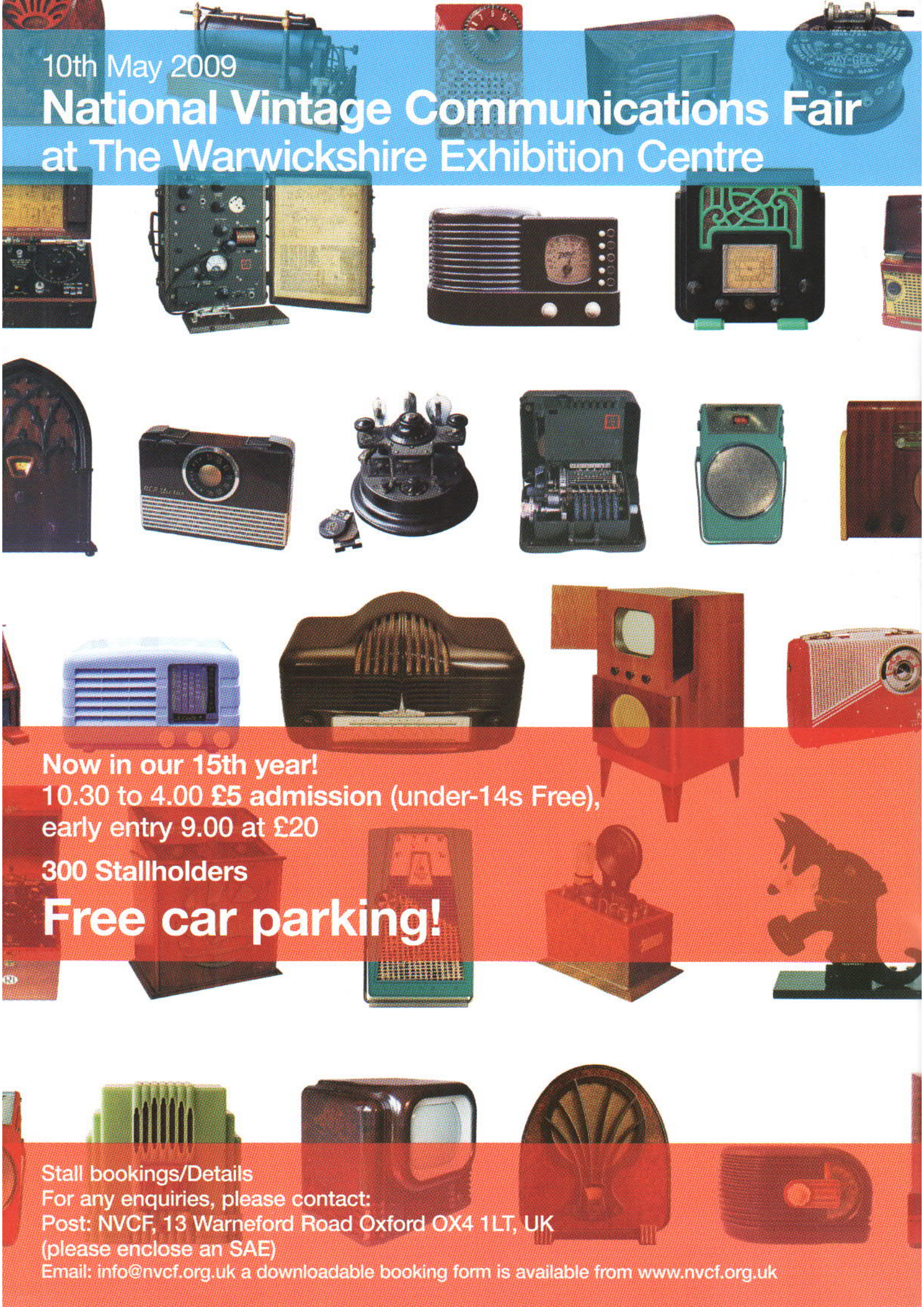
The Bulletin

Vol. 34 no. 1 Spring 2009 www.bvws.org.uk

The Bulletin of the British Vintage Wireless Society £5.00 | free to members ISSN 0955-9345



10th May 2009

National Vintage Communications Fair

at The Warwickshire Exhibition Centre

Now in our 15th year!

10.30 to 4.00 **£5 admission** (under-14s Free),
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300 Stallholders

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Bulletin of the British Vintage Wireless Society
Incorporating 405 Alive
Volume 34 No.1 Spring 2009

www.bvws.org.uk

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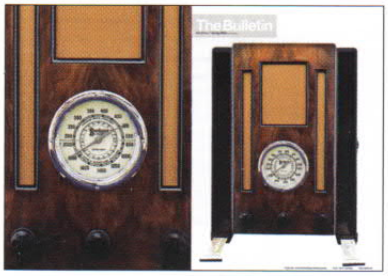

Cover: front and rear – Beethoven model 77, 1935.

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Edited by Carl Glover. Sub-Edited by Ian Higginbottom

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Contents

From the Chair

Here's the first Bulletin of 2009 and with it, I would like to wish everyone a very Happy 'Vintage' New Year!

Whilst the weather is unpredictable, this is a great time to clear down the work bench, tidy up the workshop and get the first radio or TV of the year on the bench.

Why not pick a cheap set from either the Bring & Buy or an auction and with the aid of the circuit diagram, take each and every component individually and work out its exact function. Most manufacturers kept things to a minimum, so it is there for a reason.

Find out what happens if you simulate the component failure by disconnecting it, best not to short it out in some cases! Discover your radio thoroughly and you will have a wealth of knowledge and understanding of other sets and their circuits and also a good grounding in being able to fault find. It does not matter if you damage it beyond repair just so long as you have learnt from it, and any way for a fiver you are not going to be doing any harm to a classic or rare set, but more likely a very ordinary 1950's set.

There are no master classes in vintage radio repair, so the best way to learn is from experimentation and experience.

Here's a quick call to all members who might have unusual 1920's Crystal sets and think they may be of interest to others, to get in touch with Ian Sanders as he is currently compiling material for his final book, "Tickling the Crystal" volume 5. You can contact him via e-mail at author@crystal-sets.com

This Bulletin is a month earlier than previous years, and we aim to follow all the rest in the same pattern which means you can expect your next Bulletin to arrive in May, then August and finally in November each year.

Also don't forget we have changed the first Harpenden of the year to a Swapmeet so the AGM and major auction will be held at the June event. This gives greater time between the NVCF and the Auction.

Mike...

A Short History of the Re-Echo Company

by Lorne Clark

A recent visit to the National Archives in Kew has revealed some interesting details about the history of the company that manufactured sets under the 'Re-Echo' marque in the early 1920s. The fascinating story of the rise and fall of this company follows a pattern that was probably repeated with other manufacturers as they struggled to survive in the turbulent early years of broadcasting.

Left: Re-Echo No. 2 crystal set manufactured by the Re-Echo Electrical Manufacturing Co. Ltd., c. 1924

I read with great interest the article '"Re-Echo" Crystal Sets' by Ian Sanders ('The Bulletin' Vol. 31 No. 1) and found myself wanting to know more about this enigmatic company. Mention of the company in all four volumes of Ian Sanders' 'Tickling The Crystal' served to whet my appetite further.

The name 'Re-Echo' is well known among collectors of 1920s crystal sets. 'Re-Echo' products appear to have been manufactured to a high standard and a good number of sets bearing the 'Re-Echo' name have survived the 85 or so years since they were manufactured. The company produced crystal sets, valve-crystal sets and 2 and 3 valve sets and amplifiers.

The company traded under three names, viz. the Re-Echo Wireless Manufacturing Company Ltd. (approx. January 1923 – March 1923), the Re-Echo Electrical Manufacturing Company Ltd. (approx. March 1923 – October 1925) and the Re-Echo Radio Manufacturing Company Ltd. (approx. August 1924 – November 1928). There was also one earlier co-partnership that may well have used 'Re-Echo' in its name.

The roots of the 'Re-Echo' Companies lie in a partnership between Samuel Frederick O'Hara and Jean Baptiste Bignamy. O'Hara was a Motor Mechanic by trade and Bignamy an Electrician and they went into business together as wireless manufacturers and dealers, with premises situated at 16a Hatton Wall, Hatton Garden. It seems likely that this business was called the Re-Echo Wireless Manufacturing Company but so far I have found no absolute evidence to support this.

Jean Baptiste Bignamy was born in 1882 and had served in the Army in WWI first as a Private and later as a Sergeant in the Army Service Corps, service no. M2/117063, serving in Africa.

He held several non radio-patents - see Appendix 1.
He also claimed to be the inventor of certain wireless-related inventions, covered by the following four patents:

15817 June 17th 1922 :- Improvements in Wireless Tuning Inductances
19552 July 17th 1922 :- Improvements in Wireless Complete Receiving Set
27411 October 10th 1922 :- Improvements in Aerial Tuning Inductances
27412 October 10th 1922 :- Improvements in Wireless Receiving Sets

Whilst to date I have found no record of these latter 4 patents, nevertheless in December 1922 Bignamy assigned or agreed to assign to the partnership all of his rights and interests in these wireless inventions.

Re-Echo Wireless Manufacturing Company Ltd.

The Re-Echo Wireless Manufacturing Company Limited was formed on 4th January 1923 with a nominal capital of £3000 in £1 shares, increased on 23rd March 1923 to £4000. In an agreement dated 10th January 1923, Bignamy and O'Hara granted to the newly formed company an exclusive licence to use the above four wireless-related patents. In the same agreement the newly formed Re-Echo Wireless Manufacturing Company Limited agreed to buy the existing business at 16a Hatton Wall for £2248 comprising £250 in cash plus 1998 fully paid up £1 shares (999 each to O'Hara and Bignamy). The new company also took over tenancy of the premises at 16a Hatton Wall with O'Hara acting as Director and Sales Manager, Bignamy acting as Technical Director and Factory Manager with Capt. William Robert Hargroves also acting as Director.

The Return of Allotments for the period 8th to 15th January 1923 shows that W. R. Hargroves held 1000 shares, whilst S.F. O'Hara and J.B. Bignamy held 999 shares each.

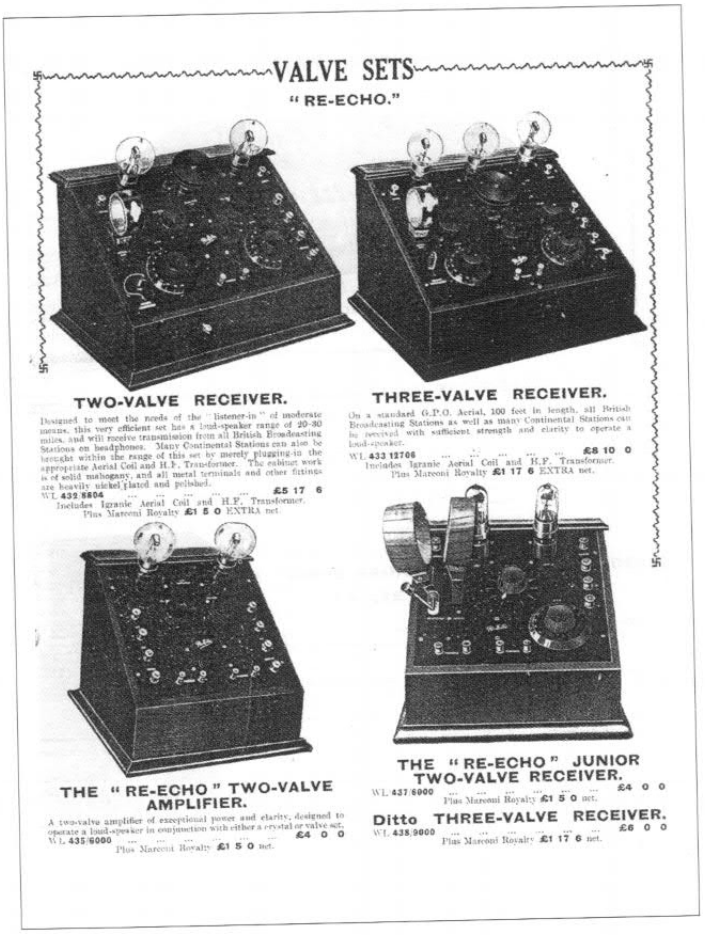
On 12th February 1923 O'Hara resigned and Capt. Charles W. Dann was appointed in his place. Walter Taplin was appointed Director and Secretary on 5th March 1923.

Under a Special Resolution passed 1st March 1923, the company's name was changed to the Re-Echo Electrical Manufacturing Company Ltd. (approval was formally given on 27th March 1923 and the certificate of change of name was issued 29th March 1923). At about that time the registered office was removed to 43 Johnson St., Westminster.

Re-Echo Electrical Manufacturing Company Ltd.

According to Taplin, the company's wireless receiving sets were in great demand at the time the company was incorporated. He states, however, that uncertainty between the Postmaster-General

Advertisements appearing in the East London Rubber Company catalogue, 1925-1926



and the B.B.C. as to the royalties that would actually be payable had resulted in a depression in public demand for sets, customers preferring to wait and see how things developed. He goes on to say that around September 1923 an agreement was reached whereby royalties were to be considerably reduced at some later date, which had the effect of depressing an uncertain market still further.

On 23rd March 1923 the nominal capital of the Re-Echo Electrical Manufacturing Company Limited was increased by a further £1000 in £1 shares purchased by Walter Taplin.

The list of Directors dated 23rd March 1923 shows the following:

Director	Nationality	Usual Residence	Other Business Occupation
Jean Baptiste Bignamy	British	92 Gloucester St., London SW1	None
William Robert Hargroves	British	230 St. Margarets Rd., St. Margarets-on-Thames	Captain in H.M. Army M.B.E.
Charles Walter Dann	British	Great Chalvedon Hall, Pitsea, Essex	None
Walter Taplin	British	187 Holland Rd., London NW10	None

By the summer of 1923 the company was in want of a further cash injection, having been purchasing very heavily. On 4th June 1923 the Re-Echo Electrical Manufacturing Company Ltd. took out a £1200 1st Mortgage Debenture with Walter Taplin against all its assets and uncalled share capital.

Then on 24th September 1923 a further £300 Mortgage Debenture was taken out with Walter Taplin, again against all the company's assets, to act pari passu with the mortgage of 4th June 1923. On 4th December 1923 a 2nd Mortgage Debenture was taken out, this time for £500 and this time jointly with Walter Taplin and Robert Hargroves and again against all the company's assets.

The company was in severe financial difficulties by this time and on 12th March 1924 the B.B.C., presumably aware of this, petitioned the High Court for the recovery of £896 4s 6d in unpaid royalties plus interest, these royalties covering the period 1st January 1923 to 14th February 1924. The Company failed to appear to a writ duly issued and on 21st March 1924 the B.B.C. were awarded £896 4s 6d plus £7 7s 6d fixed costs.

The Directors of the company may well have got wind of the impending action by the B.B.C. because on 14th February 1924, Taplin appointed Charles Frederick Paul Richards (former sales manager for the company) as Receiver of the company's property under the terms of the Mortgage Debenture dated 4th June 1923, the total in question being £1500 plus interest (£1500 being the sum of the £1200 mortgage of 4th June 1923 and the £300 mortgage of 24th September 1923).

At that time the company's trading showed a gross loss of approximately £237 which, in Taplin's view, was caused by the high cost of materials and the selling price of the company's goods being set too low. As to the huge sums owed in royalties to the B.B.C., and the Marconi Wireless Telegraph Co. Ltd., amounting to £1,169 19s 6d in all, he maintained that Bignamy had advised the company that the company's products were not liable to such royalties, something that Bignamy flatly refuted.

On 28th March 1924 the company called a meeting of its 'known creditors' to explain the financial situation. Around 10 creditors of the total 60 known creditors attended, including George Head representing the second largest creditor, the Marconi Wireless Telegraph Co. Ltd. (MWT) which was owed £273 15s 0d in royalties for broadcast wireless sets sold. By far the largest of the creditors, the B.B.C., was not present and was later to sign an affidavit to the effect that it never received notice of the meeting.

The creditors who did attend the meeting were apparently not happy with either the company's financial state or with Mr. Richards' explanations and, either at the meeting or later, they asked MWT

RE-ECHO ELECTRICAL MFG CO LTD

In Liquidation.

Patentees of Slab multi & conical tuners.

SOLE MAKERS OF THE RE-ECHO RECEIVING SETS.

DIRECTORS:
CAPT. W.R.HARGROVES, M.B.E., MANAGING DIRECTOR.
CAPT. C.W.DANN, M.C., SALES MANAGER.
MR J.S.BIGNAMY, M.S.E.E., TECHNICAL DIRECTOR.
MR W.TAPLIN, SECRETARY.

43, JOHNSON STREET,
HORSEFERRY ROAD,
WESTMINSTER, S.W.1.

CR/GT.

Your ref.186876.

TELEPHONE: VICTORIA 8070.

9th SEPTEMBER 1924.

THE REGISTRAR,
Companies Registration Office,
Somerset House,
LONDON, W.C.2.

186876.

Dear Sir,

IN THE MATTER OF THE RE-ECHO ELECTRICAL MANUFACTURING COMPANY LTD.

I beg to acknowledge your letter of the 5th inst., and have to inform you that I have filed an Abstract of my receipts and payments as Receiver to-day. I regret the delay in filing these documents, which I trust you will excuse -------- in future I will file any further documents promptly.

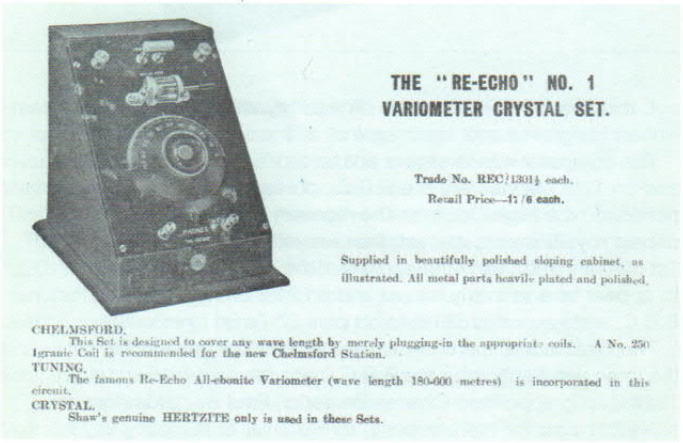
Yours faithfully,
THE RE-ECHO ELECTRICAL MANUFACTURING CO., LTD.

Chas Richards

Receiver.

COMPANIES REGISTRATION OFFICE 11 SEP 1924

Below: Catalogue of Gilberts of Sheffield, 1925



THE "RE-ECHO" NO. 1
VARIOMETER CRYSTAL SET.

Trade No. REC/1301½ each.
Retail Price—£1/6 each.

Supplied in beautifully polished sloping cabinet, as illustrated. All metal parts heavily plated and polished.

CHELMSFORD.
This Set is designed to cover any wave length by merely plugging-in the appropriate coils. A No. 250 Igranic Coil is recommended for the new Chelmsford Station.

TUNING.
The famous Re-Echo All-ebonite Variometer (wave length 180-600 metres) is incorporated in this circuit.

CRYSTAL.
Shaw's genuine HERTZITE only is used in these Sets.

Below: Popular Wireless Weekly, August 9th, 1924

THE EAGLE "ECHO" CRYSTAL SET.

A most efficient and thoroughly reliable variometer crystal receiver with first-class components and provision for extra inductance for Chelmsford, Paris, etc. Made by the designer of the famous "Re-Echo" set, which was chosen by the winner of the Brighter Britain Competition (recently promoted by the B.B.C.).

It has all parts nickel-plated, and is fitted in a beautifully finished mahogany cabinet. The best value ever offered in Crystal Receivers. Price **17/6**

Amplifier to match above, with first-class transformers, 25/-. Comfortable and most efficient adjustable magnet headphones, every pair fully guaranteed, 12/6. Trade supplied.

