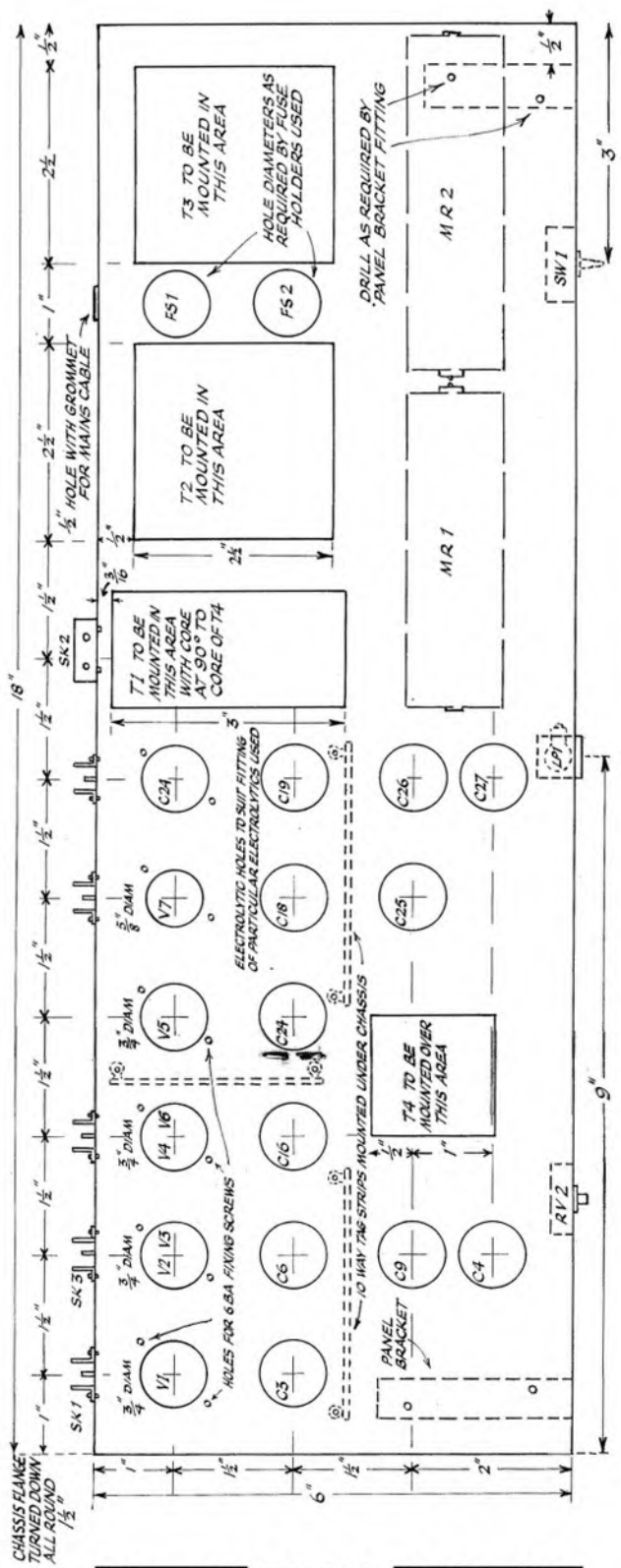


Fig. 3 (right). Suggested layout for echo chamber amplifier unit. Top view of chassis.

NOTES: All holes made for passing wires through the chassis must be fitted with rubber grommets. The mains cable should be anchored to the chassis with an insulated clip, near the point of entry. Electrolytic capacitors can be of the 'combination' type, e.g. 8 + 8, 16 + 16, etc., thus saving mounting space. The smaller components, not shown in the lay-out drawing, are mounted beneath the chassis supported by their wire ends, using convenient tags on components or tag strips. The chassis should be constructed of aluminum of at least 16 gauge, or of steel.

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**COSSOR RADIO AND TELEVISION LTD. 233 TOTTENHAM COURT ROAD W.1**



# Building an echo chamber

(Continued from page 238)

double triode valve *V4*. This valve amplifies the signal and also acts as a trap-valve to prevent the output of *V2* from reaching the microphone in the echo chamber.

*RV5* is the mixer control, and the combined signals from *V4* (echo) and *V2* (direct) are fed, in any desired proportions, to the output valve *V5*. This valve has two outputs that provide different signal levels to suit the requirements of different types of tape recorders. It should be noted that the "low-level" output has a low impedance. This should not cause any serious troubles on account of mis-matching when connected to the average tape recorder input, but in the event of its doing so, the alternative output should be used, if necessary with a fixed attenuator to reduce the output level of the echo chamber amplifier unit. In the unit shown, the echo chamber is assumed to be quite small in size, but if the constructor is fortunate enough to have a really large space available, it may be necessary to increase the output power of the amplifier driving the speaker in the chamber and then a push-pull circuit should be used in place of *V6*. This will entail an increase in the current-supplying capacity of the appropriate power supply unit by about 50 mA, and, of course, the use of suitable phase-splitting circuits and a push-pull output transformer.

## THE POWER UNITS

In order to avoid any possible interaction between the echo-chamber amplifier output and the remainder of the unit, separate power units are employed for each. The units are otherwise quite straightforward, full-wave rectifier power packs of conventional design.

## CHOOSING THE ECHO CHAMBER

Since so much depends upon the chamber itself, it is best to select a suitable room, cupboard, etc., and wire it up before proceeding with the construction of the amplifier unit. A cellar is an obvious choice, or failing this, an outside barn or shed, provided it is weather-proof or can be made so without too much expense. Provided it is not too noisy or encumbered, a loft can be used quite successfully, or as a last resort, a room, such as a bathroom, or a large, empty cupboard can be pressed into service.

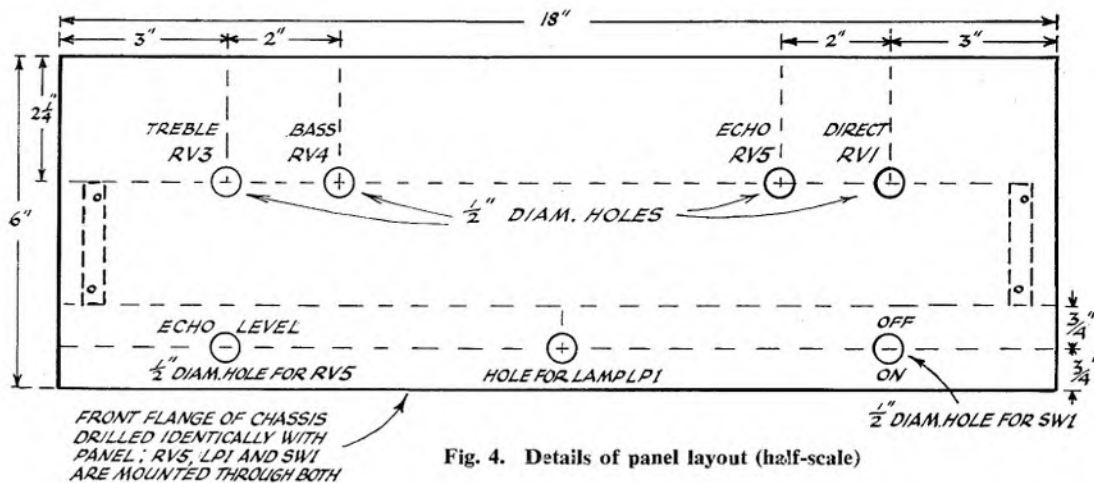


Fig. 4. Details of panel layout (half-scale)

The next point to consider is the length of the wiring that will be necessary to connect the chamber with the amplifier which will normally be installed near to the recording apparatus. This is a matter requiring some careful thought, and it has to be assumed that the wiring to the speaker will be fairly short, otherwise, special matching arrangements would have to be made for feeding the loudspeaker. In any event, this part of the wiring should be carried out in heavy-gauge, mains-type cable, in order to keep the resistive losses to as low a figure as possible, and if a fairly high-impedance speaker is available, this should be used in preference to a 3 ohm or 6 ohm type, provided, of course, the output transformer is chosen to match.

Screened wire should be used for the microphone connection. Ordinary, television co-axial cable is normally quite suitable for this, but in areas of exceptional interference, twin-screened cable should be used with the screening earthed at the amplifier end only. In any event, it is essential that microphone and speaker wiring should be very well spaced, and if possible, taken by different routes to avoid any possible coupling between the two which would result in instability or even oscillation.

## MOUNTING THE LOUDSPEAKER AND THE MICROPHONE

When a suitable room has been chosen for the chamber itself, the microphone and loudspeaker should be mounted within it. A certain amount of care must be taken in positioning these. The speaker must be provided with a baffle, preferably made from 1/2-inch thick plywood, with a hole cut in it to accommodate the speaker cone. The speaker and baffle need not be very large for this purpose, and a seven or eight-inch speaker is quite large enough. Since bass reverberation effects will seldom, if ever be required, the baffle need not extend more than about eight inches beyond the speaker cone, which for preference, should not be mounted concentrically. The speaker baffle should then be mounted facing down the longest axis of the room, with the microphone suspended at the other end. It is useful, however, to have the microphone mounted so that its angle to the speaker can be varied easily; the best position can then be found later under working conditions.

