

# TAPE

RECORDING MAGAZINE

JANUARY 1963

1/6



**FIRST AND FOREMOST IN THIS FIELD**

**RECORDING  
FROM RADIO**

*plus*

**A catalogue of  
available tuners**

# GET THE MOST OUT OF YOUR REVOX

TAPE RECORDER BY USING

# GEVASONOR

LONG PLAY MAGNETIC TAPE



At  $7\frac{1}{2}$  i.p.s. this makes possible uninterrupted recordings of up to 96 minutes per track.

PLEASE SEND ME **FREE**

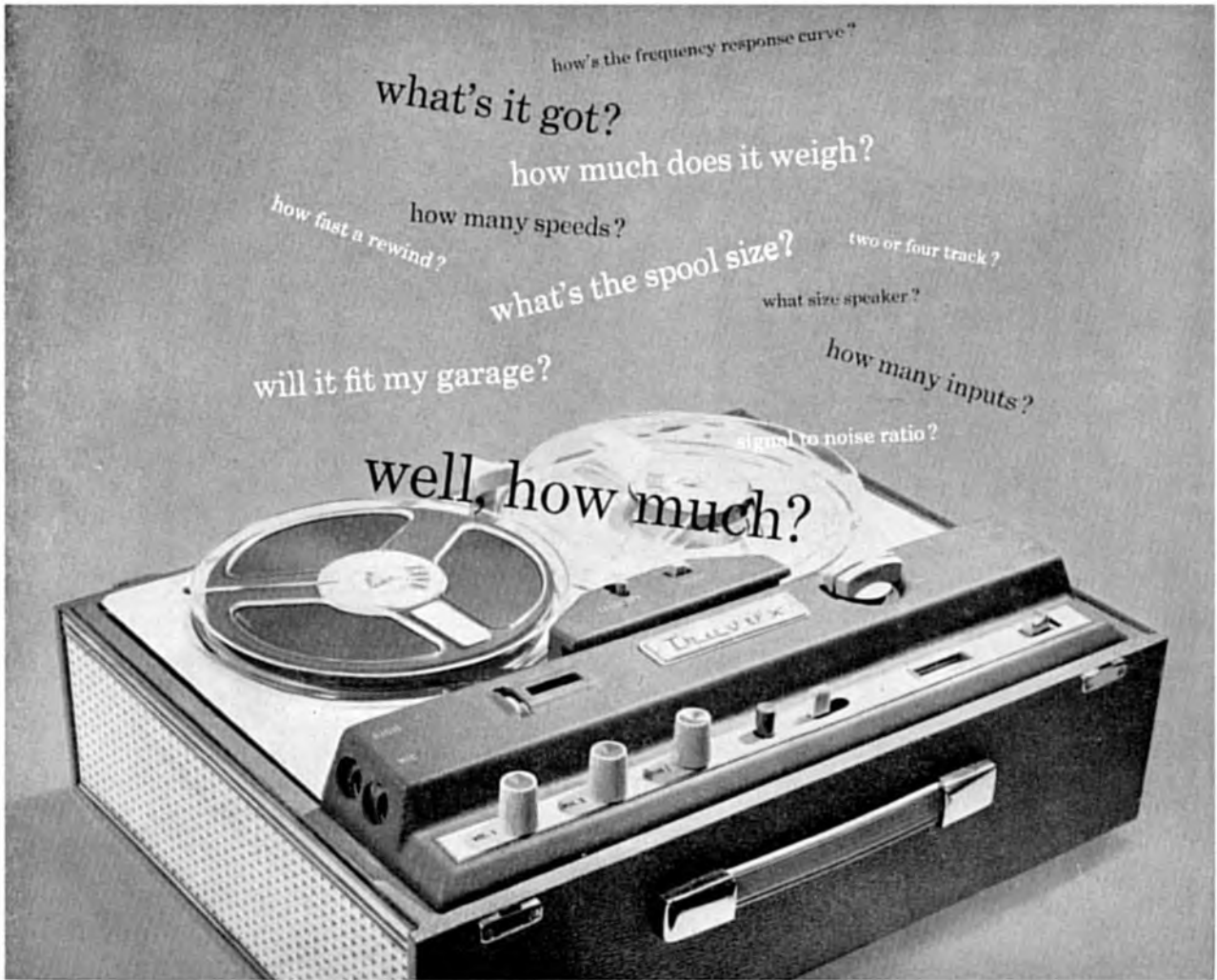
DESCRIPTIVE LEAFLET

NAME .....

ADDRESS .....

.....  
GEVAERT LIMITED,  
Gevasonor Magnetic Tape Division,  
Great West Road, Brentford, Middlesex.

TRM



how's the frequency response curve?  
 what's it got?  
 how much does it weigh?  
 how many speeds?  
 how fast a rewind?  
 what's the spool size?  
 two or four track?  
 what size speaker?  
 will it fit my garage?  
 how many inputs?  
 signal to noise ratio?  
 well, how much?

## look! a NEWuox!

Meet the Truvox 60—an excitingly styled new portable, replete with the features and performance of the best top-price recorders . . . yet this custom-built Truvox sells for only 39 guineas! ■ There are two versions of the new Truvox: the R62 (twin-track) with speeds of  $3\frac{3}{4}$  and  $1\frac{1}{2}$  ips. and the R64 (four-track) with speeds of  $7\frac{1}{2}$  and  $3\frac{3}{4}$  ips. The frequency response at  $7\frac{1}{2}$  ips. is 40-14,000, signal to noise—40dB and wow and flutter better than .25% ■ The Truvox 60 offers full Mixing, Monitoring and Superimposing facilities, 4-digit footage Indicator, Auto-stop (no foil required!), Pause Control—and operates with 7" reels. There is a roomy storage compartment in the lid, too, for two extra reels. ■ But no description can convey to you the fine *sound* of the 60. No photograph can properly demonstrate the clean, well-proportioned lines of its styling. These subjective factors, beyond the specification, we call *The Truvox Touch*. It's the extra quality engineered into every Truvox tape recorder. It's something you must see, hear and feel for yourself.



# THE TRUVOX TOUCH

R62 twin-track ( $3\frac{3}{4}$  and  $1\frac{1}{2}$  ips)  
 R64 four-track ( $7\frac{1}{2}$  and  $3\frac{3}{4}$  ips)

**39**  
**gns**

complete with microphone, 7" reel of tape and recording lead.

Send now for leaflets showing *all* the tape recording equipment with The Truvox Touch:—

TRUVOX LTD., Neasden Lane, London, N.W.10

— starts where the specification leaves off



## Alive to every sound

Like the ears of a wary fox, the Grampian DP4 microphone is sensitive to an extremely wide range of sounds. With its uniform frequency response from 50 to 15,000 c/s, the reliable, medium-priced DP4 will greatly improve the standard of your recordings.



### **Grampian** DP4

—also for broadcasting, public address and call systems

Low Impedance microphone complete with connector and 18 ft. screened lead **£8.0.0**

Medium and high impedance models **£9.0.0**

A complete range of stands, swivel holders and other accessories is available.

**GRAMPIAN—sounds like the real thing!**

Write or phone for illustrated leaflets:

**GRAMPIAN REPRODUCERS LTD**

Haworth Trading Estate, Feather, Malpas, Feltham 2637

## TAPE RECORDER COVERS



Smart, waterproof cover to give complete protection to your tape recorder. Made from rubberised canvas in navy, wine, tan, grey and bottle green with white contrasting pipings, reinforced base, handy zip microphone pocket and name panel.

Cossor 1602	...	57/6
"   1601	...	63/-
Stella ST455	...	63/-
"   ST454	...	57/6
Saja MK.5	...	57/6
Stuzzi Tricorder	...	58/-
Saba	...	63/-
Wyndson Viscount	...	55/-*
"   Victor	...	60/-*
Elizabethan Princess	...	60/-
"   Avon	...	60/-
"   Escort	...	57/6*
"   Major	...	63/-
"   FT.1	...	66/-
"   FT.3	...	↑
Fi-Cord	...	52/6
Korting (4 track stereo)	...	63/-
Harting Stereo	...	66/-
Fidelity Argyle	...	55/-*
Walter 101	...	55/-
Simon SP4	...	63/-*
Clarion (complete with strap)	...	52/6
Brenell Mk.5	...	77/-
"   3 star	...	69/-
Minivox	...	↑

Grundig TK.5	...	55/-
"   TK.8	...	63/-
"   TK.20	...	52/6
"   TK.24	...	55/-
"   TK.25	...	55/-
"   TK.30	...	60/-
"   TK.35	...	63/-
"   TK.50	...	60/-
"   TK.55	...	63/-
"   TK.60	...	75/-*
"   TK.830/3D	...	63/-
"   Cub	...	35/-
Telefunken 85	...	60/-*
"   85	...	65/-
"   75/15	...	55/-
"   76K	...	55/-
"   77K	...	↑
Philips 8108	...	57/6
"   8109	...	63/-
"   EL3538	...	63/-
"   EL3542	...	63/-
"   EL3536	...	70/-*
"   EL3515	...	57/6
"   EL3541/15	...	57/6

\* Without pocket

↑ Price to be announced

**A. BROWN & SONS LTD.**

24-28, GEORGE STREET, HULL

Tel: 25413, 25412

## TAPE RECORDING YEARBOOK 1962-63

**T**HE latest edition of the "TAPE RECORDING YEARBOOK" is now on the bookstalls. This fifth edition contains the popular "at-a-glance" comparison charts of every currently available tape recorder, microphone, tape deck, and mixer unit together with illustrations, and a valuable miscellaneous accessory guide and magnetic tape price list.

Other contents include a full review of tape developments during the past year; advice on choosing—and using—a tape recorder; tape and cine; copyright; tape records; and a full directory of manufacturers, agents, and tape club addresses.

Simply presented in non-technical language, and including speed and frequency response charts.

...POST NOW to : 7, Tudor Street, E.C.4.....

Please send me.....copy(ies) of Tape Recording Yearbook 1962-63 at 7s. 6d. a copy (including postage), I enclose remittance herewith.

Name .....

Address .....

Also available

### TAPE RECORDING HANDBOOKS

ADVICE ON BUYING A TAPE RECORDER

J. F. Ling  
2/- (2/6 inc. postage)

INTRODUCTION TO THE TAPE RECORDER

Charles Langton  
3/6 (post free)

HI-FI FOR THE MUSIC LOVER

Edward Greenfield  
3/- (post free)

TAPE AND CINE

John Aldred  
3/- (post free)

HOW TO RECORD WEDDINGS

Paul Addinsell  
3/- (post free)

# WHEN IT'S NEW FROM BRENELL IT'S NEWS!

When Brenell introduce a new development in the tape recorder field you can be sure that it's worthy of your attention. As you well know the development of a new machine takes time but below are a few details to whet the appetite.

## THE STB I

A four speed deck with twin recording and twin replay pre-amplifiers.

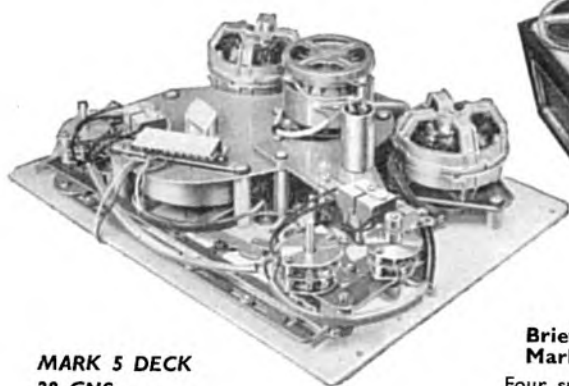
In addition to Stereophonic recordings, with or without tape monitoring facilities, different recordings may be made simultaneously or either track may be used for recording purposes (with tape monitoring if desired) whilst the other track is replaying.

Sound on Sound—so eagerly sought by the cine enthusiasts and keen musicians—is easily accomplished with perfect synchronisation between two or more recordings.

This is the ideal tape unit for incorporating in your Stereo High Fidelity installation Eminently suitable for language studies and other tutorial purposes.

**Full information will be published shortly**

Models available:



**MARK 5 DECK**  
28 GNS.



**MARK 5  
TYPE M**  
88 GNS.



**MARK 5**  
64 GNS.

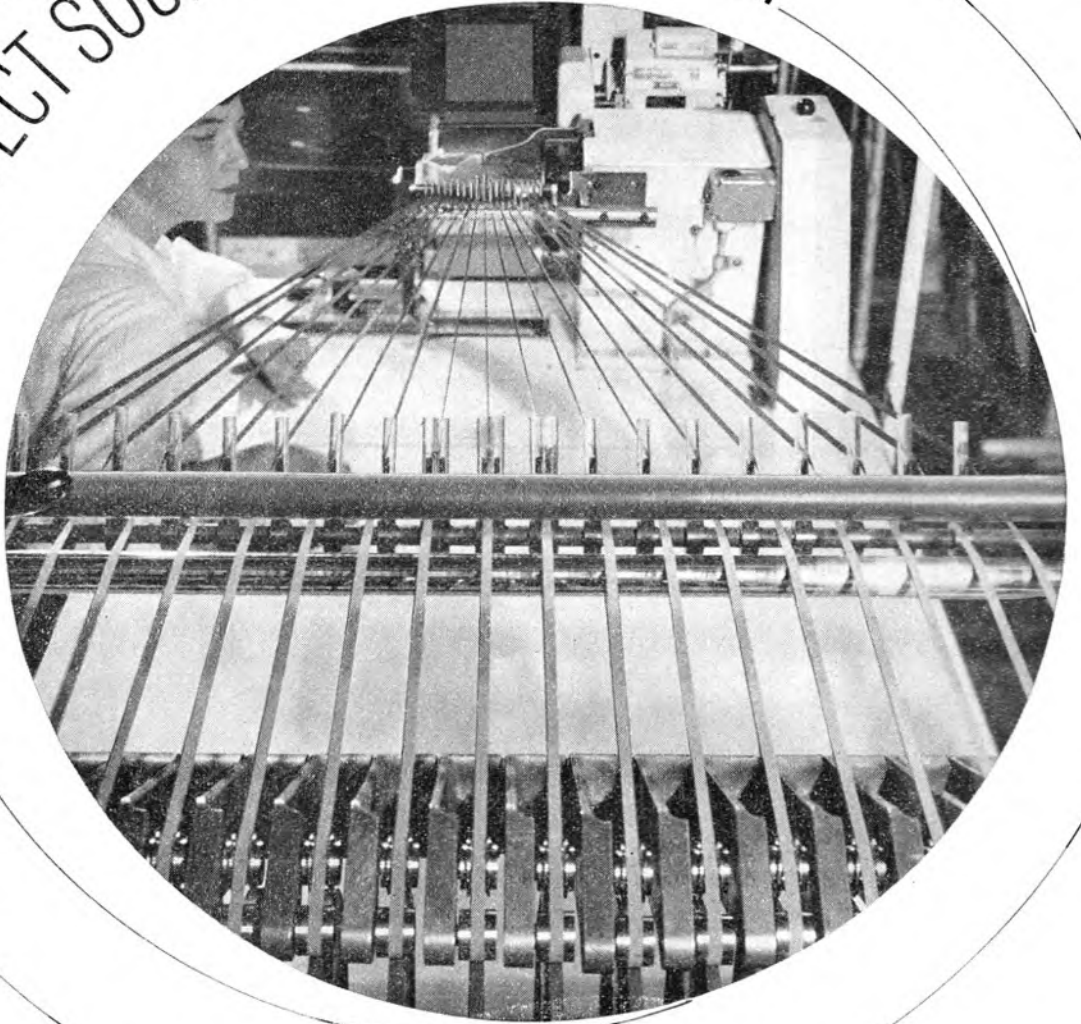
### Brief specification of Mark 5 Deck

Four speeds— $1\frac{7}{8}$ ,  $3\frac{1}{2}$ ,  $7\frac{1}{2}$  and 15 ips ● Selective frequency correction ● 3 independent motors ● Interlocked controls ● Fast rewind (1,200ft. in 45 secs.) ● Up to  $8\frac{1}{2}$ in. reels ● Pause control ● Provision for extra heads (mono or stereo) ● Mark 510 will accommodate  $10\frac{1}{2}$ in. N.A.B. spools (7 gns. extra).

Write for details to the sole manufacturer:—

**BRENELL ENGINEERING CO. LTD.,**  
1a DOUGHTY STREET, LONDON, W.C.1 Tel. HOL 7356 (3 lines)

AGFA TAPES ARE PRE-STRESSED TO ENSURE  
PERFECT SOUND REPRODUCTION.....



CONSTANT PITCH IS MAINTAINED . . . YOUR RECORDER CANNOT STRETCH **AGFA TAPE**



**AGFA Ltd**

27 REGENT STREET · LONDON · SW1 · REGENT 8581/4

\* Registered Trade Mark

# GET ALL MAKES - ANYWHERE

ORDER BY MAIL WITH COMPLETE CONFIDENCE - ANYWHERE IN THE WORLD

The Tape Recorder Centre Ltd - leading international specialists in Tape Recording and Hi-Fi - supply all makes, by mail, wherever you are.

## Free Carriage and Insurance in Great Britain

All despatches in England, Scotland and Wales entirely FREE, at the pound sterling prices listed here. All despatches by return.

## Unequalled World-Wide Export Facilities

For buyers outside Great Britain, anywhere in the world, all equipment is supplied at Export Prices, which exclude purchase tax where applicable, listed here as Dollar prices. All carriage and insurance charged at cost. Goods are suitably packed and shipped immediately. Please send your remittance by Bank Transfer or Money Order, in pounds sterling or dollars.

## Personal Export Service

For overseas buyers visiting Great Britain, The Tape Recorder Centre operates the personal export system, providing equipment at UK prices but excluding all purchase tax.

## Unsurpassed Range of Equipment

The Tape Recorder Centre offers the greatest choice of all Tape Recorders and Hi-Fi equipments anywhere. Even the list here can only show a part of the complete range carried by The Tape Recorder Centre.

## Specialist Know-How and Advice

The specialist experience of the Tape Recorder Centre Technical Departments is freely at your disposal to make sure you choose exactly what suits your needs and your pocket. The different units used for Hi-Fi equipment have to be carefully selected to work well together. You can rely on The Tape Recorder Centre to ensure that all units are carefully selected and matched to give you top performance and top value. Enquiries are welcome. Reliable advice and keen quotations always gladly supplied.