THE EAGLE ELECTRICAL MFG. CO.,
32, Charlotte St., Tottenham Court Rd., W 1.

to put forward a Petition to the High Court for the compulsory winding up of the Re-Echo Electrical Manufacturing Co. Ltd.

At company meetings held on 28th March and 12th April 1924 it was agreed that the company should be *voluntarily* wound up and on 14th April Richards was appointed Liquidator for this purpose. In spite of (some might say 'because of') the situation, a dividend of £540, less Income Tax, was paid on the Director's shares.

In the end it was the B.B.C. which, along with the Mullard Radio Valve Co. Ltd., spearheaded the petition for the official winding up of the company. Finally, on 9th May 1924 the petition for the official winding up of the Re-Echo Electrical Manufacturing Co. Ltd., dated 5th April 1924, was signed, sealed and delivered to both Taplin and Richards at 43 Johnson St., Horseferry Road.

On 12th May 1923 Richards and Taplin issued an affidavit refuting some of the statements and claims made in the petition dated 5th April, but it was to no avail.

Then on 16th May Mr. Justice Romer of the High Court ordered the appointment of Mr. George Digby Pepys as Official Receiver of the company following the court's decision to wind up the company dated 13th May 1924. The decision to wind up the company was arrived at after Mr. Justice Romer had read affidavits from Guy Vere Rice (B.B.C.) dated 9th May 1924, W.R. Hargroves and C.F. Richards dated 29th April 1924, and several from C.F. Richards and W. Taplin dated 13th May 1924.

At the first meeting of the creditors and contributories held on 24th July 1924 it was agreed that no separate Liquidator need be appointed and that G.D. Pepys, as Official Receiver, should also remain the Liquidator.

A statement of affairs as they stood on 14th February 1924 shows a list of unsecured creditors and a list of debts owing to the company. This latter list reveals that the company had a considerable amount of money owing to it viz £603 11s 2d in 'good debts due', £88 4s 4d in 'doubtful debts due' and £795 9s 10d in 'bad debts due' totalling £1451 5s 4d in all.

The Gross Liabilities of the company were found to be £4122 17s 2d, around £115,000 in today's money (2008) *[source: Consumer Price Inflation since 1750 by Jim O'Donoghue and Louise Goulding, Office for National Statistics and Grahame Allen, House of Commons Library]*. This comprised: unsecured creditors - £2063 7s 8d (including royalties £1161 19s 6d) and 1st and 2nd debenture holders - £2059 9s 6d.

An interesting letter, typed on Re-Echo Electrical Manufacturing Company letterhead, survives and is shown above left. This letter, apologizing for the late submission of accounts to the Companies Registrar, is interesting in that it refers to the company being 'Patentees of Slab multi & conical tuners'. It seems likely that these were the patents 15817 of June 17th 1922 (Improvements in Wireless Tuning Inductances) and/or 27411 October 10th 1922 (Improvements in Aerial Tuning Inductances) referred to earlier.

A final notice from the High Court dated 14th October 1925 states that the assets of the company had been sold and that the amount realized, £850, was insufficient to meet even the claim of the 1st debenture holder. Consequently there was no return for any of the unsecured creditors and no return of capital to the shareholders.

It is interesting to note that in the final statement of legal fees appears the sum of £8 0s 0d to cover the cost of the agreed registration of the **Re-Echo Radio Company Ltd.** I wonder - were the assets of the Re-Echo Electrical Manufacturing Co. Ltd. bought by the newly formed Re-Echo Radio Company Ltd?

Re-Echo Radio Co. Ltd.

Robert Arnold and Walter Taplin are shown as Directors of the Re-Echo Radio Co. Ltd. which was formed on on 21st August 1924 and is shown as having a nominal capital of £2500 in £1 shares. William Meinwarren Betts and Frank William Beard are shown on the Memorandum and Articles of Association dated 27th August 1924 as holding one share each and the registered office is shown as 43 Johnson St., Westminster, SW1. On 20th October 1924 Taplin is allotted 650 fully paid up shares 'In consideration of special commercial services to be rendered to the company ...'. At this time the company Secretary was G.A. Taplin.
On 30th December 1924 a further 250 fully paid shares were allocated to Charles Frederick Richards 'In consideration of services rendered to the company as Sales Manager'.

Company share allocation was as follows:

Name	Address	Description	No. of Ord. Shares
Walter Taplin	187 Holland Park Rd., NW10	Company Director	550
Robert Adams	128 All Saints Ave., NW10	Company Director	200
Charles Barnett	3 Sellons Ave., NW10	Brush Manufacturer	200
Frederick Giles	56 Fircroft Rd., Tooting, SW	Commercial Traveller	200
Robert Arnold	Corner Cottage, Hersham	Printer	100
Walter Taplin	187 Holland Park Rd., NW10	Company Director	650
Walter Odel Taplin	187 Holland Park Rd., NW10	Electrician	100
Charles Frederick Richard	10 Chandos Rd., NW	Manager	250

The registered office was moved to 109 Marsham St., London, SW1 on 5th January 1925. Roughly one year later, on 14th January 1926, the company took out a mortgage debenture of £900 with Walter Taplin.

25th January 1926 saw the appointment of Clement Henry Whatley as Receiver of the company's property under the terms of the £900 debenture dated 4th (sic) January 1926. For this purpose, the registered office had been moved to 6/7 Charing Cross Chambers, Duke St., Adelphi, WC2 on 22nd January 1926.

Amongst the company's creditors was the Marconi Wireless Telegraph Co. Ltd. who were claiming £123 7s 6d in unpaid royalties for amplifiers sold by Re-Echo Radio Company Ltd. A Special Resolution passed 21st June 1926 agreed to pay MWT £50 in full settlement of this claim.

The assets of the Re-Echo Radio Company Ltd. were sold off and the company formally wound up on 2nd November 1928.

Re-Echo or E.Echo - spot the difference

As noted by Ian Sanders in 'Tickling The Crystal 4' p218, the Eagle Electrical Manufacturing Company Ltd. were offering a set virtually identical to the 'Re-Echo No. 1' but marked with the "E.ECHO" logo. The possibility of a link between the two companies intrigued me and I felt it worth investigating further.

Records of B.B.C. shareholders, held at the National Archives in Kew, show that J. B. Bignamy was also associated with the Eagle Electrical Manufacturing Co. at 1-2 Newman Passage, Newman St., London W1 and later with the Eagle Electrical Manufacturing Co. Ltd. Bignamy was, of course, Technical Director and Factory Manager for the Re-Echo Wireless Manufacturing Co. Ltd., later Re-Echo Electrical Manufacturing Co. Ltd., and alleged holder of several wireless related patents. It is little wonder, then, that at least one of the sets produced by the Eagle Electrical Manufacturing Co. Ltd. bore such a striking resemblance to a "Re-Echo" set.

The Eagle Electrical Manufacturing Co. Ltd.

We cannot be sure, but it is likely, given the disagreement over the liability to pay BBC and Marconi royalties, that Jean Baptiste Bignamy left the Re-Echo Electrical Manufacturing Co. Ltd. in the spring of 1924 to set up The Eagle Electrical Manufacturing Co. Records for this company are, unfortunately, in very poor condition with much of the text being unreadable due to water staining and mould damage. As a result only the following information can be gleaned.

The company was incorporated as a Limited Company on 19th July 1924 with a nominal capital of £1500 divided into £1 shares. The first two shareholders were Jean Baptiste Bignamy, Electrical Engineer of "Imbune", Clifford Ave., East Sheen, Surrey (501 shares) and Edward Hamilton Henry, Gentleman of "St. Ippollitts", Hitchin, Herts. (500 shares). The Registered office was initially at 1-2 Newman Passage, Newman St., London W1 but soon after, on 29th July 1924, was moved to 32 Charlotte St., Fitzroy Square, London W1. In August 1924, The Eagle Electrical Manufacturing Company Ltd. of 32 Charlotte Street, London, agreed to purchase from Jean Baptiste Bignamy's Eagle Electrical Manufacturing Co. of 1&2 Newmans Passage, all the goodwill, benefit of contracts, copyright reg. nos. 4801 and 702940 (covering 'Two-valve Wireless Sets' and 'Book Wireless Sets' respectively), fixed plant and machinery plus all the stock-in-trade, tools, furniture etc.

A list of Directors dated 7th November 1925 shows the following:

Name	Address
Edward Hamilton Henry	St. Ipollitts, Hitchin, Herts.
Jean Baptiste Bignamy	"Imbune", 49 Clifford Ave., London SE
Hilary Philip Chadwyck-Healey (Resigned)	2 Weymouth St., London W1
Max Gardner Brown, Manager	84 Edith Road, London W
William Edward Hodgetts, Manager (replacing Hilary Philip Chadwyck-Healey)	"Keninghall", Hoddeston, Herts.

By 12th January 1926 the company could no longer trade effectively and E.H. Henry was appointed Liquidator. The company was officially struck off the Companies Register on 13th February 1930. Jean Baptiste Bignamy died in 1959 aged 77.

Epilogue

The early days of broadcasting in the UK were times of great opportunity but also of great risk for those investing in the emerging domestic radio industry. The story of the rise and fall of the Re-Echo Companies and of the Eagle Electrical Manufacturing Company could well be typical of hundreds of similar enterprises from the period. A list of members of the British Broadcasting Company for the period 1923 to 1926 records around 2000 manufacturers and dealers. We can only guess at the rate of attrition among these businesses. Perhaps unsurprisingly, the large firms who were well established prior to the start of broadcasting in the UK such as Marconi Wireless Telegraph, British Thompson Houston, Western Electric, GEC etc. generally did well and were able to move strongly ahead into the exciting times to come in the 1930s.

Book Wireless Set; Wireless World, 9th April 1924

Appendix 1

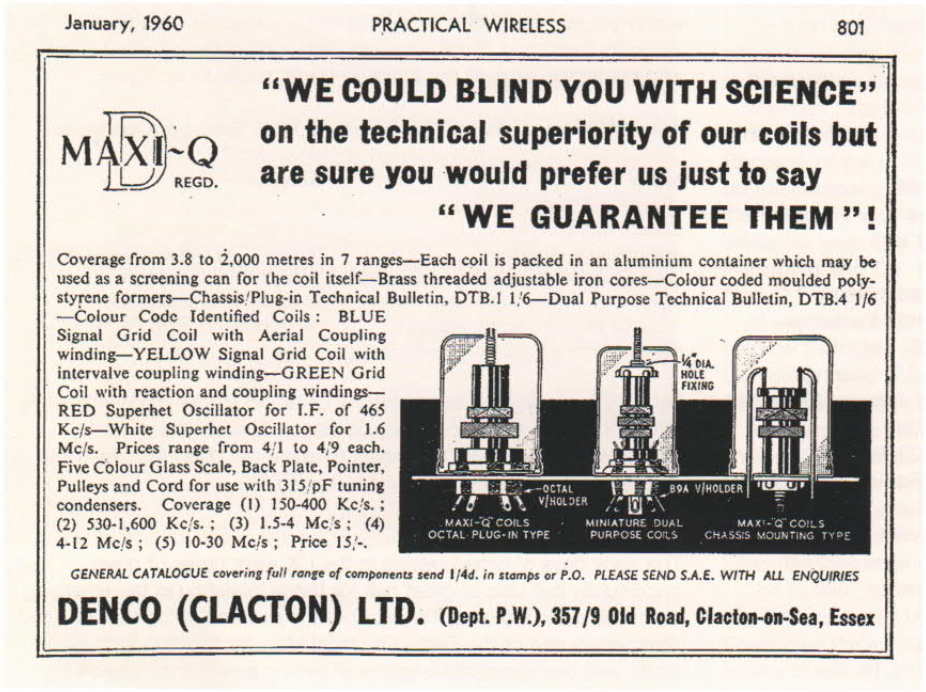
Non radio-related patents known to have been held by Jean Baptiste Bignamy:

GB188507-1922-11-16 :- Improvement on starter-transmission gear and dynamo drive combined
GB186418-1922-09-27 :- Improvements in automatic electric cut-outs for dynamo electric machines
GB202713-1923-08-22 :- Improvements in starting devices for internal combustion engines
GB408380-1934-04-12 :- Improvements in or relating to electric bowl heaters
GB289567-1928-05-02 :- Improvements on adjustable automatic switch for electric lighting table
GB202713-1923-08-22 :- Improvements in starting devices for internal combustion engines

Old RF coils and how to identify them

by Stef Niewiadomski

If the names Denco, Osmor, Repanco, Wearite, Weyrad and Teletron mean anything to you, you are probably "of an age" and they will probably bring back memories of the radio equipment you built (or dreamt about building) during the 1950s, 60s and 70s. These companies were major UK manufacturers of coils, chokes and transformers (RF, IF and AF), supplying both the professional and amateur markets. They must have been used in hundreds, if not thousands, of the radio designs published in the amateur magazines during this period, as well as in many home-designed projects.



January, 1960 PRACTICAL WIRELESS 801

MAXI-Q REGD.

"WE COULD BLIND YOU WITH SCIENCE" on the technical superiority of our coils but are sure you would prefer us just to say "WE GUARANTEE THEM"!

Coverage from 3.8 to 2,000 metres in 7 ranges—Each coil is packed in an aluminium container which may be used as a screening can for the coil itself—Brass threaded adjustable iron cores—Colour coded moulded polystyrene formers—Chassis/Plug-in Technical Bulletin, DTB.1 1/6—Dual Purpose Technical Bulletin, DTB.4 1/6—Colour Code Identified Coils: BLUE Signal Grid Coil with Aerial Coupling winding—YELLOW Signal Grid Coil with intervalve coupling winding—GREEN Grid Coil with reaction and coupling windings—RED Superhet Oscillator for I.F. of 465 Kc/s—White Superhet Oscillator for 1.6 Mc/s. Prices range from 4/1 to 4/9 each. Five Colour Glass Scale, Back Plate, Pointer, Pulleys and Cord for use with 315/pF tuning condensers. Coverage (1) 150-400 Kc/s.; (2) 530-1,600 Kc/s.; (3) 1.5-4 Mc/s; (4) 4-12 Mc/s; (5) 10-30 Mc/s; Price 15/-.

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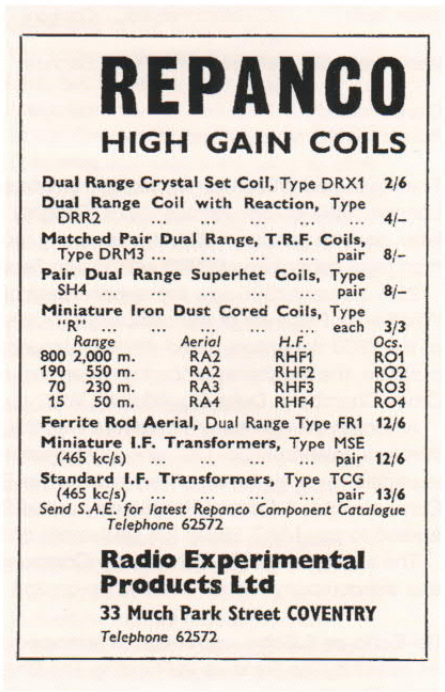


REPANCO

HIGH GAIN COILS

Dual Range Crystal Set Coil, Type DRX1 2/6

Dual Range Coil with Reaction, Type DRR2 ... ... 4/-

Matched Pair Dual Range, T.R.F. Coils, Type DRM3 ... ... pair 8/-

Pair Dual Range Superhet Coils, Type SH4 ... ... pair 8/-

Miniature Iron Dust Cored Coils, Type "R" ... ... each 3/3

Range	Aerial	H.F.	Ocs.
800 2,000 m.	RA2	RHF1	RO1
190 550 m.	RA2	RHF2	RO2
70 230 m.	RA3	RHF3	RO3
15 50 m.	RA4	RHF4	RO4

Ferrite Rod Aerial, Dual Range Type FR1 12/6

Miniature I.F. Transformers, Type MSE (465 kc/s) ... ... pair 12/6

Standard I.F. Transformers, Type TCG (465 kc/s) ... ... pair 13/6

Send S.A.E. for latest Repanco Component Catalogue

Telephone 62572

Radio Experimental Products Ltd

33 Much Park Street COVENTRY

Telephone 62572

The fact that five major, and one not so major (I include Teletron in this category), suppliers of coils existed during this period illustrates the high demand for these ready-made coils. The use of these coils made designs much more reproducible than if home made coils had to be wound, especially for the lower frequency bands where more turns are needed. Therefore they made home building of radio equipment much more attractive to the amateur.

Ultimately these companies suffered from the decline in home construction of radio equipment and the rise of equipment sporting the "Made in Japan" label, and also leading to the rise of Japanese coil manufacturers such as Toko. The British companies no longer trade, so there is no easy way of obtaining one of their products if you want to reproduce or repair an old valve or transistor design where their coils were used. However, these coils appear regularly on eBay and at various radio gatherings and often sell for a price well above (in real terms) their original selling price, indicating that they are still in strong demand. This is especially true of Denco coils.

Today it's difficult to buy even coil formers, let alone complete coils, and so it's hardly surprising that the coils command a high price. They are often still in the original box, hopefully with the manufacturer's name and part number on it, which definitely aids identification. If you look at their tags there is often no trace of solder on them, indicating that the projects for which they were bought were never built, a phenomenon we still all suffer from occasionally today.

The aim of this article is to give the reader a "crib sheet" of the products from these manufacturers so that if you see a coil for sale on the internet, or at a radio rally, or other radio gathering, hopefully you can quickly identify its function from its part number and decide if you can rescue it and make use of it yourself.

Denco

Dual Purpose Coils

Range	Coverage (MHz)	Blue	Yellow	Green	Red	White
1	0.150 - 0.500	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Osc for 1.6MHz
2	0.515-1.545	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Osc for 1.6MHz
3	1.67 - 5.3	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Osc for 1.6MHz
4	5.0 - 15.0	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Osc for 1.6MHz
5	10.5 - 31.5	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Osc for 1.6MHz
6	30 - 50	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Not available
7	45 - 78	Signal grid Ae coupling	Signal grid inter-valve	Grid coil with reaction	Osc for 465kHz	Not available

Transistor Coils

Range	Coverage (MHz)	Blue	Yellow	Red	White
1T	0.150 - 0.500	Aerial RF coil with base winding	Inter-stage RF coil	Osc for 465kHz	Osc for 1.6MHz
2T	0.515-1.545	Aerial RF coil with base winding	Inter-stage RF coil	Osc for 465kHz	Osc for 1.6MHz
3T	1.67 - 5.3	Aerial RF coil with base winding	Inter-stage RF coil	Osc for 465kHz	Osc for 1.6MHz
4T	5.0 - 15.0	Aerial RF coil with base winding	Inter-stage RF coil	Osc for 465kHz	Osc for 1.6MHz
5T	10.5 - 31.5	Aerial RF coil with base winding	Inter-stage RF coil	Osc for 465kHz	Osc for 1.6MHz

Source of the Data

I make no claims of originality for the data shown here. I have used several websites as the source of this information, as well as old catalogues and magazines of the period. Hopefully I've tracked down and documented 95% of the RF coils available to the amateur over the 1950s – 1970s period, but I'm bound to have missed a few.

What's Covered and What's not Covered?

In the Tables I've only included data for RF (so-called "aerial", "HF" and "oscillator") coils. These companies also manufactured coil packs, complete tuners, RF chokes, ferrite rod aerials, intermediate frequency transformers (IFTs), audio frequency (AF) transformers and chokes, PCBs, dials and complete "front ends" designed for valve and transistor circuits, so it's worthwhile looking out for them when they come up for sale.

I make no apology for using the word "aerial" rather than "antenna" in the Tables. I am simply using the term used in the adverts sat the time the coils were available. I've also used "m" for metres, and kc/s and Mc/s, when this was used in the manufacturer's original data.