## CONSTRUCTING THE UNIT

The unit should be completely stable electrically and it can be built into almost any reasonable shape or form to conform with the appearance of existing apparatus. A steel or aluminium chassis should be used

with a panel of the same material, and a suggested layout is shown in Fig. 3. If desired, the front panel can be made to slope backwards, by bending the brackets towards the rear, and the front flange of the chassis forwards and outwards at a corresponding angle. A wooden or metal case is equally suitable for housing the unit, or it can be mounted in a rack or console with other apparatus, but in every instance, ventilation must be adequate.

There are no particular points that should be borne in mind when constructing the unit apart from those which apply to amplifiers in general; wires, particularly signal-carrying wires should be short and direct and screened if they exceed about two inches or so in length; all heater and mains wiring must be kept well away from the input and output leads and the input transformer (*T4*) must be provided with a mu-metal shield and mounted with its core at right angles to the mains transformers. If hum does occur, an improvement may be obtained by reversing the mains input connections to either one of the mains transformers, *T2* or *T3*. If this does not effect a cure, it may be necessary to re-orientate the input transformer *T4* slightly; this can only be determined by trial and error when the unit is working.

Whenever a wire has to pass through the chassis, the hole through which it passes must be provided with a rubber grommet to prevent chafing of the insulation. With the exception of the loudspeaker connection, all the connectors are shown as the television-type co-axial plugs and sockets but almost any type of screened connectors are equally suitable, and many constructors prefer to have standardised plugs and sockets throughout their equipment. Although the loudspeaker connector need not be screened it must be capable of accepting rather thick leads that are used to connect the loudspeaker.

## MAKING UP THE PANEL

The panel is supported by panel brackets fixed to the top of the chassis. The components behind the front flange of the chassis are also mounted through the panel, which thus becomes firmly secured to the front flange of the chassis. Any standard type of control knobs can be used on the unit and the constructor may prefer to choose some that will match those on other equipment. Escutcheon plates with degrees or numbers already marked on them can be obtained quite cheaply and, apart from improving the appearance of the panel, are useful when setting the positions of the mixer and frequency-response controls.



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## TEST BENCH

(Continued from page 235)

be brushed aside in assessing the TK6, for here is a portable with a really impressive performance, although slightly heavier than some of its contemporaries.

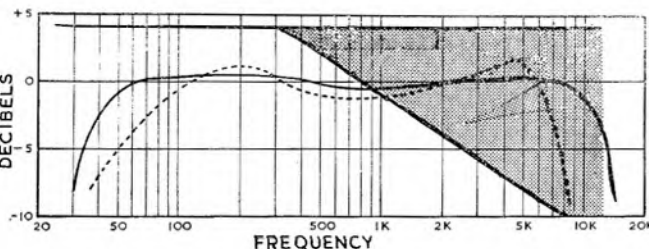
To begin with the polystyrene case is attractively designed, with chrome trimmings and an extremely solid carrying handle. Plastic covers snap over to reveal the tape chamber on one side, and the loudspeaker and battery compartment on the other side; both covers remain closed during use. A compartment at one end contains stowage space for the moving coil microphone supplied, the captive mains cable, also the input and output sockets. When the mains lead is removed from its parking place, the batteries are automatically disconnected and the mains unit brought into operation. When operating the TK6 from the mains the output power is 1.6 watts, but on batteries the power is reduced to 0.5 watt.

A single input/output socket of the DIN type provides a low or high level input at 10,000 ohms for microphone or radio, but an additional socket adaptor is required to match a high impedance pick-up cartridge. On playback an output of 500 mV at 18 K ohms is available for transcription purposes, in addition to a 5 ohms extension loudspeaker socket. A switch is fitted for muting the internal loudspeaker when required. Yet another socket permits the recorder to be connected to a car battery if so desired.

### CONTROL

All the controls are located along the top of the recorder and comprise a three-digit rev counter, record/replay volume, push-buttons for Record - Rewind - Stop - Start - Fast Wind - Temp. Stop, and a combined monitor volume and replay tone control

Overall frequency response of Grundig TK6. Solid line—3½ ips; dotted line 1½ ips. Shaded area shows effect of tone control on replay.



with on/off switch. A single meter indicates volume and checks battery voltage: the pointer entering a red segment on the volume scale to indicate overload, and falling into a red segment on the battery scale to indicate renewal. The meter serves this latter function on playback only.

The volume and tone controls are of the "edge-on" variety with milled surfaces and an easily read numbered scale. They operate quite freely and exercise a very smooth control, unlike some others of this type that we have come across. The push-buttons are large and strongly built, and look extremely capable of a lot of hard work (although I did not actually give them a life test!).

### AMPLIFIER

The printed circuit amplifier is extremely compact and follows conventional design. It contains eleven transistors in all, two of which are used to maintain the motor at a constant speed. This electronic stabilisation is the most interesting feature of the TK6, and is claimed to keep the motor within  $\pm 2$  per cent of its normal 3,000



revs per minute, regardless of an ageing battery supply. The secret of the system is a 60 K/c oscillator with its coil near the motor. A centrifugal switch on the motor shaft shorts a damping coil which is separated from the stationary oscillator coil by a narrow air gap. This causes the oscillator to stop, so that the transistor in the motor circuit shorts the motor's series resistor, thus increasing the motor speed until the contact opens again. The result is an efficient noise-free method of speed control, and all from one set of batteries.

The splendid high-frequency response of the TK6 is achieved by using a very efficient narrow gap head and a large amount of treble boost during recording, especially at the slower speed of 1½ ips. This can be verified by connecting an oscillator and observing the volume indicator, which shows the h.f. rise. The quality of playback is particularly clean over the entire frequency range, which is shown in the illustration as being substantially flat. The tone control on replay is basically a treble cut, and the record/replay curves were obtained with the control in the maximum

treble position. When playing back tapes through an external amplifier and using the low-level output socket, only the volume control is effective and not the tone control. The necessary tape equalisation is of course in the early part of the amplifier during replay.

### PERFORMANCE

One has only to handle the TK6 for a very short time to realise that here is a machine which has had a tremendous amount of thought put into its design. Tape loading is extremely simple, the spools are clipped into position so that they cannot fall off their shafts, the controls are logically arranged and easy to operate, and the signal-to-noise ratio of 48 dB is extremely good for a transistor portable operating at 3½ ips. The manufacturers claim a frequency response of 50-13,000 cps at this speed, which is quite justified and coincides with our own curve.

The dynamic microphone supplied, type GDM 300, is omni-directional and very light in weight. It has been especially designed for the TK6 and made a very

good job of voice recording. But due to the fact that this is a high-quality recorder, it is worthwhile using a better microphone for music.

The internal loudspeaker gives a pleasing reproduction with the tone control set for a slight top cut, but full top is required when using a good external loudspeaker. Adequate volume is available for an ordinary room without necessarily using an additional amplifier.

When recording, the TK6 should not be waved violently about or the capstan and flywheel assembly will become unsteady. But the machine can safely be carried about whilst running, without causing any ill-effects.

### COMMENTS

This is not a cheap recorder, but it has been well built to give good-quality results with the minimum of effort on the part of the user. In many respects it is far better than the old E.M.I. L2 machine, which cost twice the price. In addition to a spool of triple-play tape, a free pre-recorded tape featuring E.M.I. artistes is also included.

So if you want a machine which you can switch on at any time without a moments hesitation, and commence recording in a matter of seconds—either at home, in your garden, or in your car, then this is the recorder for you. Mind you, it is a little heavier than some of the other portables, but you will not mind that when you know you are getting first-class results.

### Manufacturer's Specification

Battery Supply: Six U2 cells or Car Battery (6.3 v. min.).

Mains Supply: 110 to 220 volts AC.

Power Consumption: Six watts.

Battery Life: Approx. eight hours (depends on use of motor).

Maximum Spool: 4½ inches.

Recording Speeds: 1½ and 3½ ips.

Frequency Response: 50-13,000 cps  $\pm 3$  dB at 3½ ips; 50-9,000 cps  $\pm 3$  dB at 1½ ips.

Wow and Flutter: Better than  $\pm 0.2$  per cent.

Signal-to-noise ratio: 48 dB.

Amplifier inputs: Microphone (0.3-20 mV at 10 K ohms); Radio (5-100 mV at 10 K ohms); and Phono (with adaptor) 50-1500 mV at 500 K ohms).

Amplifier outputs: 550 mV at 18 K ohms; 0.5 watts at 5 ohms (battery operation); and 1.6 watts at 5 ohms (mains operation).

Transistors: OC 306, Four OC 304, AC 116, AC 117, Two AC 121, TF 78.

Weight (with batts.): Approx. 14 lb.

Dimensions: 12½ x 9½ x 5½ inches.

Price: 65 gns. (with microphone and tape).

Manufacturers: Grundig (Great Britain) Limited, 40, Newlands Park, Sydenham, London, S.E.26.

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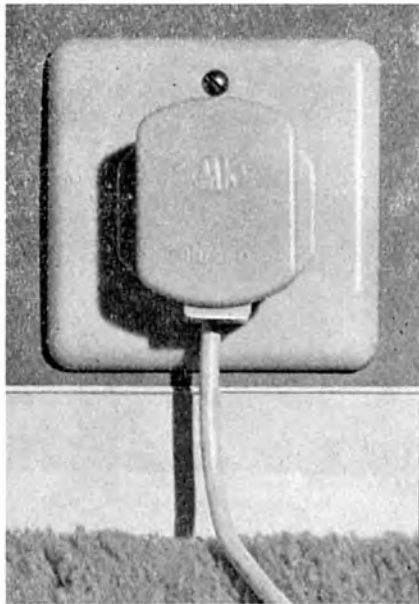
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# Dramatape miscellany

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**A**RE you a "technical type?" If so, you're in demand.