## HIRE PURCHASE TERMS PART EXCHANGES RANGE OF CABINETS

SPEAKERS	£	s. d.	\$
Goodmans ARU172 or 180	3	5	6
Goodmans Axiote 8	5	10	0
Goodmans Axiom 300 12"	11	5	9
Goodmans AX10	6	2	6
Goodmans AL/120	29	10	0
Goodmans Trebas 5K/20XL	7	0	0
Goodmans Triaxiom 12/20	25	0	0
Kelly Ribbon HF Mk. II	10	10	0
Leak "Sandwich" Speaker	39	18	0
Lowther Acousta	38	17	0
Lowther Acousta/Twin	72	16	0
Lowther Acousta/Super Twin	95	0	0
Lowther Audiovector	98	0	0
Lowther TPI	98	0	0
Lowther PM6	18	18	0
Mordaunt "Arundel" Speaker	42	0	0
Quad Electrostatic Speaker	52	0	0
Tannoy 12" Monitor	30	15	0
Tannoy 15" Monitor	37	10	0
T.S.L. Tweeter LPH65	1	18	7
W.B. Stentorian "Clumber" 912C	15	1	6
W.B. Stentorian 8" HF812	4	5	6
W.B. Stentorian 8" HF816	7	0	9
W.B. Stentorian HF912	4	10	6
W.B. Stentorian 10" HF1012	5	2	6
W.B. Stentorian 10" HF1016	8	4	0
W.B. Tweeter T10	4	8	3
W.B. Tweeter T359	1	15	9
Wharfedale 8/145	7	3	5
Wharfedale Bronze 10FSB	5	3	3
Wharfedale Coaxial 12	25	0	0
Wharfedale Golden 10FSB	8	15	5
Wharfedale RS12DD	12	10	0
Wharfedale SFB/3 3 speaker	39	10	0
Wharfedale Slimline 2	22	10	0
Wharfedale Super 12 RS/DD	17	10	0
Wharfedale Super 8FS/AL	7	3	5
Wharfedale Super 3	6	9	11
Wharfedale W2 Speaker System	29	10	0
Wharfedale W3 Speaker System	39	10	0

## Most Makes of Cross-Over Units in Stock

## CABINETS (Speaker and Equipment)

A.D. Equipment Cabinets from	17	10	0
A.D. Speaker Enclosures from	10	10	0
Record Grieg Equipment Cabinet	25	4	0
Record Liszt Equipment Cabinet	11	19	6
Record Nordyk Equipment Cabinet	6	19	6
Record Viking Corner Enclosure	10	10	0

## TUNERS

Armstrong ST3 Mark II AM/FM	27	16	0
Armstrong T4B Tuner	21	18	0
Chapman FM91 Unpowered	22	15	10
Chapman FM95 (AM/FM)	26	8	3
Chapman FM95 Powered	26	13	4
Leak Mark II Troughline	33	15	0
Quad FM	28	1	9
Quad AM Tuner L/M/S	32	2	0
Rogers Variable FM (S/P) in case	30	17	6
Rogers Variable FM (S/P) chassis	26	9	6
Rogers Switched FM Unit	15	11	1

## AM/FM RADIOGRAM CHASSIS

Armstrong AF208	22	18	0
Armstrong Jubilee Mk. II Tun/Amp	30	12	0
Armstrong Stereo 12 Mk. II Tun/Amp	43	10	0
Armstrong Stereo 55 Tun/Amp	32	15	0

## AMPLIFIERS

Leak TL12 Plus and 'Point One' Pre-Amplifier	31	10	0
Leak TL12 Plus and 'Varislope' Mark III Pre-Amplifier	34	13	0
Quad II Control Unit and Quad II Amplifier	42	0	0
Quad II Amp and 22 Pre-Amp	47	10	0
Rogers Cadet MK2	12	0	0
Rogers RC Cadet MK2 Control Unit	11	0	0

## All Non-Integrated and Pre-Amplifiers Available Separately

## STEREO AMPLIFIERS

Archon	49	19	6
Armstrong PCU27 Control Unit	28	10	0
Armstrong A20 Amp and PCU25 Pre-Amplifier	44	12	6
Chapman 305 Stereo	39	18	0
HMV Integrated Stereo	72	9	0
Leak Stereo 50 Amp with Varislope Stereo Pre-Amplifier	67	0	0
Leak Stereo 20 Amp with Varislope Stereo Pre-Amplifier	55	9	0
Leak Stereo 20 Amp with Point One Stereo Pre-Amplifier	51	9	0
Lowther Stereo	87	0	0
Quad 22 Control Unit with two Mark II Amplifiers	70	0	0
Rogers Cadet MK2 Complete	25	10	0
Rogers HG88 Mk. II Integrated Stereo Amplifier (in case £43.10.0)	40	0	0
Rogers Junior III Stereo Control	22	10	0
Rogers Master Stereo Control	35	0	0
Rogers 'Junior' Stereo Amp	27	5	0
Walgain Stereo Pre-Amplifier	7	10	0

## TAPE RECORDERS AND DECKS

Ampex—Prices on Application.			
Armstrong PA303 Tape Osc. Pre-Amp. (Power Unit £2.19.6)	16	16	0
Brenell Mark V	67	4	0
Brenell Mark V, Type M	92	8	0
Brenell 3 Star (2 or 4 track)	60	18	0
Brenell Mark V deck	29	8	0
Brenell Play/Record Amp	24	0	0
Butoba MTS (Battery)	66	gns.	
Coscor 1601 1T	59	gns.	
Coscor 1602 1T	37	gns.	
Coscor 1603 1T	28	gns.	
Elizabethan RT3 1T	45	gns.	
Elizabethan TT3 1T	39	gns.	
Elizabethan FT1 1T	34	gns.	
Ferroglyph Series 420	115	10	0
Ferroglyph 4 A/N	85	1	0
Ficord 202 (Battery)	66	gns.	
Grundig TK40 1T	75	gns.	
Loewe Optacord 403 1T	43	gns.	
Loewe Optacord 404 1T	53	gns.	
Loewe Optacord 412 1T (Battery)	45	gns.	
Philips EL 3545 (Battery)	24	gns.	
Philips EL 3514	27	gns.	
Philips EL 3541	36	gns.	
Philips EL 3542	59	gns.	
Reflectograph Mod. A 1T	105	gns.	

Reflectograph Mod. B 1T	115	gns.	
Simon SP5 1T	93	gns.	
Sony 521 (Stereo)	124	gns.	
Sony 777 (Professional Mono)	180	gns.	
Stella ST454 1T	59	gns.	
Stella ST470 (Battery)	37	gns.	
Stella ST456 1T	25	gns.	
Stuzzi Magnette (Battery)	59	gns.	
Tandberg Model 3B	76	gns.	
Tandberg Series 6	110	gns.	
Telefunken 75-15 1T	47	gns.	
Telefunken 85KL 1T	79	gns.	
Telefunken 95 1T	59	gns.	
Telefunken 96 1T	69	gns.	
Telefunken 97 1T	95	gns.	
Truvox R7 1T	82	gns.	
Truvox PD86 1T	63	0	0
Truvox PD87 1T	63	0	0
Veritone 16 1T	91	gns.	
Vortexion WVA	93	13	0
Vortexion WVB	110	3	0
Wearite 4A deck (other available)	42	0	0

## MOTORS

Connoisseur 'Craftsman' 2-speed	18	5	0
Connoisseur 3-speed	24	8	8
Garrard Autoslim	8	14	6
Autoslim Deluxe Complete	12	14	8
Garrard Lab/A/Auto unit/GC8	21	18	11
Garrard Lab/A/Auto unit/EV26A	22	17	0
Garrard 301	23	5	0
Garrard 301 with Strobo	24	10	3
Garrard 4HF/GC8 on base	22	0	2
Garrard 4HF/EV26A Stereo-Mono	22	18	4
Lenco GL58 (Cartridge extra)	17	15	5
Lenco GL70 (Cartridge extra)	29	1	8
Philips AG1016 Motor and P.U.	14	3	6

## PICK-UPS AND CARTRIDGES

Auriol Pick-up Control	3	9	9
Acos Hi-Light Stereo pick-up	18	5	8
Bang & Olufsen ST/L Stereo pick-up	17	0	0
Decca Daram cartridge	21	0	0
Decca L.P. head	4	4	0
EMI EPU/100 Stereo pick-up	10	10	0
Garrard EV26A Stereo/Mono cartridge	22	12	3
Garrard GC8 Mono 1/0 cartridge	2	5	11
Garrard SPC3 Stylus press gauge	1	19	9
Garrard TPA12 pick-up arm shell	4	11	10
Goldring G60 pick-up arm only	3	17	7
Goldring L70 pick-up arm	8	2	10
Goldring MX1/D mono cartridge	2	8	6
Goldring SX10/D stereo cartridge	2	18	2
Goldring 580 t/o cartridge	5	8	7
Goldring 600 t/o cartridge	10	17	2
Goldring 700 Mk. II Stereo cartridge	9	10	0
Leak L.P. Pick-up complete	12	18	7
Ortofon CG Mono Head	18	0	11
Ortofon Pick-up arm SKG212 (inc. trans.)	6	2	6
Ortofon Pick-up arm SMG212	12	17	9
Ortofon Pick-up arm RKG309	21	18	2
Ortofon Pick-up arm RMG309	27	1	4
Ortofon Replacement Diamond Stylus	6	8	11
Ortofon Replacement Sapphire Stylus	2	1	11
Ortofon Stereo Head SPU/G	23	4	0
Ortofon Stereo Head SPU/GT (inc. trans.)	25	15	6
Ortofon Transformers	2	7	6
Philips AG3016 mono pick-up head	1	0	0
Philips AG3063 Stereo pick-up head	1	10	0
Q-Max 'Stylouev' (Batteries 9d.)	1	6	6
S.M.E. Arm Model 3009	24	14	6
S.M.E. Arm Model 3012	27	4	0
Tannoy Vari-Twin Mark II Stereo	13	3	8
Watts "Dust Bug"	1	2	9

Also "A.D.C.", "Pickering" and "Shure" models.

## TAPES

EMI, PHILIPS, TELEFUNKEN, SCOTCH BOY, BASF, GRUNDIG, AGFA, FERROTAPE

All Sizes in Standard Long Play and Double Play.

get all makes—anywhere from

# THE TAPE RECORDER CENTRE

82 High Holborn, London, W.C.1. England Tel: CHAncery 7401



**SPECIALISTS  
IN**

**FERROGRAPH  
VORTEXION  
BRENELL  
TANDBERG  
AMPEX  
REPS  
SONY  
REVOX  
GRUNDIG  
PHILIPS  
LOEWE OPTA  
TELEFUNKEN  
ETC.**

**FANTASTIC!!**

**FANTASTIC!!** An understatement indeed, for so vast is the range and selection of new and second-hand recorders to be seen in our showrooms that no other word can describe it. Call into any of our branches and see the largest and finest selection of recorders on display in Great Britain. Every recorder can be seen, heard and compared and each member of our experienced and expert staff will be happy to offer you honest, unbiased advice in order to assist you in the selection of a recorder to suit your individual requirements.

- ★ **HIGHEST PART-EXCHANGE ALLOWANCES**
- ★ **OVER 250 NEW & S/H RECORDERS ON DISPLAY**
- ★ **H.P. TERMS OVER 9-24 MONTHS**
- ★ **FREE HOME DEMONSTRATIONS**
- ★ **TAPE RECORDER REPAIR SPECIALISTS**
- ★ **FREE DELIVERY, FREE TECHNICAL ADVICE**

NOTE—OUR CITY SHOP CLOSED SAT. OPEN MON.-FRI. 9-6 p.m. SUN. 9-2 p.m.

**CITY & ESSEX  
T A P E  
RECORDER CENTRES**

228 BISHOPSGATE, E.C.2 (opp. Liverpool St. Station) BIS 2609  
2 MARYLAND STATION, STRATFORD, E.15 (adj. station) MAR 5879  
205 HIGH STREET NORTH, E.6 (opp. East Ham Station) GRA 6543

*Pure Bass*

**in  
small  
space**

**MODEL W2**

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

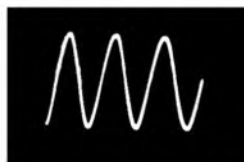
**SIZE:**  
23½" × 14" × 12"

**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.

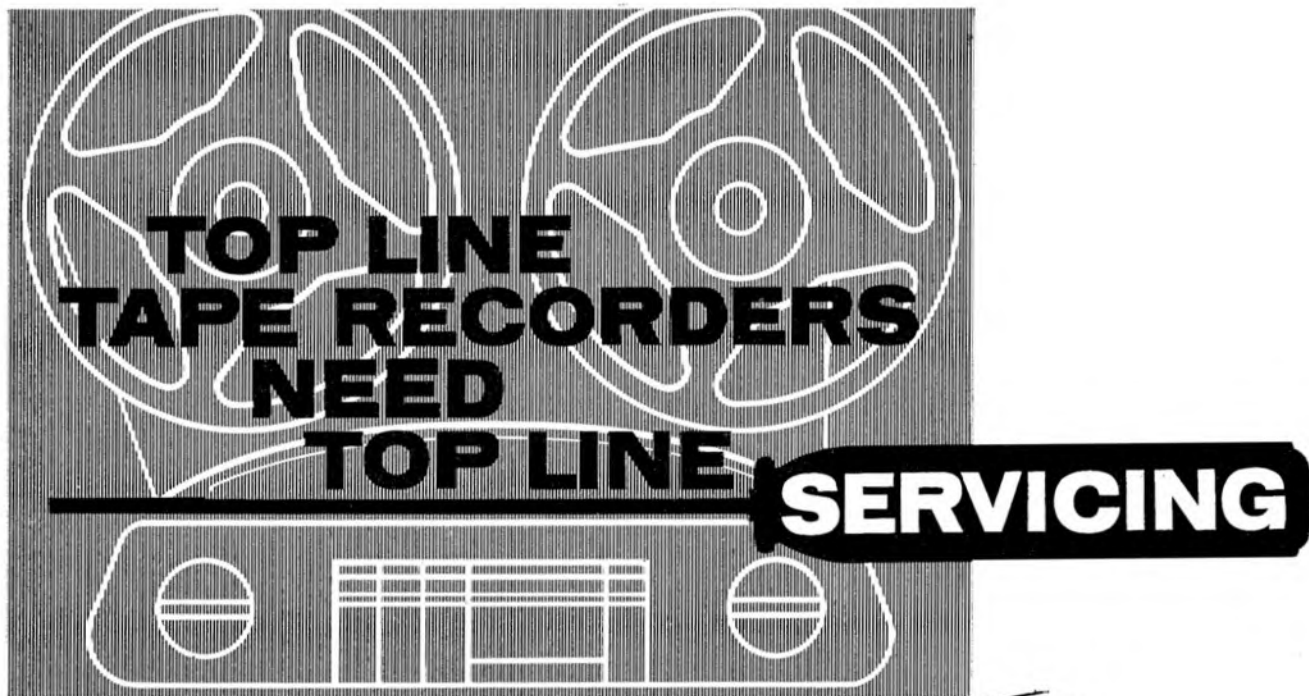
**LEAFLET ON  
CABINET MODELS  
ON REQUEST**



**IDLE BRADFORD** Yorkshire

Telephone: Idle 1235/6  
Telegrams: 'Wharfdel' Idle Bradford





**D**O you insure your tape recorder? I suspect that most people do not, but the risk, particularly if you take your recorder around with you, is out of all proportion to the modest premiums called for.

I quote from a new scheme announced by Telesurance Ltd. A "limited policy," covering fire, theft and accidental damage, costs as little as ten shillings.

A "comprehensive policy," covering these risks, plus maintenance, costs £3 for recorders costing under £60, and £5 for those costing between £60 and £105.

I shall watch with interest this effort to persuade enthusiasts to provide proper cover.

*Reprinted from the October issue of Tape Recording Magazine.*

Every tape recorder, no matter how good, needs and deserves top-line servicing at some time. And what happens if it is stolen... or damaged whilst you are carrying it around?

The Telesurance policy covers all these risks and ensures top-line servicing by a countrywide network of Telesurance Agents. These

Agents are established Retailers; fully qualified, experienced, and equipped to deal with all tape recorder maintenance requirements.

The wise tape recorder owner insures his machine with Telesurance. Why not you?

*"Fill in and post this coupon or write for details now to Telesurance Limited, 14 Windmill Street, London, W.1."*

# Telesurance

**TELESURANCE LIMITED,  
14 WINDMILL STREET, LONDON, W.1.**

Please send me full details of the Telesurance tape recorder policy and the address of my nearest Telesurance Agent.

NAME .....

ADDRESS .....

TRM 1



**HOWARD**

**Howard sells more Tape Recorders than any other Specialist in the Country.** If you want to know why, if you are thinking of buying one and if you are interested in saving money, then write or phone NOW for Free Brochures and Full Details of all our Amazing Terms: **HOWARD TAPE RECORDERS, 218 High St., Bromley, Kent.** *RAVensbourne 4000 and 4477*



is that  
really ME

... on a

## VOICE LETTER?

More and more people are getting their letter writing 'taped' with the Mastertape Voice Letter. Anywhere in the world far away friends and relations can receive and exchange a living, spoken message which can include the whole family—even down to the baby! Giving 20 minutes playing time at 3 $\frac{3}{4}$  i.p.s. on a twin-track recorder, the Mastertape Voice Letter, complete with box and ready-to-address envelope weighing only 2 oz., costs only 5s. 3d.



# Mastertape voice letter

Obtainable from stockists everywhere!

M.S.S. RECORDING CO. LTD. COLNBROOK, BUCKS.

Telephone: Colnbrook 2431

A MEMBER OF THE **BICC** GROUP OF COMPANIES



British Mastertape Makes Sound Sense

# TAPE

RECORDING  
MAGAZINE

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*COVER PHOTOGRAPH: A Spanish guitar and the clicking heels and fingers of a beautiful senorita captured on a Philips tape recorder will bring back vivid memories for three tourists in future years. Perfectionists may care to note the microphone placing which, we are informed, was authentic.*

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### EDITORIAL

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# THE EDITORIAL VIEW

FROM America news of another "revolutionary" tape cartridge system produced, complete with a special stereo tape playing deck, by 3M. Columbia Records are reported to be co-operating by making recordings from its catalogue available in the new medium and preliminary reports suggest that the prices could undercut those of equivalent stereo discs.

A test sales drive has just been conducted in the St. Louis, Missouri, area of the United States and doubtless the 3M sales chiefs are now evaluating results.

Established tape enthusiasts will be sorry to hear that the new system is non-standard. It uses tape only one-seventh of an inch in width, playing at  $1\frac{7}{8}$  ips on a special machine which is priced on the American market at £161.

It is my view that the future will see the development of a good market for tape-players using cartridges and omitting any recording function. But I do think that the new system will have to be compatible with existing techniques.

By this I mean that tape should be standard quarter-inch variety so that it can be played (perhaps after extraction from the cartridge) on a standard recorder-reproducer as well, and, further, it should be possible to transfer into a cartridge, for playback on the special cartridge machine, recordings made on orthodox recorders.

Unless this compatibility is achieved, any new methods will compete with established equipment and spread confusion and uncertainty through the trade.

WHATEVER the future for the domestic amateur, the tape cartridge is being used in some ingenious ways elsewhere. The most fascinating thing I saw on sale before Christmas was a doll which could "recite" nursery rhymes—from a concealed tape cartridge, of course.

Another firm has produced a machine which it calls "the invisible salesman." You have only to approach a product on display to trigger off a recorded sales message. Or you can fit it up so that the voice speaks when you open a car door.