Denco, Osmor, Repanco, Wearite and Weyrad were certainly the most popular manufacturers of the period, with Denco probably being the most prolific in my early days in radio, the mid-1960s. The Denco multi-coloured plug-in range allowed the constructor to re-use coils easily and avoid the risk of damaging the coil when soldering it into circuit. Also multi-wave sets could be made without the need for complicated band switching, somewhat of a throwback to plug in coils from companies like Eddystone in the early days of radio. The coils themselves and even the aluminium can they were packaged in (which could also be used as a screening can in the equipment) are easily recognised and turn up quite often on eBay and other places.

I've included data of the Teletron range of coils, which appear occasionally, though I must admit this is not a name I recall from my early radio days.

I remember the appearance of the "Transfilter", a fixed-tuned ceramic equivalent of an IF transformer for transistor superhets, specifically in an article entitled "Transfilter Portable" in the July 1967 issue of Practical Wireless. These were manufactured by Brush Clevite. You may see some transfilters on the surplus market so I've summarised their part numbers in the Brush section of the Tables, so you can see which IF frequency they were set to.

Other Manufacturers

Stratton & Co (and The Eddystone Radio Company, as they later became), the well-known manufacturer of Eddystone receivers made many of their component parts, for example RF coils and IFTs, available to constructors. They also sold coil

formers and chokes made from ceramic, polystyrene and bakelite materials.

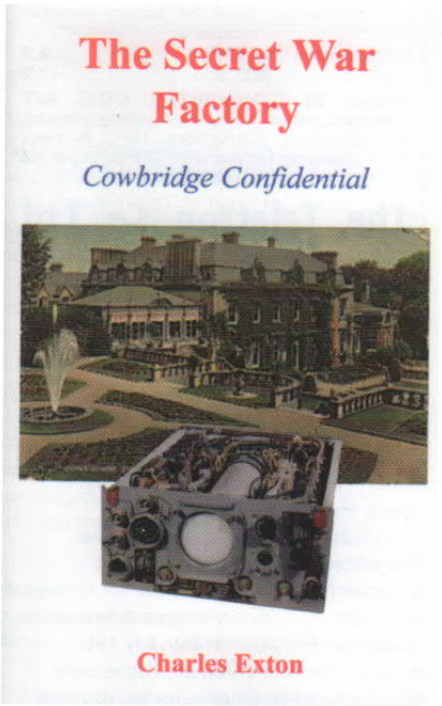
I remember being impressed by the Electroniques "Qoilpax" range of valve (EF183 / ECH81) general coverage and amateur bands front ends which appeared in the late-60s / early-70s. Electroniques (a division of STC Ltd) also sold a set of kits under the name "Knight Kits", one of which was the "Star Roamer" general coverage receiver. Unfortunately I was not able to find a catalogue showing these kits when preparing this article.

One name I don't recall is Ardente. I can't find an advert in any old Practical Wirelesses, but a fairly wide range of AF transformers, all for transistor applications, appears in the 1961 and 1964 Home Radio catalogue (thanks to http://vintageradio.me.uk/radconnav/homerad.htm), along with some switches and potentiometers.

Eagle Products produced a range of transistorised FM Tuners, intercoms and other ready-made equipment. They also sold the H402 kit: transistor MW ferrite rod, oscillator coil, 455kc/s IFTs, dial and tuning capacitor as advertised in Practical Wireless October 1967. This kit appears occasionally on eBay.

Conclusion

Hopefully you will now be able to identify from their part numbers most of the coils used in amateur equipment over a long period. Keep your eyes open when others are selling old coils to see if you can re-use them somewhere. If you're having a shack or workshop clear out, or thinking about "skipping" some old home-built equipment, be sure to take a careful look at the coils, remove the interesting ones and make them available to the rest of us.



Book Review The Secret War Factory

by Charles Exton

Reviewed by Ken Brooks

The Secret War Factory pp 158, AuthorHouse UK 2007. ISBN: 978-1-4343-0224-3 (sc). £11.95

This gem was spotted purely by chance during a trip to Malmesbury, site of the wartime Ekco factory. Unusually for nowadays this book is written by someone who experienced events first hand. It describes how a converted country house in a tiny Wiltshire town produced secret radio equipment for the war effort. The style of writing gives readers a feel of immediacy of the problems faced setting up a radar factory from scratch, largely using what were effectively conscripted and inexperienced workers. That the equipment they produced was cutting edge and built to the highest standards added to the difficulties.

The author sets the scene in pre war days, and moves on to the early part of the war, outlining all the restrictions that were introduced. Although not the author's chosen career, he, like most workers, was directed to the works where each of the various production functions are colourfully described. Where so many books focus on the boardroom, this one takes the reader behind the scenes and observes life on the factory floor in considerable detail. We get to hear about mundane daily gripes like the irritations of shift patterns and grumbles about the canteen. Where the author really scores is his detailed recollections of the petty rivalries and resentment between the imported, largely urban labour force and the much more reserved (and suspicious!) rural population. All these sources of friction were sufficiently interesting for the factory to be the subject of Mass Observations' report "War Factory". The technical side is well catered for and I especially enjoyed reading the painstaking efforts applied to trace the cause of mounting failures at test, finally traced to "painting" resistors ! Charles Exton is to be commended for recording so much detail in this enjoyable and informative book.

Grand Designs
Restoring a McMichael model 365 radiogram

by Ken Brooks G3XSJ

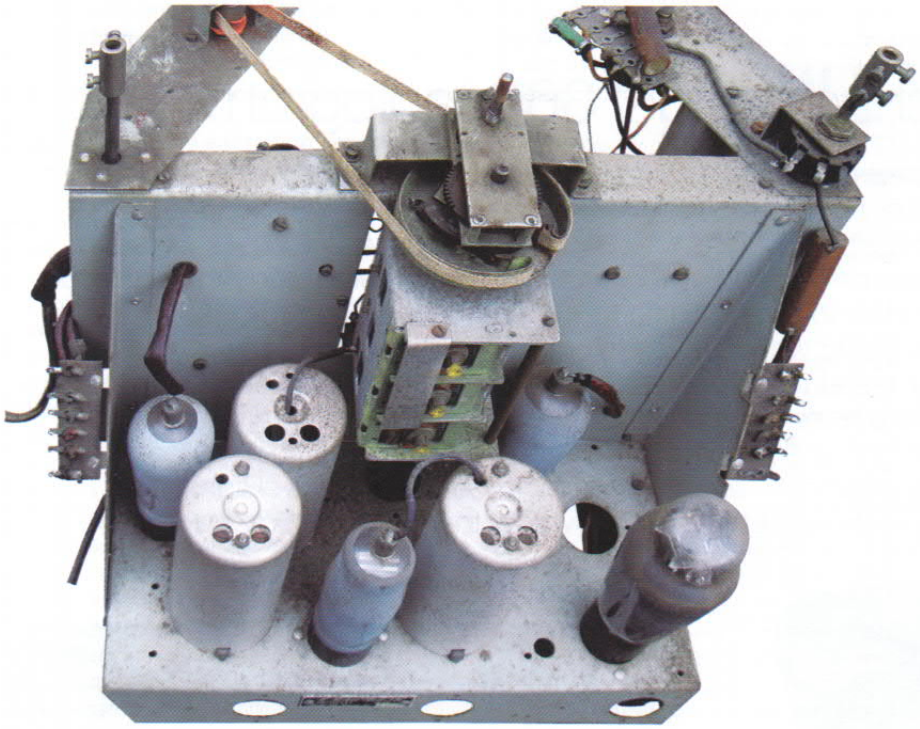
As a small boy in the late 1950's I was often taken to see my great aunt Dorothy who lived in a rather elegant house. She held distinguished appointments in what is now called the voluntary sector and her taste in dress, furnishings and décor was impeccable. Visits were always preceded by strict instructions on best behaviour but despite my temporarily suppressed wayward tendencies she and her husband took a shine to me and encouraged my keen interest in all things electrical. Aunty Dorry would have typically been drawn to the products of Dynatron or McMichael with their tasteful cabinets, often adorned with Queen Anne legs. When a McMichael model 135 radio with such legs came up in a BVWS auction a couple of years ago, I had to have it knowing that it would meet "domestic" approval. It did indeed gain approval, and because of its appearance, alluded to in "The Setmakers" as "Highly distinctive and discreetly expensive looking", it became known as the "Auntie Dorry" radio.

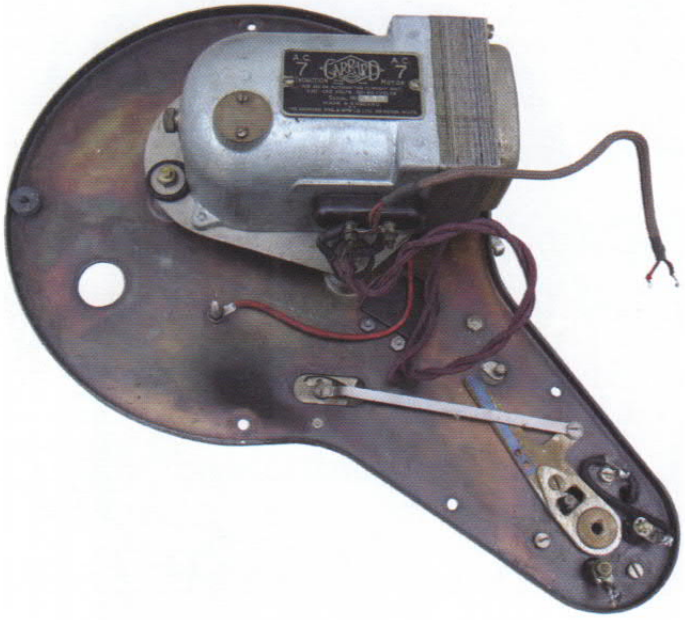
McMichael tapped into the top end of the radio market by packaging their sets in quality cabinets, thereby associating the owner with good taste. Their advertising slogan "costs a little more, so much the better" played upon this as they actively positioned themselves to status conscious buyers. Nowadays it's called market segmentation. Within a few months of acquiring the McMichael 135, a much less common radiogram version model 365 came up for sale. I had been half looking for a handsome pre war radiogram and this one, with the added attraction of being the up market version of an existing set, seemed to fit the bill perfectly.

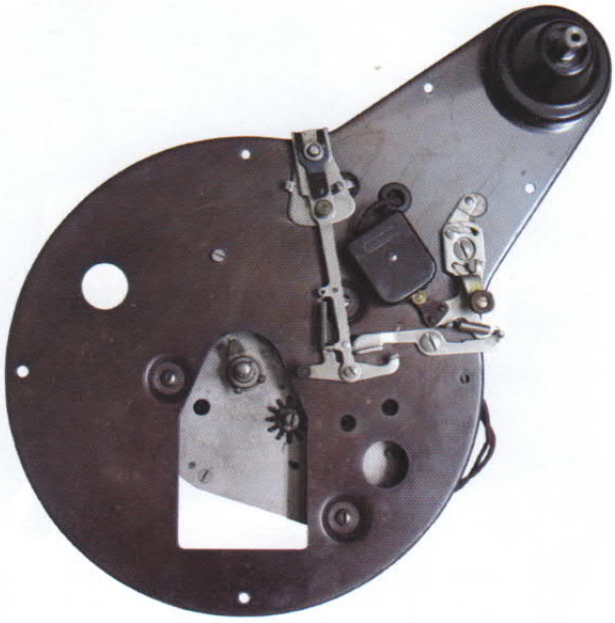
The McMichael 365 radiogram shares the styling of the 135 radio but is much larger. The sales brochure proclaims it is "hand-built throughout by British craftsmanship and is as perfect as a modern radiogramophone can be", makes great play of the "Giant Dial with its "marvellous clarity" and reassuringly notes that "the turntable has overhead floodlighting to eliminate the usual groping in half dark".

With the lid lifted the gramophone deck is on the right hand side while the radio is on the left. It follows the 135 with its enormous tuning dial but the radiogram version has the added attraction of coloured internal illumination of the circular dial, red for long wave and green for medium wave. When the "gram" function is selected, a lamp concealed within the raised lid dimly illuminates the turntable – some floodlighting! At least ten of this model are known to have survived.

My new acquisition appeared to be virtually untouched, and on bringing it home a detailed examination was made. It was noticed that one knob was incorrect, and the pick up arm was loose because of a broken casting. An early observation was how awkward it was physically, because the long Queen Anne legs made it very difficult to move about – the legs wobbled alarmingly if attempts were made to slide it across a floor, while it was just







slightly too wide and heavy to lift easily. Consequently, whenever the cabinet had to be moved it was necessary to enlist help.

All revealed inside and a bout of laziness

Inside the cabinet there was a mass of wiring which seemed excessive for a relatively basic product, but when the layout was looked at more carefully the reasons for this became clear. Several circuit functions are distributed around the chassis – the power transformer and rectifier valve is separately mounted to one side whilst a baffle board holds two energised loudspeakers, the output transformer and the reservoir capacitors. In addition there is cabling for the gramophone section, the overhead light, plus the aerial and remote loudspeakers. All these terminated at soldered tagstrips, which when disconnected would prevent the chassis from being self powered for test. Worse, there was no access under the chassis so the set must have gained a reputation as an absolute service nightmare !

Dust and grime was removed and careful notes made of the tagstrip connections, backed up by a photographic record. With the interconnections unsoldered the chassis was withdrawn for restoration. There was no evidence of woodworm in the cabinet but treatment was applied as a precaution. Other than the separation of the mains transformer and rectifier, the chassis is very similar to the model 135 and shares its distinguishing feature of two angled steel brackets supporting the principal controls. Little thought seems to have been given to the hazard presented by the unpleasantly sharp ends of these brackets, nor that the chassis is unstable on its three mounting studs when removed from the cabinet and is difficult to stand securely on a bench, adding further weight to the earlier servicing nightmare observation. With the valves removed and carefully stored, the painted chassis was cleaned up using foam cleaner, a brush and tissues. I had been fortunate to obtain a copy of the original service documents from Gerry Wells, and with everything clean the electrical restoration could commence.

There were several quite obviously suspect capacitors, together with some later non original replacements which were substituted with new parts. Some made by Muirhead came housed in very attractive card sleeves and it would have seemed an act of vandalism to just unsolder them and replace with new, so the pitch end caps were carefully removed, the old capacitor dug out and new parts hidden inside. With care these could be made almost indistinguishable from the original 1930's parts, although being under the chassis it is

very doubtful if they would ever be noticed. All the pretty Muirhead ones were refilled but after locating many other suspect capacitors I abandoned my noble endeavours and simply soldered in replacements. One benefit of doing this was not having to constantly refer back to my notes to check which parts had been reconditioned or replaced. In my defence however, all removed capacitors were found to be leaking.

Having attended to those components it was appropriate to start applying power to check the HT voltages through the chassis. Even if it had been possible to apply power from the set's power unit I did not want to risk damaging components, so I turned to my well used capacitor reformer as a high impedance source of HT for test purposes. This is little more than a DC supply with a resistor chain allowing various voltages to be selected, and has the safety advantage that the current is limited and can be less hazardous than a conventional power supply. It is ideal for checking the HT leakage in equipment being recommissioned and allows problems like leaking screen decoupling capacitors to be readily identified under near working conditions. All seemed well on test and the chassis was put aside while other work was undertaken. It was at this point that I realised there was much more to this restoration than originally anticipated.

Mechanical work – reconditioning the motor

Although offered as "an easy project", closer inspection revealed a fractured pickup arm pivot casting which was worrying. This was repaired with maximum strength epoxy adhesive but a replacement came along and this was fitted instead. The deck and pick up are Garrard products but before doing too much work it seemed sensible to check that the motor actually worked. As the pick up arm had been removed earlier it was necessary to operate the motor switch which is driven by the end of the record trip mechanism. Ohmeter tests suggested an open circuit so further investigation was needed. The switch was underneath the turntable which was removed by sliding out the central circlip, and then threading a length of strong flexible wire under the turntable from two sides so that they met at the centre. After some pulling the turntable lifted away to reveal lots of dust, the trip mechanism and motor switch. This was closed by hand and mains voltage was carefully applied through an isolating transformer. Yes, the motor now ran, a relief, but it was quite noisy – hardly surprising when it had probably not run for decades.

The motor unit is a basic squirrel cage AC motor with mechanical speed control. Precision mechanical assemblies like this demand clean working conditions so having removed dust from the casing I placed the assembly on a clean pale colour cloth to ensure that any loose parts that fell out during disassembly would be easily seen. With the trip striker removed from the turntable spindle, four screws on the top plate were withdrawn which allowed it to be lifted, exposing the governor and worm drive gearing within its housing. Grease on the worm gears had, as expected, long dried out and there was quite significant fore and aft play along the motor axis. However, everything appeared to be in fine mechanical order with no obvious wear. All the parts were carefully cleaned of dried grease and

reassembled. Correcting the spindle play was simply a matter of adjusting the end bearings. Fresh lubricants were applied and with the covers back in place the motor ran almost noiselessly and was adjusted to 78 rpm off load using a stroboscopic disc.

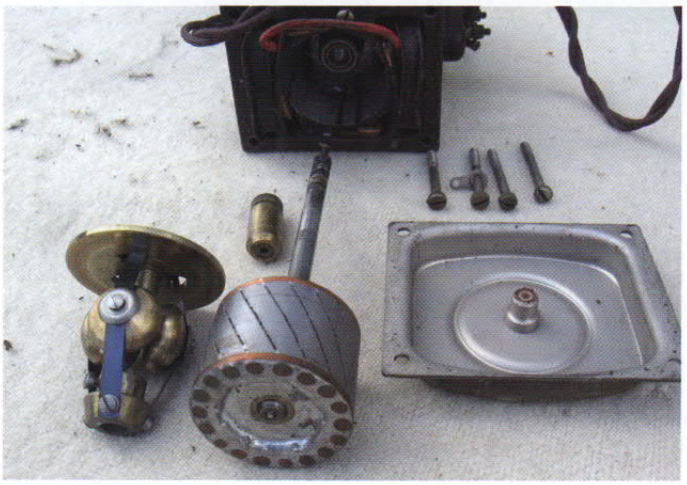
A testing skill – rebuilding the pick up

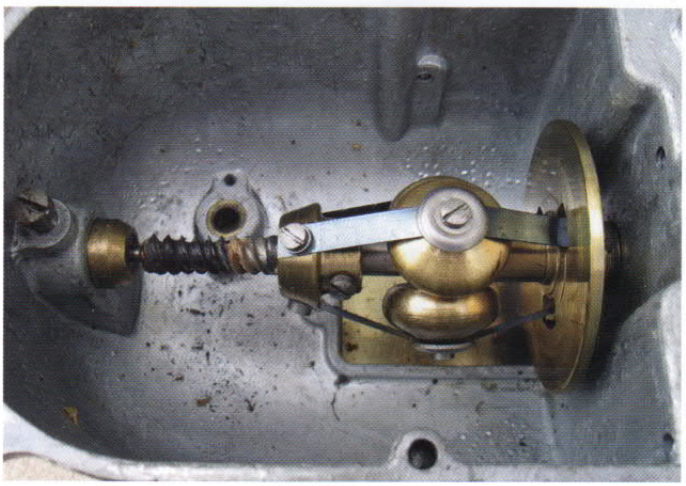
The Garrard pick up is typical of its period and comprises an armature held within a coil between two pole pieces in a strong magnetic field. As the armature moves in response to movement from the record being played, minute electrical signals are induced in the coil and fed to the amplifier part of the chassis. Sets of soft rubber mountings keep the armature centrally in place and effectively act as pivots. It is usual for these to harden with age, leading to low output and possibly distortion as the pivot movement becomes restricted. Since I was unable to test the pick up and not wanting to revisit it for later repair, it was dismantled for reconditioning. This is not a job to be hurried and the right lighting, working conditions and level of concentration are preconditions. It is very easy to break the fine wires on the pick up coil; all the parts are small and fiddly, so I took a rest during this work to keep my attention sharp.