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You're the person who could tell them—as Honorary Technician.

You don't necessarily need a passion for acting, although you must obviously be alive to its technical problems. In offering your services, you'll be rewarded by an exciting challenge—high-fidelity drama-in-sound. Also, you'll gain vital experience for sponsored dramatape work: this aspect will be discussed separately in a future issue.

First step: get in touch with your local play-reading group. Play-reading is a distinctly different activity from theatricals; and the members have an ideal temperament for microphone-acting. It's difficult to generalise, of course. There are 25,000 amateur theatrical societies—with a total membership of half a million. Some of these will be interested in making dramatapes. But play-reading groups are your best material; their "membership" is under a quarter-million, but this gives ample scope.

In my town, at one time, there were fourteen groups—so it can be hard to choose the best. Moreover, some can be very exclusive or ephemeral: digging them out means real detective-work. Local libraries, drama schools and theatrical societies can probably supply you with an address.

Meetings are usually held in a private house, with anything from half-a-dozen to a score or so persons attending. You might, of course, have the luck to enter an established dramatape society, but generally you'll have to start from scratch. This means making your own equipment available. It doesn't have to be de-luxe; the drama fans won't be critical until they learn from your advice. By that time, they should club together for the eventual set-up.

Your initial proposition is simple: "Just carry on play-reading—and I'll record you." This whets their appetite for more ambitious attempts; and thus a dramatape society is born. Truly an achievement on your part!

At first, however, you'll be met with incredulity. "Do you mean to say" (they ask) "that plays can be acted on tape? And

sound just like a real radio play? How marvellous . . . but surely amateurs can't do it? What about the changes of scene? We can't possibly afford those gigantic studios."

Fantastic as it may seem, drama enthusiasts visualise a radio play as TV-without-a-picture. And costing as much to produce. The true advantages simply never dawn on them. Perhaps the reason is that tape recorder manufacturers never advertise dramatapes as a hobby-attraction. Consequently, you'll find many play-readers who "have never even heard their own voice"—70 per cent in my experience. So don't rush them into this new dimension. Lead them step-by-step.

Most groups have an informal chairman (often a charming woman); and "production" consists of merely dishing out parts. But you must insist on a properly nominated producer. Don't accept this office yourself—make it clear that you're the technician. It's possible to act as producer-technician, but division is preferable. Both positions are high-ranking, although yours has more long-term responsibility.

Advise the company to choose a short play for their first dramatape—a "one-act" or a scene. Record it as a straight reading, ignoring all sound-effects and other elements. Listen to this tape in consultation with the producer. Advise him on how to include the missing elements—then assist him to include them in a fresh recording. But don't get carried away with your own prowess. Always remember that your function is to express the producer's interpretation. Your duty is clear—even if he sits there with a stunned gaze. Prod his

ideas (tactfully) into life: "Would you like a window opened here? Perhaps you'd like some faint birdsong as a background?"

"Birdsong?" he says. "Marvellous!" (He is beginning to think. . . .) "Is it possible to have a car coming up the drive?"

The company will learn to cherish your guidance and discretion. You'll soon be the technical centre of quite amazing activities. You might be messing about with eight tape-decks—experimenting with theatre-in-the-round-in-sound. You might find yourself knee-deep in bluebells, recording that birdsong. Or the cast might take a day-trip to the beach—to act against an authentic sea-wash.

You'll find serious setbacks, of course. For example, there are no plays published for dramatapes. The producer has to adapt stage plays; and this frustrates our desire to explore time and dimension. Copyright, too, can be a problem. And you can certainly experience downright failure with some groups. You'll find amateurs who have neither talent nor sympathy for drama-in-sound. But you'll definitely find others to whom drama-in-sound "sells on sight." They are prepared to dedicate their spare time to its ideals; but they need a technician as a helping hand.

Possibly, when the obstacles are removed, there may be an organised movement—with a Dramatape Association to handle the issues. It's hard to say. Making dramatapes may remain the hobby of a scattered minority, with each private group headed by a lonely mandarin. Either way, the opportunities stay the same for the individual pioneer/technician.

Let me have details of your adventures.

## Two-minute tape sketch by David Haines

**T**HIS month's exercise illustrates the use of sound-effects to convey narrative (see *January issue*). No speech is included—other than your announcement of the title.

Each effect should be performed and recorded with due care for interpretation. Note the changing perspectives of your listener's "viewpoint."

### SMASH AND GRAB

**W**E hear a car approaching. It draws up nearby and the door is opened. The engine is left running as the driver is heard dashing across the pavement. A plate-glass window then shatters. An alarm-bell goes off and the footsteps return to the car. The door is slammed and the car drives off at speed.

We are now accompanying the car. We scream round several corners on screeching tyres. The alarm-bell drops behind, together with a rising hue-and-cry.

After a few moments, the engine begins to cough and stall. The car slows to a standstill. We hear the starter operated again and again.

The hue-and-cry is meanwhile drawing nearer (i.e., rising in level) from the distance.

Suddenly, the driver opens the door; and his footsteps dash rapidly away out of hearing.

Pause.

The driver's footsteps now come hurrying back. We hear a metal screw-cap being turned—followed by the *glug-glug-glug* of petrol. The empty can is then tossed aside with a clatter. The driver jumps in the car, slams the door and presses the starter. The car immediately departs with powerful energy.

We remain. The car goes into the distance and right out of hearing.

The hue-and-cry now comes rushing up—with people tripping over the petrol-can in the confusion.

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#### MF-2 Mixed (17 effects)

American Police car and M/c sirens (4 different); Applause; Orchestra tuning up; Car crash; Glass breaking (repeat); City Tube train, arrive, depart; Footsteps (various); Workmen hammering, etc.

#### MF-3 Horses (10 effects)

Trotting, walking, jumping; Pigs, cows, cats, Blacksmiths shop. Side 2: Composite recording Foxhounds Hunting calls and horns, etc.

#### AFX-1 Wild Animals (15 effects)

Lions, Tigers, Chimps; Gaboon Viper; Alligator; Rattlesnake; Bellbird; Fish Eagles; Elephants; Puma; Sealions, etc. Jungle background.

#### TFX-1 British Railway Trains (11 effects)

Steam, diesel and electric (arrive, depart, passing, etc. with whistle); Goods trains; Express and local passenger, etc.

#### EFX-1 Electronic Music and Sounds (15 effects)

Electronic Music two recordings; Space ships; 10 different electronic sounds.

#### HMX-1 Haunted House and Mystery (11 effects)

Storm, Mystery, Electronic Music (2); Spooks; Creaks; Dungeon; Ghouls; Fright; Ghosts; Maniac laughter, etc.

#### MPX-1 Military Parades and Warfare Sounds (5 effects)

March past with Guards band and cheering; Royal Salute; Drums and Pipes; Aircraft attack (bombs, machine gun, etc.); Artillery (tanks, rifle, shells, etc.); Mixed tracks.

#### ABX-1 Bells and Sirens (10 effects)

Fire engines (British and U.S.A.); s.s. Queen Mary siren; Factory siren; Big Ben; Telephone; Clock chime; Bow Bells, etc.

#### BGX-1 Background Effects (6 effects)

Sea, wind, thunder, rain; factory, traffic.

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ALAN EDWARD

# BEEBY

**"SWOP-SECTION":** What did I do? Simply asked if anyone was interested in exchanging old "78" discs and—WHAM! Letters piling in by the sackload! "This idea seems to have gone over remarkably well, Sir," I said to you-know-who. "I wonder if I might be allowed four pages for next month's column instead of the usual one, so I can get 'em all in?" "No," he said. (Actually, he said a good deal more, but "No" was the gist of it!).

Anyway, the thing is this. Those of you who have written to date will have already received an acknowledgment. We've had, however, far too many replies to enable us to publish detailed lists each month; therefore, we've decided to operate the Swop Section on a "blind" basis. That is to say, you write and tell me what you require or have to offer in the "78" line, and I'll contact you direct as soon as anything turns up which may be of interest. OK? I shall, from time to time, publish brief trend reports in the column, which, in turn, will draw the attention of new readers to the scheme itself.

This month's Report: The "Offers" are outweighing the "Wants" quite a bit, so if you're looking for a certain "78" item, I'd be glad to hear from you. Replies (stamped addressed envelope, please) to 88, Clare Street, Northampton.

**O**UR old friend, "Studholme Berkeley," the tape-recorder gremlin, has been busy again. Colleague, Bill Rawle, recently suffered from the sprite's unwelcome attention while operating the sound effects for the play, "A Man Dies." The electrician of the company, "killing" some top-lights for one scene, accidentally switched off Bill's machine!

Bill's reported comment at the time: "Oh, dear! I do believe someone has inadvertently disconnected my recorder!" Well, I mean, what else could he say? A church hall, a religious play, plus a bevy of ecclesiastics breathing down his neck. . . .