Amateurs may get all sorts of bright ideas from this example. I

was reading the other day of an MP who fixed a system to his car so that one had only to lay a finger on it for a loud warning buzzer to sound.

Unfortunately the buzzer tended to sound at all hours of the night when he parked the car outside the block of flats in which he lived. The MP was last seen skipping across the pavement in his pyjamas in the early hours to disconnect the apparatus.

I HAVE some more details from Switzerland of the International Study Group of Sound Recordists to be held in Interlaken next year. The dates are now firmly fixed for July 14 to 20.

The gathering will split up into three language groups—English, French and German. Each group will hear lectures and demonstrations given by the leading manufacturers of Germany, France, Holland, Switzerland and, it is hoped, Great Britain. British manufacturers who would like to take part but who do not have full information are asked to contact me immediately.

The programme for the week consists of an official reception on July 14, study groups on theory each morning for the next four days, two afternoons and one evening of outdoor recording activity, at least one afternoon and two evenings free, most

of one day spent on a trip on the Jungfrauoch, and a final day of playbacks.

The rest of the details appeared in this column last month. I have already heard from a few British enthusiasts who are thinking of taking part. Others who are interested should write to me immediately.

TWO months ago we announced an "Oscar on Tape" scheme which had been suggested by TV star Charlie Chester. The idea was to bring a little cheer to the sick, the aged and infirm, or any others in adversity.

Clubs and individual readers were asked to send names of such folk, with some personal details of their circumstances, with a blank tape, and on this would be recorded a special message to them from Charlie Chester. The persons recommended should not be told in advance, but those selected would be awarded the "Oscar on Tape" for the month.

The response to date has been disappointing. Mr. Alan Beeby, who is ready to organise the whole scheme, would like to hear immediately from anyone prepared to co-operate. His address is 88, Clare Street, Northampton.

THE EDITOR.

## LAUGH WITH JEEVES



"And this is what we in the trade call a shaded-pole motor."

# STEREO TAPE CARTRIDGE UNIT ANNOUNCED

## BY 3M IN AMERICA

NEW YORK

MINNESOTA, Mining and Manufacturing Company has announced the introduction of its much discussed automatic stereo tape cartridge system, a new unit designed to give fifteen hours of virtually uninterrupted playback.

Through an impressive technical development, it remains to be seen whether it will solve the American tape industry's agonising problems in evolving an acceptable standard for reproducing equipment.

The fifteen hours of stereo reproduction involves the introduction of yet another new kind of tape. It is only one-seventh of an inch in width and plays at the ultra-slow speed of  $1\frac{7}{8}$  ips. It is for use on a specially-designed recorder-playback unit called the 3M Revere which sells at £161. This unit has a special well-stacking device which permits the automatic use of up to twenty cartridges. It weighs 32 lbs.

The project is being supported by Columbia, the second biggest American record firm (known as CBS in Europe), who have issued 48 selected items from their catalogue in cartridge form for use with the new Revere machine. Pop and classical cartridges will sell for 64s. with a special price of 71s. each for original-cast show-records. Raw tape cartridges are priced at 34s. A special tape featuring Skitch Henderson and his Orchestra has been made for demonstration purposes.

Minnesota Mining introduced the machine on a trial basis in the St. Louis area in November and backed it with a powerful launching campaign. No decision will be taken on exposing it nationally until early 1963. Launching the new system, W. W. Wetzel, vice-president of 3M's magnetic products division, called it "the biggest tape break-through since the introduction by 3M of video-tape in 1956."

Columbia Records sees it as an equally important break-through. According to William Gallagher, the firm's marketing vice-president and his newly-elected president of the Magnetic Recording Industry Association of America, it was to the tape market "what the introduction of the LP record was to discs."

The biggest drawback is the price. Many people in the trade doubt whether a system involving capital outlay of £161 will ever get quick substantial sales break-through. Also, the cost of tape records approaches double that of the equivalent disc.

The cartridge was designed by Dr. Peter Goldmark of Columbia Records. In 1947, he developed what is now the LP disc.

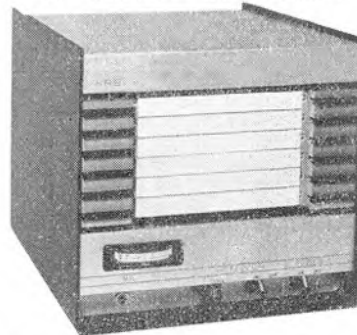
## KRS cartridge unit provides more playing time

THE advantages of magnetic tape recording and playback with the simplicity of operation of an automatic record changer is combined on another cartridge tape unit introduced by KRS Electronics of Palo Alto, California.

The unit, illustrated below, used stacked endless loop cartridges. It is marketed under the trade name *STACT* (Stacked Tape Automatic Cartridge Transport).

KRS already have an agreement with a Chicago Canteen Corporation for an exclusive licence for background music uses, the *STACT* unit providing more playing time in less space than conventional methods. They have also another version of the unit for applications in language laboratories.

Each unit can take the place of six conventional reel-to-reel tape recorders, and an instructor may channel six



separate lessons to as many as forty students on each channel. Each of the six channels (cartridges) may be engaged singly or in any combination; each can be stopped, started or changed independently of the others. Everything is automatic or push-button controlled.

The unit itself takes about a square foot of space, a compactness and almost infinite flexibility in programming makes it applicable to automatic radio transmission, aircraft announcements, repetitive advertising programmes and automatic machine control, as well as the educational and musical reproduction uses.

### B.S.R.A. LECTURES

LECTURE meetings of the British Sound Recording Association take place regularly on the third Friday of each month at the Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, at 7.15 p.m.

The Paper to be presented on January 18 is "The Line Source Loud-speaker and its Applications" by Paul H. Taylor. On February 15 the Paper will be "Transistor Audio Power Amplifiers" by R. C. Bowes.

Non-members who wish to attend should first of all contact the Hon. Sec., "Greenways," 40, Fairfield Way, Ewell, Surrey.

## NEWS IN BRIEF

A library of tape recorded "talking books" for blind people is being established by the Cardiganshire Association for the Blind. Two tape recorders have been purchased and the Association are to spend £50 for their first recorded Welsh book. Mr. Alun Edwards, county librarian, has been invited to discuss the question of Welsh "talking books" with the Royal Institute for the Blind in London.

\* \* \*

A tape recording of the screams heard by a fire-brigade telephone switchboard operator was played back at a Manchester inquest last month.

\* \* \*

The experimental tape recording of debates in the House of Lords is proving a success. Two machines were installed outside the chamber connected to the loud-speaker system. Working alternatively, they record all the business of the House, although the normal staff of shorthand reporters for the official report (*Hansard*) continue to take a note from the floor of the chamber.

The editor of *Hansard* has said the plan is proving a great aid to him in clearing up any queries that arise, and it is also used by reporters who can settle queries without bothering the peers. At present there is no plan to introduce a similar system into the Commons.

\* \* \*

Tape-recorded bells will summon parishioners to services at a new church nearing completion on the Gainsborough estate at Bury St. Edmunds.

\* \* \*

Children in the Rosherville, Kent, primary school are exchanging tape recorded messages with schools in Australia and the U.S.A.

\* \* \*

A portable television tape recorder weighing 130 lb. and costing less than £4,000 was shown for the first time in New York recently by Ampex Corporation, originators of the videotape recorder.

# TAPE IN THE PUPPET THEATRE

**T**HE era of the puppet extends down through the centuries from the old Chinese Dynasties to this age of Jet Aircraft and—the tape recorder.

This new invention introduces to the puppet a new lease of life, a new way to express his feelings and to speak his words.

I, myself, am an amateur puppeteer and have been "pulling strings" for about twelve years, ever since I was eight, but it was not until the summer of 1958 that a tape recorder became an integral part of my travelling theatre, becoming second only to the puppet himself. The scope for the recorder is, of course, unlimited and this apparatus will reveal new paths for the puppeteer to explore.

When choosing my recorder I had all the usual problems that so many others have had, plus one or two more snags. The recorder had to be capable of providing a large output, enough to fill a

**Yet another use for the tape recorder is listed as Roger Stevenson describes his experiences in the puppet world**

small hall. It would have to stand up to a lot of travelling and hard work. A remote control unit was desirable but this would not matter, providing the recorder had all the usual facilities, especially the aforementioned ones. Eventually, and after many tests and trials, a Simon SP.4 Automatic was purchased as this came the nearest to my requirements.

The uses of a recorder in the capacity of an "assistant" to the puppeteer are many. I shall only try to list a few, along with any setbacks that I have encountered. I trust these will help the puppeteer who has just bought his first recorder.

A play may be recorded using several characters both male and female. This saves the "human" actors travelling around with the theatre. The most common and well-known disadvantage here is that if any mistake or hold-up is experienced on the stage, the tape recorder cannot "ad lib" as a human actor may, but will continue on, oblivious to the hold up. Another snag is the fact that if there are not enough manipulators available for all the characters then the puppeteer should devise some way of keeping his actors "alive" on the stage. One way is to use gallows—a system of chains on a device which holds the puppet whilst in a position on the stage.

Even if the use of "human actors" is employed then the recorder can be used for sound effects. They can all be recorded on one tape beforehand, which dispenses with a lot of clutter behind the stage, such as wind machines and thunder sheets.

More ambitious productions may be tried using a recorded tape complete with sound effects. For example, imagine how much more effective a witch's speech would be if there were claps of thunder in the background to heighten the effect of the words.

The recorder could be used for making announcements while the puppeteer is away or busy. This is very useful for garden parties or similar functions.

If a dual channel (stereo) recorder is used then one track may be used for the theatre speakers and the other connected to the puppeteer's headphones so that he can hear perfectly—an important point if timing is essential. Another system is to use one track for the theatre speakers while the other could contain information of the puppets' movements and positions and be relayed to the puppeteer by headphones.

My own recorder has been to many places and played to many types of audiences. It has always held its own, or just about, with even the noisiest of audiences, because of the 10-watt amplifier. The remote control unit is definitely a valuable asset and when I am working alone and I present a "floor show" with

the puppets on a small raised platform with a screen at the back, the remote control is placed on the screen and the recorder placed out of sight at the rear of the stage. The extension speaker is placed in front of the platform and the recorder can be stopped or started at will from the screen.

One of the most common problems with the "theatres" that I work in is the acoustic one. Many church halls are large, very high and very empty, and when any noise is made they are full of echoes. This echo situation is very troublesome and can sometimes ruin a performance, for after all, who wants to listen to half an hour of echoes? It is very difficult to find a solution to this. The best one would be to have a system of speakers "in and around" the audience, but unfortunately it is not always possible to have all these speakers. The next best way is to place the speaker(s) as near to the audience as technically possible, bearing in mind that the voices should appear to come from the stage.

Many other snags are also encountered such as DC current in some old places, lack of plugs, etc., but after all the show *should* and *must* go on.

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 **TAPE RECORDING**

SEVERNA PARK,  
MARYLAND, U.S.A.

# RECORDING FROM THE RADIO

## COLIN WESTON describes several methods of making tape recordings of radio programmes

### Recording through a microphone

UNDOUBTEDLY, the simplest method of recording from a radio receiver is to place the microphone directly in front of the internal loudspeaker of the receiver and make a recording in the same way as making a "live" recording.

In this case, however, there is the serious disadvantage that, in addition to the radio programme being recorded, other background noises such as doors shutting, footsteps of people walking about the house and the roar of traffic outside, are also included on the recording. Such background noises can be very significant especially

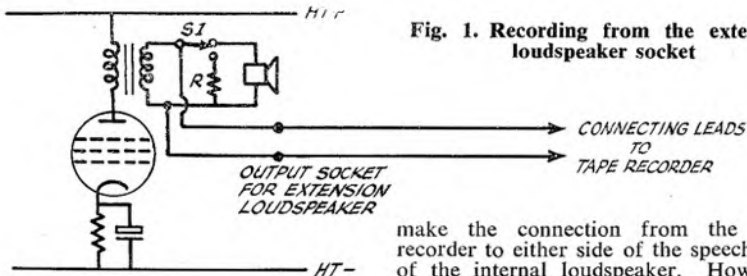


Fig. 1. Recording from the extension loudspeaker socket

when a sensitive microphone such as the types supplied with most modern tape recorders is used.

However, an improved signal-to-noise ratio is obtained using this method if the volume control on the receiver is fairly high. This means that the volume level control on the tape recorder can be reduced thus making the microphone less sensitive to background noises.

### Using an extension loudspeaker output

A much better arrangement for recording is to take the signal output from the extension loudspeaker socket and feed this signal into the low-gain input of the tape recorder. By this means, all unwanted background noises are eliminated.

Such an arrangement is easy to use since the majority of radio receivers have provision for connections to be made to an extension loudspeaker. The exceptions to this are portable radio receivers although several transistor receivers are now manufactured with special provision for feeding a tape recorder with the radio signal.

A typical circuit for recording from the extension loudspeaker output is shown in Fig. 1. Here a switch S1 is shown for the purpose of muting the internal

loudspeaker. In some receivers, the resistance R, having a value which is equal to the impedance of the internal loudspeaker, is included so that an artificial load is provided for the output stage when the internal loudspeaker is muted.

In either case, the extension loudspeaker should have an impedance equal to that of the internal loudspeaker or alternatively a matching transformer should be used.

For this reason, the low-impedance input of the tape recorder (where such an input is provided) should preferably be used to avoid serious mismatching. If no low-impedance input is provided, a high-impedance input may be used if a matching transformer is also included in the circuit.

If the receiver has no provision for an extension loudspeaker, it is possible to

make the connection from the tape recorder to either side of the speech coil of the internal loudspeaker. However, since it is then necessary to make internal connections to the receiver, it is worthwhile adopting the following arrangement which gives much better results.

### Recording from the detector stage

A much more efficient method of obtaining a signal from the receiver is by taking the signal from the detector stage to the high gain input of the tape recorder. By this method, any hum or distortion inherent in the receiver output stage is avoided, although it will be appreciated that a signal of lower voltage is obtained. The circuit of this arrangement is shown in Fig. 2.

It will be seen that the basic circuit consists of a potentiometer connected

across the volume control from which a fraction of the voltage which is applied to the output stage is taken to the tape recorder. The only components required are two resistors (one of 100 K ohms and one of 1-2 M ohms) and one capacitor (of 0.025 micro F).

The lead to the tape recorder should be screened and co-axial cable is most convenient. It is very important that the screen is connected to the chassis of the receiver rather than to the junction of R1 and R2, and also to the chassis of the tape recorder, and both chassis should be earthed where possible.

If the connecting lead to the tape recorder is very long, the capacitor C2 whose value is 35 pF will be necessary. If there is no D.C. present on the volume control, the capacitor C1 may not be necessary.

If the receiver is of the AC/DC type, it is advisable to ensure that the chassis is not "live" by reversing the mains plug if necessary, otherwise the tape recorder may have the effect of shorting the "live" chassis to earth, a state to be avoided for obvious reasons.

In this case it is necessary to include another capacitor C3 having the same value of 0.025 micro F as C1 in order to effectively block the DC and prevent the DC reaching the tape recorder, this will isolate the tape recorder from the live chassis.

It will be found on using the above circuitry, that variation of the volume control setting of the receiver has no effect on the signal level being fed into the tape recorder. This is advantageous and means that the receiver volume control may be adjusted without upsetting the recording level.

A further point worth mentioning is that all radio programmes are monitored before transmission to ensure that no extreme output variations overload the transmitter. For this reason, a better recording is obtained if the volume level control on the tape recorder is kept constant once the optimum setting has been obtained.

### Using a Radio Tuner

It is now possible to purchase specially designed radio tuner units for use with a tape recorder enabling radio programmes to be recorded without a conventional radio receiver. In fact the arrangement is similar to that previously described since the tuner unit consists of the radio frequency amplifier and detector stages only, the audio frequency amplifier stages being omitted in the tuner, and replaced by the amplifier of the tape recorder.

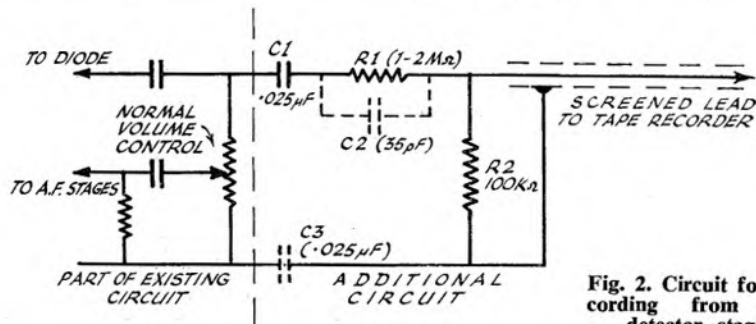


Fig. 2. Circuit for recording from the detector stage

# TAPE AND TUNERS

A SPECIAL FOUR-PAGE ILLUSTRATED CATALOGUE FEATURE LISTING ALL THE CURRENTLY AVAILABLE TUNER UNITS

**R**ECEPTION of radio programmes has some priority with amateur tape recording enthusiasts, and with modern good quality tape recorders the use of a high quality radio source is essential. With the advancing years and the introduction of L.P. records and tape recording, the old-established broadcasting systems have shown up their shortcomings. The introduction of VHF (very high frequency) broadcasting paved the way for radio to achieve the high standards expected from tape and discs.

Tuner units for feeding a radio programme into an amplifier or tape recorder are available in three general types. A few manufacturers still produce a range of tuners for the reception of AM (amplitude modulation) transmissions only. In addition, a much larger range of units are available for receiving the newer FM (frequency modulation) transmissions by the B.B.C. on the VHF band and many manufacturers now offer a tuner for use on both AM and FM bands.

An even later development is the introduction in America of a stereo broadcasting system. Although not yet established in this country, it is fairly certain that the B.B.C. and similar stations on the continent, will use the Multiplex system of broadcasting as prepared from the G.E.C.-Zenith experiments. There are now two brands of tuner on the market that are easily adaptable for stereo broadcasting using this system. During the latter part of 1962, the B.B.C. have been transmitting four broadcasts a week from the Wrotham station. These were scheduled to stop in December, and to date there has been no sign that they will continue in the new year. Whilst stereo broadcasting is not such the distant project once thought, the enthusiast may still be undecided when considering the purchase of a tuner.

On these pages we list all the currently available units. Prices vary from just over £15 up to £72 (with stereo adaptor), and for the do-it-yourself enthusiast there are a number of kits priced as low as £6.