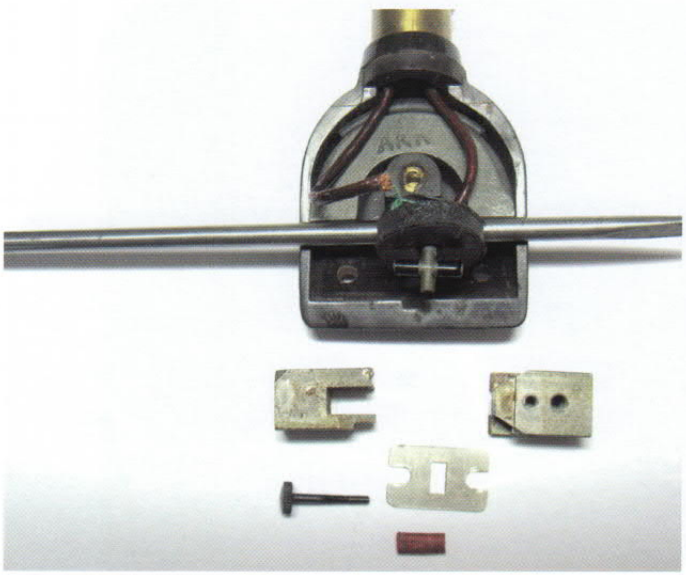
A rubber damper holds the upper, flat part of the armature which is held centrally between the pole pieces and clamped in position by a thin steel plate. With this removed it was apparent that the damper had become extremely hard: indeed when being removed it promptly broke into two pieces ! This was expected and a short section of replacement rubber sleeving was on hand for later insertion. I was hoping not to have to replace the damper on the lower circular section which holds the needle, but when removed for inspection it flaked away into thin shards of hardened rubber. This was very carefully replaced with two tiny sections of heat shrink tubing, shrunk into place with heat from a soldering iron. Meanwhile a screwdriver was placed across the poles of the magnet as a keeper to preserve its magnetism. Reassembly was a very intricate process indeed and to help with the final alignment a needle was fitted to locate the armature in its correct central position between the pole pieces before clamping up the top plate. At this stage I was still unable to test the pick up under working conditions, so the output was connected to an oscilloscope whose traced moved when the needle was lightly tapped. Having not attempted a pick up rebuild before, these signs of life induced a feeling of considerable relief!

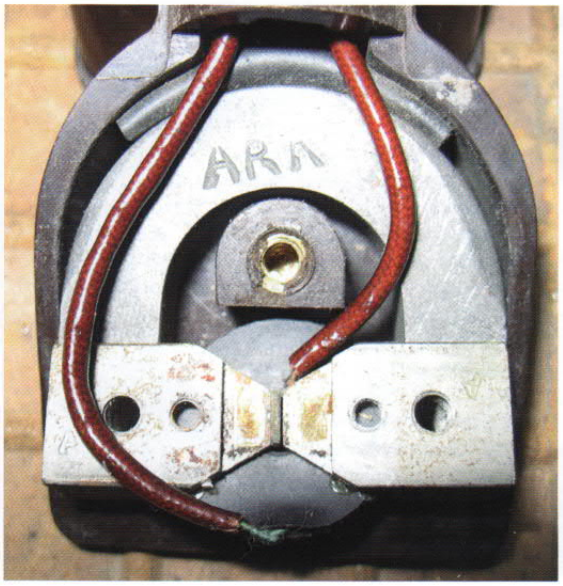
Cabinet repair and a nervous moment

Next to receive attention was the cabinet. It had suffered the usual knocks and scrapes, especially on the more vulnerable legs, and unfortunately one of the speaker grille cloths was badly torn and beyond repair. I did not want the cabinet to have a brand new appearance and opted to undertake a very light restoration. Before this could be started the speaker cloths both had to be removed, and to access them it was necessary to remove the speaker baffle board. This is an unwieldy assembly comprising the two loudspeakers, sundry parts and all the associated wiring. The opportunity was taken to apply further woodworm treatment and the baffle was left wrapped in a bin liner to allow the fluid to permeate through the plywood. With the baffle out of the way the cloths were easily peeled away and the cabinet surface cleaned, minor scratches smoothed, disguised with spirit stain, and the entire cabinet given a light application of French polish. This improved its appearance immensely. Using the original grille cloths as templates, two new replacement pieces were carefully cut to size. For some while I had recurring visions of the replacement grill cloths not fitting properly or creasing badly, so the fitting was approached with some trepidation. It had been suggested that impact adhesive be used but I only used it









along the top horizontal edge to fix one side, and then used a glue stick on the remaining wood surfaces. By gently pulling down on the cloth and pressing into the wet adhesive, I was able to move the cloth into alignment and ensure that it was crease free by being slightly tensioned. It only took minutes and the results, thankfully, are very satisfactory.

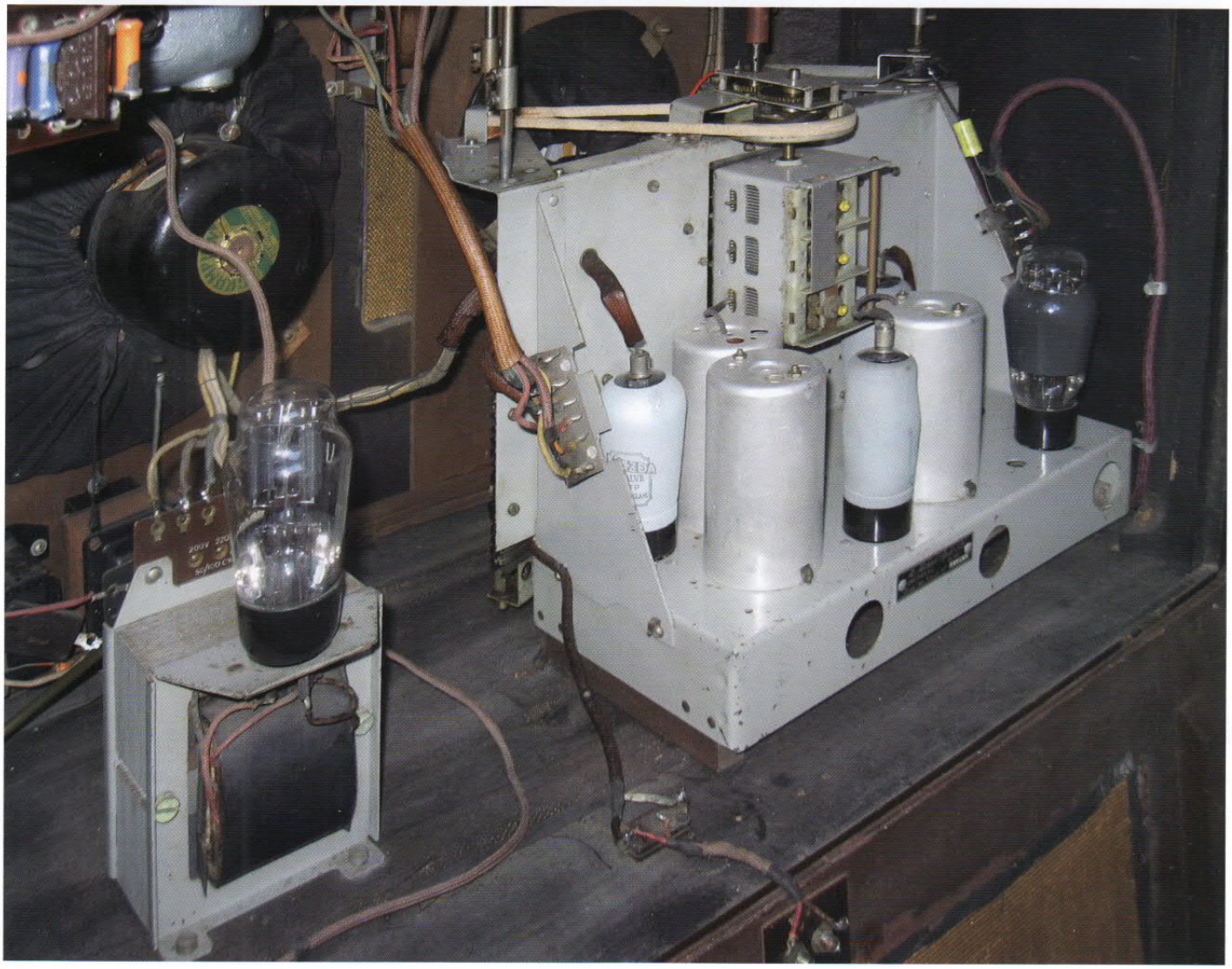
Getting it together

Much had been removed from the cabinet at this point making it more manoeuvrable, and a decision was taken to move it upstairs nearer to its final destination. This was still not easy because of its bulk and the long legs continually caught on the stairs. Final reassembly was, as they say, the reverse process. My copious notes were referred to for resoldering the numerous tag connections but a few puzzles were still encountered along the way – these were soon overcome with the help of the service instructions.

With everything checked and re-checked, power was finally applied. The rectifier was removed so that the low tension circuits could be checked. Only the coloured lights illuminating the dial needed attention – a solder break stopped them all working and one was found to be open circuit. The rectifier was then replaced and the mains slowly brought up using a Variac. The radio seemed quite lively on a short test aerial but I was very disappointed by the gram performance – the signal was horribly distorted. I put this down to my inexperience in rebuilding the pick up and attempted further realignment, but without success. With a growing sense of despondency I looked again at the circuit and noticed a paper capacitor on a filter tag strip fitted near the pick up. I didn't really expect this to be the culprit but I replaced it anyway, and was pleased that it resulted in an immediate cure. Electricity sometimes works in mysterious ways! Many small details were attended to, like IF alignment, setting the dial pointer and knobs, and clipping the wiring looms back into place before the back was closed up and the radiogram installed ready for use.

Despite my careful testing however, one of the loudspeakers is not quite up to scratch, as it were, and there remains the incorrect knob that needs to be replaced by casting a replacement. These are ongoing jobs to be tackled as components and replacements are sought out. This has not been a straightforward restoration partially because of the somewhat unwieldy cabinet on long, wobbly legs, but principally because of the engineering decisions taken by the designers. It is very difficult to test the chassis when installed in the cabinet, and the speaker baffle board with its myriad components is not very accessible. So much of the circuitry is distributed that even with the chassis out of the cabinet it is hard to service under power, and of course it falls over so easily ! I have the distinct impression that money and attention was lavished on the cabinet whilst the electronic design was subsumed to second place.

In its day a radiogram like this would have been a major family purchase, unlike nowadays where electrical and electronic equipment is classified for none too obvious reasons as "consumer durables". Despite my negative observations on servicing, it is nonetheless a very pleasing and functional piece of furniture. The enormous illuminated dial is particularly impressive with its subtle red illumination, and the gram provides a pleasant mellow sound with more than sufficient volume in reserve. And if Aunty Dorry could see it now, I'm sure that she would grant a gracious nod of approval.



Approved by the Postmaster General - GPO No. 5304

by Ian L. Sanders

The simple crystal set design bearing the Post-Office registration number, 5304 appeared under several model names from multiple manufacturers and distributors. It was offered in two forms – the first housed in an open mahogany cabinet (*"Type 1"*) and the second in a rexine-covered cardboard case with a lid (*"Type 2"*). The former seem to have been for broadcast band reception only and existing examples generally carry the BBC approval stamp on the front face of the cabinet and have the registration number engraved on the panel. The latter, on the other hand, were fitted with a socket for a long-wave loading coil and often have no BBC stamp or visible Post Office registration number. Other than the addition of the long-wave coil socket, the panel and fittings of the two versions of the sets were identical.

Below: Known examples of the *Type 1* set (open mahogany cabinet).

Manufacturer/Distributor	Model	Band	GPO No.
Cables & Electrical Supplies	CABLE No.1	Broadcast only	unknown
J.R. Wireless Co.	ROOCO	Broadcast only	5304
A. J. Keeble	SEDEH	Broadcast only	5304
Neutron Ltd.	NEUTRON No.1	Broadcast only	none
Sel-Ezi Wireless Supply Co.	RODEOSET	Broadcast only	5304

Opposite page, top far left: *"SEDEH"* crystal receiver distributed by by A.J. Keeble of Stoke Newington Road, London. The simple mahogany cabinet with plain beaded bottom edge was typical of all versions of the 5304 sets.

Opposite page, bottom far left: *ROOCO* crystal set by J.R. Wireless Company. Originally fitted with a glass-enclosed detector. (Martyn Bennett Collection)

Opposite page, main picture: *RODEOSET* by Sel-Ezi Wireless Supply Company.

Below, left: *CABLE No.2* by Cables and Electrical Supplies of Pentonville Road, London.

Below, right: *ROOCO* crystal set by J.R. Wireless Company. (Chris Simmonds Collection)

Given the very late registration number (only a few higher, and presumably later, numbers are known in the sequence), the *Type 1* sets were likely produced near the termination of the Post-Office registration scheme, that is shortly before July 1st, 1924. *Type 2* receivers most probably date somewhat later and after the registration procedure had been abandoned, which explains why the majority have no number. No doubt, some manufacturers continued to use the BBC stamp and/or the registration number to give potential customers a sense of confidence, but it is unlikely that the *Type 2* sets were ever subjected to any formal Post-Office approval process. Those with registration numbers may well have used pre-engraved panels intended for *Type 1* sets subsequently modified to accept the long-wave loading coil. In any case, advertisements for both types in the contemporary wireless journals generally date to late 1924 or early 1925, consistent with the registration number.

It is probable that both A.J. Keeble – a wholesale headphone supplier – and Sel-Ezi Wireless Supply were merely distributors of the sets, whereas J.R Wireless, Cables & Electrical Supplies and Neutron Limited (whose products were retailed by the London company of Zeitlin and Sons) may have manufactured the receiver themselves. J.R. Wireless was a shareholder of the original British Broadcasting Company[1] and a manufacturer of crystal sets and valve

Below: Known examples of *Type 2* sets (rexine-covered cardboard case with lid).

Manufacturer/Distributor	Model	Band	GPO No.
Cables & Electrical Supplies	CABLE No.2	Broadcast/LW	none
J.R. Wireless Co.	ROOCO	Broadcast/LW	none
J.R. Wireless Co.	Unnamed	Broadcast/LW	5304
Neutron Ltd.	NEUTRON No.2	Broadcast/LW	none
Sel-Ezi Wireless Supply Co.	RODEOSET	Broadcast only	5304

amplifiers and wireless components between 1924 and 1926 with London premises at 28, Somerset Road, Tottenham – later moving to Roseberry Avenue, Clerkenwell, E.C.1. Cables & Electrical Supplies of Pentonville Road, London and Caledonian Road, Islington were also a BBC member manufacturer of crystal sets and amplifiers known to be operating between 1923 and 1926[1]. Interestingly, neither company seem to have ventured much beyond crystal sets into the field of more sophisticated all-valve receivers. The same was true for Neutron Limited, a company better known for their widely used and advertised *"Concert Tested"* galena wireless crystals. Both Cables & Electrical Supplies and Neutron Limited advertised a "larger version" of the *Type 2* receiver, but no details are known.

Nickel-plated fittings were most commonly used on both versions of the set, although examples with brass fittings do exist. None of the models featured any kind of tuning scale. A glass-enclosed cat's-whisker/galena detector was standard. In late 1924, the *Type 1* sets were generally priced at around 10/6d., making them one of the cheapest factory-built sets on the market at that time, while the *Type 2* receivers – with long-wave capability – retailed at 12/6d., despite their cheaper cardboard case.

The arcane model names given to some of the sets are intriguing in themselves. J.R. Wireless Company's *"ROOCO"* – no doubt derived from the last name of the firm's proprietor, one Archibald Rooke, while the origin of Keeble's *"SEDEH"* is more obscure. *RODEO* was the trademark of the Sel-Ezi Wireless Supply Company's radio components – hence the *RODEOSET* name found on their receivers. A crystal set by J.R. Wireless Company with the name *Jacophone* and carrying the 5304 registration is recorded[2], but no details are known regarding its design. It is likely, however, that it is yet another example of the same type.

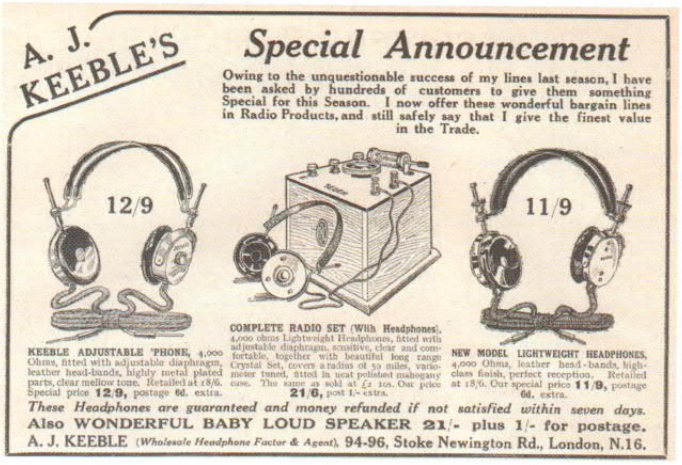
The question remains why this design was so widely copied. Undoubtedly, it was a simple and relatively inexpensive set to manufacture. But was it actually produced by multiple firms, or was it manufactured by just one or two and merely "badge-engineered" to suit the trade needs of different companies? Certainly there are numerous examples of early wireless manufacturers offering receivers of the same or similar design, either with an identical Post Office registration number or with an entirely different one[3]. The *"5304"* family of crystal sets, however, has earned its place in crystal set folklore by being the most prolific!

1. Lorne Clarke, Private Communication.
2. Information courtesy of BVWS.
3. Sanders, Ian L: *Tickling the Crystal, Volume 2.* Published by BVWS Books 2004.

NEUTRON No.2 by Neutron Ltd.

Unknown manufacturer, possibly Neutron Ltd.

Popular Wireless and Wireless Review, November 1st, 1924.



Neutron Products. Catalogue of Neutron Ltd. 1925-1926.

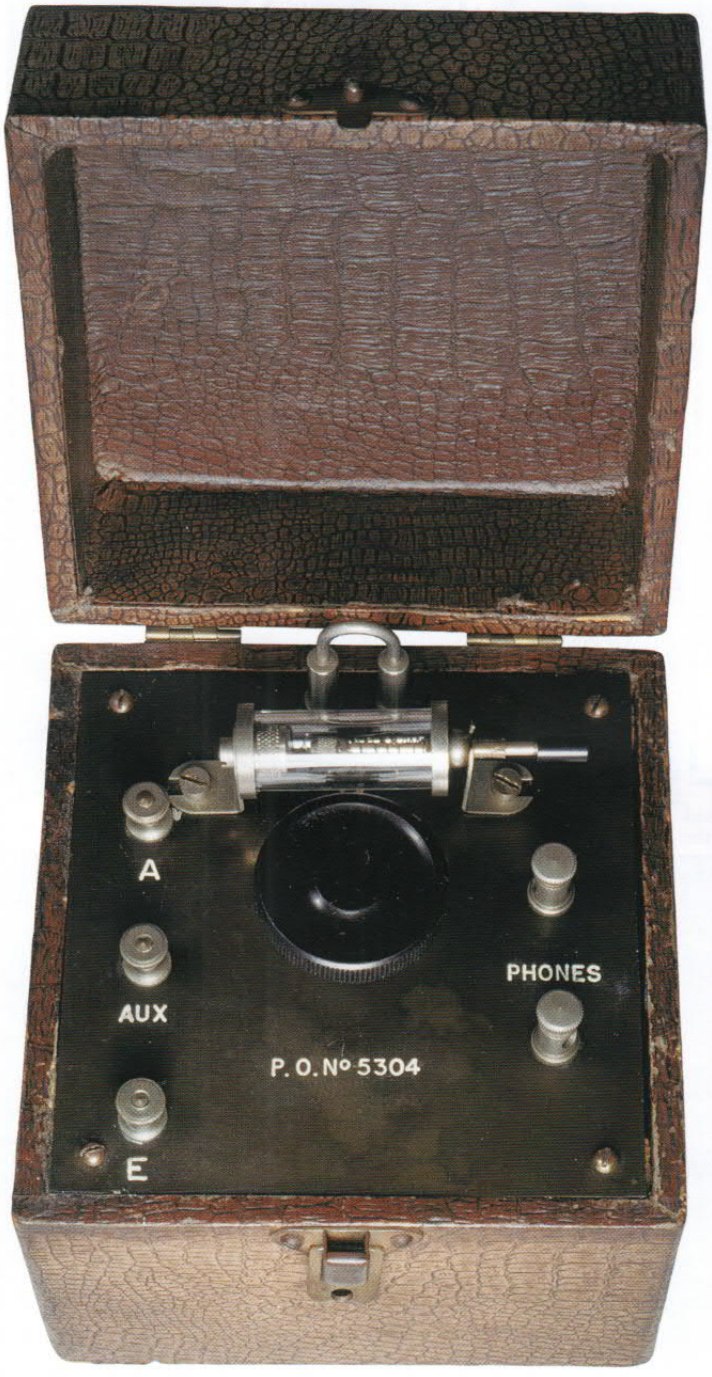
This model is covered in brown leatherette, and fitted with lid enclosing the panel. Variometer tuned and fitted with loading plug.