**I**NTRODUCING "TAPEWAYS": News reaches me this month of a brand new Tapeway Club whose aim it is to recruit as many enthusiasts as possible who are prepared to take an active part in the initial stages of organisation, and to contribute to the project as often and as fully as they are able. In short, back-sliders, lead-swingers and seat-warmers are most definitely not welcome!

Mr. George West, Publicity Manager for "Tapeways," drew my attention to a descriptive leaflet which is available to anyone interested. There are several sections of activity within the Club, each appealing to a different aspect of tape-recording. One, called "Sound-Off," takes the form of a Round-Robin Tape which will circulate between four members. Another, "Spotlight on the World," will feature items collected from shortwave radio and overseas contacts. A third, "Playback," will include subjects of general listening interest to suit

everyone. Finally, there's the "Tapeways Library," where the best of all recordings submitted will be stored, and from which any member may borrow an item for his own use. It is hoped, by the way, that this latter service will prove useful for anyone thinking of compiling tape programmes for hospitals, the blind and the bedridden. A monthly or bi-monthly newsletter is also planned.

So . . . if your enthusiasm for taping meets the required standards (in other words, if your "get-up-and-go" hasn't yet "got-up-and-gone"!), why not drop a 3d. stamp to "Tapeways," organiser and founder, Mr. G. Wells, 94, Dupont Road, Raynes Park, London, S.W.20, for a copy of the aforementioned leaflet?

**"TO THE MEMORY OF. . ."** Remember how, nearly four years ago when "Tape Talk" was taking its first tottery steps, I used to moan about a certain budgerigar who screeched like the clappers every time I took the lid off the recorder? Even threatened to strangle it with half a yard of best-quality, pre-stressed, polyester-based recording tape? Remember?

No more moaning. No more screeching. Late last night, "Peter" chirruped for the last time. I've just played over one of those tapes he "ruined" only two days ago—reflecting, meantime, that there'll be just that little bit of extra colour and life Somewhere Else this morning.  
Daft, ennit. . . .

**H**AVE you met him yet? The tape-recorder bore? His machine is kept in a scrupulously-clean cupboard on a clinically-hygienic sheet of newspaper (usually, the *Sunday Mirror*); his spare leads are hung with military-like precision behind the cupboard door on hooks (shiny, naturally!), whilst a fully-comprehensive selection of plugs, sockets, adaptors and so forth nestle in neat luxury inside a velvet-lined box marked "Cutlery."

Whenever he takes out *The Machine*, he does so with reverent care and maximum ceremony, impressing upon one how important it is that the polished surface of the dining-room table should not be permitted to scuff the virgin newness of the four pint-sized door-stops upon which *The Machine* deigns to rest. It takes him about 10 minutes to remove the lid (which he promptly places back inside the cupboard lest you should accidentally soil it with your heathen gaze), and a further 15 minutes to plug the thing in—making quite certain, before doing so, that the plug's connections are securely in order by stripping it completely. Hand him one of your own tapes to play at your peril! He'll examine every single ruddy inch of the first 20 yards or so before even allowing it anywhere near *The Machine*—and then spend the rest of the evening sobbing his heart out because your tape had some fluff on it and actually dirtied his heads.

Not that he has more than one head really—just a darn sight bigger one than most people!

**H**EARTIEST congratulations to Embassy Records for the zippiest, swaggiest, brassiest, slap-bang-wallopest "Party" disc ever to hit the market. It features the Riverboat Banjo Band, and you can buy it from Woolworth's.

Well, go on—don't just stand there!

## BRITISH AMATEUR TAPE RECORDING CONTEST 1964

**KEN BLAKE**, one of the regular judges, describes how he short-lists entries for the final judging, and says:

# Too many tapes lack personality

**T**HE British Amateur Tape Recording Contest should once again be occupying our thoughts and time. Now that the prize list is even bigger than before, we should be seeing quite an increase in entrants.

For this reason, and also because quite a few competitors and club members mentioned it to me, I would like to pass on some idea of what the judges look for when considering the entries. This, incidentally is the preliminary judging, carried out independently in the quiet of our own homes.

Most of what I say will concern the Music and Speech section, because it is with this group that I have been closely associated for the past few years.

If you are planning your entry now, and you should be, the following may serve as a guide.

First of all, place yourself in the position of the person doing the preliminary judging. There you are with a carton full of three-inch spools of tape and the relevant entry forms. You realise this is going to take some considerable time; so you choose an occasion when you are relaxed and unhurried. First you devise a system of comparative marking because your one concern is to be as fair as possible.

Each tape is played, and, listening with dedicated attention, you relate it to the entry form. Gradually, after playing some of them several times certain tapes stand out above the rest. There are numerous reasons for this; but most obvious is the elimination test.

I think the most tragic cause of failure is copyright. Some very good recordings have to be put aside because the music is covered by copyright, and the entrant has ignored the rules on this point.

Most of the recordings are technically very good, but when one refers to the entry form and realise they are made on expensive equipment then it is not so surprising. They ought to be good. One therefore doesn't award many marks because about £100 worth of equipment has been used.

However, even among these tapes there are so many that lack personality, completely failing to convey to the listener anything interesting about the person submitting the tape. It would seem the entrant has selected his "piece," switched on the recorder, and when the four-minute time limit is up, switched off.

Why, you wonder, will the entrants not select a piece that will be complete in itself



The Philips Shield, presented as the award for the Composition section of the BATRC.

Entry forms and details are now available from dealers, manufacturers, or the offices of "TAPE Recording Magazine."

within the time limit. To listen to four minutes of a big work is sometimes frustrating to the judge.

Perhaps the most refreshing thing for the judges is to hear something from the entrant himself. Reel after reel is played. The music starts, you listen, the music stops, and that's all. You find yourself thinking "if only the chap would say something, announce it, tell us who wrote it, who played it, anything to bring those four minutes to life; to identify the tape with a human being."

In this section especially it is difficult to say exactly what we look for. Perhaps a better course of action would be for me to describe what the entrant should bear in mind when preparing his tape.

Be sure you have not infringed any copyright by your choice of music.

Choose a suitable piece that fits the time limit.

Say something that makes your tape more interesting than the others. If you do not have a particularly suitable voice for a microphone find a friend who has.

Consider the alternative recordings eligible for this section, and let us hear more poetry and speech. These have been very near the top on the last two occasions.

And good luck to you all in the 1964 Contest.

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## Tape records reviewed

### Negro energy at its most intense

#### CLASSICS



By Edward  
Greenfield

ELGAR. *Pomp and Circumstance Marches* Nos. 1 and 4; *Cockaigne Overture*; *Serenade for Strings*; *Chanson de Matin* and *Chanson de Nuit* Royal Philharmonic Orchestra/Pro Arte Orchestra conducted by George Weldon WRC (TT 296) 3½ ips, mono. 29s.

If Elgar has been out of fashion, there is every sign that in this country at least we are waking up again to his genius—something far more than an expression of jingoistic flag-wagging.

This selection includes his two most famous patriotic marches—*Pomp and Circumstance* Nos. 1 and 4—and I am glad that the late George Weldon performs them without any excess sentiment at all. Taken straight the big melodies—yes, even "Land of Hope and Glory"—have enormous dignity, and with Elgar's carefully marked score played strongly and exactly the result is still exciting and moving.

But the other items are rather more valuable—"Cockaigne" an orchestral portrait of London with a blaring brass band rudely interrupting the bustle of the city and the peace of the parks. It is a brilliant piece of orchestral writing brilliantly played. The *Serenade for Strings* has one of the most beautiful slow movements Elgar ever wrote, and the *Chanson de Matin* (often used as a signature tune) is one of the most immediately attractive pieces he composed.

The *Chanson de Nuit* with its quieter colours is here played with an intensity to make it rival its companion piece. The recording is excellent, and George Weldon in what must have been among his last recording sessions is admirably served by the engineers.

BLACK NATIVITY—GOSPEL ON BROADWAY! Original Broadway cast. E.M.I. Stateside (TA-SL 10026) 3½ ips, mono. 35s.

If you want to sample Negro energy at its most intense then this is an excellent tape to come to. "Black Nativity" was described as a "Gospel Song-Play" and it hit Broadway and its over-sophisticated audiences with a directness that could only come from something still rooted in simple folk-expression.

These gospel-songs have themselves been made more sophisticated in deference to Broadway, and when as in the setting of *Oh Come All Ye Faithful* the singer is required to break up the line of the hymn, the result sounds not the result of intensity of emotion (as was obviously intended) but contrived. There the arrangers (or performers) have played a false note, but

generally the dynamism of gospel-singing translates itself with complete conviction into the terms of the American musical. Perhaps in the last resort it is all rather wearing, particularly in a compressed collection like this, but the affectingly sentimental treatment of *Sweet Little Jesus Boy* provides a moment of contrast and repose.

The original Broadway cast was obviously in tremendous form when the record was made, and though the voices sound too close to the microphone, the recording is tolerable.

MOZART. *Horn Quintet in E flat, K.407*; *Flute Quartet in D, K.285*. HAYDN. *Flute Quartet in D, Opus 5 No. 1*. Virtuoso Ensemble WRC (TCM 5), 3½ ips, mono. 29s.

Mozart wrote all his solo horn music, including this charming quintet, for a friend in Salzburg, the keeper of a local cheese-shop as well as a horn-player. His name was Ignaz Leittege, and judging by the jokes that Mozart included in the scores (musical and otherwise) he must have been quite a buffoon.