## CATALOGUE OF TUNERS

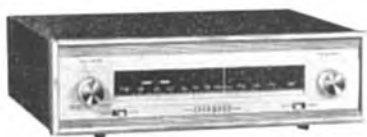
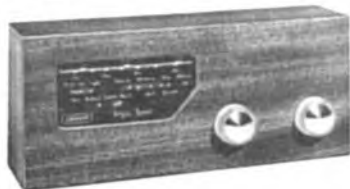
Name and Type	Range	P.S.N. or Self-Powered	Tuning Indicator	Features	Size (inches)	Retail Price plus (Purchase Tax)
ACOUSTICAL MANUFACTURING CO. LTD., St. Peter's Road, Huntington, Hunts.						
QUAD FM	87.5—108 Mc/s.	6.3V 1.85A 330V 27m/A	Twin-Neon Tuning Indicator	AFC Permeability tuned RF, Mixer, OSC, IF, Limiter and Discriminator stages Output 100 mV at 100 KΩ Wide Band, Narrow Band and Filter Switch. Filter = 9 kc/s, Europe = 10 kc/s. Overseas. Output 100 mV (for 30% modulation) at 15 KΩ RF, OSC/Mixer, Neutralised IF, Diode Detector, Delayed AGC.	10½ × 3½ × 6	£28 1 9
QUAD AM II	European Model: 2,070—800 m. 588—185 m. 5.8—18.5 M/cs. Overseas Model: 510—1,620 kc/s. 2.2—6.6 Mc/s. 5.8—18.5 Mc/s.	330 35m/A 6.3V 1.2A	EM84 Tuning Indicator		10½ × 3½ × 6	£32 2 0
ARMSTRONG WIRELESS & TELEVISION CO. LTD., Warlters Road, Holloway, London, N.7						
ST3 Mk 2 AM/FM Tuner	87—108 Mc/s. 187—570 m. 1,053—2,000 m.	Self-powered	Yes	Automatic frequency control. Cathode follower output. Pre-set output control. Two IF stages on A.M. Ferrite aerial on A.M.	12 × 5½ × 7	£27 16 0
TAB FM Tuner	87—108 Mc/s.	Self-powered	None	Automatic frequency control. Cathode follower output. Pre-set output control. Shelf or cabinet mounting.	10½ × 4½ × 7½	£21 18 0
THC FM Tuner	87—108 Mc/s.	Self-powered	None	Automatic frequency control. Cathode follower output. Pre-set output control. Shelf mounting.	10½ × 4½ × 7½	£19 19 0
AUDISON LTD., Orchard House, Orchard Street, London, W.1						
Sherwood S-3000111 FM Tuner	87.5—108 Mc/s.	Self-powered	EM84 Acro-Beam	Power supply and chassis space for Multiplex Adaptor A3MX Automatic frequency control. Inter-channel Hush. 2.0V Audio Output at 100% Fm. Wide band design. A3MX adaptor available for stereo broadcasts (£17 10 0)	14 × 4 × 10½	£59 10 0 (less case)



# CATALOGUE OF TUNERS



Above; top to bottom: the Quad FM; the Aveley Dynatuner FM1; Audison's Sherwood S-2000II AM/FM; and the Tripletone FM variable tuner.



Top to bottom are the Daystrom Heathkit FM-4 and Heathkit AM/FM unit; Jason's "Argus"; and Audison's Sherwood S-3000III FM tuner.

Name and Type	Range	P.S.N. or Self-Powered	Tuning Indicator	Features	Size (inches)	Retail Price plus (Purchase Tax)
Sherwood S-2000II AM/FM Tuner	87.5—108.5Mc/s. 535—1630 kc.	Self-powered	EM84 Acro-Beam	Wide band design. Output for Multiplex Adaptor S3MX Automatic frequency control. Inter-channel Hush. A.M.: Wide 15 kc. or Sharp 5 kc. bandwidth selection. Rotating Ferrite rod antenna. 1.5V audio output at 100% mod.	14 × 4 × 10½	£72 10 0 (less case)
AVELEY ELECTRIC LTD., Ayrton Road, South Ockendon, Essex						
Dynaco Dynatuner FM1	88—108 Mc/s.	Self-powered	EM84 Slide-rule type indicator	Drift-free design F.C. balanced bridge discriminator. Distortion at 100% modulation less than 0.5%. IM or harmonic from 10 micro V to 100,000 micro V. Discriminator bandpass in excess of 900 kc/s. Frequency response ± 0.5dB 10 cps to 30,000 cps before de-emphasis.	13 × 8 × 4	£44 12 0 (£15 1 1)
Bang & Olufsen Minette 609 FM	87.5—100.5Mc/s.	Self-powered	EM87	FM mono with AFC, FM mono without AFC. FM stereo with AFC, and FM stereo without AFC. Prepared for coming stereo Multiplex broadcasts.	18½ × 8 × 4½	To be announced
CHAPMAN ULTRASONICS LTD., 24, Upper Brook Street, London, W.1						
S5: VHF/FM and AM, L, M and SW	FM: 87.5—100 Mc/s. A.M.: 16—50, 195—550 800—2,000 m.	Alternative models	EM84 Bright Line	Variable selectivity and amplified delayed AVC	13½ × 6½ × 9	S5/FM Powered: £39 0 0 Unpowered: £35 0 0
S5E: VHF/FM and AM, M and SW	FM: 87.5—100 Mc/s. or 88—108 Mc/s. A.M. 12.5—37, 35—100, 90—250 and 190—550 m.	Alternative models	EM84 Bright Line	Variable selectivity and amplified delayed AVC	13½ × 6½ × 9	S5E/FM Powered: £39 0 0 Unpowered: £35 0 0
S6BS: Six Stage AM	Bandspread: 11, 13, 16, 19, 25 and 31 m. 13—43, 43—140 and 157—570 m.	Alternative models	EM84 Bright Line	Variable selectivity and amplified delayed AVC.	13½ × 8½ × 11	S6BS Powered: £49 3 10 Unpowered: £48 8 10
S6BS/FM: Combined model S6BS and FM91	See S6BS and FM91 Specifications	Powered model only	EM84 Bright Line	Variable selectivity and amplified delayed AVC	13½ × 8½ × 13½	S6BS/FM Powered only £69 0 0
FM90 Switched VHF/FM Chassis only	B.B.C., U.K.	From P Amplifier	None	Stable OSC. CCV and AFC	5 × 4½ × 6½	£19 0 0
FM91 turnable VHF/FM with or without cover	87.5—100 Mc/s.	Alternative models	EM84 Bright Line	75 ohms co-ax. or 300 ohms bal. Two stage limiting	12 × 4½ × 6½	FM91 Powered: £26 13 4 Unpowered: £22 15 0
FM95: VHF/FM and AM L&MW	FM: 87.5—100 Mc/s. A.M.: 195—550 and 800—2,000 m.	Alternative models	EM84 Bright Line	Self-powered model specially recommended for tape recording	12 × 4½ × 8½	FM95 Powered: £32 0 0 Unpowered: £28 0 0
DAYSTROM LTD., Gloucester						
Heathkit AM/FM	88—108 Mc/s. 16—50 m. 200—550 m. 900—2,000 m.	Self-powered	'Magic-eye'	8 valves, 3 diodes Cathode follower output. Switched selectivity. Provision for Multiplex. Suitable for freestanding or cabinet mounting	13½ × 4½ × 12	£25 18 6 (kit)
Heathkit FM-4	88—108 Mc/s.	Self-powered	'Magic-eye'	7 valves. Provision for Multiplex. Suitable for freestanding or Cabinet Mounting	11½ × 5½ × 7	£15 8 0 (kit)

● (Continued on page 18)

# CATALOGUE OF TUNERS

(Continued from page 17)

Name and Type	Range	P.S.N. or Self-Powered	Tuning Indicator	Features	Size (inches)	Retail Price plus (Purchase Tax)
<b>GRAMPIAN REPRODUCERS LTD.</b> Hanworth Trading Estate, Feltham, Middlesex.						
FM571 Free tuned	85—98 Mc/s.	300V at 35/40 m/A 6.3V at 2.5A	'Magic-eye'	—	10½ × 5½ × 6½	£17 10 0

**JASON ELECTRONIC DESIGN.** Kimberley Gardens, London, N.4.

FMT1	88—108 Mc/s.	180V at 25m/A 6.3V at 1.5 amps	—	Four valves. Cabinet mounting. Available in kit form only	8 × 5 × 4½	£5 19 0 (Valves extra.) No P.T.
FMT2	88—108 Mc/s.	Self-powered	—	Five valves. Suitable for free-standing or cabinet mounting. Available in kit form only	11½ × 4¾ × 6½	£8 15 0 (Valves extra.) No P.T.
FMT3	88—108 Mc/s.	Self-powered	—	Seven valves. Suitable for free-standing or cabinet mounting. Automatic frequency control. Twin limiters. 5mV Sensitivity	11½ × 4¾ × 6½	£9 19 0 (Valves extra.) No P.T.
FMT4	88—108 Mc/s.	Self-powered	—	Five valves. Suitable for free-standing or cabinet-mounting. Automatic frequency control. Twin limiters. 5mV sensitivity	11½ × 4¾ × 6½	£17 5 0 plus (£4 19 6)
JTV2K	40—215 Mc/s.	Self-powered	—	Switched tuner with up to 13 positions. Suitable for free-standing or cabinet-mounting. Automatic frequency control. AM or FM output. Noise limiter incorporated on AM output. Also available in kit form £13 12 6 plus P.T. of £1 6 6 on the turret	12½ × 4½ × 6½	£19 4 0 plus (£5 10 10)
"Monitor"	40—215 Mc/s.	230V at 45m/A 6.3V at 1.5 amps	—	Cabinet-mounting. Automatic frequency control. AM or FM output. Also available in kit form (Mercury 2); £9 7 6 plus P.T. of £1 6 6 on the turret	5 × 5½ × 7	£14 5 0 plus (£4 2 4)
Argus	Long and Medium wave	9V (Ever-Ready PP3 batteries)	—	Three transistors super-het. Wooden cabinet. Uses an 8 × ¾ Ferrite aerial. Available in kit form only	9 × 4 × 2½	£7 10 0 No P.T.

**H. J. LEAK & CO., LTD.** 57-59 Brunel Road, Westway Factory Estate, London, W.3.

Trough-Line II FM	88—108 Mc/s.	200—250V AC or alternative model 110—124V	EM84 Magic Eye	AFC. Sensitivity 2 micro V at aerial for full limiting.	10½ × 7½ × 3¼ with panel 11½ × 4½	£25 0 0 plus (£7 17 6)
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**LEE PRODUCTS (GREAT BRITAIN) LTD.** 10-18, Clifton Street, London, E.C.2

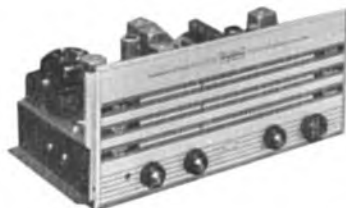
Dulci H4T/55	Long— 272—167 kcs 1,100—1,800m. Medium— 1,500—545 kcs 200—550 m. Short— 16—18 Mc/s. FMVHF— 88—108 Mc/s. 88—108 Mc/s.	Self-powered	EM84	Provision for stereo adaptor. AFC. Very low overall height	12½ × 10½ × 3½	£24 10 6 plus (£7 1 8)
Dulci FMT/5	88—108 Mc/s.	Self-powered	—	Provision for stereo adaptor. AFC	12½ × 3½ × 9½	£18 13 6 plus (£5 7 10)

**LOWTHER MANUFACTURING CO.** Lowther House, St. Marks Road, Bromley, Kent.

Mk. V, FM Variable tuning	87.5—108 Mc/s.	250V at 30m/A 6.3V at 2 amps	50 cps hum tuner check	AFC Cathode follow output	10½ × 4½ × 6	£22 10 0 plus (£6 19 9)
Mk. V, SP FM Variable	87.5—108 Mc/s.	Self-powered	50 cps hum tuner check	AFC Cathode follow output	10½ × 4½ × 6	£24 10 0 plus (£7 6 8)

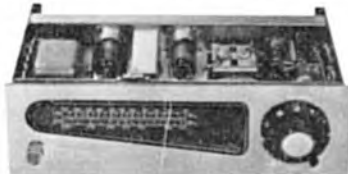
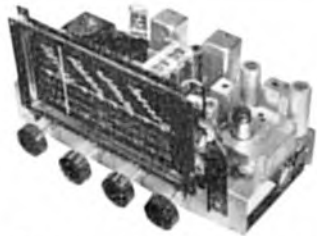
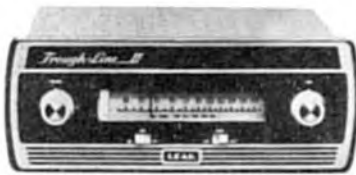


Reading from the top are the Lowther FM Mk5; Gramplan FM751; Sound Sales 108 Synchro-lock; and the Quad AMII.

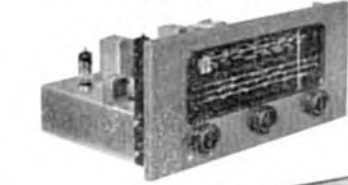


Top to bottom: the Tansley-Howard Archon; the Armstrong ST3 Mk2; and Pamphonic's 646 F.M. unit.

# CATALOGUE OF TUNERS



Top to bottom are the Leak Trough-Line II; the Symphony AM/FM; Pye HFT113; and the TSL Universal FM.



Three of the Grampian range. Top the SSE/FM, centre S6BS/FM, and the FM95.

Name and Type	Range	P.S.N. or Self-Powered	Tuning Indicator	Features	Size (inches)	Retail Price plus (Purchase Tax)
<b>PAMPHONIC REPRODUCERS LTD.,</b> Westmoreland Road, Colindale, London, N.W.9						
646FM (FM/VHF tuner)	87—108 Mc/s.	Self-powered (AC 50c/s. 210—250V)	None	AFC	13 × 7 × 4½	£21 13 3 plus (6 10 0)
<b>PYE LTD.,</b> Cambridge						
HFT113 or HFT113M AM/FM Variable tuning	88—108 Mc/s. 190—550 m.	Self-powered Dual voltage	—	AFC and AFC Defeat	10½ × 5 × 3½	Chassis only £24 8 10 plus (£7 1 2) In metal case £26 9 7 plus (£7 12 11)
HFT109 HFT109M FM Variable tuning	88—108 Mc/s.	Self-powered Dual voltage	—	AFC	10½ × 5 × 3½	Chassis only £19 19 3 plus (£5 15 3) In metal case £22 0 0 plus (£6 7 0)
<b>RECORDING DEVICES LTD.,</b> 44, Southern Row, Kensington, W.10						
Stuzzi AM	190—600 m. (medium wave) Pretuned to 1,500 m. (200 kcs.)	Self-powered	—	Sensitivity control. Band-spread tuning	5½ × 4½ × 1½	£5 5 0
<b>ROGERS DEVELOPMENTS (ELECTRONICS) LTD.,</b> 4-14, Barmston Road, Catford, S.E.6						
Junior Switched FM	87—108 Mc/s.	200V at 38m/A 6.3V at 2 amps.	—	Cascade RF amplifier AFC. Cathode follower output. Preset volume control. Average output 75V RMS. Neon indicator. 75 ohms co-ax. input. Sensitivity is 5 micro V for 25dB quietening Seeley-Foster discriminator	8½ × 4 × 2½ deep	£11 18 0 plus (£3 13 0)
<b>SOUND SALES,</b> West Street, Farnham, Surrey						
A—Z FM 108 Synchro-lock unit (Mk IV)	87.5—108 Mc/s.	Self-powered	—	AFC	11½ × 4½ × 6½	£29 2 11
<b>SYMPHONY AMPLIFIERS LTD.,</b> 16, King's College Road, London, N.W.3						
FM model A	88—100 Mc/s.	35m/A at 180V 6.3V at 1.5 amp.	EM84	AFC Enclosed in metal case	12 × 4 × 4	£16 16 0
Model B	88—400 Mc/s.	Self-powered	EM84	AFC Enclosed in metal case	12 × 4 × 4	£18 18 0
<b>TANSLEY-HOWARD LTD.,</b> 144, Holland Park Avenue, London, W.11						
Archon FM Type PF41	88—108 Mc/s.	Self-powered	—	Uniform with the ARCHON SP31 stereo control unit Switched AFC	12 × 6 × 2½ Panel size: 12½ × 3	£24 15 0
<b>TECHNICAL SUPPLIERS LTD.,</b> 63, Goldhawk Road, Shepherds Bush, London, W.12						
TSL Universal Transistor FM tuner	87.5—108.5Mc/s.	Self-powered 9V battery	None required Full AFC	Sensitivity 0.6 of 1mV for full output. AF response 25—25,000 cps ± 0.5 dB. selectivity: 350 kcs bandwidth. AGC and AFC fitted	8 × 7½ × 2½	£19 9 6 plus (£5 12)
TSL International	87—109 Mc/s.	Self-powered 110V to 250V AC	None required Full AFC	6 valves 15—30,000 cps ± 1 dB. better than 2.5 microvolt sensitivity for 20dB quietening two stages of limiting. Full AFC and AVC	12 × 6½ × 3½	£15 14 6 plus (£4 15 0)
<b>TRIPLETONE MANUFACTURING CO. LTD.,</b> 241A, The Broadway, Wimbledon, London, S.W.19						
FM Variable tuner	86—104 Mc/s.	Self-powered alternative models	—	Unpowered version requires 250V at 25m/A and 6.3V at 2 amps. Sensitivity 20 microvolts for 500m/V	11 × 6½ × 3	Unpowered: £13 9 6 Powered: £15 14 6
<b>WHITELEY ELECTRICAL RADIO CO. LTD.,</b> Victoria Street, Mansfield, Notts.						
W.B. Stentorian Mk. II, FM Variable permeability tuning	88—108 Mc/s.	200/240V at 45m/A 6.3V at 2 amps	—	—	11½ × 4 × 7½	£21 7 6

# DO-IT-YOURSELF

By  
R. E. STEELE

# BUILDING A STEREO-MONO MIXER UNIT

The second article of our new series describes the wiring procedure; advises on mounting the components; and provides instruction for testing before use.

THE tagboards are wired up separately out of the chassis. The tagboard layout is shown in diagram Fig. 5 published last month. This is drawn viewed from the underside. Bolt the valve bases in position, solder the capacitors and the two 330 ohm resistors in positions as shown, taking care that these are the correct way round. The two .25mfd capacitors should not be attached at this stage.

### WIRING THE TWENTY-FOUR-POLE SWITCH

The switch is wired completely before it is fitted in the chassis. The wiring chart (Fig. 6) shows the lengths and colours of each flying lead. The bracketed connections are strapping connections within the switch. It will be found helpful in keeping a check as to which wires have been

attached, if a copy of the wiring chart for the switch is made on a large sheet of paper. As each connection is completed the appropriate colour is crossed out.

Work from pole 1 of switch 1, on wafer 1, right through to the final connection. Make the loop connections in passing, to obviate having to go back to already soldered joints.

Wiring throughout the unit was carried out in the following colours:—

Red—For all HT carrying wires; Yellow—For heaters and panel lamp connections; Brown—For all grid connections; White—For all earth; Blue—For permanently connected inputs—on rear of chassis; and Black—For all other connections.

The use of coloured wire is of great help when checking the circuit and in fault finding.

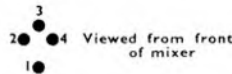
As each wafer is completed the wires can be bunched together out of the way of unfinished wafers. After completion check thoroughly the correct connections (and lengths) are made, as once the switch is mounted it will be found difficult to gain access to the lower part of the switch as it is against the tagboard.