15s. 6d.

This set is mounted in a polished mahogany box, and is of first-class workmanship throughout.

This model is variometer tuned and fitted with loading plug.

10s. 6d.



Left: Unnamed model most likely produced by J.R. Wireless Company. This version of the *Type 2* set carries the Post-office registration number in place of the model name.

Above and below: Another example of a J.R. Wireless Company (*ROOCO*) and a Cables & Electrical Supplies Company (*CABLE*) receiver sharing a common design. So the connection between the two firm's products extended to receivers beyond the 5304 sets.

Sets that are worthy of a splendid Crystal —Neutron

The producers of Neutron Radio Crystal now introduce to the market a series of Crystal Sets, each fitted with a Neutron Crystal. These are designed in accordance with the principles on which hundreds of long-distance records have been established; and each set represents, for its price, the highest possible efficiency in loud and clear reception.

No. 1 Enclosed detector with smooth movement, screw Crystal cup fitted with Neutron Crystal. Variometer tuning, covering 300 to 500 metres wave-length. Extra terminal for use with short aerial. Nickel-plated fittings, mounted on high grade matt ebonite, with polished cabinet, size 5 × 5 × 4½ in. - - - **10/6**

No. 2 As above, but with lid to cabinet. Covered in brown crocodile-grained leather cloth. Also has provision for addition of loading coil, for Chelmsford, or other long-wave stations. Size 5 × 5 × 5 **12/6**

No. 3 A "de Luxe" modification of the above, exactly to same specification as No. 2, but in a larger size—7 × 5 × 5 - - **15/-**

Guaranteed Range—125 miles

No. 4 The last word in Crystal Receivers; guaranteed to receive telephony at 125 miles *at least*, with a good aerial. Fitted with special detector with newest improvements; tuned by low-loss coil and variable condenser, with knob and engraved dial. Fitted with plug and socket for long-wave coil. This set is exactly as used in regular reception over 200 miles range - - - - - - **32/6**

These sets owe their efficiency mainly to the fact that each of them is fitted with a Neutron Crystal, exactly similar to the Neutron you buy in the black-and-yellow tin. Your Radio Dealer can supply either Neutron Crystal or the Neutron complete Sets; but if you have difficulty send the price with Dealer's name direct to us, and receive the Set or the Crystal by return post.

NEUTRON TRADE MARK

Concert Tested & Guaranteed Radio Crystal

Stocked by the Best Radio Dealers. Packed in tins with silver cat's-whisker. Insist on Neutron in the Black and Yellow Tin— **1/6**

Produced by NEUTRON, LTD., Sicilian House, London, W.C.1.
'Phone: Museum 2677. *Sole Distributors:*

V. ZEITLIN & SONS

144, Theobald's Road, London, W.C.1. *'Phones: Museum 3795 & 6841.*

E.W.D.

THE ROOCO TRADE MARK PRODUCTS

CRYSTAL RECEIVERS

Slow motion Dials.

Geared Coil Holders.

Variable Condensers.

VALVE AMPLIFIERS

FREE OF MARCONI ROYALTY.

Pull and Push Switches. Basket Coil Holders. The SOVEREIGN L.F. Transformer.

Actual Manufacturers:

The J. R. WIRELESS CO.

6 and 8, Rosebery Avenue, Clerkenwell, E.C.1

The Wireless Trader Yearbook & Diary, 1926. Published by The Trader Publishing Co., London

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"CRYSTAGOG"

A perfect Crystal, sensitive in every point. Cash refunded if not satisfactory. All specially selected. **Price 1/-** (per Box), **1/3** (in Glass Tubes).

"O.V." INDOOR AERIAL

A neat and portable indoor or outdoor aerial. No insulators required .. .. **Price 2/6 each.**

"CABLE" CRYSTAL SETS AND VALVE AMPLIFIER

		£	s.	d.
Cable No. 1.	Crystal Receiver		10	6
„ No. 2.	Do. with 5xx plug and in fancy box with lid ..		12	6
„ No. 4.	Crystal Detector and 1-Valve Amplifier in one panel. Fancy box with lid ..	2	0	0
„ No. 3.	1-Valve Amplifier	1	10	0
„ No. 3a.	As above, but in fancy box with lid	1	11	0
„ No. 5.	Larger Crystal Set in fancy box with lid		15	0

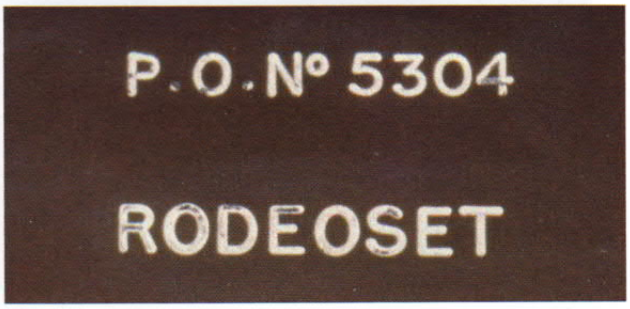
"EASYFIX" CORDS H.T. and L.T. leads in one set. Various colours to obviate mistakes. **3/-.**

Trade Enquiries Solicited for all above lines.

CABLES & ELECTRICAL SUPPLIES,
Cable House, 234, Pentonville Road, LONDON, N.1.
Telegrams: "Grandchild, Kincross, London." Telephone: North 3109

Popular Wireless and Wireless Review, October 25th, 1924.

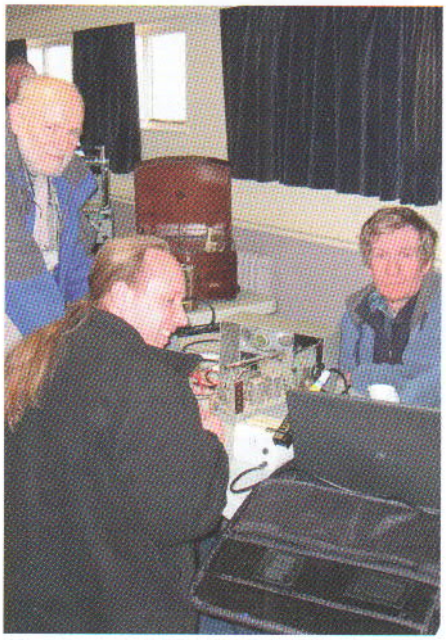
Left: Popular Wireless and Wireless Review, January 23rd, 1925.



Are there any other known manufacturers or models of this ubiquitous receiver? The author would be most interested to learn of them. Please contact him at: author@crystal-sets.com

BVWS Lowton radio meeting

photographs by Mike Barker



Steve Pendlebury's while you wait workshop service

Alan and Angus of the Vintage Wireless Co. Sale, Manchester.

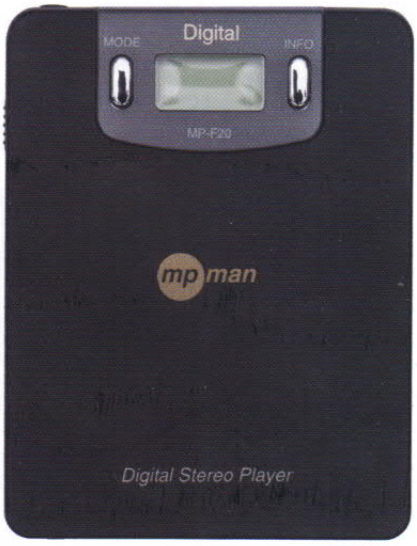
Trevor and Steve ready for the flood of buyers about to enter the hall

On The Air's excellent selection at Lowton

Vintage Television display put on by Russell Atkinson

Collecting iPods by Enrico Tedeschi

In the year 2001 the Apple iPod changed the way we would be listening to music, much like the Sony Walkman did in 1979. With an iPod nowadays you can do all sorts of things: watch videos, films, listen/watch podcasts, send and receive emails, surf the internet, audio chat and even make telephone calls!



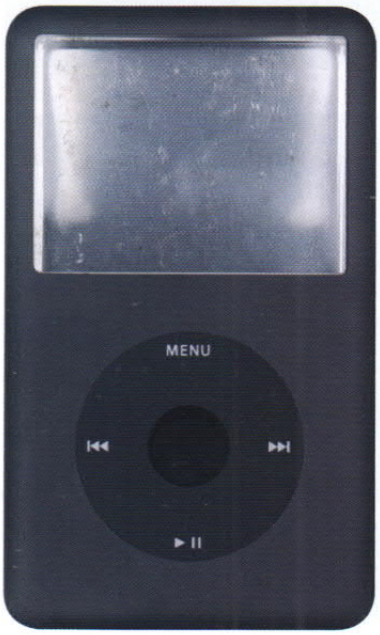
mpman F10 - the device which started it all.

ipod first generation

ipod second generation

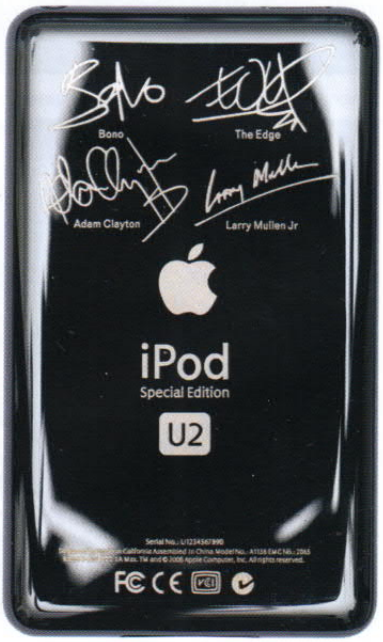
ipod third generation

ipod sixth generation also named 'classic'

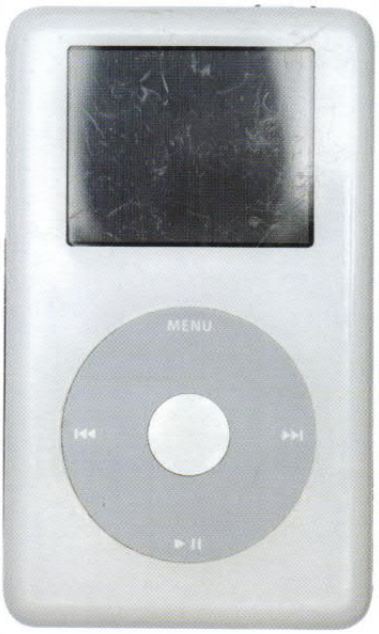


ipod classic sponsored by the rock band U2

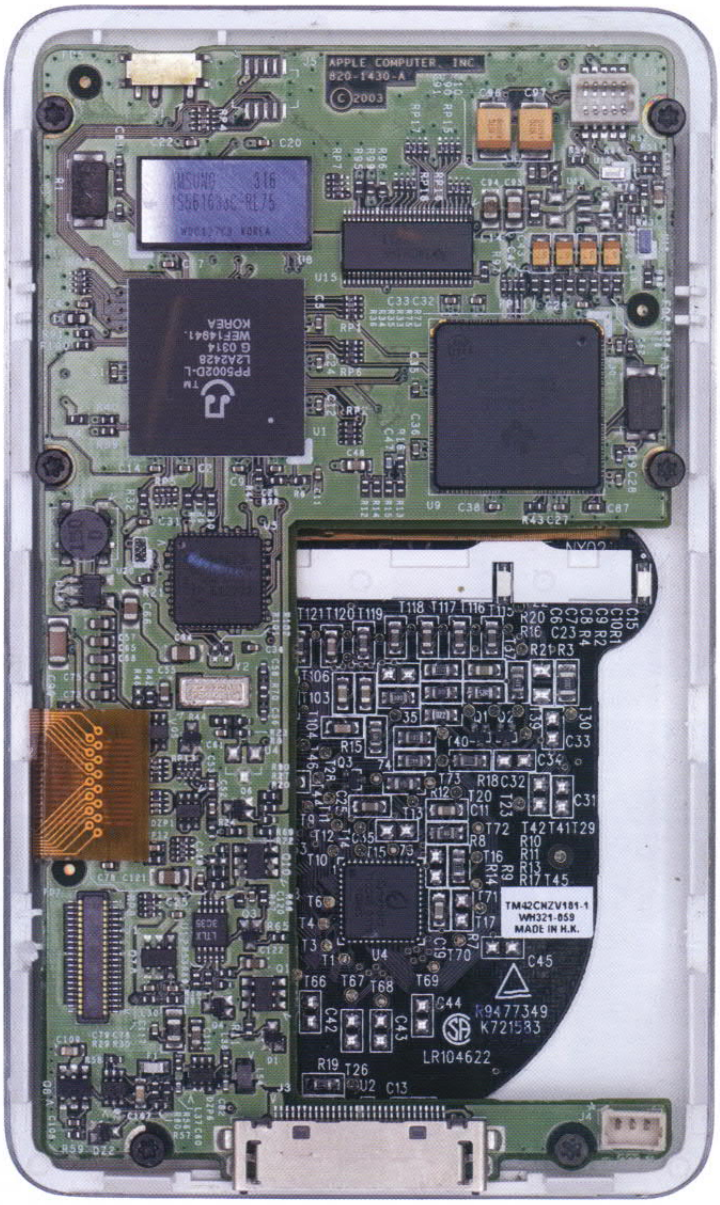
rear of U2 ipod



Diamond Rio - the first player to attract the attention of the RIAA



ipod fourth generation



inside the ipod

However, contrary to popular belief, the Apple iPod was not the first MP3 player on the market. This honour belongs to the MPMan which went on sale in May 1998 (three whole years before the iPod!). The MPMan F10 was, as the name says, the first portable solid state digital audio player that played the then new MP3 encoding standard.

The MPMan was developed by a company called SaeHan Information Systems based in (of all places) Seoul, Korea but imported in the States and sold by a company called Eiger Labs Inc.

And that is not all, as the iPod was not even going to be the second MP3 player as this was, in September 1998, the Diamond Rio model PMP300. This model became famous, much more famous that the MPMan, as it was the subject of a lawsuit from the RIAA (Recording Industry Association of America) that objected to the copying of copyrighted music on solid–state players (interesting that they did not do much against the Philips Music Cassette copying and have, only recently, stopped taking students and pensioners to court on a similar issue involving sharing music on the internet).

1979 – enter Kane Kramer. As often happens, the person who has the original idea seldom succeeds in putting it on the market. As with the radio and Tesla and Marconi the original Tesla idea only became popular thanks to Marconi, the man who took it out of the laboratory and put it in everbody's home. Kramer patented his digital audio player well before it was commercially produced. It had a small screen and the playing time was only about 3:50 minutes but even Apple has eventually acknowledged that he was the first with the original idea.

When the first Apple iPod came out on 23rd October 2001 it was met (as always happens to new concepts and ideas) with a critical and hostile reaction. However despite the $400 price tag, the unconventional circular scroll wheel and the Mac–only compatibility, it sold well and eventually changed forever the way people purchased and played music. The first iPod opened the way to a new onslaught of MP3 player brands and models and, of course, to the unsurpassed success of the iTunes method of buying music, videos and applications online.

The first ipod had a mechanical scroll wheel (you know ... the round one) and just one way of storing (5GB!) and exchanging music via a firewire connection with the Macintosh.

The second model, out in July 2002, came with a larger hard disc drive (up to 20GB), a touch wheel interface and a firewire port cover. It also became compatible with PCs via a program called MusicMatch.

The April 2003 third model had a complete redesign with an all–touch interface, a slimmer case and the all important dock connector. It was also made compatible with Windows via the iTunes version 4.1.

Then things started to move really fast as the fourth model (dubbed as Classic) adapted the click wheel used on the iPod Mini model and was able to play photos and later even had colour. It also permitted charging and synchronising via the USB port.

The fifth model had another full redesign with an even slimmer case and a larger screen with video playback.

Then, with the sixth series, Apple introduced the suffix "Classic", a new interface and an anodized aluminium case. The size of the hard disc reached a whopping 160GB (now reduced to 120GB).

In January 2004 Apple were not sitting on their hands but produced a reduced in size 4GB version of the iPod called the

ipod nano first generation

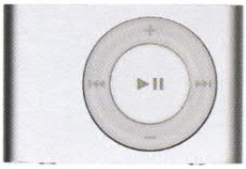
ipod nano first generation

ipod nano second generation

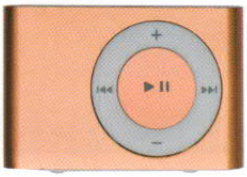
ipod mini first and second generation

So what to do if you would like to start a collection of Mp3 players? Well, as usual, there is no right or wrong way of doing it. The source of your findings could be anywhere: ebay, boot fairs, friends, other collectors, even dumps and skips.

ipod shuffle first generation



ipod shuffle second generation



a fake ipod shuffle

ipod nano third generation

ipod touch second generation

Mini. The Mini introduced the new click wheel (later adopted also by the classic models) and five different body colours.

A year later the Mini became even smaller with the introduction of the Nano, a USB only model which quickly went through four different models with the same name but with quite different shapes and sizes.

Not content with the Nano size, Apple also produced a diminutive size iPod called the Shuffle, a name derived from the fact that it has no screen and the songs are played in a random mode. They come out "shuffled".

The following model, the iPod Touch (September 2007), really reaches the peak of performance as it has a touch sensitive larger screen and besides playing music, youtube, podcasts and videos, is also able to surf the net, send and receive email, voice chat, A-GPS, Google maps, radio broadcasts and has even a microphone (in) socket which can be used to make telephone calls with Skype or even free ones with a standard called SIP.

One particular use of the Touch would be as an internet radio. I have put mine on a clock/radio/amplifier dock and I can listen to foreign stations quite easily. The most difficult part of this would be to find out the web address of the particular station you like but BBC channels should be easily traced.

Special editions of the original classic iPod were made with the endorsement of the pop music band U2, the fantasy novel book Harry Potter and a special edition in red of the iPod Nano.

Most of the technology of the iPod has been outsourced. PortalPlayer for the software and Pixo for the user interface are some of the contributors to its birth but the merit of the beautiful graceful shape and design goes to the British (Jonathan Ive at Apple). In particular some of the technology has come from a company called Creative which has not managed to stand the iPod pressure and has been relegated into a corner. They made MP3 players, the Nomad, the Jukebox and the Zen that, while technologically advanced, lacked the flair, the elegance and the design of the Apple offerings.

Another company, Archos, made a portable multimedia player (the Jukebox 6000) in 2002 but lacking the commercial strength and the overall diffusion power of the iTunes application from Apple it soon disappeared from the horizon and is now relegated in a niche of the market.

As an Apple admirer it is with some degree of reluctance that I also have to mention the Zune. The Zune is Microsoft's answer to the iPod. It is made for them by Toshiba (model 1089). Maybe one day they will be able to compete with Apple but at the moment the Zune is a complete and utter flop.