The concertos for horn and orchestra are the best-known works inspired by Leittege, but this piece of chamber music manages to combine something of their ebullience with the poise and polish of Mozart's more intimate works. I suspect that it is only the difficulty of the solo horn part that prevents it from being played a great deal more. John Burden is the horn-player here, and though he does not quite reach the ease and natural artistry of Dennis Brain, it is an assured performance.

The Mozart Flute Quartet which takes up the first part of the other track is an earlier work, and like the horn quintet is something of a concerto in miniature with the stringed instruments providing a background for the wind instrument. The slow movement could hardly be simpler—pizzicato string accompaniment to a simple flute melody—but it is still one of the high watermarks of flute-writing.

The Haydn work is less ambitious still, but like so many of the works that in work-a-day fashion he wrote for his colleagues and patrons, it is full of his natural sense of fun and enjoyment. If anyone needs to be convinced that chamber music need not be heavy and can be enormous fun, this is an excellent tape to try. The recording (a few years old) is still clear and well-balanced.

#### POPULAR



By Fred  
Chandler

### Fifty gay tunes on one tape

TOP 50 BANJOS. Big Ben Banjo Band. Columbia (TA-335X 1549), 3½ ips, mono. 35s.

Fifty tunes in a gay minstrel mood, each tune almost falling over the previous one to get a hearing.

Ideal for the party mood, it is the type of music heard any night in a pub; shifting as it does from sentimental mood to a tinkling piano arrangement of *Lulu's back in town*, and back again to *My Hero* from the *Chocolate Soldier*.



# An album with a lot of delight

JAZZ



By Mike  
J. Gale

**JOSH WHITE — SINGER SUPREME.**  
WRC (TT 298), 3½ ips, mono. 29s.

Josh White made his first recording, a spiritual, at the age of 11 under the name "The Singing Christian." By this tender age he had already learnt many songs by acting as guide to some of the legendary blind street singers of America's south.

Before he was twenty he was in New York recording under a new name, "Pine-wood Tom," and supplementing his income and gaining valuable experience by playing as an accompanist on many blues records. By 1939, after a lengthy lay-off because of a cut hand, he appeared on stage in "John Henry" creating a colourful character called "Blind Lemon" assembled from the numerous musicians he knew. "John Henry" which, incidentally, had Paul Robeson in the lead, was followed with a U.S. Government sponsored goodwill tour of Mexico in 1941.

Since then he has established himself as a performer with a world-wide following and many fans in this country who occasionally see him on television.

The alliance between his singing and guitar playing is shown with great polish and artistry on this aptly titled album. Everything seems just right, not too brash, not too pedantic, and his interpretation of the classic *Boll Weevil* is particularly brilliant.

Other selections are *Water Cress*, my personal favourite *What you gonna do when your meat gives out*, *Mean Mistreater*, *Frankie and Johnny*, *The House of the Risin' Sun*, *Dupree*, *Cotton Eyed Joe*, *Die to Die*, *Hard time blues*, *Mumbling Word* and *Nobody knows you when you're down and out*.

All in all, an album with a lot of delight.

**MEET ME IN CHICAGO.** Jimmy McPartland—Art Hodes. WRC (TT 297), 3½ ips, mono. 29s.

With Jimmy McPartland on trumpet are Bud Freeman, tenor; Vic Dickinson, trombone; Robert Maheu, clarinet; Floyd Bean, piano; John Frigo, bass and George Wettling, drums. The other group, led by Art Hodes, piano, consists of George Brunies, trombone; Nap Trotter, trumpet; Pee Wee Russell, clarinet; Earl Murphy, bass and Buddy Smith, drums.

In its way this album is a classic, with the two bands swinging through some of the good old 'uns. Solos are frequent and not too dominating, and there are some very fine drum breaks by Wettling and Smith although I felt the latter was more disciplined than he need be. A lot of colour

comes from Brunies who contributes to *I Wish I Could Shimmy Like My Sister Kate*, first with his normal voice, and then with a bass bullfrog grunt.

McPartland gets in nearly everywhere with some attractive touches and solos that really build.

One of the highlights is *Chicago* where Trotter and McPartland, with the intro and lead respectively, hand over to solos from Dickinson, Maheu, the ubiquitous McPartland and Freeman. The other band takes over with further solos from Russell, Trotter, Hodes and Brunies with a dynamic drum break from Wettling.

The other seven items are: *I Never Knew*, *You Gotta See Mama Ev'ry Night*, *Somebody Stole My Gal*, *Bill Bailey Won't You Please Come Home*, *Logan Square*, *Deed I Do*, and *Meet Me In Chicago*.

**ELLA AND BASIE!** Ella Fitzgerald/Count Basie. Arranged by Quincy Jones. Verve (TA-VLP 9050), 3½ ips, mono. 35s.

This probably comes as close to perfection as possible with the, oh, so great Ella and the equally great Count. What can one say about these two that has not already been said?

I remember going to a Basie concert at the Albert Hall in the late fifties. The performance started early, at 6.15, and the mid-week rush hour seemed worse because of the pouring rain. Despite all the disadvantages most of the laid out seats were full, and I have very rarely seen such an enthusiastic audience.

As for Ella, she is, of course, one of the most sought-after performers in the business with a fantastically successful career.

The chance to team these great names must have posed a difficult problem when the programme came to be selected, and on the whole, I think the choice is excellent. The trouble is I can think of many other songs I would have also liked to hear.

Ella ranges through *On The Sunny Side Of The Street* generating tremendous impetus and making it, for me, the outstanding item of an outstanding performance. Basie rarely cuts loose and yet one is always aware of the powerful sound holding back without obvious restraint.

The set covers *Honeysuckle Rose*, *Deed I Do*, *Into Each Life Some Rain Must Fall*, *Them There Eyes*, *Dream A Little Dream Of Me*, *Tea For Two*, *Satin Doll*, *I'm Beginning To See The Light*, *Shiny Stockings*, *My Last Affair* and *Ain't Misbehavin'*.

I have no reservations about giving this tape a rave review.

## STOLEN

NINE tape recorders were among equipment stolen from a van belonging to Howards Tape Recorders, at Kings Cross station, London, on March 5. The London dealers are offering a reward of 25 per cent of the market value for information leading to the recovery of the property.

Three of the recorders were brand new. These are the Telefunken KL85 (serial number 865259) in a grey cabinet; Truvox R92 (62688); and Elizabethan LZ29 (2931651). Other new items were a Leak stereo amplifier (2283-42-64); Connoisseur Craftsman III turntable (3-2284); and a Decca Deram A.R.I. Arm (no serial number).

The second-hand models include Butoba MT5 (serial number 511726) and mains unit (97246); Butoba MT5 (513693); Butoba MT5 (514912) and mains unit (94986); Wyndosor Trident, two-track (29164); Spectone 161 (1349); and Telefunken KL85, green cabinet (818853).

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1 Sidwell Street, EXETER Tel. 75779

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

"Columbia," "Stateside," and "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**

**PLANET ANNOUNCE  
THEIR  
TAPE UNIT**

**P**LANET PROJECTS recently announced their first fully transistorised tape recorder, the PTR 1. Preliminary specifications state that this will be a three-speed, four-track recorder incorporating the established Planet deck.

The quoted frequency response is 30-17,500 cps  $\pm$  2 dB at 7½ ips; 40-12,000 cps  $\pm$  2 dB at 3½ ips; and 60-8,000 cps  $\pm$  2 dB at 1½ ips. Signal to noise ratio is given as 56 dB, and wow and flutter as better than 0.8, 0.12, and 0.18 per cent respectively.

The PTR 1 will accommodate seven-inch spools, providing a playing time of 64 minutes per track using standard play tape at 3½ ips.

Among the features are three heads, manufactured by Bruno Woelke of Munich, for erase, record and playback. It also incorporates stereo recording amplifiers and stereo replay pre-amplifiers. One of the main features is the inter-track recording function allowing cross-recording from one track to another. Before and after recording comparison is another feature.

Other facilities include inputs suitable for direct connection of a low impedance microphone; plus inputs for 50 mV at 2 K ohms, and 100 mV at 5 M ohms; output socket for up to one volt at 50 ohms; PPM recording level indicator; mixing and headphone monitoring.

The PTR 1, which measures 16 x 16 inches overall, uses 39 Mullard transistors, and is suitable for mains supply 110, 220 and 240 volts, 50 or 60 cycles.

The price is not yet available.  
Planet Projects Limited, Goodman Works,  
Belvue Road, Northolt, Middlesex.

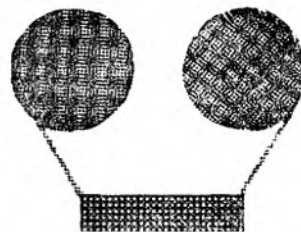
**B.R.C. ANNOUNCE  
NEW  
FOUR-TRACK MODEL**

**A** NEW four-track two speed tape recorder is announced by the British Radio Corporation. The model, designated 2204B, incorporates the new Thorn deck.

The quoted frequency response is 60-12,000 cps at 3½ ips, and 60-6,000 cps at 1½ ips, both  $\pm$  5 dB. Accommodation for up to 5¼-inch spools provides a playing time of 45 minutes per track using standard-play tape at the top speed. Rewind time for such a reel would be 2½ minutes.