### MOUNTING OF COMPONENTS AND WIRING CHASSIS

Packing pieces will have to be placed under the tagboards to adjust the clearance between the valve and the chassis top plate. The height of the floor is important. To obtain this correctly, place the tagboards on the tabs (which should have been bent inwards) and then insert strips of paxolin or similar material between the tagboards and the tabs, until the glass tip on the top of the valves is approx. 1/8-inch below the top of the chassis—the valve and base being temporarily attached to the tagboard.

Bolt in the tag boards in the correct position remembering that the rotary switch is on the left—looking in the top, facing the front panel—where there is not a valve fitted, and using

WIRING CHART FOR 24 POLE SWITCH ON STEREO-MONO MIXER



Wafer No.	Switch No.	Pole	Colour	Length (ins.)	Wafer No.	Switch No.	Pole	Colour	Length (ins.)
1	One	1	Black	6	3	Twelve	1	Black	12
		2	Brown	12			2	Brown	12
		3	Black	8			3	Black	9
		4	Brown	—			4	Brown	—
	Two	1	Black	7		Thirteen	1	Red	10
		2	Brown	12			2	Red	7
		3	Black	9			3	Red	10
		4	Brown	—			4	Red	—
	Three	1	Black	10		Fourteen	1	Red	10
		2	Brown	12			2	Red	6
		3	Black	10			3	Red	8
		4	Brown	—			4	Red	—
Four	1	Black	13	Fifteen	1	Red	10		
	2	Brown	12		2	Red	8		
	3	Black	10		3	Red	—		
	4	Brown	—		4	Red	10		
2	Five	1	Black	7	Sixteen	1	Red	10	
		2	Brown	12		2	Red	13	
		3	Black	9		3	Red	10	
		4	Brown	—		4	Red	—	
	Six	1	Brown	10	Seventeen	1	Black	8	
		2	Black	—		2	Brown	9	
		3	Black	—		3	Black	—	
		4	Black	—		4	Brown	—	
Seven	1	Black	—	Eighteen	1	Brown	8		
	2	—	—		2	Red	8		
	3	—	—		3	Red	10		
	4	Black	—		4	Red	—		
Eight	1	—	—	Nineteen	1	Brown	10		
	2	—	—		2	Black	—		
	3	—	—		3	Black	—		
	4	—	—		4	Black	—		
3	Nine	1	Black	7	Twenty	1	Black	—	
		2	Brown	6		2	—	—	
		3	Black	10		3	—	—	
		4	Brown	—		4	Black	—	
	Ten	1	Black	9	Twenty-One	1	Brown	12	
2		Brown	9	2		Brown	7		
3		Black	10	3		—	—		
4		Brown	—	4		Brown	9		
Eleven	1	Black	10	Twenty-two	1	Yellow	11		
	2	Brown	10		2	Yellow	10		
	3	Black	9		3	Yellow	10		
	4	Brown	—		4	Yellow	10		

Fig. 6. Wiring chart showing length and colour of each flying lead.

(Continued on page 22)

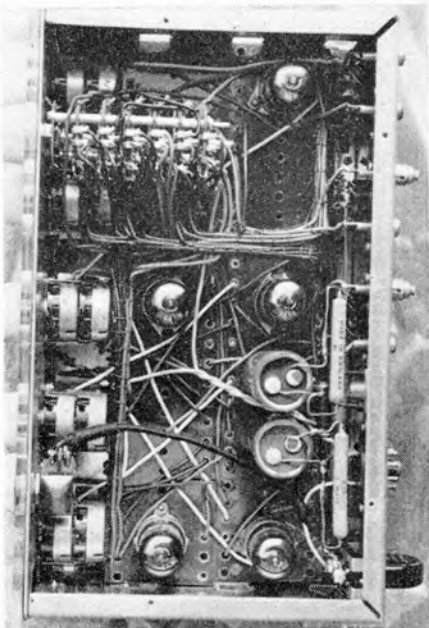
# BUILDING A STEREO-MONO MIXER UNIT

(Continued from page 21)

2BA bolts and nuts. Connect all 220K ohms, anode resistors were made from one each of a 10M ohms and a 5M ohms as the 15M ohms were not available. These are wired in series using the spare tags on the tag-boards for the connections. Solder the two .25 mfd capacitors and the two 330K ohms resistors in position.

This completes the connection of components to the tagboard.

Next, check that all components are below the bottom cover plate line, and are spaced as far apart from each other as possible to avoid any capacitance effects. Screened interconnecting wire is not necessary as due to the chassis design it is screened from outside effects. The circuit is shown in Fig. 7. Now commence wiring by making all connections on the tagboard (except the panel jacks



View looking in top showing bunching of wires.

and the twenty-four-pole switch, which are left out to give easier access) including the heater wiring which should be twin twisted wires.

Terminations M1 to M6 inclusive, on the wiring diagram should be connected to the socket marked *TO MONO MIXER* (M1 to pin 1, M2 to pin 2 etc.).

Terminations RA1 to RA5 inclusive, on the wiring diagram should be connected to the socket marked *TO PRE-AMP RIGHT* (RA1 to pin 1, RA2 to pin 2 etc.).

Terminations LA1 to LA5 inclusive on the wiring diagram should be connected to the socket marked *TO PRE-AMP LEFT* (LA1 to pin 1, LA2 to pin 2 etc.). Both pins number 6 on the *PRE-AMP* sockets should be strapped together and connected to earth.

Terminations RC1 to RC3 inclusive, on the wiring diagram, should be connected to the right-hand co-axial sockets marked: *TUNER*, *TAPEHEAD*, and *PICK-UP* respectively.

Terminations LC1 to LC3 inclusive should be similarly connected to the left-hand co-axial sockets.

The 250 + termination should be connected to pin No. 8 on the plug marked *TO POWER SUPPLIES*, and the 250- to pin No. 6. The 6.3v terminations are connected to pins 4 and 5.

The base details of the ECC83 valve are shown in Fig. 8. There are three heater connections. These may be wired for 12.6 or 6.3 heater supply voltage. If 12.6v is the supply then the pins numbered 4 and 5 should be used, i.e. the heaters are then in series. If (as is most common) 6.3v is the supply the heaters should be wired in parallel.

To effect this connect pins 4 and 5 with a short length of wire and then connect the supply to pins 4 and 9. Next bolt in the 24-pole switch and work through the wiring in the same sequence as in the wiring of the switch when out of the chassis. If difficulty is found in locating the wires at the underside of the switch a small mirror can be slipped under the switch between the switch and the tagboard. Attempt to keep the various colours leaving the switch bunched together as they are soldered. This can be achieved by temporarily twisting a short length of soft wire round the bundles.

After connecting one of the potentiometers check that the outside connections are the correct way round. It may be found that the volume is maximum when it should be minimum or vice versa. This will save a lot of hair-tearing later when all wiring is complete. This can be easily checked using a battery and bulb—or of course the proper test gear. Fit the ten panel jacks into the chassis and connect up correctly.

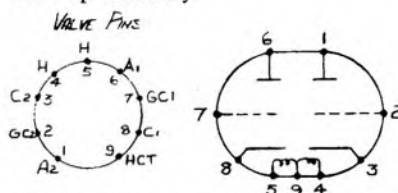


Fig. 8. Base details of the ECC 83 valve (viewed looking at base).

The final item of wiring is the switch connections. As the mixer may be used with either a separate power supply, or from the spare supplies on an amplifier, provision is made switching both. If a separate power supply is used then this should be controlled by the single pole on-off switch as shown in Fig. 9. The two-pin switch connection at the rear of the mixer is then connected to the mains

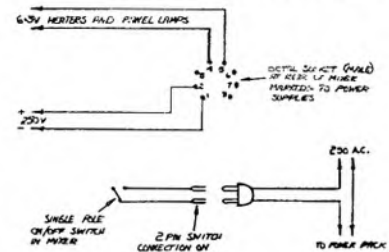


Fig. 9. Switching connections when using a separate power supply.

lead as shown. If the mixer is used from the spare supplies on an amplifier both the H.T. and L.T. connections will have to be broken to enable the mixer to be switched on or off without disturbing the amplifier. The alternative circuits are

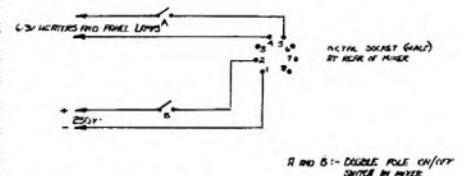


Fig. 10. Switching connections when using spare supplies.

shown in figures (9 and 10). The switch connection is not used for the latter case. If it is intended to use the spare supplies from an amplifier permanently, then the switch connection could be dispensed with. However it is easier to install when

(Continued on page 24)

# BUILDING A STEREO-MONO MIXER UNIT

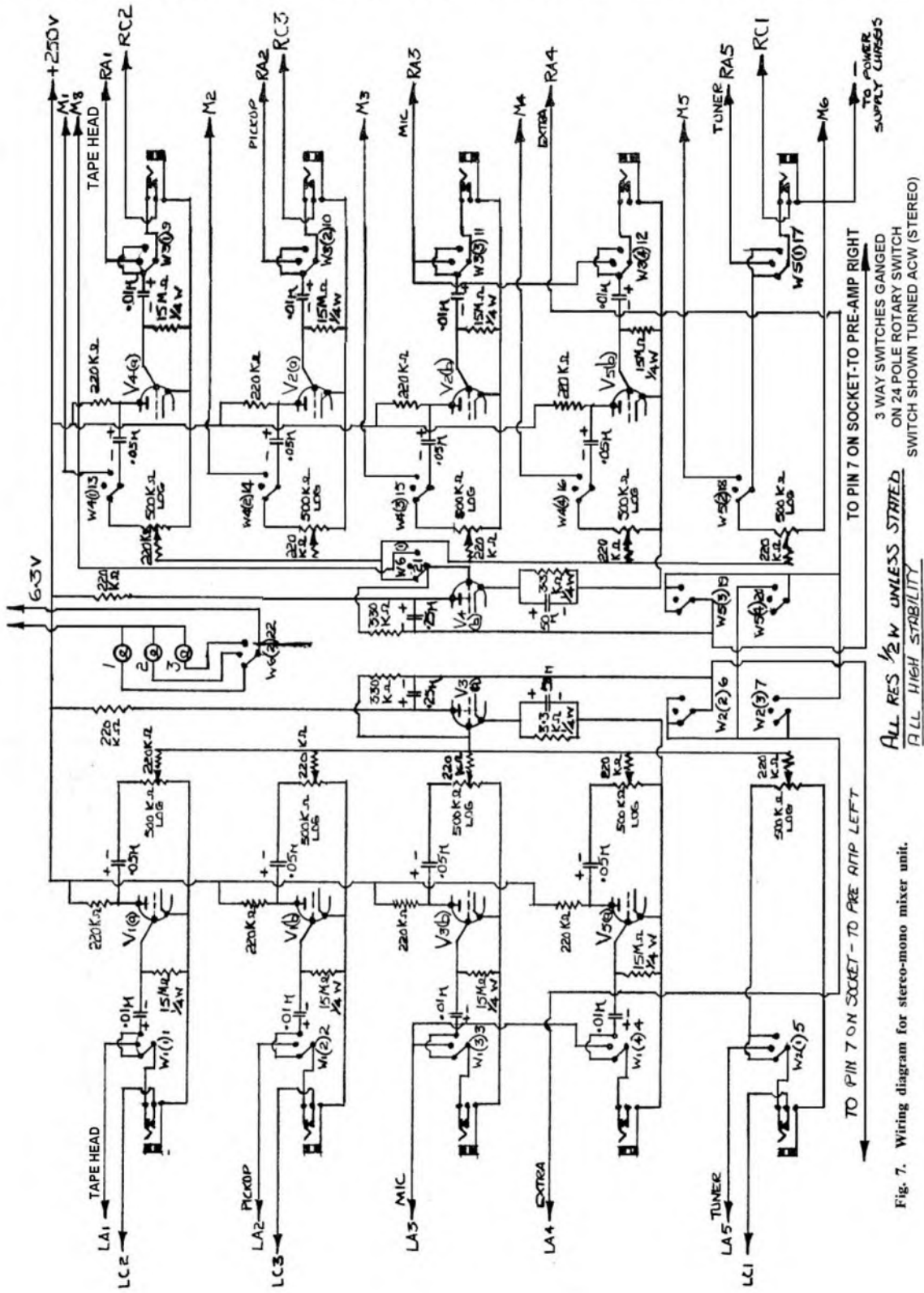


Fig. 7. Wiring diagram for stereo-mono mixer unit.

# BUILDING A STEREO-MONO MIXER UNIT

(Continued from page 23)

the unit is being built, than at a later stage.

## TESTING

After completion of wiring, the mixer should be tested before connecting to the power supply. When carrying out this, pay particular attention to the checking of shorts across the H.T. positive line to earth and shorts in the heater circuit. The unit is then ready for its test proper.

Connect the unit to the pre-amplifier

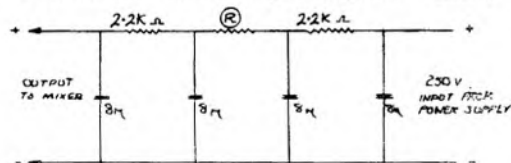


Fig. 11. Extra smoothing stages for power supply

and to the power supplies and switch on. Rotate the function switch on the mixer to "pre-amp," then proceed to test each individual input on the mixer by inserting a microphone in turn into each of the eight high gain sockets. A radio tuner or the "monitor" outlet from a tape recorder may be used to check the low gain (tuner) inputs. As the inputs are switched straight through at the pre-amp setting, do not forget to set the pre-amp to the appropriate function.

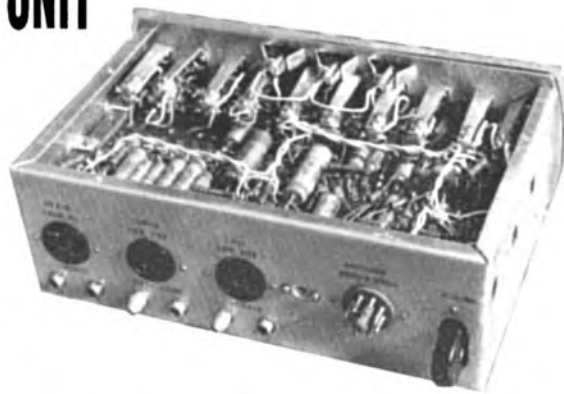
Next rotate the function switch on the mixer to "stereo" and the function switch on the pre-amp to "extra."

At this setting the combined outputs are fed direct to the "extra" sockets—left and right respectively—on the pre-amplifier. Set the volume on the pre-amp at normal listening and rotate the "tuner" fader on the mixer (with signal device connected and operating). The output from the loudspeaker, with the "tuner" knob turned to "max" should be approximately the same as when the input is straight through to "pre-amp." If hum is present this will most likely (as mentioned previously) be due to insufficient smoothing of the H.T. power supply.

The following smoothing stages (Fig. 11) will be more than sufficient for most partly smoothed power supplies. One stage (or even both) may be left out if found unnecessary. This is best found out by trial and error.

There is room inside the mixer to mount the extra components. These can be seen in the photograph below.

To check this temporarily connect one stage of smoothing. The hum content from the mixer (with the mixer controls all turned to zero, and the



View of underside showing twisted heater wiring

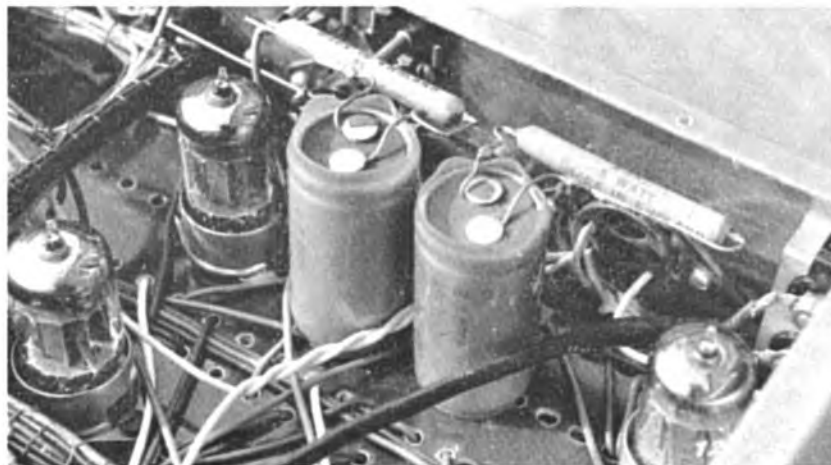
pre-amp at normal listening level) should be no worse audibly than when the mixer is not connected. If this is not so a further stage of smoothing should be tried.

One stage consists of two 8mfd capacitors and one 2.2K ohms resistor. If two stages are used then the resistor (R) should be inserted in between the two stages as shown in Fig. 11. If only one stage is used then (R) should be inserted before it. The value of (R) should be approximately 100K ohms. If it is found that the gain of

## THE NEXT STEP

**I**n the next article we move on to the construction of the plastic front panel. A step-by-step description of the fixing of the decorative transfers is given, together with methods of connecting the leads and fitting a clamping bracket for a cabinet fixture.

In the following issues we then turn to the construction of an add-on unit which will convert the stereo-mono mixer into a ten-channel mono mixer.



Close-up of 8-8mfd smoothing capacitors with resistors mounted on the wire ends. The capacitors are held in position by the wire ends which pass through the tagboards, and bend over to their respective tag connections.

the mixer is more than 1x (when mixing a tuner or output from corrected tape) then this resistance should be increased until the gain is approximately 1x (when the volume is turned to maximum).

For practical purposes to check this: turn volume of tuner control on mixer to maximum, and set the volume on the control unit or pre-amp with which the mixer is used, to an audible level. Then switch the mixer from stereo (or mono) to pre-amp. This will switch the input directly through to the pre-amp and the volume should be the same as when the input was being mixed. Similarly if the gain is not enough then the resistant (R) should be decreased in value. If hum still persists it may be the heater wiring.