So what to do if you would like to start a collection of Mp3 players? Well, as usual, there is no right or wrong way of doing it. The source of your findings could be anywhere: ebay, boot fairs, friends, other collectors even dump skips. However you will still be able to put up a collection in a budget as they are of so recent production and millions of them have been made so as to make the hunting easy and inexpensive. The secret of collecting on a budget is to start collecting when there is plenty of supply and when not many people are doing it. So, if you are interested in the history of what made music listening and distributing so easy and popular, START COLLECTING NOW before it is too late.

enrico@brighton-uk.com

Nomad Jukebox MP3 player

Creative MP3 player

microsoft Zune first generation

Recently discovered photographs from the 1960's - Richmond, Indiana USA

Found in a box of slides covering a local parade, these two pictures show how American local radio stations would represent themselves, sometimes involving amphibious cars!

Loewe Opta 42019 by Paul Stenning

I purchased this interesting German set a few years ago, so it had been awaiting attention for some time. After moving house, we had an ideal position for it to live – on a shelf in an alcove in the lounge, above the fish tank – so it moved straight to the top of the list!

The set has piano-key waveband selection, and includes SW as well as the usual MW, LW and VHF. Separate bass and treble controls are provided. The tuning scale is fairly long and the action is quite slow, allowing accurate tuning. It is, of course, entirely labelled in German.

The cabinet finish was looking rather tired, and there was some slight damage due to wear-and-tear. The chassis appeared to be largely untouched, although there were some signs that the alignment had been fiddled with.

This is clearly quite a late valve set – I would estimate that it was made in the mid-1960s. The components are good quality, with no wax-paper capacitors to worry about. All the valves, with the possible exception of the magic eye, appear to be the original Telefunken branded components. The magic eye is a Tunsgram. The valve lineup is completely conventional – ECC85, ECH81, EF89, EABC80, EL84, and the set uses a contact-cooled metal full-wave rectifier. The tuning indicator is an EM84 – this is the straight-line type used on many tape recorders, and has a more modern look that fits the style of the set.

Although the set uses a solid metal chassis, much of the circuitry is contained on two PCBs (printed circuit boards). One contains the VHF front-end, and the other contains the complete AM front-end, IF, detection and audio amplification. The output stage is built separately on the chassis. There are also two small PCBs underneath the chassis, containing the tone control components. Behind the piano-key switches are a bunch of components such as the local oscillator coils and capacitors, and a number of wires and components link between this and the PCB. The standard of construction is generally very good, although some sections are difficult to access for servicing.

Repair

The chassis was removed, and then the tuning scale was removed for safety. This was a bit tricky as all the piano-keys needed to be pressed simultaneously before it can clear the support bushes around two of the control shafts. It would have been easier if I could have removed the buttons from the switches, but they were glued solidly in place and I didn't want to break anything.

After cleaning out all the cobwebs, I carried out some preliminary checks such as measuring the resistance of the mains and output transformer windings. Everything seemed OK. I then connected my capacitor reformer to the main smoothing capacitor, and soon established that this was fine too. I noticed a capacitor that was looking rather sorry for itself, connected between one side of the incoming mains and the chassis. Since I intended to earth the chassis later, I removed the capacitor and did not replace it.

Time for a test. I connected a test meter to the HT, a speaker to the output transformer, and switched on. The HT immediately rose to about 300V (metal rectifier – remember!), and after a few seconds dropped gradually to about 250V. The set appeared to work fairly well on MW, LW and SW, but VHF was dead. In fact with the volume turned up, VHF produced a rustling sound that suggested switch tracking.

Mains Voltage

However, before I investigated that further there was a more pressing matter to deal with. Being a European set, the voltage selector had options for 110V, 127V and 220V. I was using the 220V setting, but the mains voltage here is around 245V. This sort of overload would be irrelevant with modern equipment, but with valve equipment we need to be more careful. A meter check confirmed that the valve heaters were being run at almost 7V – far too high for 6.3V The generally accepted tolerance is +/- 5%, which gives a maximum of about 6.6V.

A few quick experiments with a handful of wirewound resistors soon established that 120R in series with the mains input dropped about 22V and gave a heater voltage of 6.4V. The set worked just as well with this resistor in circuit. The actual mounting of the resistor under the chassis was left until after the other work was done, so for now a 10W component was temporarily connected in series with the mains lead using choc-block connectors, and positioned carefully out of the way.

Further Repairs

The pots and switches were treated with some contact cleaner before the next test. With the set tuned to a weak station on MW the IF adjustments were carefully trimmed. Although this was not an exact alignment it gave a significant improvement in reception quality. The tuning indicator (which, surprisingly was still bright) reflected the improvement too.

It was now time to investigate the problem on VHF. There are only five connections to the VHF front-end, all of which could be easily identified by following through the wiring. These are HT, heater, ground, IF out and AGC. A signal generator was connected to the IF out connection, and set to 10.7MHz. Even with the signal output turned right up the signal strength indicated by the tuning indicator was minimal. A test meter connected to the tuning indicator showed it was receiving around about 2V positive on its control grid, whereas it should be several volts negative depending on the signal strength. Transferring the meter to the small electrolytic capacitor in the ratio detector showed a good negative voltage, which could be peaked up nicely by trimming the IF adjustments. This narrowed down the area of the problem to the waveband switching and a few AGC decoupling components.

I did not have a circuit diagram for the set, so I had to trace the relevant sections of circuit as I progressed. I now have a diagram for the 32021, which is very similar and is reproduced here.

The signal from the ratio detector is connected to a section on the VHF waveband switch via a 3M3 resistor and a length of screened cable. A further resistor (2M2) is connected from this point to chassis. The switch selects whether this signal, or one from

the AM detector, is connected to the tuning indicator and the AF amplifier. The same switch also switches the HT to the VHF front end. It appeared that tracking on this switch was likely, but there were no signs of discolouration. While poking around I found that the rustling sound completely disappeared when the 2M2 resistor was moved. Closer inspection showed that the body of the resistor was pressing against one of the HT switch tags. The voltage across the thin insulated coating on the resistor had become somewhat conductive, causing the problem. I fitted a new resistor, on slightly longer leads to avoid a repeat of the problem.

VHF

Although this solved the rustling noise, and allowed the tuning indicator to respond to an IF signal from the signal generator, there was still no reception. I connected a signal generator to the aerial input and tuned it across the VHF band, but even with the level right up there were no results. A replacement ECC85 valve had no effect. Clearly there was a fault in the VHF front-end.

On this set the VHF front-end is contained in a metal box, and the cover is retained with one screw. This allows access to the bottom and sides of the PCB. There were no visible problems so I checked the voltages on the valve pins with a meter. I was expecting the cathodes to be at around 0V, the grids to be slightly negative and the anodes to be 150V or so positive. Everything was correct, apart from one anode, which was at zero. From examination I found that the anode should be connected to HT via a coil and a 39K decoupling resistor. A meter check showed that the resistor was open-circuit. There were no shorts from the other side of the resistor to ground, or anything else to explain the failure, so I fitted a replacement, which solved the problem.

Alignment

The next job was to set the IF alignment more accurately. Until now I had only been setting it approximately to prove whether things were working. The RF alignment showed no signs of having been disturbed so I decided to leave it alone. The VHF alignment was simply set by ear and by watching the tuning indicator with the set tuned to Radio 2. The set was then tried on various other stations on VHF and sounded fine.

The AM alignment was carried out in a similar manner and peaked up very well. However the results were not quite so pleasing – in particular treble seemed to be lacking. This would be fair enough for a cheaper set, but I felt this set should be able to do better. The IF adjustments should probably have been set at slightly different frequencies, giving a flatter IF response, but since I do not have the alignment instructions or a sufficiently accurate signal generator this would be difficult to do properly. Instead I stuck with the alignment-by-ear approach and attempted to slightly detune some of the IF cans in an attempt to improve the treble response without affecting the sensitivity too much. It is easy to detune too much, making the set sound like it is not tuned in properly, but after some experimentation I managed to achieve an alignment that sounded good. Basically all four adjustments (top and bottom of both cans) were peaked, then the two top adjustments were very slightly detuned, one in each direction. The detuning was very slight, just to the point where the magic eye indication dropped fractionally.

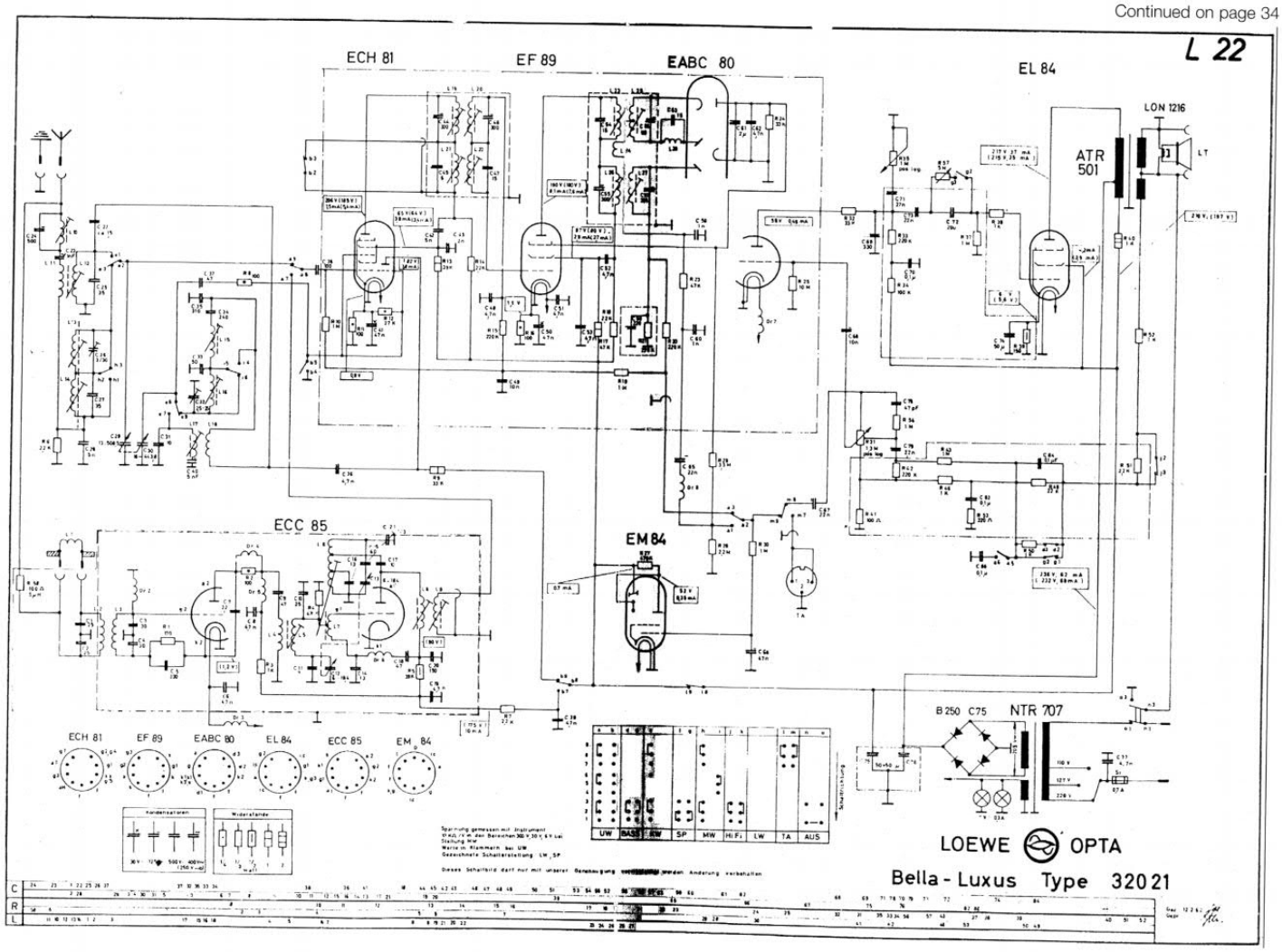
The final job on the electrical side was to mount the 120R mains dropper resistor properly. I found an RS dropper section of the correct value. This is rated at 0.3A so it is comfortably under-run in this application. These are round resistors with a fixing hole through the middle. I found a convenient place under the chassis next to the mains transformer and drilled a 4mm diameter hole. The dropper was mounted using a 4mm screw and nut, together with a 12mm long spacer to hold the resistor away from the chassis. The 2-core mains flex was replaced with new 3-core cable, the earth being connected to the chassis.

Cabinet

Although the cabinet looked rather tired, it definitely did not need stripping and refinishing. The original finish was in fairly good condition under the dirt, so a good clean and polish was called for.

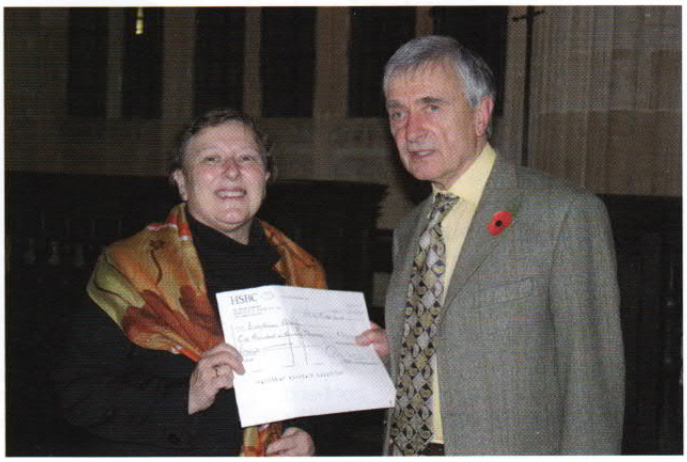
The loudspeaker was removed to prevent damage, and then the dust and cobwebs were cleaned out before the whole outside was cleaned. I started with foam cleaner, but although this removed the dirt and grime, it did not remove the paint spots (why didn't people cover their sets when decorating?). Isopropyl

Continued on page 34



Bodleian Library Marconi Archive goes online

In November last, along with a few other BVWS members, scholars and enthusiasts I was invited to the celebration of the launch of the online catalogue of the Marconi Archive held at the Bodleian library Oxford. This, the culmination of three years hard work is just the start of the plans to make the whole Collection accessible.



The evening was opened by Dr. Sarah Thomas who spoke of the importance of the Archive for future academics as well as its interest to the general public.

A cheque for £120,000 was presented to the Bodleian by Gordon Bussey to be used in funding the endowment of the Byrne Marconi Visiting Fellowship. The grant is intended to support study in the Marconi and related archives in Bodleian and the Marconi objects in the Museum of the History of Science.

The following is a transcript of the speech given by Gordon Bussey:

I would like to start by saying how pleased I am that the Marconi Archive catalogue has been given such a splendid launch.

I must also congratulate Michael Hughes, the archivist, for doing an excellent job over the last three years. The catalogue is a most impressive achievement.

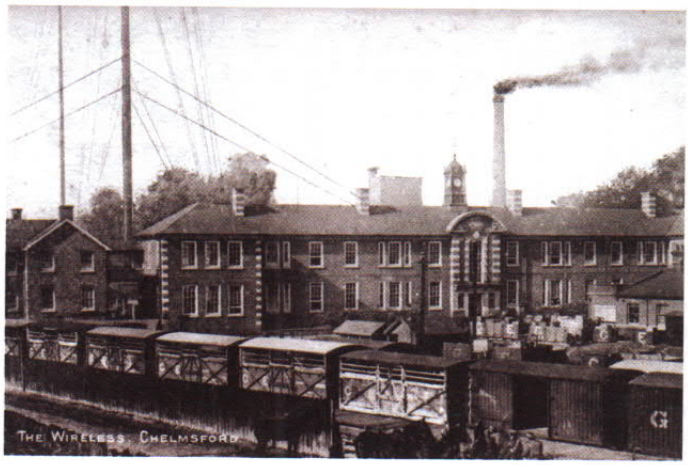
I first became involved with the Marconi Collection in October 1994 when I was appointed historical consultant to GEC, as the company then was. There were several Marconi related centenaries approaching and GEC wished to celebrate them to help promote the company's image. Despite this, the Collection, which comprised the Archive now lodged in the Bodleian and the artefacts, now at the Museum of the History of Science, came under serious threat of dispersal when GEC announced in January 1997 that the company proposed to sell it. Maintaining the Collection had become irksome and the company saw little value in keeping archaic equipment and ephemera. Fortunately, due to serious and high profile adverse publicity regarding the sale, the proposal was dropped. The company did not want to tarnish its image. The cancellation of the sale disappointed collectors worldwide (including one famous film company) who hoped especially to buy the many thousands of Titanic documents as well as a number of unique artefacts in the Collection.

Then, as you know, GEC changed its name to Marconi plc in 1999 and by mid 2002 was in serious financial trouble.

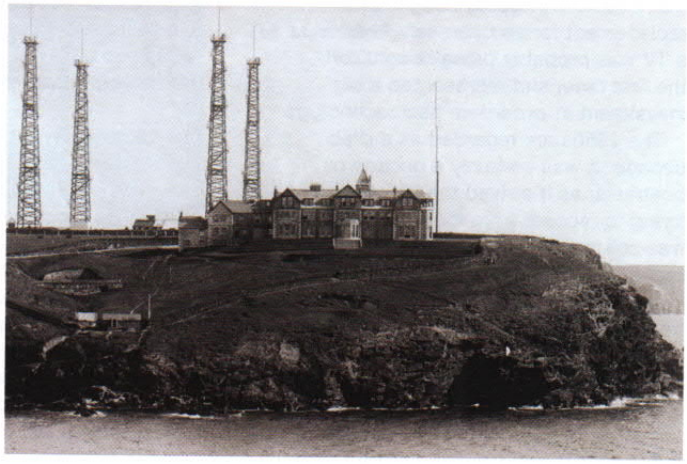
After the end of the centenary celebrations in December 2001 to mark Guglielmo Marconi's first wireless signal across the Atlantic I was no longer formally involved with the company – although I kept an informal, unpaid, watching brief.

I became aware in 2003 that Marconi plc was seriously considering selling the Collection. I was privately told that the company had approached an auction house and also a well known dealer with a view to a sale. I was horrified to hear a recorded phone conversation between the dealer and a well known collector confirming this fact. This was alarming news. One of the most notable Collections in the world detailing the history of radio technology, almost certainly the most important Collection of its kind in Great Britain, was once again in danger of being dispersed to the four winds. This time I felt sure adverse publicity might not weigh with the company as it had in 1997. It became imperative to try to rescue this unique Collection from being split up and dispersed.

In January 2004, I happened to be at the Bodleian and, registering that the Museum of the History of Science sat next door, it occurred to me that this might be the answer to our prayers. Oxford had unrivalled conservation facilities – much needed by the Collection – and also the prospect that the Archive and the Artefacts could



Marconi Works, Chelmsford



Marconi Transmitter, Poldhu, Cornwall

be kept together. Might the Bodleian and the Museum of the History of Science be interested in acquiring the Collection? I enquired. Indeed they might. And with the help of Lord Prior and Sir Geoffrey Pattie Marconi's was persuaded that Oxford University would be a fitting place for the Collection. Its position having improved a little, the company agreed to gift the Collection to the University. After 11 months of careful negotiations the transfer was made. A fleet of vehicles and ten men from Oxford University travelled to Chelmsford in November 2004 to collect over a quarter of a mile of documents plus Guglielmo Marconi's equipment and some of his personal effects.

The move took a week to complete. The University was also given the 'MarconiCalling' historical website containing 10,000 screen pages, launched in May 2001 and given a BAFTA award the same year.

We were lucky. Six months later Marconi's financial situation had worsened still further and, to my mind, by then the company would have refused to gift the Collection to Oxford.

Funding was then needed by the Bodleian for the archivist to sort and catalogue the huge collection of ephemera in the Archive. Fortune was on our side once more.

I was a trustee of the Wireless Preservation Society; a wireless museum set up and run for 25 years by Douglas Byrne on the Isle of Wight.