Other features include automatic tape end stop, pause control switch on microphone, digital rev. counter with push-button reset, neon recording level indicator, facilities for superimposition, and a safety erase lock.

Inputs are provided for microphone (1.5 mV into 10 M ohms), radio (1.5 mV into 22 M ohms) and pick-up (75 mV into 1 M ohm). Output sockets are available for external amplifier (500 mV into 22 M ohms); external speaker (3 watts at 3 ohms) with internal speaker muting; and an accessories



socket is available for a variety of functions. These include playback of pre-recorded stereo tapes, simultaneous playback of two synchronised tracks, automatic recording control, telephone pick-up and automatically synchronised commentary for film slide projection.

The power supply is 200-250 volts, 50 cycles, AC only, consumption rated at 60 watts. The built-in loudspeaker is an 8 x 5 inch elliptical.

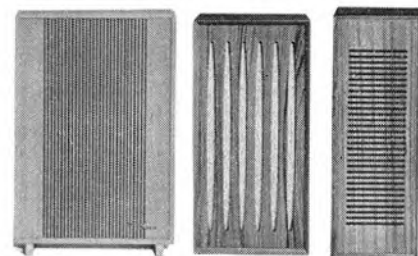
The 2204B (above) measures 15½ x 14 x 7½ inches, and weighs 20 lb. The price is 36 guineas.

British Radio Corporation Ltd., H.M.V. Radio & Television Sales, 21, Cavendish Place, London, W.1.

**THREE LOUDSPEAKER  
ENCLOSURES  
BY SWEDISH FIRM**

**A**MONG the equipment exhibited by Britimpex at the April Audio Fair were three loudspeaker enclosures (illustrated below) manufactured by the Swedish firm, Luxor. They were demonstrated with the Luxor stereo recorders.

The largest of the three speakers is the SH 105 (extreme left), price 16 guineas, including P.T. £2 5s. 6d. This contains four speakers: ten-inch, five-inch, and two



1½-inch tweeters. The size of the enclosure is 16½ x 25 x 4½ inches.

Next is the SH 107 (centre), which contains a 10 x 7 inch speaker. The enclosure measures 16 x 8 x 6 inches, and the price is 7½ guineas, including P.T. £1 1s. 9d.

The SH 314 (right) costs five guineas, and contains a 14 x 3½ inch speaker. It measures 15 x 5½ x 4½ inches.

Further specifications are available from the manufacturers.

*Britimpex Limited, 16-22, Great Russell Street, London, W.C.1.*

## TRUVOX INTRODUCE THEIR FIRST STEREO AMPLIFIER

**A**NOTHER item seen for the first time at the Audio Fair is the TSA100, a transistorised stereo amplifier introduced by Truvox Ltd.

This is a completely integrated unit designed for the tape or disc enthusiast with a custom-built installation. Among the features are three inputs for tape, radio, or auxiliary, and two inputs for all known pick-ups, output for recording, with controls for selector, bass treble, balance, and volume/on-off. Low and high pass filters and a stereo/mono switch are also included.

Ten watts transformerless output is available per channel, fed into 15 ohm loads. The quoted frequency response is



15-30,000 cps ± 1 dB at one watt; and 20-20,000 cps ± 1 dB at ten watts. The tone controls provide ± 14 dB at 50 cps and ± 14 dB at 14,000 cps. Power outputs are 15 ohms (ten watts), 8 ohms (12 watts); and 4 ohms (15 watts).

It measures 16 x 6½ x 5 3/16 inches, and the price is 49 guineas.

To complete their tape system, Truvox also introduced twin loudspeaker enclosures.

*Truvox Limited, Neasden Lane, London, N.W.10.*

## ROBUK RK4 NOW HAS FOUR-TRACK VERSION

**A** FOUR-TRACK version of their RK4 tape re-order is announced by Robuk. The new model, the RK44, has the same specification as the RK4 two-track model but it incorporates a modified amplifier to take advantage of the four-track head.

The outward appearance differs only in respect of the new track switch incorporated in the head cover. The price is 39 guineas.

Brief specifications include three playing speeds, 7½, 3½ and 1½ ips; accommodation for a seven-inch spool; frequency response from 60-14,000 cps at the top speed; 2½ watts power output; and a range of other features which includes superimposition, mixing, loudspeaker monitoring, pause control, magic eye recording level indicator, tone control, digital rev. counter, and extension speaker sockets. The RK3, earlier version of the RK4, was favourably reviewed in our issue dated June 28, 1961.

*Robuk Electrical Industries Ltd., 559-561, Holloway Road, London, N.19.*

## BATTERY/MAINS MODEL BY NEWCOMER

**A** low-priced transistorised tape recorder with a stop-start microphone switch among its features is announced by K and K Electronics Ltd. The new model, the Ehrrecorder TPR-500 retails at twelve guineas. It is a mains/battery operated reel driven half-track machine described as being ideal for office use.

A remote control microphone and ear-phone are included in the price, and a foot



switch is available at £2 5s. so that it can be used as a dictation machine. A tape and set of U11 leakproof batteries are also supplied.

A variable speed control is provided to compensate for declining battery strength, maximum speed being around 3½ ips. It incorporates a three-inch speaker, and an output socket is provided for an external speaker.

Measuring 9½ x 2¼ x 7½ inches the case is in two-tone plastic with a carrying handle. Maximum reel size is 3¼ inches, and the weight is 3½ lb.

*K and K Electronics Ltd., 25, Roman Road, London, E.2.*

## NEWS FROM THE TRADE

**P**ULLIN OPTICAL CO., importers and distributors of Akai tape recorders, announce that all servicing of Akai products is being carried out for them by Sound Equipment Servicing Ltd. of Putney.

Full servicing facilities are available and a complete range of spare parts has been imported by Pullin. Machines requiring service, under guarantee or otherwise, and all inquiries relating to service, should be sent to Sound Equipment Servicing Co. Ltd., 163, Lower Richmond Road, London, S.W.15.

\* \* \*

**N**EW agents are announced for the Bang and Olufsen audio equipment, which includes the Stereomaster tape recorder and accessories reviewed in our last two issues.

St. Aldate Warehouse Ltd. took over the agency from Aveley Electric Ltd. as from April. All correspondence should now be addressed to the Electrical & Radio Division, St. Aldate Warehouse Ltd., Innsworth Lane, Gloucester.

\* \* \*

**T**HE Ilford group of companies has acquired Zonal Film (Magnetic Coatings) Ltd., one of the leading British manufacturers of magnetic recording materials. Zonal will be operated as a separate manufacturing company within the Ilford group.

## THE NORTH

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... also consult Audio Supply Association for unbiased information on reliable recording and reproduction equipment to suit your specific requirements. Members receive information on latest products and also benefit from special bulk purchases of tapes, equipment, accessories. (Membership 7s. 6d. p.a.). Please specify requirements. Sixty-page HI-FI catalogue 4s. 6d.

#### SOUND NEWS PRODUCTIONS

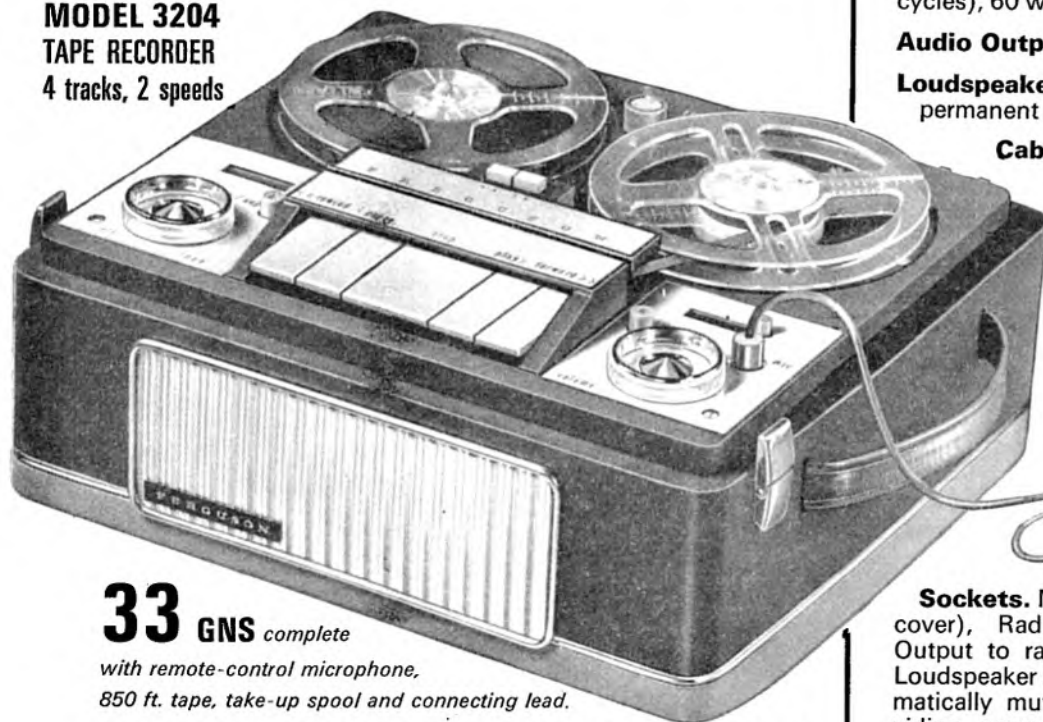
10, Clifford Street, New Bond Street, London, W.1. REG 2745.