**TO BE CONTINUED**

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The monophonic version (TA-IM) can be modified to the stereo version (TA-IS) by modification kit (TA-IC). Special features include the provision of a bias level control; easy-to-read thermometer-type recording level indicators; large printed circuit boards. Both models have identical presentation.  
TA-IM £19.2.6  
TA-IS £24.10.0  
TA-IC £6.15.0



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Tape Decks. High quality mono/stereo tape decks. D83, 2-track for highest fidelity £31.10.0  
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With TA-IS £52.6.0

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With TA-IS £50.9.6

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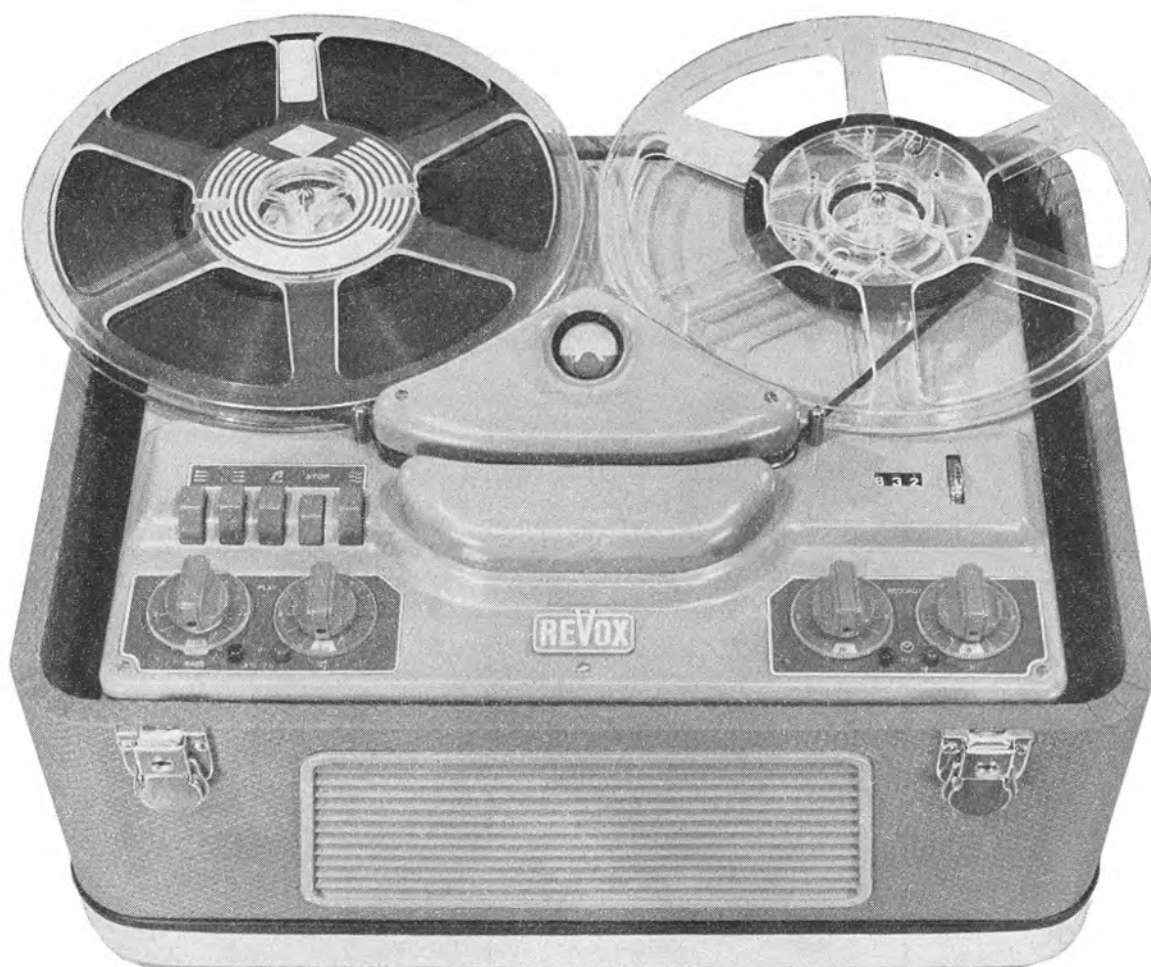
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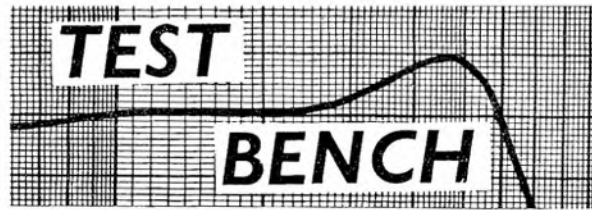
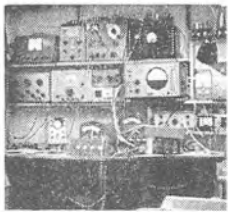
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# THE REVOX E36

IT is not often that a reviewer receives a piece of equipment which he can fairly say is among the finest available in its or any other price range. The Revox E36 comes into this class and it would not be possible to better it without spending a considerably greater sum than 110 gns., the price asked for this machine.

The excellence of this equipment must all be credited to the fact that it comes from the world famous firm of Willi Studer in Zurich, Switzerland. This firm manufactures some of the finest, if not the finest, professional recording equipment obtainable anywhere in the world, and it is to be expected that a domestic machine produced by them would benefit by the experience gained in the professional field.

The present machine is attractively styled in green and cream, with a simple, functional design. Though it is portable and a carrying handle is provided, its weight of 50 lb. is rather high for it to be carried about a great deal, rather it would be used as a static machine for high-quality work. The machine supplied

within the cabinet. This loudspeaker can reproduce either of the two inputs or the two outputs, or the sum of the two outputs. A separate volume control and tone control are provided for the amplifier, and operate independently of the cathode follower outputs. The replay characteristics can be switched to either the American NARTB or the European CCIR standards.

Separate gain controls are provided for the two record amplifiers and each has associated with it a switch enabling

## By H. Burrell Hadden

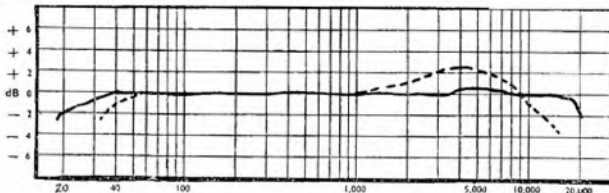
one of three inputs to be selected: microphone, radio or diode. An "off" position is provided on this switch which disables the erasing function for the particular track so that mono recording on either track can take place.

An interesting feature is that when only one track is being used, both recording inputs are switched to that track, so that the two record gain controls become a simple two-channel mixer. This is very useful for playing back one track, re-recording it, and simultaneously adding further material. A typical example would be the making of a sound track for a film. Level indication is by means of a magic eye, and a switch is

button, enable accurate "inching" of the tape to be achieved. The position of these five buttons on the left-hand side of the deck, makes for easy operation with the left hand whilst the right hand is free to operate the various gain controls. A digital tape position indicator is provided, the zero setting wheel of which is illuminated when the machine is switched on.

The inside of the machine shows the same careful attention to detail as is shown from the top deck. The valves are easily accessible when the bottom cover is removed, and it is a simple matter to remove the whole machine from its case should any servicing be required.

All the input and output sockets are to be found behind a removable cover at the back of the machine. The mains lead and plug are also stored in this  
*(Continued on page 36)*



Frequency response graph

Frequency response graph of the Revox E36.

Record replay characteristics at 7 1/2 ips ——— and 3 1/2 ips - - - - -

was the two-track stereo model, operating at 3 1/2 and 7 1/2 ips. There is also a four-track version available.

An unusual feature for a domestic machine is that it will accommodate a ten-inch reel of tape, that is, 2,400 feet of standard tape or 3,600 feet of long play, and using the latter tape, will record ninety minutes of stereo material (180 minutes mono) at 7 1/2 ips. The rewind time for a full ten-inch reel of standard play tape is eighty seconds, and a very even wind is produced.

The machine is provided with two record and two replay amplifiers, and three tape heads, so that a recording can be monitored from the tape and instantly compared with the input. In addition to the two replay amplifiers which feed to cathode follower outputs for each channel, there is a single six-watt power amplifier feeding a large loudspeaker

provided enabling either track singly or the sum of the two to be indicated.

The tape transport which is exceedingly quiet in operation, is operated by a row of five push buttons. From left to right, these are fast reverse and fast forward, play, stop and record. In order to set the machine to "record" it is necessary to depress both "play" and "record" buttons at the same time. If the "record" button is pressed accidentally when the machine is in the "play" condition, the tape will stop. It is possible to switch directly from play to fast wind without stopping the machine, a desirable state of affairs. Once in this condition, it is not possible to return to "play" without first stopping the tape.

The two "fast wind" buttons can be used to reverse the wind direction instantaneously, and together with the "stop"

## MANUFACTURER'S SPECIFICATION

Speeds: 7 1/2 and 3 1/2 ips.

Rewind time: 2,400 ft. of tape within 80 seconds.

Frequency response: 40-15,000 cps +2 dB -3 dB at 7 1/2 ips; 40-12,000 cps +2 dB -3 dB at 3 1/2 ips.

Wow and flutter: ± 0.1 per cent or better at 7 1/2 ips.

Signal-to-noise ratio: 50 dB or better at normal recording levels.

Dynamic range (at 3 per cent distortion): 60 dB at 7 1/2 ips. 58 dB at 3 1/2 ips.

Amplifier output: Six watts at less than 1 per cent distortion.

Channel separation: Mono; 55 dB; stereo, 40 dB.

Inputs: Microphone (0.15 mV for 200 ohms microphone, Ri 10 K ohms); Radio (100mV, Ri 100 K ohms); and Auxiliary, Diode (0.2 μ amps at 1 K ohms).

Outputs: One Cathode follower output for each channel (1 V, Ri 5 K ohms, Ra 100 K ohms); one connection for 5-10 ohm external loudspeaker with automatic muting of internal unit.

Valves: Three ECC 83, two ECC 81, two ECL 82, two ECL 80, one EM 71, three germanium diodes, three selenium rectifiers, four OC 45 transistors.

Mains voltage: 110, 125, 145, 220, 240 volts, 50 cycles.

Power requirements: 120 watts.

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# Letters to the Editor

## "Some traditions, legends and superstitions of the British Isles"—tapes available on request.

I NOTE your recent comments on the apparent lack of interest among some recorder owners. I have found this very true also in my search for items for this series. Earlier this year I sent out letters to about six individuals having their names listed in various magazines as requiring contacts, and in all cases I enclosed stamped envelopes. Out of the six, I had one reply.

I am trying to make up a series of

tapes under the heading *Some traditions, legends and superstitions of the British Isles*. At the moment I have two such tapes running to 450 ft., half-track at 3½ ips.

Most of the items have been contributed by tape exchange contacts of mine, and some are live recordings made on my own Stuzzi. All the items are copyright free, and I am willing to provide a dubbing on a new Philips 450 ft. tape

for the cost of the tape itself, i.e. 14s. 6d.

I would be grateful for contributions for future series of non-copyright material from clubs or individuals, and would undertake to return their tape promptly and refund postage on same. Any recording at any standard speed or tracking could be dealt with, but the recording should be fully-modulated to give an acceptable dubbing.

This is a non-commercial project, and is done entirely as a hobby of mine as a member of E.S.T.R.A.

May I once again say thanks for a grand magazine, which is always so informative and impartial.

"Traveller's Joy," KEN LINGARD.  
Honiton, Devon.

## Christmas Father!

GOSH, Dad, look what I got in my pillow-case—a real tape recorder! Dad! DAD! D-A-A-D!!

No, it's not—it's gone five, Dad, honest.

I bet it's three whole minutes after five, Dad.

Dad, I say—guess how many motors its got inside!

Well, have a guess anyway, Dad. I'll tell you then—three.

Dad—you've gone to sleep again—I said THREE.

Well, I happened to have your screwdriver in bed with me . . .

Honest, it's alright, Dad. The motors don't come out—you can only get them a bit loose.

I say, Dad, why has this cover come off the deck?

O-O-O, I forgot about those screws. I bet I left them inside when I fixed the base back on.

Dad, when are you getting up so we can try the recorder?

But it's nearly SIX already, Dad! Dad, here, listen to the counter go "click-click" as I force the reel round . . . Dad, where are you?

There, I've put it under the bed-clothes so you can hear.

Gosh, this is a super reel of tape, Dad! I bet it's double-double play, Dad.

I bet it's longer than Jimmy's, or Michael's, or David's, or anybody else's!

I bet I can wind it over and under the bed hundreds of times, Dad.

H-e-e-e! Now you and Mum can't sit up!

I bet I can drop the recorder right on your nose and you can't sit up.

See?

And I bet I can push this jack plug . . .

Oh, Dad, now you've broken the tape, getting up suddenly like that!

I bet I could join the bits with this super splicer, Dad.

I'll practise first on the piece of your watch strap I'm cutting up, Dad.

Oh well, I 'spect it'll work with tape . . .

Gosh, you're getting up now, Dad . . .

. . . and putting the plug on the lead so I can work the recorder all by myself!

Why are you fixing that red wire to the terminal marked "E", Dad?

Why do you want a quiet Christmas, Dad?

I promise not to bother you any more once I switch on, Dad.

Honest! F. E. HOLLAND

## Salvation Army tapes required

I OPERATE a Missionary Tape Service for the overseas department of the Salvation Army, collecting and editing recordings of Salvationist gatherings made in this country and in USA, Canada, and Australia. These are compiled into programmes on five-inch (600 ft.) reels half-track at 3½ ips, and include tapes of radio and TV broadcasts by or about the Army. These latter extracts are, of course, recorded subject to the usual permission being obtained from the various broadcasting concerns.

The tapes are despatched in batches of three to various sections of a route which takes in all points east of Ghana through Africa, the Middle East, India, Singapore, Hong Kong, Japan and the Philippine Islands. They are issued every three months and go to SA missionaries.

By this method we keep these officials in out-of-the-way places in touch with current affairs regarding the Army.

I wonder if any of your readers who have recordings of SA events, country and language material, would allow us to copy and edit them. I should be most grateful for any assistance received in this respect.

To close I would like to publicly thank all the organisations who have helped in this project, including BBC, ITV, and E.M.I. An especial word of thanks to Messrs. Grundig, who loaned us one of their TK1 battery portables when we wished to record an SA cross-channel trip on the *Royal Daffodil*.

W. H. GOODALL,  
Sgt.-Major SA Corps.

25, Stronsa Road,  
Shepherds Bush,  
London, W.12.

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# HOW ARE NEW RECORDERS BORN?

# E.S.T.R.A.

WHEN a company decides to market a new tape recorder do they first undertake any research to discover what the public wants in a machine? For instance, do they ever ask the serious tape recording enthusiast what modifications or additions he would like incorporated or do they study the requirements from his point of view?

I realise, of course, that the price factor is involved here and that one could not expect to find one's requirements on a cheap recorder. However, some of the high-grade machines on the market can be classed with semi- or professional machines which the serious creative recordist would wish to use as a recorder and not just as a play-back machine.

Looking at the recorders on the market

today, particularly the expensive domestic machines, we in our club have one main criticism and that is that one cannot edit or get to the heads without stripping off half of the deck. Another point which came up during a demonstration at the club by a well-known company making a good recorder was the fact that nearly all microphones are supplied with a short lead only. The question of impedance comes into this, of course, but at least six to ten yards are needed if, for instance, one wishes to record a wedding or a choir. The company we criticised on the latter two points promised to look into them. How about the other manufacturers?

RONALD TUCKER.

*London Tape Recording Club.*

## Petition for cheaper airmail charges

REFERENCES have been made concerning the transmission of message tapes by 2nd Class Airmail, the idea being principally to alleviate cost. With due respect, I would draw attention to the fact that this practice is highly irregular and a direct contravention of the G.P.O. regulations which forbid the transmission of message tapes containing a recording of a personal or current nature by other than 1st Class Airmail. If tapes contain anything other than the above, and the regulations itemise recordings of music, public speeches and so on, it can be sent 2nd Class Airmail if enclosed in strong protective covers.

The G.P.O. can heavily surcharge either the sender or the recipient if the tape is found to contain a personal or current message.

Tape exchanging depends upon the service of the G.P.O. and aggravation of the system will produce anything but harmonious associations with them. A far better way of illustrating dislike of the cost of transmission, would be to organise petitions. Tape clubs could combine here and present a sizeable list of names.

## "This is Voicespondence"

WHILST we do not come into the "manufacturer" category in having material available to tour local clubs (*Letters, September issue*), we have a twenty-minute promotional programme called *This is Voicespondence*. Produced for my own tape club, it is available for loan by local clubs.

Recorded on a four-inch reel at 3½ ips, it contains general information regarding tape exchanges, and advice as well as a run-down of our aims and claims.

Although having the largest number of active members of any similar club in the world, we feel we do not overlap or conflict with the interests of the local member: rather that one is more complementary to the other, and certainly an added interest to any person not yet engaged in organised tape exchanges.

ROBERT COOTE.

*The Voicespondence Club, 27, Royal Oak Road, Bexleyheath, Kent.*

One such petition, organised by World Wide Tape Talk, is already in circulation, why not start another asking the G.P.O. to find a way of reclassifying our tape spools so we can use 2nd Class Airmail charges.

A. R. HUNT.

*World Wide Tape Talk,  
Ryde, Isle of Wight.*

## REPAIRED RECORDER RETURNED BY AIR

I CAN thoroughly recommend for inclusion in your list of firms which give excellent service, The British Ferrograph Recorder Co., and their subsidiary Wright and Weaire, who manufacture the Wearite deck.

Reports of them from several sources are borne out by my own experience. Apart from being ready to help with advice, they seem prepared to stand over their excellent equipment indefinitely.

Some time ago I was troubled by slight flutter in a Wearite deck, and this was confirmed by sending a recording to

I WOULD like to draw attention to the active work of E.S.T.R.A. towards widening the interest and scope of tape recorder owners.

Emphasis within the organisation is laid upon the *activity* rather than the *number* of members, and the group faces realistically the membership turnover which is inevitable in this kind of movement. We aim to encourage members' participation in larger ventures than would be possible for the individual, and in our thrice-yearly News Sheet and Membership Supplement, members requests, suggestions and information are given ample coverage. Tape exchanges are, of course, the bread-and-butter of the group and we provide regular listings with full details of other hobbies etc., and the type of equipment owned.

I can speak of E.S.T.R.A. in warm terms because I have nothing to do with its organisation, except as a member of its "Welcome" committee from which a suitable person is selected to send a tape to a new member of similar interests.

Any interested persons are invited to contact the secretary, Robert Ellis, of Schoolhouse, Whitsome, By Duns, Berwickshire.

IRVINE F. SWIFT.

*Stretford, Manchester.*

the makers. The trouble proved to be stiff-running capstan bearings, and when the machine was returned to their factory I requested a speedy repair as I needed my recorder urgently.

Within a week I had a detailed report stating that although the performance was within the specification, a new capstan assembly had been fitted. They also quoted the final figures, which were excellent, and stated that the deck was on its way *by air*. As though this wasn't enough, they made no charge.

Vortexion Limited are another firm which produces first-class equipment and are prepared to stand over it. How refreshing it is to find a firm with so much pride in their work that they prefer to service it themselves rather than risk a lowering of their standards.

Anyone wanting hi-fi recordings would be well advised to keep these two firms in mind.

L. V. J. REID.

*Belfast, Northern Ireland.*

## ANOTHER BOUQUET!

I WOULD like to mention the exceptional service provided by Messrs. Stereo Sound of Brighouse, Yorkshire.

Shortly after purchasing my Carousel tape recorder, the deck developed a fault. I rang this firm who sent their van to collect the machine. Within three days they altered and fitted a completely new Studio deck and returned the recorder to me without any charge.