In 2003 it was in the process of being wound up. Proceeds from the sale of the Society's collection and property were required to go to a charity, preferably one connected with wireless. Funding an archivist at the Bodleian for three years to catalogue the Marconi Archive was an ideal option, with the balance of the sale being given to set up the Byrne Marconi Visiting Fellowship for research into the Marconi Collection – a fitting memorial to Douglas Byrne who died in 2007 aged 89. The Chairman of the Wireless Preservation Society, Rod Burman, was in agreement – as was Douglas Byrne who was then still alive – that the proceeds from the sale should go to the Bodleian. The final payment for the Fellowship has now been made.

Finally, I must once again give my thanks to Oxford University, and the Bodleian in particular, for saving such an important historical Collection for the nation and for making the contents of the Archive accessible for the first time to the interested public via the online catalogue.

Gordon Bussey – 7th November 2008

After the speeches and presentation we were invited to view a special exhibition of selected items from the Marconi Collection, including logs and ship's radio operators recording the first and last distress signals from the Titanic.

Also on display was Guglielmo Marconi's coherer receiver used in the first public demonstration of his wireless telegraphy equipment at Toynbee Hall in London in December 1896. In all the Marconi Archive extends to 4,480 boxes, volumes and items, occupying some 400 linear metres of shelving and ranking it among the largest archival collections acquired by the Bodleian.

In recognition of his efforts in providing a home for the Marconi Archive at the Bodleian, Gordon Bussey was awarded a lifetime membership of the Friends of the Bodleian.

Mike Barker.

The Marconiphone Product Ranges of the 1950's

by Stef Niewiadomski

As we collect and restore old radios and TVs, we tend to treat them as one-off items and forget that they didn't simply exist as individual sets coming out of the manufacturer's factories, but formed part of a range of several sets, each aimed at a specific market segment. The sets in a particular range therefore co-existed with each other and competed with more or less equivalent sets in other manufacturers' ranges. I was reminded of this fact when recently on eBay I bid for, and managed to win, a couple of 1950s Marconiphone sales brochures.

The brochures in question are for 1953-54 and 1958, and both cover the radios, TVs and radiograms on sale by Marconiphone at the time. The brochures must have graced the showrooms of large department stores and medium and small radio shops, and have been picked up (and eventually thrown away) by their thousands, either resulting in a successful sale, the selection of another manufacturer's set, or even no sale at all if the household chose to 'make do, and wait until next year'.

Of course there was a contrast between the way radios and TVs were bought and sold: the chances are that a radio was being bought as a replacement for an older set, whereas a TV was probably being bought for the first time, and represented a big investment in expensive new technology.

The 1950s are regarded as a drab decade. It was certainly a decade of contrasts: as it arrived the UK was still trying to recover from the war (rationing was still in force), but as it ended the prosperity, brightness and liveliness of the 1960s beckoned, and the revolutionary transistor was edging out the valve in most electronics applications. The Marconiphone product ranges give us a glimpse into this changing technology.

A Brief History Lesson on Marconiphone

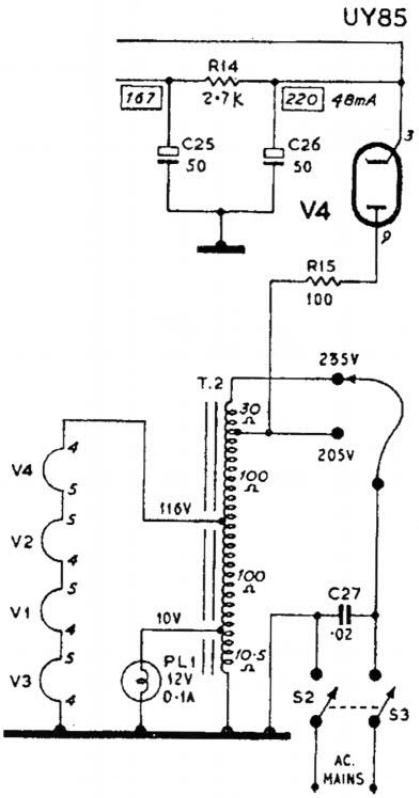
The Marconi Company designed the V2 receiver, the first public broadcast receiver, in 1922. Later that year, Marconi separated out this non-industrial business by 'spinning off' the 'Marconiphone' department to design, manufacture and sell domestic receiving equipment. Marconiphone sets were made not only in their own factory in Chelmsford, but also initially by The Sterling Telephone and Electric Company, smaller 'jobbing engineers' (including Plessey, in whom Marconiphone took a shareholding for a while), and many other factories over the years.

In 1929 Marconiphone was sold to The Gramophone Company, along with the right to use the 'Marconiphone' trademark and the copyright signature 'G Marconi' on domestic receivers. In 1931 the Gramophone Company became Electric and Musical Industries (EMI) and continued to produce domestic radios and TVs until 1956, when the radios were made by the British Radio Corporation, under licence.

The 1953-54 Range

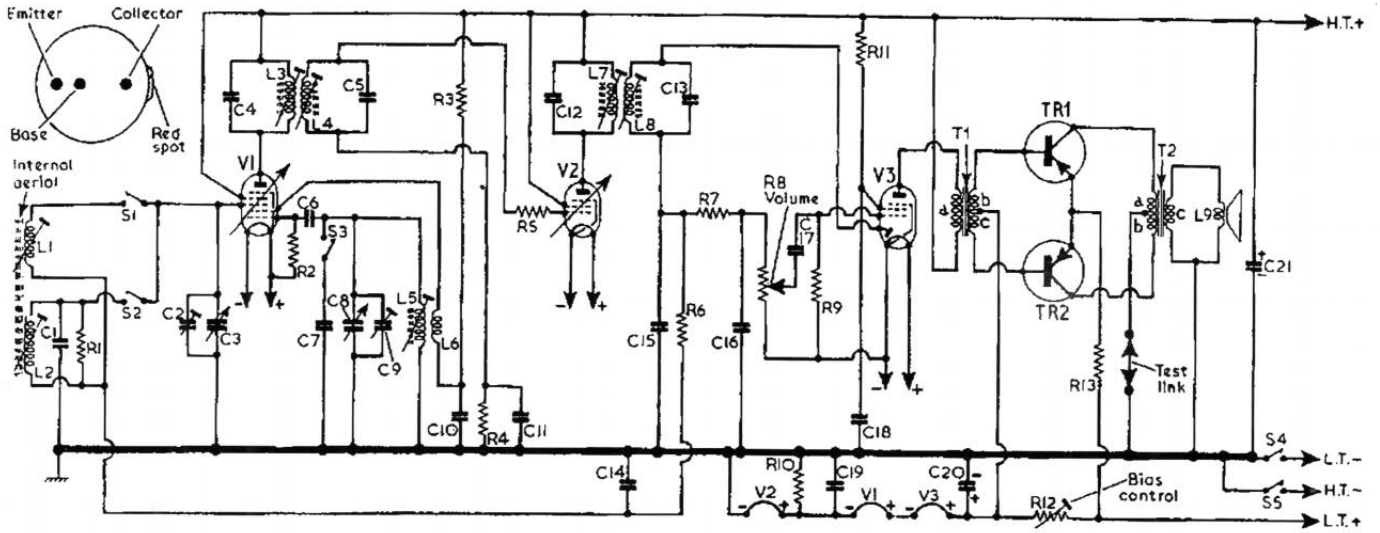
The model T32A (*T for Table*) was a conventional 5-valve (including rectifier), AC-only (ie it contained a mains transformer) 3-band superhet in a wooden case. This was Marconiphone's high end radio, priced at 22gns (see later for an explanation of guineas or gns, if you don't know already), intended for use as the home's main, static, receiver. Its size and weight mitigated against its being moved around too much and the polished wooden case was intended to complement the furniture of the day, and would have given the set a rich tone. The set had an internal plate aerial, and of course a socket for an external long wire aerial.

It was recognised that there was a



Top: Figure 1. Power supply of the Marconiphone T70A radio.

Below: Figure 2. Circuit diagram of the Marconiphone P60B radio.



Circuit diagram of the Marconiphone P60B. Valve bases are shown above at the left. **R4, C11** *provides bias for V2.* **R12** *may be 12Ω.*

Top left: Marconiphone brochure 1953 - 1954, models T32A, T25DA and T24DAB

Above: Marconiphone brochure 1953 - 1954, models VC61DA and VT62DA

Far left: Marconiphone brochure 1953 - 1954, model VT63DA

Left: Marconiphone brochure 1953 - 1954, ARG 33A radiogram

market for a second or 'companion' radio in the average home, and so the T25DA radio was offered at £15/12/- in the same brochure. Notice the use of a mixture of guineas and £/s/d on the same brochure, just to confuse the unwary. Still using 5 valves (including rectifier), the set was AC/DC, which is another way of saying that it saved manufacturing costs by not having a mains transformer. I don't know how many UK homes still had DC mains in 1953 or 1954, but I suspect that the main reason for using a mains dropper was cost. I suppose there was a potential export market for AC/DC sets in less developed parts of the world, as successfully exploited by the likes of Eddystone Radio. Certainly the government greatly encouraged all companies to export as much as possible to help the economy recover from the ravages of wartime spending.

Maybe the T25DA was used in the kitchen or bedroom, or moved around the house as needs arose, and the lack of a mains transformer would help reduce weight and make it easier to carry. This radio, with its cream plastic cabinet and red control knobs, was somewhat more modern looking and brighter than the T32A, and a good indicator of things to come, if not quite there yet in its shape, but certainly in the materials and colours used.

The third radio offered was the T24DAB mains/battery 'attaché case' portable set, covering medium and long waves only, and offered in grey simulated lizard skin, or red, green or blue leathercloth. The colour schemes available enabled the purchaser (maybe the lady of the house?) to make a fashion statement. Although this was the third radio in the range, it was priced midway between the T32A and the T25DA. In fact the T24DAB had been around since August 1950, so by modern standards, it was getting somewhat long in the tooth, though maybe in those days models tended to last longer in the shops.

Stressing the long and distinguished heritage of these radios, the brochure proudly stated: 'These models are the direct descendants of the first public broadcast receiver – the famous Marconiphone V.2. When you choose a Marconiphone Radio or Radiogram you know you have an instrument born of unparalleled experience in Radio technique – an instrument you can rely upon for years of first-class performance and enjoyable entertainment. Choose Marconiphone and you choose wisely'.

The TV Range in 1953-54

Half the brochure was dedicated to three TV sets, clearly the area for potential sales growth at this time. The simulated pictures on the three TV screens show a football match, a state event (maybe trooping of the colour) and a costume drama, which were intended to sell the appeal of TV to different types of prospective buyers.

When it came to the TV sets, the phrase 'Super-Scenic' was used. I presume this was a play on the word *super-sonic*, which represented the height of technology and modernity at the time, referring to fast aircraft of course. In contrast, all the sets had the 'G Marconi' signature on the front, just below the screen, which seems to me like a bit of a mixed message.

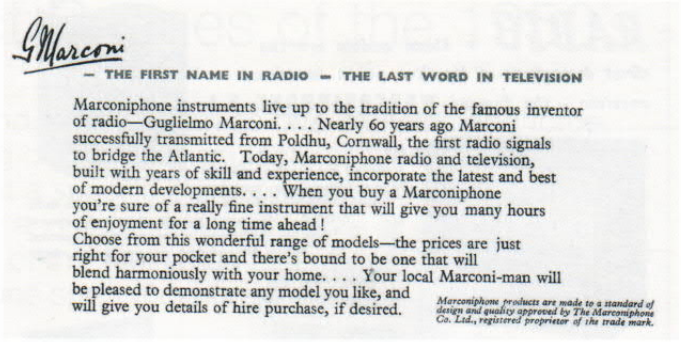
The VC61DA (*C for Console*) was the top-of-the-range console AC/DC mains TV set with 'Really large, brilliant pictures presented by the 15-inch, aluminised Emiscope tube!', priced at 89gns. Remember Marconiphone was owned by EMI at the time and so the use of the EMI brand was to be expected.

The low end 14-inch TV set was the VT63DA 'with the new rectangular tinted tube', and priced at 59gns. The TV range was completed by the mid range VT62DA, a 15-inch table set 'presenting large screen television in its most compact form', with 'exceptionally good definition', prices at 75gns.

I'm sure TV enthusiasts amongst you will be saying either 'yes those 1953 Marconiphone TVs were classics and are much sought after today' or 'yes those models were always breaking down and a nightmare to work on. I was glad to see the back of them'. I wonder which one it is?

In 1953/54 only the BBC transmitted TV (ITV began a TV service independent of the BBC in 1955-56, depending on

Marconiphone brochure cover 1958 'The Real thing!



1958 brochure inside cover 'The first name in radio - the last word in television'

Marconiphone brochure 1958 - model T69DA

Marconiphone brochure 1958, model T70A

Marconiphone brochure 1958 - model ARG 57E

Marconiphone brochure 1958 - model T73DAB

Marconiphone brochure 1958 - models R70 and P60B

Marconiphone brochure cover 1953 - 1954

where you lived) and so when the 'blurb' for these sets stated 'Tunable to any BBC Television station', it meant to the one and only station in your area. Incidentally to save these sets from obsolescence, a number of 'ITV Converters' appeared on the market when ITV services began.

I've also seen the 1952 TV-only brochure which also featured three TV sets, two of them console style, and one a table model, so it looks like just a couple of years later, the console TV with its multiple chassis arrangement and large speaker, was on its way out.

The Radiogram Completes the Range

The final item in Marconiphone's product line-up in 1953-54 was 'the really delightful' ARG33A fully automatic 3-speed, AC-only, MW/LW/SW radiogram. Priced at 53gns, this was a major investment, and a major piece of furniture! Judging by the Marconi B8B

Loctal valve line-up and the cabinet design, this looked like a just-post war design, and I think way off what most home-makers in the mid-1950s would be looking for.

Note there was no portable record player in the range yet. The phenomenon of teenagers sulking in their bedrooms and listening to their own music tastes as loudly as possible hadn't arrived yet. In fact I don't think teenagers had even been invented. If they wanted to listen to records, they had to sit with Mum and Dad in the living room and enjoy the same music as their parents.

The 1958 Range

By 1958 the Marconiphone range seems to have completely shaken off its austerity style and all the products have a much more 'modern' look. The main home radio was now the T69DA, an AM/FM 6-valve superhet receiver, capable of receiving the VHF transmissions which had started in the UK in 1955. The wooden cabinet of previous generations had been superseded by a moulded plastic case 'styled on modern lines in an attractive colour scheme of maroon with ivory grill – designed to blend with most furnishing schemes'. At 18½gns the set was a little cheaper that the T32A of four years earlier. The set was AC/DC with a conventional line-up of U-series valves.

By 1958 the 'companion' set was the T70A, a 4-valve superhet, covering LW and MW from a ferrite rod aerial, in an ivory-coloured moulded cabinet, 'tastefully' trimmed with gold lining. One interesting aspect of this set is that the mains transformer is actually an auto transformer, dropping the 235V mains down to 116V for the series-connected U-series valve heaters, and 10V for the dial lamp. Figure 1 shows the schematic of this arrangement. Presumably this was cheaper than a conventional transformer, and had the advantage that the case did not have to dissipate the extra 12W or so of heat typical when a mains dropper resistor was used. The disadvantage was that this is now not an AC/DC set, as applying DC would saturate and burn out the autotransformer. In reality this was probably not an issue, as very few (any?) homes in the UK were still on DC mains in 1958.

The 'attaché case' portable radio was now 'a delightful new mains/battery portable in an easy-to-carry case', the T73DAB. The set used the conventional DK96/DF96/DAF96/DL96 miniature valve line-up plus metal rectifier, and used a PCB containing all the major components.

But now there was a second portable set, the very interesting P60B 'personal' radio, in the range. This set was remarkable in that it was a hybrid valve/transistor set, originally released in June 1957. I was aware that hybrid car radios had been made in the late 1950s / early 1960s, but until I saw this Marconiphone brochure I wasn't aware that portables had also been designed with hybrid line-ups. Despite being a hybrid radio, the set looked like a typical early transistor radio, with an upright case, a round dial and a carrying strap. This set was a couple of guineas cheaper than the all-valve T73DAB portable, maybe to test the market demand for transistor sets.

The set was futuristic in that it uses all the features (battery-only, ferrite rod aerial, moulded plastic case, employing a PCB, etc) used in the classic 'tranny' radio, which was just about to revolutionise the radio industry, and listening habits.

The P60B used three valves (DK96/DF96/DAF96, operating from a B139 67V HT battery, and with their heaters connected in series) and a matched pair of OC72 PNP transistors running off 4.5V provided by three 1.5V U11 batteries. These U11s also supplied the heaters of the valves of course. Figure 2 shows the schematic diagram of the P60B.

It wasn't for another year or so that the OC44 transistor, capable of operating at MW frequencies, appeared and did away with hybrid sets by finally displacing valves from the oscillator/frequency changer and IF stages in radios.

The 1958 Televisions

In 1958 four TVs were on offer, ranging from the 17-inch VT157, through to the luxurious 21-inch VT156 in a walnut veneer cabinet. All the TVs were table models (with optional legs, if you didn't have a table handy), the console models having gone the way of the dinosaurs, and of course all were capable of receiving BBC and ITV transmissions. A neat feature of the VT159 was that it included a 'VHF radio unit' for reception of FM radio broadcasts. The 17-inch VT158 was 'a fringe model especially for the "difficult" areas'. You paid an extra 6gns for this privilege. Prices hadn't changed much over the past few years: the top-of-the-range set was still 89gns, and the cheapest set was 67gns (compared to 59gns for the cheapest TV set in 1953-54), though you now got a 17-inch set, rather than the older 14-inch screen size.

As an indicator of things to come, there was now a portable 'Record Reproducer', in the 4-speed R70 model, available in blue and grey, or maroon and grey colour schemes. As was typical in such a portable record player, the electronics were very basic, consisting of a single UL84 valve driven by a crystal pick-up, and a metal rectifier supplied straight from the mains. This simple design formed the basis for millions of portable record players manufactured by numerous companies in the 1950s, 60s and beyond, driven by the pop revolution.

By 1958 the radiogram on offer was the modern looking ARG57E, priced at a still hefty 59gns. Considerable attention seems to have been paid to the styling: 'This grand Marconiphone radiogram has been specially designed to harmonise with current trends in modern, practical furnishing'. The valve line-up was now the more modern ECC85/ECH81/EF89/EABC80/EL84, plus a Siemens metal bridge rectifier. The radio section now included a VHF FM section, as well as MW and LW AM of course.

Although the prices of the TVs and radiogram, and even some of the radios, seem expensive to us today (see the Appendix for just how expensive), let's not forget that competition from numerous other British manufacturers was fierce, and so Marconiphone was probably charging the market value, and a reasonable number of people were willing to pay for the privilege of owning one of Marconi's heritage.

The Real Thing

Both brochures featured the strap line 'the REAL thing' on their covers. I suppose whoever thought this one up was trying to contrast Marconiphone's products with inferior competition. In fact 'the REAL thing' phrase had been used by Marconiphone for many years: I've seen a 1936 advert featuring the line 'The Real Thing in Radio'. Also the spring 2005 issue of *The Bulletin* reproduced a pre-war Marconiphone Television brochure, and it uses 'The Real Thing' phrase.

Even in 1958, the brochure harked back to the company's long tradition, stretching back to Guglielmo Marconi himself, with the phrase 'the first name in radio, the last word in television'. Prospective buyers were urged to contact their local 'Marconi-man' for a demonstration, and to 'give you details of hire purchase, if desired'.

How Much Did They Cost?

Many of the sets were priced in guineas (often abbreviated to gns). As many of you will remember, a guinea was equal to 21 old shillings, which is £1.05 in today's currency. Of course in the 1950s there were no guinea coins in circulation: they hadn't been minted since 1813, but the word was still in common usage.