*A TAPE RECORDER IS ONLY AS GOOD AS ITS DECK*

# This one is very good indeed

To judge the technical perfection of the new Ferguson model 3204, you have only to study the tape deck. Designed and precision-built by Ferguson's own engineers, it is the foundation on which is built a superb piece of equipment with meticulously balanced sound amplification and finest quality reproduction. Clarity and purity are combined with a multiplicity of features for infinite variety in your sound recording, compactly contained in a cabinet with a style to match the performance.

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**Speeds.** 3 $\frac{3}{8}$  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 $\frac{3}{8}$  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.



# News from the Clubs

## ERITH

Terence Brett and Mr. T. C. Butler, respective secretary and Warden of the South Reach County Youth Centre tape recording section, attended a Junior Leader's Course for Boys at a Holiday Camp in Kent.

There they entertained and instructed twenty youths on the uses of a tape recorder. Sound effects, perfecting speech for the dramsa group, recording commentaries for slides and film strips were among the subjects discussed. They also illustrated with recordings how a recorder can be of service to the local community, and pointed out that tape recording could be pursued as a hobby in the Duke of Edinburgh Award Scheme.

Terence Brett described the technical side of recording, advising how to choose a recorder, detailing the main differences, various microphones, splicing tape, etc., using the four tape recorders present.

Secretary: Terence Brett, South Reach County Youth Centre, Manor Road, Erith, Kent.

## GLASGOW

A demonstration of their activities to a local camera club, followed by assistance given to the Boy's Brigade annual show in the way of sound effects were among the activities pursued by the Glasgow club before the end of the year.

Other items, reviewed in their roundup of activities, included several competitions allowing members to show their prowess. Several members also made recordings in Glasgow Cathedral and in and about White-inch Tunnel, and one of their latest ventures was the editing of tramway recordings for general publication on their "Tramway Tape." About forty orders were received for this tape, which helped fill the club's library.

Secretary: George Dryden, 43, Daisy Street, Glasgow, S.2, Scotland.

## INTERNATIONAL POLICE TAPE CLUB

Hard on the heels of the announcement regarding the International Police Association's Tape Section came further news of a similar organisation which

has been in existence for some years now. We first mentioned the International Police Tape Recording Club in November 1960, and it appears that they are still going strong under the guidance of secretary George Brooks.

Mr. Brooks has recently moved; his new address is given below, but he welcomes any interested police officers for membership. Only serving members are eligible, and membership is free.

The society is run on a tape exchange basis, the tapes taking about a year or more "to return to roost." On this point, Mr. Brooks would welcome comment from other clubs.

Secretary: George F. O. Brooks, 6, Stockham Way, Wantage, Berkshire.

## LINCOLN

Michael Calvey is trying to form a club in the Lincoln area. Readers interested in this project are invited to write to him at 2, Broomhill Cottages, Whisby Road, Lincoln.

## OVERSEAS STUDENTS

We have recently heard of the Overseas Student Tape club, one of the "specialist activities" of the British Council Overseas Student Centre. With membership open to all registered students, weekly meetings are held on Saturdays at the Council's London headquarters.

Talks and demonstrations, visits to and by manufacturers; practical sessions on editing, sound effects, film strips and cine shows have been among their most recent activities.

Because students are not permanently in this country, the programme varies somewhat to the normal tape club, and are planned on a "term" basis.

Secretary: Derek J. Chatterton, London Overseas Student Department, The British Council, 11, Portland Place, London, W.1.

## READING

The latest reported meeting of the Reading Cine and Tape society saw members reminiscing about their activities during the previous year. All their efforts had been distilled into a programme of film, slides, and tapes, for an appreciative audience.

Accounts on the screen and in sound of members' holidays were given, and the results of the "Holiday Task," an annual exercise on a set subject, were also given. The holiday films took members to France, Spain, and along the English coasts and rivers. There was also a surrealistic account, on film, of a holiday on, and partly in, the Norfolk Broads.

The summer exercise was entitled

"The Box" and the interpretation of the subject was up to each individual. "The Box" had foxed most members, but Mr. H. L. Chaney had some interesting surprises in his. He later won the Abbey Cup for the best tape/slide show of the year.

On the practical side, President T. H. Pettit gave a useful talk on editing and titling for the beginners. Mr. Conway, of Luminos Ltd., also visited the club to give a demonstration of equipment, including the Norris Synchroner T.S. projector.

Tape and film was almost forgotten at the annual party, but amidst all the dancing and eating some stalwarts were also making it a night out for their equipment.

Behind the scenes, and occasionally bursting unexpectedly into the proceedings at what were otherwise reasonably sane club occasions, the production of the epic film "The Great Escape" rolls on. The rushes for part of this film were screened at what amounted to a midnight matinee. Mystery surrounds the enterprise, and the plot is still a secret, except to the directors.

Secretary: T. Fisher, 5, Mapledurham Drive, Purley, Reдинг, Surrey.

## SOUTH DEVON

Two battery-operated recorders talking to each other was one of the items arranged by the members of the South Devon club who organised an entertainment evening for the local blind on January 3. Other items included Laurie Seaney's impression of what future generations might think of today's pop songs; and a stereo recording of a haggis hunt. Old favourites—the club's versions of "Juke Box Jury" and "This is your Life"—again went down well.

A fortnight later fifty-three members and friends enjoyed a Dinner and Dance held at the Grange Restaurant in Babbacombe.

## NO CLUB NOW

The Cotswold secretary informs us that there is no club in formation in Gloucester now. Ken Tomes, first secretary of the Cotswold club, is no longer a member, and his name should be withdrawn from the list published in the 1964 edition of the "Tape Recording Year Book."

Club members are invited to inform us of similar instances, or provide any information regarding the secretaries of clubs in this country. We are unable to make contact with any club if the address we hold is OUT OF DATE, and, of course, prospective members are disillusioned if his request for membership details is undelivered.

## TAPE EXCHANGES

**T**APE 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 254, 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.

Albert, H. (56). 7, Weldon Crescent, Adwood, Stockport. Old Time dancing. 3½ ips. 5½-inch spool. Grundig TK14. UK.

Birch, Alfred (37). 46, Friary Crescent, Rushall, Near Walsall, Staffordshire. Angling, travel. 3½, 1½ ips. 5½-inch spool. Grundig TK25. Germany, Austria.

Birk, Maurice (35). 29, Museum Road, London, W.C.1. Cinema, music. 3½ ips. 4-inch spool. Spectone recorder. UK.

Blackburn, Stanley (26). 23, Trent Street, Longridge, Preston, Lancashire. Music. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan. Female contacts.

Blake, Ramon (29). 81, Western Avenue, Acton, London, W.3. Photography, theatre, music. 7½, 3½ ips. 8-inch spool. Brenell and Fidelity recorders. UK, USA.

Daniel, M. (37). 205 F, Eagle Heights, Madison, Wisconsin 53705, USA. Philosophy, reading, music. 3½, 1½ ips. 7-inch spool. Philips recorder.

Dibble, David (29). 2, Skeynes Cottage, Edenbridge, Kent. Religion and history. 7½, 3½, 1½ ips. 7-inch spool. Civic T62.

Donald, Stuart (21). 68, Curie Avenue, Hospital Park, Blomfontein, South Africa. Pop music. 7½, 3½ ips. 7-inch spool. Akai M7, four-track stereo. England and USA.

Edwards, Peter (36). 15, St. Andrews Square, Surbiton, Surrey. Reading, music. 3½, 1½ ips. 5-inch spool. Grundig TK5 and Stellaphone recorder. Male contacts in UK only.

Fowler, G. (35). 148, Heywood Road, Rochdale, Castleton, Lancashire. Football, travel, jazz music. 7½, 3½ ips. 7-inch spool. Truvox 60, Grundig TK24. USA, Canada, New Zealand.

Green, Mark (22). 78, Reading Road, Ipswich, Suffolk. Psychology, chess, jazz music. 3½ ips. 5½-inch spool. Grundig TK14.

Griffiths, Denis J. (41). 10, Woodland Crescent, Merry Hill, Wolverhampton. Photography, theatre, writing. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan FT3, Robuk RK3. Overseas only.

Grohmann, John (35). 4, Crossways, Sutton, Surrey. Literature, German language, music. 3½, 1½ ips. 7-inch spool. Cossor CR1604, four-track. Western Germany only.

Harger, James (51). R.D. Annadale, New Jersey, USA. Economics, politics, literature, baroque music, cars. 7½, 3½, 1½ ips. 7-inch spool. Tandberg 64, four-track stereo. Europe, esp. Denmark, Germany, France.

Hinton, Neil Thomas (20). 24, Worle Avenue, Llanrumney, Cardiff. Stereo recording, travel. 7½, 3½, 1½ ips. 7-inch spool. Robuk RK3, Grundig TK20.

Kirby, Steve (21). Culham College, Abingdon, Buckinghamshire. Hi-fi, camping, religion, classical music. 7½, 3½, 1½ ips. 7-inch spool. Truvox R94.