I feel that more of this attitude in the recorder industry would be more than welcome.

T. E. McCOY.

*Manchester 8.*



# TAPE RECORDS REVIEWED

## THE CLASSICS

By Edward Greenfield



Recorded music critic of "The Guardian"

**CARMEN JONES.** Grace Bumbry, George Webb, Ena Babb, Elizabeth Welch, Thomas Baptiste, Mike Sammes Singers, New World Show Orchestra conducted by Kenneth Alwyn. World Record Club (TT 181), 3½ ips, mono. 29s.

Musically this is a far more stylish performance than the one given in the film. Grace Bumbry has now made her mark as a serious opera singer of the first rank, and it is wonderful to hear Carmen's part here sung with such richness and assurance.

Some were surprised when critics accepted the translation of Bizet's opera to a very different negro setting, but in fact this is astonishingly faithful to the original intentions, and no violence of any matter is done to the music at all. What the translation does is to add a modern tang which is very much in keeping with the original story, where conventional productions of the original sometimes lose the sparkle of the work from their very conventionality. How completely in character it is for example in the quintet for Carmen to sing *There's a man I'm crazy for* on the notes Bizet wrote for the phrase "Je suis amoureuse." Plainly there is room for both "Carmen" and "Carmen Jones," and to have the adaptation so well performed as here only reinforces that opinion.

Musically superb, Grace Bumbry does not always have quite the bite and "temperament" of her screen counterpart, but then that was a combination of Dorothy Dandridge's appearance with Marilyn Horne's voice. George Webb has a delightfully pure tenor which is still characterful. The Cindy Lou of Ena Babb is not so sweet or steady but the duet *You talk just like my Maw* is still delightful.

The Husky of Thomas Baptiste is on the light side—the boxer needs to be more of a heavyweight—and the chorus, unlike the soloists, sounds rather too English and is obviously on the small side. But these are small blemishes on an excellent issue very well recorded. I am glad that a conductor of the experience of Kenneth Alwyn should have agreed to make such recordings. I hope he does more.

**MAHLER: Symphony No. 1.** London Philharmonic Orchestra conducted by Sir Adrian Boult. World Record Club (TCM 31), 3½ ips, mono. 29s.

This is one of Mahler's most approachable works, long in minutes it is true, but with an overall simplicity of conception that reflects the childlike enthusiasm Mahler so often explicitly introduced into his scores.

The main theme of the first movement was taken from one of his most delightful song-cycles, *Songs of a Wayfaring Lad*, and the quotation no doubt provides the clue to Mahler's intentions in the symphony. The second movement is a genial clod-hopping Austrian dance and the slow movement introduces a minor-key version of what most of us recognise as the French nursery rhyme *Frere Jacques*.

Boult gives an alert and highly interesting reading, and Mahler's scintillating orchestral colours are well caught with the typical clarity of recordings made by Everest (World Records holding the concession here). But I wish Boult had not been in quite such a hurry. As it is, the work lasts something like fifty minutes, but each of the four movements is taken faster than usual. There are gains in that, of course. The freshness is emphasised, but the easy geniality of the work tends to disappear. A most welcome issue.

\* \* \*

**MOZART: Oboe Concerto in C, K.314; Symphony No. 34 in C, K.338.** Leon Goossens with the Sinfonia of London conducted by Colin Davis. World Record Club (TT 59), 3½ ips, mono. 29s.

Over the years Leon Goossens, for so long the world's premier oboist, has been shockingly neglected by the record companies. Even here he is soloist only on one side, and I can think of a number of more suitable couplings than the admittedly delightful symphony No. 34. But I must be grateful for what we do have. Goossens no longer shines technically over rival oboists in quite the way he did before the war, but that is no reflection on him. Rather that the standards of technique among woodwind players generally have risen out of all recognition in the last few decades.

Here one finds passages in the concerto which are not quite so firm rhythmically as they might be, but what still shines out and makes this an inimitably Goossens performance is the fat, ripe tone-colour. Even there, of course, Goossens has latter-day imitators, so that nowadays it is not always possible to identify an orchestra with Goossens in it as one could unfailingly identify the pre-war L.P.O. But in a Mozart oboe concerto Goossens has no serious rivals, and the galumphing rondo finale is as delightful as any Mozart you could want.

Colin Davis is the excellent conductor. Since the disc was made a year or so back he has secured a higher degree of polish on some of his Mozart performances, but there is never any doubt either in the concerto or the symphony that this is masterful conducting. Davis obviously believes in Mozart's strength, and this will satisfy everyone except those who are merely looking for the "pretty-pretty" in Mozart. Whenever it was made the recording is well up to the latest standards of the WRC tapes.

A footnote to remind Goossens's fans to look out for the delectable oboe passages in the rumbustious finale of the symphony, superbly played by Goossens and his second oboe colleague.

The tapes reviewed this month are available from the following addresses:—

"Capitol," "HMV," and "Columbia": E.M.I. Records Ltd., 20, Manchester Square, London, W.1.

"Music-on-Tape": Tape Recordings London Ltd., 188, Vauxhall Bridge Road, London, S.W.1.

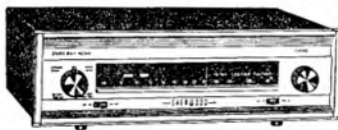
"World Record Club": Box 11, Parkbridge House, The Little Green, Richmond, Surrey.

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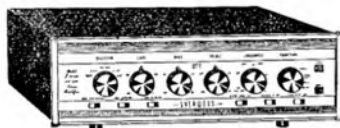
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## NEW POPULAR MUSIC ON TAPE



**"HIGH SOCIETY" SOUNDTRACK.** Bing Crosby, Grace Kelly, Frank Sinatra, Louis Armstrong, etc. Capitol (TA-W750), 3½ ips, mono. 38s.

"High Society" was probably the last of the great old-time film musicals. It had a simple boy-girl love story with comedy overtones, a luxurious background, good songs and simple staging.

Musicals now have a sociological outlook—the biographical background of "Gypsy," the flashing knives of "West Side Story," the plea for reformation inherent in "Oliver" and so on.

This film, with its Cole Porter score, will be looked back on by many with great pleasure. The soundtrack makes a shortish record, but is packed with the talents of Crosby, Sinatra, Louis Armstrong and Celeste Holm.

They range from the exciting *High Society Calypso* with Armstrong, to Sinatra's great ballads *You're Sensational* and *Mind If I Make Love To You*; the clever patter of Crosby and Sinatra in *Well Did You Evah?* and the swinging *Now You Has Jazz* by Bing and Luis.

The highlight, of course, was *True Love* in which Crosby showed his greatest crooning style, gently joined by Grace Kelly.

This is another record to treasure.

\* \* \*

**"JUDY AT CARNEGIE HALL."** Judy Garland recorded at a New York Concert. Capitol (TA-WI 1569) and (TA-W2 1569), 3½ ips, mono. 38s.

When Judy Garland came to Britain in the summer of 1960 she had little thought of working. A suggestion to perform a one-woman concert was made and she tentatively tried it out on a Sunday evening at the London Palladium.

It was a great success and she repeated it at the theatre and also at some provincial concert halls. It began a new aspect of her career.

The culmination was when she took the presentation she had tried out in Britain to the Carnegie Hall, New York—probably the world's most famous concert hall.

Carnegie is painted plain white almost throughout. It gives a clinical calm to the assembled concert-goers. As you enter you wonder how anyone can enjoy being in the hall at all. But though large, it has a strange sense of intimacy when the audience gathers.

This was the unusual setting for Judy Garland's greatest triumph on the evening of Sunday, April 23, 1961.

She had not appeared in New York for several years and it was a great occasion. Capitol put its recording gear in and captured it. It makes the most exciting record ever of a public performance.

Judy Garland goes through her repertoire of great songs and, when the audience calls for more, offers to stay all night and "never go home."

Her voice cracks and fades, but the tremendous spirit of the woman never fails. She tugs at her heart-strings and yours get tugged, too.

## By DON WEDGE

of "New Musical Express"

The audience is enthralled and wildly appreciative. It is all communicated via this record. To enjoy it, it needs most of an evening—the concert was recorded in full with a break between the two records at the interval.

The records were originally issued as LP's a year ago. One disc is not big enough to take it all, there had to be two; but it could have been carried on one tape.

I suspect many buyers would welcome this even though it would be more expensive than EMI's present under £2 policy. Perhaps consideration will be given to issuing it in this alternative form.

\* \* \*

**SORTA MAY.** Billy May and his Orchestra. World Record Club (TT 180), 3½ ips, mono. 29s.

Billy May startled the music world a decade ago by discovering a fresh approach to big band arranging. It revolved around what was known as "slurping" saxes, supplemented by brilliant trumpet writing.

It wasn't completely new—the sound had been used before—but it was the first time a complete arranging style had been built around it.

Over the years it has become something of an accepted novelty. It is no longer raved about, but has passed into the current idiom of big band arrangements.

At the time it was hailed as the first new sound since Glenn Miller. It was too much of a gimmick to be acceptable as such and May quickly developed it by being more infrequent in its use.

However, this record is slurping all the way. It's a pleasant reminder of the impact May made when this sound was first introduced. It is a good pace-change if you are planning an evening of background music. There's nothing else quite like it available to tape record buyers.

Most of the tunes are familiar ones, like *Thou Swell* or *In a Persian Market*. Not so well known is one track *All you Want to do is Dance*.

This is another quality record and a valuable addition to the tape catalogue.

\* \* \*

**32 MINUTES AND 17 SECONDS WITH CLIFF RICHARD.** Columbia (TA-33SX 1431), 3½ ips, mono. 35s.

The most recent of Cliff Richard's LP's quickly emerges on tape. By Britain's best-selling disc artist, it is yet another worthy addition to the pre-recorded tape catalogues through EMI's very comprehensive pop music issues.

Six of the fourteen tracks feature Richard with the Shadows. For the remainder, he is accompanied by an orchestra directed by his recording manager, Norrie Paramor.

(Continued on page 36)

## MUSIC ON TAPE

The Tape Record People

### STANDARDS OF TOMORROW ●

★Albert van Dam and his Orchestra

"... vivid imagination ... great sense of tone-colour ... excellent recording."—Audio and Record Review.

### SALUTE SERIES

(Miller, Heath, Dorsey, Kenton, etc.)

★Brussels International Big Band

"One of the most exciting series available ... degree of dedication to the original which is astounding."—Don Wedge 'Tape.'

### SONGS AT EVENTIDE ●

★Riverside Singers and Orchestra

"Credit to British Musicianship and Group Singing."—Michael Francis 'Audio and Record Review.'  
"... unbelievable high quality of performance ... superb arrangements."—Don Wedge 'Tape.'

### STEREO CONFIDENTIAL ●

"... has lessons for all beginning to study stereo ..."  
"... fascinating tape, done tongue-in-cheek, yet with a serious purpose ... good entertainment both musically and technically."—Michael Francis 'Audio and Record Review.'

### I WANNA BE NEXT

Mack Antony and the Harold Geller Sound

"... for the younger element ... plenty of beat ... interesting and lively."—Stan White 'Amateur Tape Recording.'

### BRIC A BRAC

A Garland of Victorian Poesy

"A charming trifle ... read with a 'proper' seriousness."—Spectator.

### TEA AND TRUMPETS

Harold Geller Orchestra

"... features a Calvert-type soloist ... newly made ... issued here before America."—Don Wedge 'Tape.'

### FILM MUSIC

Michael Sammes Singers, Patricia Bredin, etc.

"... first-rate artistes and music throughout."—Stan White 'Amateur Tape Recording.'

### UNDER PARIS SKIES

Felix King and his Orchestra

"... melodic simplicity is refreshing ... ideal for background or dancing."—Audio and Record Review.  
"Nostalgia overtook me as I listened."—Don Wedge 'Tape.'

### HOLY TERRORS

the poetry of Ralph Pomeroy

"... vigour, intelligence and imagination ... Bryan Kendrick has material worthy of his fine talent."—Spectator.

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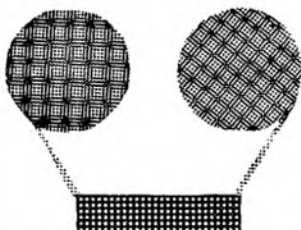
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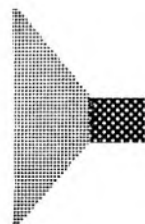
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**NEW PRODUCTS**



**STEREO TUNER ADAPTOR**

RECENTLY introduced to this country by Audison Ltd. are three units from the Sherwood range of hi-fi equipment manufactured in America.

The first of these is their FM tuner which can be adapted to receive the stereo Multiplex system broadcasts now being transmitted four times a week by the BBC from Wrotham.

The unit is the S-3000111 FM tuner. Precise details are given in the special catalogue tuner on page 16 of this issue. The add-on unit designed to adapt for stereo is designated the S3MX FM-Multiplex stereo adaptor. This is a self-powered unit which can be operated with a variety of FM tuners. Complete inter-connecting cables, instructions and modification parts are included to facilitate the stereo performance of most older tuners. Front panel controls include stereo blend and output level, and two switches select stereo/mono and power on/off. It costs £25 18s. An unpowered version, suitable only for the Sherwood tuner, costs £18.

The two other units announced are both stereo amplifiers. First is the S-500011 80-watt stereo amplifier and pre-amplifier designed to furnish adequate power to drive any of the modern

low-efficiency speakers. It features continuously variable loudness compensation, a tape-monitor switch, and a phase/reverse switch. Other features include 12 dB/octave scratch and rumble filters which operate on all channels, outstandingly low phono-channel noise and hum 60 dB below rated output, and exceptional 1.2 mV phono sensitivity. It costs £79 10s. less case.

The 64-watt version of this unit, designated S-550011, is almost identical but has additional facilities, including friction-locking bass and treble controls, and eight high-level and four low-level inputs. The price is £67 10s.

Audison Limited, Orchard House, Orchard Street, London, W.1.

**ILFORD ENTER TAPE FIELD**

ILFORD LIMITED the film manufacturers announce their entry into the magnetic tape field with the introduction of a P.V.C. based tape.

Their new product, Ilfotape, will be available in three lengths on 5, 5½, and 7-inch spools. These will accommodate 900, 1200, and 1800 ft. of tape at the respective prices of 28s., 35s. and 50s.

Described as suitable for all conventional tape recorders having great insensitivity to temperature and humidity variations, the new tape has a super

**Tape strobe from Philips**

THE Philips tape strobe, illustrated below, is a simple little gadget comprising a flat-banded wheel that drives a stroboscopic disc through a gearing system. To operate, it is only necessary to press the strobe against the tape. The driving wheel will then revolve and actuate the strobe disc.

If the strobe is placed between the feed-spool and heads on the magnetic side of the tape it is quite easy to draw out a loop of tape that will not interfere with the running speed of the tape.



The strobe disc has four scales, 7½, 3½, 1¼ and 15/16 ips, and speed checking is achieved with the aid of a 50 cycles source of illumination. The unit costs £2 5s.

Another recent announcement from Philips concerns their three-inch tape packs. These are available in a three-colour postal wrapper printed with season's greetings and an address panel.

Philips Electrical Limited, Century House, Shaftesbury Avenue, London, W.C.2.

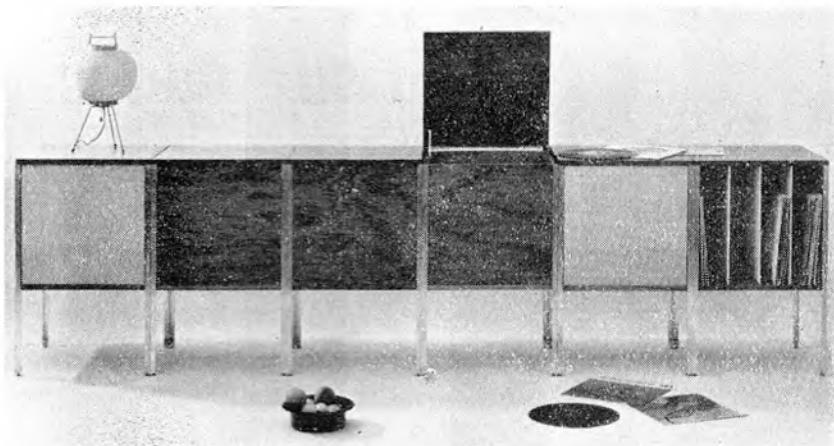


polished surface enabling exceptionally high quality results to be obtained at 3½ and 1½ ips.

Ilfotape, long-play tape, will be available on standard polystyrene spools supplied in heat sealed polythene bags enclosed in distinctive hinged cardboard boxes. Each tape is provided with a coloured leader and trailer incorporating metal contact foils for automatic tape end stop. It will be in the shops as from January 1, 1963.

Ilford Limited, Ilford, Essex.

# DO-IT-YOURSELF HI-FI CABINETS



WITH an ever-increasing interest in fine reproduction in music, more enthusiasts are assembling their own hi-fi equipment. For such enthusiasts, furniture-designer Frank Guille has produced a unit system to house a complete hi-fi installation.

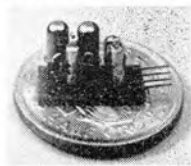
A standard cabinet made of Vipboard (a chip board veneered on both sides and all edges) is used for each piece of equipment, adding together as many units as are necessary. Our illustration above shows, left to right, cabinets for speaker, tape recorder, tuner and control units, record player, speaker, and record storage. The total cost of Vipboard would be £18 10s. 6d., but assemblies of two, three or four cabinets could be used if less extensive equipment was to be installed.

Free instruction sheets, G.5, are available from Vipboard retailers, or direct from the manufacturers.

Vipboard (Great Britain) Limited, Chichester House, 278-282, High Holborn, London, W.C.1.

## MINIATURE AMPLIFIER

A COMPLETELY new "micro-amplifier" which should simplify the miniaturisation of many products has recently been developed by Sinclair Radionics Ltd. It is illustrated, left, placed on a half-crown piece. The amplifier occupies less than one-tenth of the volume of a matchbox but has a power gain of 60 dB. The response is quoted as sensibly flat between 500 and 100,000 cps, the 3 dB points lying at 150 cps and 200,000 cps. The power gain is 40 dB at 2 Mc/s.



Sinclair's announcement states that the linear range may be greatly extended with the use of feedback; that the amplifier works equally well with supply voltages between 1.3 and 9v, and current drains of ½ to 3 mA; and that output powers between .3 and 150 mW may be supplied as required.

Sinclair Radionics Limited 69, Histon Road, Cambridge.

## LUSTRAPHONE INTRODUCE RADIO MICROPHONE

ANOTHER way round the problem of recorder portability is announced with the introduction by Lustraphone Ltd. of their radio microphone system.

Their Radiomic is a completely mobile unit comprising a fully transistorised crystal FM transmitter (FMT/604), and Receiver (FMR/605), and the dynamic "Lavalier" microphone complete with Neck Halter Model LV/69. An alternative microphone for use with the Radiomic is the miniature electromagnetic lapel microphone (LP/62) which measures 1 x ½ x ¼ inches. Supplied complete with cable and connector it has a frequency response substantially maintained to 6,000 cps.