Lockie, Fiona (31). 4, Maryfield Place, Bonnyrigg, Midlothian, Scotland. 35mm photography, travel, hiking, music. 3½ ips. 7-inch spool. Philips Star-maker. Far East, Israel, Madeira.

Lynn, H. (38). 149, Garrioch Road, Glasgow, N.W., Scotland. Humour, literature, films. 7½, 3½ ips. 7-inch spool. Fidelity Playmaster, four-track.

McCullough, Ron (35). Flynn Street, Rockhampton, Queensland, Australia. Hawaiian guitar and C&W music. 7½, 3½, 1½ ips. 7-inch spool. Philips EL3542, four-track and Pyc recorder. UK, USA, Japan.

(Continued on page 254)

## Copyright cover for Federation members

**A** NEW scheme to cover the recording of copyright material by tape recording club members is announced by the Federation of British Tape Recording Clubs.

The announcement, which followed the recent Federation AGM held in Birmingham, involves the co-operation of the Mechanical Copyright Protection Society Limited who have licensed the Federation for an annual fee of 30s. (clubs) or 5s. (associate members). This fee permits members of the Federation to record copyright musical works for use in member's homes, club premises, old people's clubs and homes, hospitals, national and local charities, and local, national, and international competitions.

Full details of the scheme, which is of particular value to those undertaking charitable work, are available from the secretary.

In his AGM report to "TAPE Recording Magazine," secretary Roger Aslin urges clubs to seriously consider whether their activities infringe the provisions of the Copyright Act of 1956, and to take the appropriate steps to protect themselves.

The AGM, attended by representatives from twelve clubs was held in Birmingham on April 25. A great deal of valuable discussion took place on the Federation's new Constitution which lays great emphasis on the formation of regional groups.

One of these groups already established—the Association of Midland Tape Recording Clubs—has offered to cooperate fully in this scheme.

The new Constitution calls for the setting up of a Council with representatives from each regional group. As there are at present only two in existence, a holding committee was appointed for twelve months while the new regional groups were brought into being.

The Committee for 1964/65 is as follows:

Chairman: J. Trevor Gilbert  
(Association of Midland Tape Recording Clubs and Birmingham Tape Recording Club)

Secretary: E. Roger Aslin  
(London Tape Recording Club)

Treasurer: Douglas J. Morris  
(London Tape Recording Club)

F.I.C.S. (International Soundhunters) Representative:  
Alan Stableford (London Tape Recording Club, and former Federation Chairman)

Other members: S. G. Byfield (Woolwich TRC) E. Tallis (Kidderminster TRC); C. W. Horrell (Kidderminster TRC); and John Bradley (Thornton Heath TRC).

Clubs interested in the regional group scheme are invited to write to the chairman at "Woodcote," Box Trees Road, Dorridge, Solihull, Warwickshire.

Among other points raised at the AGM was the scheme regarding Associate Membership of the Federation, available to individuals unable to join a tape recording club.

Associate Members will receive a membership card printed in English, French, and German, which provides a useful form of introduction when travelling abroad; the quarterly Bulletin; and free access to the Federation's library of prize-winning tapes from the British and International Amateur Tape Recording Contests. The annual fee will be 10s. 6d. For a further five shillings, Associates may obtain copyright clearance for their live recording in accordance with the new scheme outlined above. Full details are available from the secretary.

Secretary: E. Roger Aslin, 1007a Finchley Road, Golders Green, London, N.W.11.

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## TAPE EXCHANGES

(Continued from page 253)

Taylor, Denis (34). Flat 1, 97, Green-croft Gardens, London, N.W.6. Photography, music, theatre, art. 7½, 3½ ips. 7-inch spool. HMV recorder. Male contacts only in UK and France. Uden, Ian (23). 7, Ash Road, Stroud, Kent. Photography, C&W music. 3½ ips. 5½-inch spool. Rodentia, Fidelity Argyl recorders.

Walch, Alan (35). 210, Bloomfield Road, Bristol 4, Gloucestershire. Trad. jazz, blues and pop music. 7½, 3½, 1½ ips. 7-inch spool. Truvox R92.

Warner, Michael (24). 105, E. 192 Street, Bronx, General. 7½, 3½, 7½ ips. 7-inch spool. Philips, Roberts and Pentron recorders.

Watson, Stanley (30). 7, Northumberland Road, Linton, Near Grays, Essex. Photography, films, music and motor cycles. 7½, 3½, 1½ ips. 7-inch spool. Repts 10, Fidelity Playmaster, Grundig Cub. Males only.

Wilson, George (39). 23, Highfield Street, Cemetery Road, Pudsey, Yorkshire. Photography. All speeds. 7-inch spool. Philips EL3549, four-track. Zammit, William (25). 37a, Ennismore Gardens Mews, London, S.W.9. Radio, astronomy, reptiles, photography. 7½, 3½, 1½ ips. 7-inch spool. Akai M7. UK, Europe.

## TEENAGE EXCHANGES

Garner, Roy (16). 9, Sefton Street, Whitefield, Near Manchester, Lancashire. Reading, walking, science, pop music. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan LZ29.

Jones, Keith (16). 149, St. John's Close, Knowle, Warwickshire, Hostel-

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ling, swimming. 3½, 1½ ips. 7-inch spool. Stella ST458.

Kerr, David (19). 33, Dunwan Avenue, Glasgow, W.3, Scotland. Cinematograph music. 3½ ips. 5-inch spool. Philips AG8109. Great Britain.

Lang, J. D. (15). 24, Upper Cimla Road, Neath, Glamorgan. Photography, sailing, chemistry, pop music. 7½, 3½ ips. 7-inch spool. Truvox R84, four-track. England only. Letters, first please.

Nightingale, Carol (13). 46, Portal Avenue, Rudloe, Corsham, Wiltshire. Pop music, travel and cooking. Elizabethan LZ29, four-track. Australia, USA and Switzerland.

Page, John (19). 45, Elgin Avenue, Belmont, Harrow, Middx. Cycling, photography and Buddy Holly. 7½, 3½, 1½ ips. 7-inch spool. Regentone RT50, Philips EL3541.

Pitcher, Catherine (19). Sweetwood Farm, Holtye, Edenbridge, Kent. All music riding and reading. 3½ ips. 5½-inch spool. Westminster recorder. Scandinavia, USA.

Salter, Robin (19). 96, Pulteney Road, South Woodford, London, E.18. Beat music, all kinds of jazz. 7½, 3½, 1½ ips. 7-inch spool. Elizabethan LZ29, Females in UK.

Watt, Malcolm (18). 31, Ridgewood Gardens, South Gosforth, Newcastle-on-Tyne, Northumberland, Photography. 3½, 1½ ips. 5½-inch spool. Ferguson 3202. Argyl Minor. Some French spoken.

## FAMILY EXCHANGES

Smith, Bernard & Mary (20, 19). 159, Firs Lane, Leigh, Lancashire. Classical music, tropical fish, cats. 3½ ips. 5½-inch spool. Fidelity Argyl Minor. UK only.

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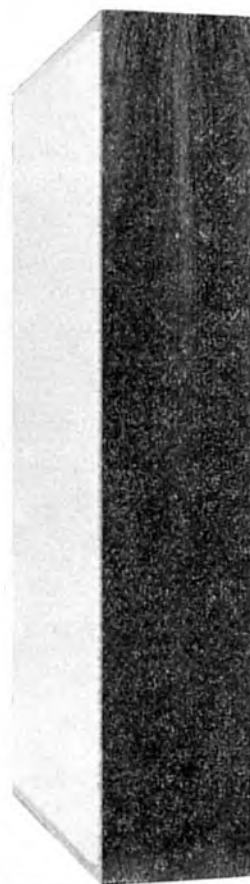
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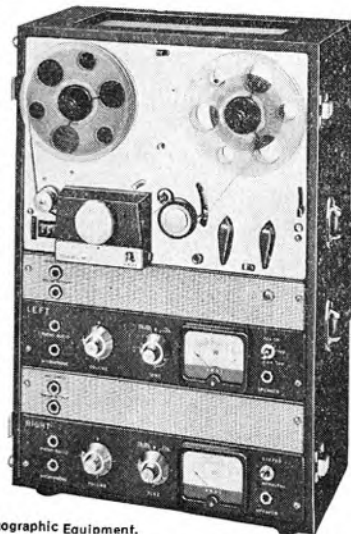
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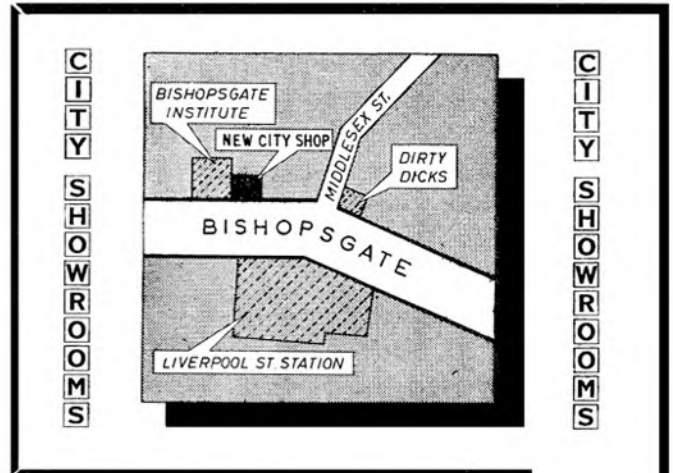
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