The "Lavalier" microphone is 2½ inches long with a one-inch diameter. The transmitter, measuring approx. 3½ x 2½ x ½ inches and weighing approx. four ounces, can be carried allowing the fullest freedom of movement to the user. The receiver, 7½ x 4½ x 4½ inches, and weighing 3½ lbs, has its own built-in battery supply enabling the system to be used with other transistor equipment for recording, outside broadcasting, public address and all short range communications.

Full details and prices are available from the manufacturers.

Lustraphone Limited, St. George's Works, Regent's Park Road, London, N.W.1.

## NEW BATTERY RECORDER

A COMPACT battery-operated all-transistor two-track tape recorder designed for speech-recording is announced by City & Sale Exchange, the London cine and tape dealers.

Made in Japan, the Sanyo tape recorder incorporates non-standard reels of 2½ inch diameter, providing a playing time of up to thirty minutes. It operates on four 1½-volt penlight batteries, has provision for remote control, fast power rewind and telephone pick-up. The quoted frequency response is 200-2,000 cps and the power output is rated at 150mW.

Complete with carrying case, microphone, and earphones it sells at 14 guineas. The penlight batteries are available at 2s. 8d. per set, or four Mallory cell batteries are 13s. per set.

City Sale & Exchange Limited, 93-94, Fleet Street, London, E.C.4.

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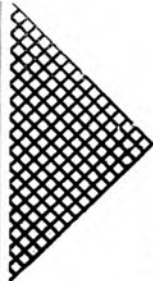
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# News from the Clubs

## BETHNAL GREEN

Latest meeting of the Bethnal Green club was also its A.G.M. During the review of the past year it was stated that the club had made great progress, having established contact with several clubs both in this country and abroad, and had found a wide circle of activities including entertaining hospitals and old folks' homes.

At an earlier meeting the members revisited a Rehabilitation Centre to give a taped concert and recording demonstration. On another occasion they went along to an old-age pensioners' club to give a concert and record personal messages for the old folk.

Secretary: R. J. Gentle, 24, Hyde Road, London, N.1.

## CAMBRIDGE

Twenty manufacturers and dealers took space to display and demonstrate tape recorders during the three-day Audio Exhibition organised by members of the Cambridge tape club. Daily attendance figures reached a "highly satisfactory" figure, and the members are now looking ahead to repeating their success next year.

The Studio and Control area covered some 800 square feet, and housed the announcers and programme hosts together with television cameras operated by Dave Neech. Sound and vision signals were fed to the control room by yards of cable to Peter Shiston who controlled eight microphones, four tape recorders, three disc turntables and the TV system. Over three miles of tape and a hundred discs were in constant use.

Highlight of the exhibition was the talent contest to find the "Voice of Cambridge." The eventual winner, a local girl, received a voucher prize from Mr. Bob Wells, Sales Manager of Cosmocord Ltd., who sponsored the contest. The society's exhibition was featured in the BBC Midland's programme "Wednesday Review" after the exhibition. Secretary Mike Renshaw and Peter Shiston were interviewed and extracts from some of the exhibition tapes were also broadcast.

Among the exhibitors were BASF, Brenell, Cosmocord, E.M.I., Grundig, M.S.S., Stuzzi, Truvox, Telefunken and Zonatape. Oh! and we took a page advert. in their 36-page catalogue.

Secretary: Mike E. Renshaw, 6, St. Vincent's Close, Girton, Cambridge.

## COTSWOLD

The earliest of the most recent of the Cotswold club activities saw Peter Turner and Peter Duddridge providing an illustrated talk on their hospital service, to a Women's Institute. This included a lecture and many excerpts from material recorded for inclusion in "Hospital Roundabout."

On October 4 the society welcomed Mr. A. C. Griffith, of the World Record Club, and were entertained to a talk on the policy of the company, with particular reference to tape as a source of recorded music alongside disc. A Simon SP4 recorder was used for the playback of a wide variety of their 3½ ips mono tapes; and after an interval equipment loaned by E.M.I., including a stereo recorder, power amplifier and two HMV loudspeakers, were used to hear the WRC 7½ ips stereo tapes.

## Lecture / Demonstrations

CLUBS wishing to invite demonstrations and/or lectures are invited to contact the following companies who have offered their services:—

BASF Chemicals Ltd., 5a Gillespie Road, London, N.5.  
 Grundig (Great Britain) Ltd., Newlands Park, Sydenham, S.E.26.  
 Lustraphone Ltd., St. George's Works, Regent's Park Road, London, N.W.1.  
 Truvox Ltd., Neasden Lane, London, N.W.10.  
 Further names will be added as received.

Seven days later Peter Turner, this time with June Turner, attended a meeting of the Stroud Show Committee to play back recordings made at the Jubilee Show (described in our November issue). Great satisfaction was expressed at this tape, and copies have since been made for transmission to the Strouds of Canada, Australia and the U.S.A., as well as for local archives.

On November 1 the members welcomed along Mr. K. F. Russell, of Wharfedale Wireless Works Ltd., who took with him a comprehensive selection of his company's loudspeaker systems. His lecture began with a demonstration of a horn-loaded dynamic speaker by BTH, dating from the 1920's. He then discussed the problems of loudspeaker construction, illustrating his talk with music provided by a Tandberg recorder playing through Quad amplifiers. After an interval and the customary question period, Norman Tustain played some choral and orchestral recordings made on his Grundig TK20 using a Simon Cadenza microphone.

Before the November 29 meeting, when members recorded a jazz session with a six-piece trad group, Peter Duddridge travelled from Stroud to Kemble to record the last haul of the Cheltenham Spa Express steam engine.

Then came the jazz session, and members excelled themselves making recordings in both mono and stereo. Frank Symes, who is said to be "nothing if not an experimenter," used a long microphone stand as a kind of boom, tying a Grampian DP4 on to the end of it and moving it around the soloists with a technique which will for ever be known as Frank's Fishing Rod.

Their November 12 meeting saw members making their first attempt at play-reading and recording. Two victims were selected to read a short playlet being produced by Mary Lamb. This was then played back and discussed before two other victims were chosen. After the interval a larger group tackled a Victorian melodrama. Two recently-enrolled members nobly produced the effects side, including the inevitable horses hooves. Considerable experience was gained by Colin Woods' attempts to record the play in stereo, and the members now propose more ambitious efforts in the future.

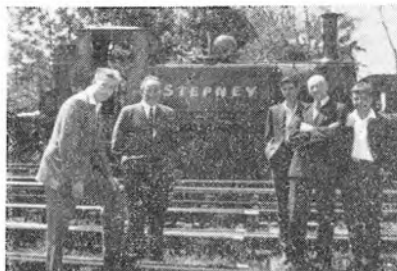
Secretary: Peter D. Turner, Pike Cottage, Frampton Mansell, Stroud, Gloucestershire.

## DARTFORD

A visit to the Wrotham studios of Miss Daphne Oram was one of the activities of the Dartford club during November. There they were entertained to a demonstration of Miss Oram's electronic music in the converted oasthouse which is packed with recording equipment and electronic devices.

They saw the equipment used for the composition of her electronic music which has earned her the Gulbenkian grant.

Later in the month members visited the Brent Methodist church to record the opening service. Chairman Les Coates with his Veridic recorder, two microphones and a home-built mixer unit monitored the service on headphones, and P.A. equipment, arranged the previous evening by the secretary and Les Coates, enabled the overflow congregation to hear the service in the church hall.



Dartford members seen during their visit to the Bluebell Railway

One of their earlier activities saw the members combining forces with the local cine club for a sound and vision visit to the Bluebell Railway in Sussex. Both clubs had arranged a filming and recording session, and, accompanied by Mr. Martin, of Zonal Film (Magnetic Coatings) Ltd., they

boarded the footplates of the engines at either end of the train. The tape club members also arranged themselves in the coaches next to the engine and secured a number of valuable recordings during the return trip.

Secretary: E. H. Foreman, 117, Westgate Road, Dartford, Kent.

## GLASGOW

A forty-five-minute tape programme dealing with the last days of Glasgow's trams has been produced by members of that city's tape club. It includes a number of tram sound-effects, a description of the last tram procession, and interviews with tramway-workers and members of the public. Anyone interested in obtaining a copy of the tape should contact the secretary.

Members have now obtained the use of new and more suitable premises for their fortnightly meetings. They now meet at 91, North Frederick Street, Glasgow, C.2. Their next meeting is scheduled for January 14, and they have a full syllabus of talks, demonstrations, competitions, etc., prepared for 1963.

Secretary: George Dryden, 43, Daisy Street, Glasgow, C.2.

## IPSWICH

A round of outside activities was the report the chairman of the Ipswich club had for members during his review of the past year at their recent A.G.M.

Among the places of interest seen were two television studios, a telephone exchange, a dairy and a brewery. They had also welcomed along many demonstrators from manufacturers including BASF and Grundig.



Members of the Ipswich club visit the Ipswich Co-op Dairy

Their tape activities had included preparation of weekly musical programmes for a hospital and blind society. For this they had interviewed singing stars Adam Faith and Cliff Richard, and band-leader Acker Bilk, who were appearing at a local theatre.

Films and slide shows with taped commentary have also appeared on their recent schedules. Plans are now well in hand for future meetings, and a number of demonstrations and other activities have already been arranged.

Secretary: Malcolm Wilding, 31, Darwin Road, Ipswich, Suffolk.

## MANCHESTER (2)

A second tape club has been started in Manchester. The new society, formed by graduates in the Faculty of Technology Union at Manchester University during the summer, had been held in abeyance until end-of-term exams, were completed.

Among the activities engaged upon since the end of the summer vacation have been recording the sound-track for the University's Rag documentary film, and, if the members will excuse my surprise, organising an evening's entertainment on tape for an old people's home. They are hoping to start an electronic music section, and, due to a personal contact of the secretary, a video-recording section. [Dear Secretary, I herewith absolve myself from any queries you receive regarding Video.—Editor.]

They would be most grateful for any advice regarding the successful organisation of a tape club, and are looking toward the established clubs for any information regarding this point.

Secretary: D. Norman, c/o 19, St. Clements Road, Chorlton-cum-Hardy, Manchester 1.

**READING (tape and cine)**

The Reading tape and cine society has welcomed more new members, and is to continue its run of successful weekly meetings. Combining as it does the two complementary hobbies, it provides a meeting place for people with various shades of interest in the two arts.

Among the latest activities of the members was an evening shared with the Kingston-on-Thames cine club. During the evening member Douglas Noyes demonstrated his speciality, a device for fading slides on and off the screen in sync., with taped commentary and music. It was effectively used on this occasion to project Jack Lee's slide sequence *Paris*. Also in the programme was Derek Purslow's award-winning sound cartoon *The Runaway Train* with pictures drawn painstakingly on the film.

Later still, members have been working feverishly on their own interpretation of the title *Wheels* for film or tape. They have also enjoyed a demonstration by Messrs. Reed and Crows of Zonal Films Ltd. who described the principles of magnetic tape at an October meeting. Practical "how-to-do-it" sessions are a feature of the society's activities, and they devoted evenings to indoor filming, title-making and tape work.

Secretary: T. Fisher, 5, Mapledurham Drive, Purley, Reading.

**SOUTH DEVON**

A sound hunt organised by treasurer Jeff Brooke-Stewart was the highlight of one of the most recent meetings of the South Devon club. Four teams were formed with the inevitable battery portable recorder, car and sealed envelope for each. Their instructions were to collect sound and interviews within the hour, and later in the evening the various attempts were listened to and discussed. A round of applause greeted the chairman's description of his attempts which were slightly foiled when a reel of tape unwound across a railway platform.

On October 10, David Pletts gave a talk on the origins of recording. He played many recorded examples, including a recording made on a wax cylinder. The occasion was also the club's second birthday, and during the interval members made short work of a cake decorated by Shirley Furneaux in the form of a tape recorder.

The following evening members joined forces with the Torbay Gramophone Circle when Mr. Donald Aldous, Technical Editor of *Audio*

*Record Review*, gave a talk entitled *Tape Records Today*. He played some of the latest mono and stereo records and discussed the respective merits of tape and disc.

Meeting again for the third day in succession, members saw Philips Linder of the Torbay Cine Society show how effectively sound-track can be added to 8 mm cine film. Among the films shown was last year's Top Ten Amateur Film Award winners, *Off Beat*, which featured a local jazz band. In return for this visit, the tape club are to present a programme for the cine society in May.

November 4 was the date for a practical session when editing was started on a tape entitled *The Holiday Trade in the West Country*. This included interviews with the chief of police, an entertainment manager and a stationmaster, all of whom had been interviewed by members during the peak summer period.

Frank Parrington, of BASF Chemicals, paid a return visit to the club three days later and showed two short films on the production of magnetic tape. One of his most dramatic demonstrations was of the breaking strain of the new triple-play tape manufactured by his company.

Former secretary, Jean Pletts, has had to retire from her post due to personal commitments. Her place is taken by Lyn Wright.

Secretary: Lyn Wright, 12, Sherwell Hill, Chelston, Torquay, Devon.

**WHITSTABLE**

A change of venue is announced for the Whitstable club. Their fortnightly meetings will be held at the Record Centre, Oxford Street, Whitstable, beginning with Monday, January 14.

The first of their November meetings coincided with Guy Fawkes' night, and this decided members to seek the answer to the oft-posed question: "Should fireworks be abolished?" Armed with battery portable tape recorders, and set a time-limit of one hour, the members soon found plenty of comment on this topic. Except for chairman Bill Blake who declared his car had been stuck in the mud, they all returned on time. Playback of the tapes revealed an overwhelming majority in favour of continuing the annual festivities.

At their November 19 meeting, their A.G.M., members learned that their financial state was healthy, and that with a handy £20 in the kitty, the committee felt a reduction in annual subscriptions was in order. Membership also was on the increase with a total of 36, excluding the

doubtful. All the officials were re-elected to another term of office, and it was also decided to form a technical sub-committee with members Ken Pearce and Jim Campion in charge.

The rest of the evening was devoted to repeats of favourite items from the past year, and the first of a new series of quizzes was heard.

Secretary: Tom Robinson, 17a, St. Anne's Road, Whitstable, Kent.

**WINCHESTER**

A new club is to be formed in Winchester. Instigator is Mrs. Margaret Huber, of 14d, Clifton Road, Winchester, Hampshire, who welcomes inquiries from interested persons.

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# Test Bench (Continued from page 27)

space. In addition to the input and output connections mentioned above, a socket is provided so that an extension loudspeaker can be used with the built-in monitoring amplifier. This is a two-pin socket, and all the others are of the miniature "phono" plug type. It seems

a pity that in a machine of this class these rather poor and certainly fiddly connectors should be used.

The machine was given the usual practical and technical tests. It performed well when given a number of different recording tasks to do, and was an

excellent play-back machine for tape records. On measurement all the makers' claims were met, many of them with a wide margin in hand. In particular, the record/replay response at  $7\frac{1}{2}$  ips was within +0.5, -2.0 dB from 20-20,000 cps, a truly remarkable performance. The response of one track at  $7\frac{1}{2}$  and  $3\frac{1}{2}$  ips is shown. The balance between the two tracks left nothing to be desired.

## Tape Reviews by Don Wedge

*(Continued from page 31)*

For the first time in his career Richard had a single issue from the track of an album of this type—*It'll be me*. It is the first track on the album and is obviously well known.

But his most impressive performance is the blues *You don't Know*. Though not far behind is an intriguing version of the Lorenz Hart-Richard Rodgers ballad *Falling in Love with Love*.

That an artist so young can contribute such a worthwhile performance of such a standard is an extremely favourable indication of a career that is not going to

end when his teenage fans grow up and desert him.

There are other standards side-by-side with new compositions, many recorded for the first time. It makes up an intriguing blend of songs by this young star. What's more, there can be no doubting of this record's playing time!

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This is a pleasant performance of a group of tunes although the title seems rather optimistic. The first numbers of each track are particularly catchy.

The record is attractive background music, but hardly more.

In spite of the undoubted excellence of the Revox, some minor criticisms can be made. I have already mentioned the rather cheap input connectors. I feel it is a pity that some form of meter has not been used to indicate recording level. Slightly more seriously, the usefulness of the machine could be extended into the professional field if it were possible to fit NAB-type spool hubs to enable professional  $10\frac{1}{4}$ -inch reels to be used. The present design of the top plate does not give quite enough room for this to be possible.

Such criticisms, however, are of small importance, and I have no hesitation in recommending this machine to all who want a high-quality machine for serious monophonic or stereophonic work.

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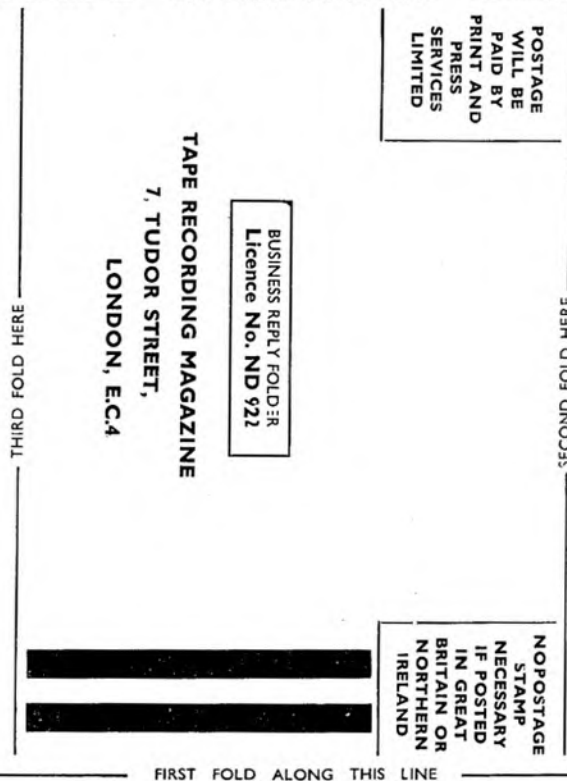
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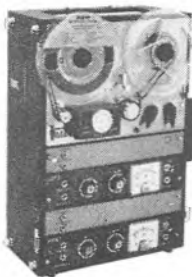
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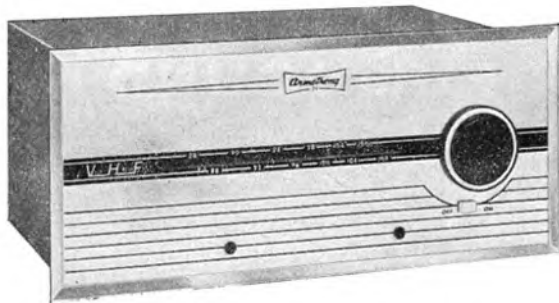
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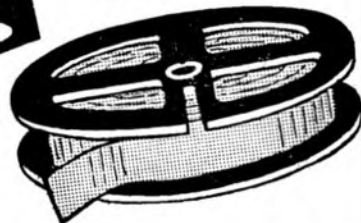
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