So let's say a TV set was priced at 59gns: that's equal to £59 plus 59 old shillings (ie £2/19/-), which comes to £61/19/- (I think!). If you thought that was hard to work out, in 1958 the T69DA radio was priced at 18½gns. I'll leave it as an exercise to the student to work out what that is equal to in £/s/d.

Presumably the sales assistants of the day were used to working in guineas and could work out these prices in their heads, or maybe they had conversion tables available. The pricing of luxury items in guineas persisted until decimalisation in 1971, and it's still used in the pricing of livestock and racehorses.

If you're wondering how much the 1953-54 and 1958 prices are in today's prices, see the Appendix on how to work this out.

Conclusion

I hope you found the descriptions and pictures of the 1953-54 and 1958 Marconiphone radio and TV ranges interesting and informative. They help us appreciate the differences in target markets, and hence the price and quality of certain radios, especially the home's 'main' and 'companion' sets, TVs and radiograms. When we see these radios for sale today, we tend not to make this distinction. Being relatively bulky and heavy, many 'main' radios are not very well valued today, typically selling for a few pounds at auctions, if they sell at all. Nevertheless they have their place in radio history as the main (and often, the only) 'conduit' of news and entertainment into millions of homes for many decades.

An insight into the early evolution of the personal radio and record player could also be seen, which led to the

1960s boom in transistor radios and cheap record players (where interestingly, the single valve line-up persisted well into the age of transistorisation).

The cost of 'new' TV technology can be seen to be very high in this period, and even the most basic 'entry-level' BBC-only sets were a major investment. It was not until the 1960s that increases in real earnings, and the introduction of more modern and less labour-intensive production techniques, brought TV sets into the affordable budget range of the majority.

Appendix: The Value of Old Money

I'm just a little too young to remember how easy or difficult it was at the time to save up for the radios and TVs shown in these brochures, and how they compare to the things we buy today. So I searched on the internet for a way of comparing the cost of any item that could be bought in any year with respect to its cost in some other year, and ultimately to the equivalent cost today. The best calculator I found was: *Five Ways to Compute the Relative Value of a UK Pound Amount*, 1830 – 2007 at: www.measuringworth.com/calculators/ukcompare/.

There's no simple way of comparing the relative value of money across the years, and as expected from its title, this website shows comparative prices in five different ways, namely:

The Retail Price Index (RPI) shows the cost of goods and services purchased by a typical household in one period relative to the base period.

The Gross Domestic Product (GDP) Deflator is an index of all prices in the economy. It is a good measure for complex products, such as PCs, or commodities purchased by businesses, such as machinery.

Average Earnings (AE) is a logical measure for computing relative value of wages, salaries or other income or wealth.

Per-capita GDP, the average share of a person in the total income of the economy, is also indicated in this context.

GDP, the economy's total output of goods and services in money terms.

Different measures give different answers and none of these comparisons is definitive or ideal.

Just to show an example of how the five methods produce a different answer, I entered 10s (50p today) in 1966 (which was the cost of a standing ticket for the England vs. West Germany world cup final at Wembley) and calculated how much it was worth in 2007. Here's the result:

In 2007, £0 10s 0d from 1966 was worth:
£6.71 using retail price index
£6.80 using GDP deflator
£13.64 using average earnings
£16.25 using per capita GDP
£18.13 using share of GDP

I suppose this also goes to show how expensive going to a football match is these days.

This calculator doesn't cover the years 2008 and 2009 yet because most recent observations are obtained from government agencies who issue these numbers when they have finished compiling them. Some, such as RPI, are published fairly quickly, whereas others, such as GDP, which is a flow of output for the whole year, take longer and are subject to revisions. Inflation has been fairly low in recent years, and so if you take the 2007 number, you're not too far off the 2008 or 2009 value.

So let's enter £1 in 1953 and see what it's worth today. In 2007, £1 0s 0d from 1953 was worth:

£20.10 using retail price index
£20.94 using GDP deflator
£58.13 using average earnings
£66.85 using per capita GDP
£80.57 using share of GDP

Taking the RPI and Average Earnings comparisons, you should multiply a 1953 price by somewhere between about 20 and 60 to get the 2007 price. According to the brochure, the mid-priced Marconiphone VT62DA TV was priced at 75gns (ie £78/15/-): this equates to somewhere between £1575 and £4725 in today's money! A tidy sum by any measure!

The concept of 'average earnings' is tricky, as no earners are necessarily paid at exactly the average rate, and exact earnings depend on the industry in which the worker is employed (for example, agriculture has always had the reputation for being a low paid sector), and his or her experience at that job. If you were a woman, you could guarantee to be paid less than a man! I couldn't find any comprehensive data on earnings in 1953, but I'd estimate the average weekly wage was maybe somewhere between £5-£10 (no doubt readers will correct me on this if they have better data), for a 47 hour week, and therefore this TV would have taken at least three years for the 'average' working man to save up for, assuming he was saving his whole wage! I think the truth is that in 1953 the 'average' working man simply couldn't afford such a TV set. From my experience it wasn't until the very late 1950s that a TV set arrived in my family's home, and that was a 'cast off' from a better-off uncle. Let's try the same comparison for 1958.

In 2007, £1 0s 0d from 1958 was worth:
£16.84 using retail price index
£17.27 using GDP deflator
£42.69 using average earnings
£50.77 using per capita GDP
£59.94 using share of GDP

Not a great deal of difference from 1953. In fact the annual inflation rate from 1953 to the early 1970s was in low single digits, hence the similarity between 1953 and 1958 prices. The Marconiphone brochures show about the same prices for the TVs in 1953 and 1958, and so in real terms they were slightly cheaper in the latter year. This is certainly not the price erosion rate we are used to seeing these days, when we expect to see prices of high end commodities dropping by maybe 50% a year.

Loewe Opta 42019 article continued from page 27

Alcohol was much more effective here. The top, sides and front bezel are coated with a very thick coat of clear shiny lacquer – where it is chipped it appears that the coating is around 0.5mm thick. There were a couple of what appear to be cracks in the lacquer on the top of the cabinet, but I decided that any attempt to repair these would probably make matters worse (they would not be visible when the set is on its shelf anyway). It appears that the coating is so thick and rigid that it could not cope with the inevitable expansion and contraction of the wood.

By contrast, the front of the cabinet appears not to have been treated at all, although it probably had a thin covering of a matt finish. This looked rather sad and clearly needed some sort of refinishing. Before starting, I removed the Loewe Opta logo, which was retained with three bent-over pins inside the cabinet. After cleaning the front of the cabinet, I applied two coats of Ronseal Mahogany All-In-One Wood Finish with a soft rag, allowing 24 hours for each coat to dry. This product contains a colourant and protection, and is described as producing a sheen finish. Unlike wax-based finishes, it dries hard and does not need buffing. The product worked well, and brought back some colour and life to the wood, without leaving it too glossy.

Finishing Off

I gave the knobs and logo a wash in warm soapy water, and cleaned the outside of the tuning scale with car windscreen cleaner. I also cleaned the piano-key buttons with foam cleaner. These were glued to the switches and could not be removed, so they had to be cleaned in-situ. The valves and other chassis components were carefully cleaned where possible. The IF PCB appeared to have been sprayed with a thin coating of wax, which now had a coat of dust stuck to it. I tried to clean this with a toothbrush and Isopropyl Alcohol, but there was too much risk of damaging components so I did not persist with this idea. I did, however, manage to clean the bodies of the resistors and some other components, which makes the whole assembly look more presentable.

Once the cabinet refinishing had thoroughly dried, the only job remaining was to reassemble everything and make sure the finished set worked. Fortunately this was uneventful. The finished set gives very good performance on all bands. As well as looking good above the fish tank, it is also proving useful for listening to our local "Classic Gold" station on MW, a job which it does much better than my hi-fi tuner.

A beginner's guide to vintage radio repair

by Steve Pendlebury

Nobody has, in the history of my time with the BVWS, had anything to say to the beginners, and I've wondered for a while how beginners are supposed to get to the heights of the people who restore radios in this magazine. Not everyone has the Internet to hand, and besides, for many beginners, a printed article or two is preferable. So, let's go to Granny and learn to suck eggs...

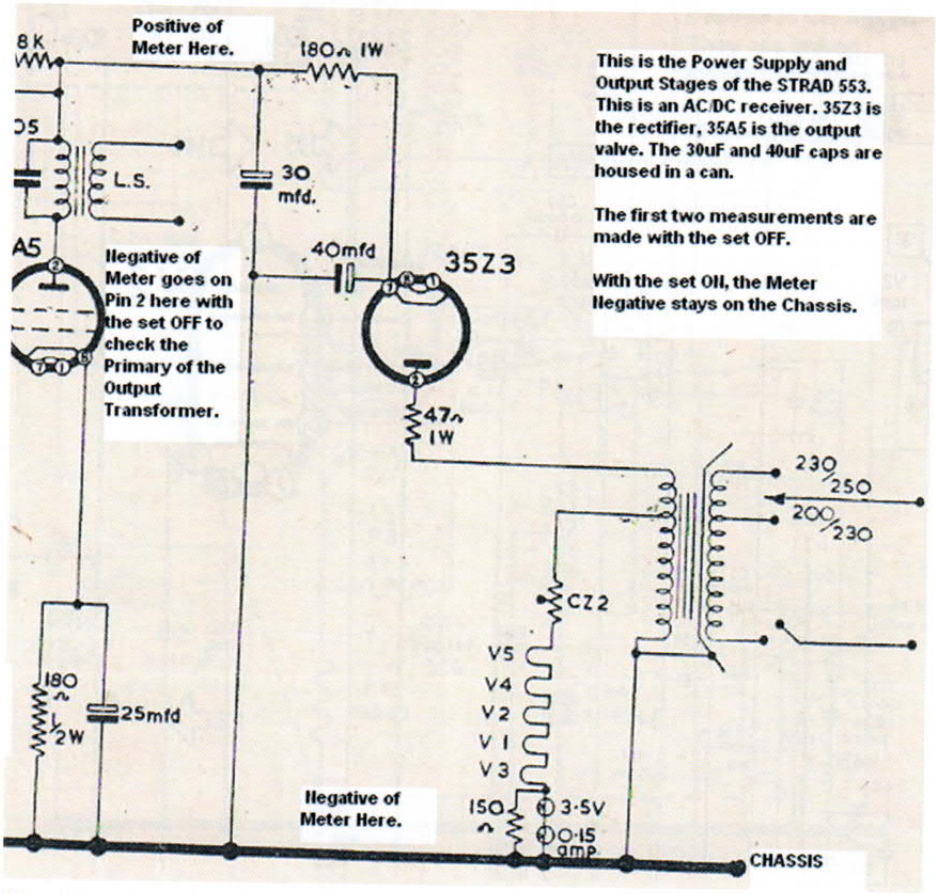


Figure 1

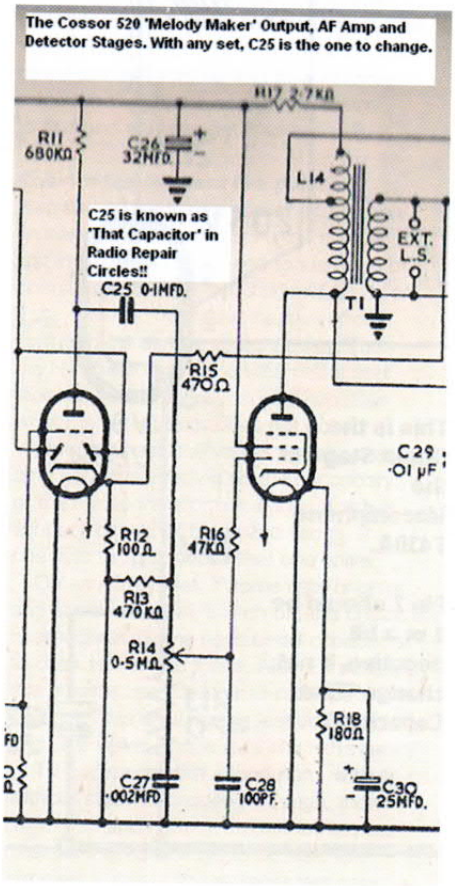


Figure 2

Rules and Safety.

First, don't just plug a radio straight into the mains. This is asking for trouble, and when you ask for trouble, you'll get it.

Get good tools – not necessarily expensive, but you WILL need: screwdrivers, pliers, soldering iron, multimeter and, in the future, a signal generator. I don't advise one straight away, as it gives you a temptation to tweak rather than fault find. If the coils haven't been touched, don't touch them: find the faults first.

Fault finding is an art that's getting lost, and this is a shame. Don't just change all the wax capacitors and then switch on. Yes, you'll get many sets working, but what will you learn about fault finding?

While we're on the subject of capacitor changing, do remember to test the set after every one you change. Otherwise, one cap or wire in the wrong place could result in the set not working, and you wondering what has suddenly gone wrong. That way lies madness.

Get the service sheet! I may be able to work without one, but I wouldn't recommend it for a beginner. That's another route round the bend. Especially if the tuning cord is off. Also, get a good valve data book.

Don't put your faith in isolating transformers or RCDs. Yes, they ARE safety items, but you can't beat safety methods of your own. Never put two hands in a plugged in radio at the same time. The old method of keeping one hand in your pocket or out of the way when working on live equipment saves many lives, including yours.

Find a private place to work. This is for two reasons: firstly, wives generally don't like bits of radio everywhere for some strange reason, (although they put their ornaments everywhere and expect you to like them); but secondly, and more importantly, you don't want to be distracted at the wrong moment, have a hand slip and do damage to the radio or yourself.

Getting a Radio to work on.

If you've got anything valuable, leave it for now. Get a cheap 40s/50s woody or three to learn the ropes on. Radio auctions generally have loads, often for less than £5, or try car boot sales, church jumble sales, friends, antique or junk shops.

If some crook offers you a cheap woody for £50, please walk away if you can't talk him down. Don't be stung.

Don't take anyone's advice that a set works unless he gives you a guarantee; and if you still aren't sure, you can always ask for a look inside. There are some good quality restored sets out there, and quality restorers, but there are some charlatans too. Don't take the 'of course it works, mate' at face value. You don't know what this actually means after all. Vintage radio people are not like 2nd hand car salesmen, and don't lose sight of the fact that it may work, but is it also safe?

I recently had a case like this. Beautifully restored cabinet, new power supply, but dead as a door knocker. Valve heater open circuit at a guess. On/Off switched the neutral, live went to chassis. So even switched off, the chassis was live.

BE CAREFUL. Electricity is a good servant but a lousy master. Be a bit of a coward if you prefer, because cowards survive. Think of all the sets that won't be restored if you aren't there to do them.

Let's get going

With the radio on the bench, remove the back and take the chassis out of its case. You can leave the speaker in place, of course. Get the service sheet and look for obvious things first. A few minutes now can save hours later on. Are the valves the right ones, and are they in the right places? Are the various sockets in place, especially the mains voltage and speaker ones? If there's a

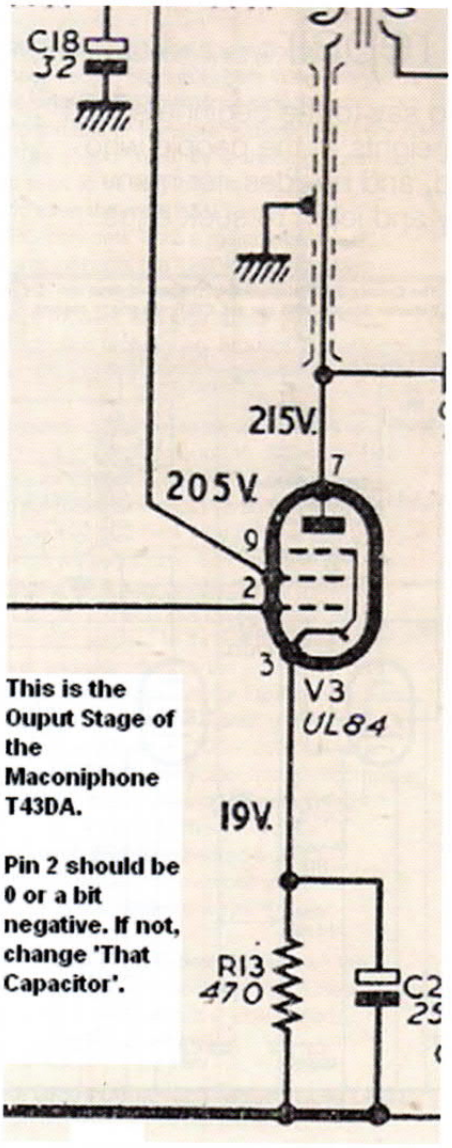


Figure 3

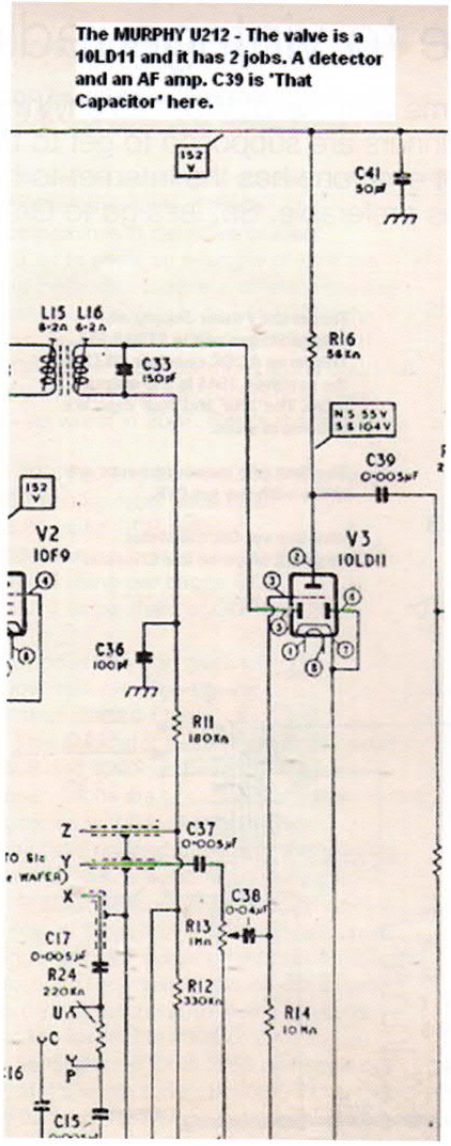


Figure 4

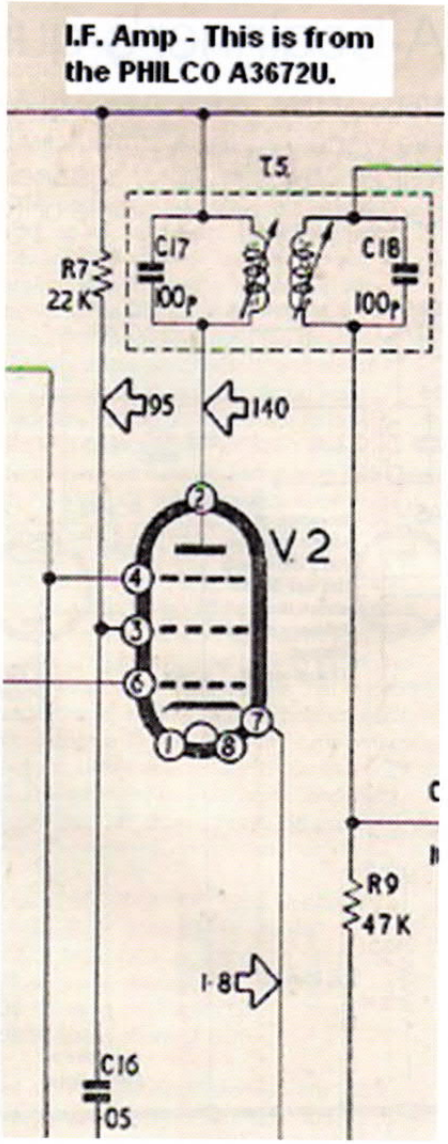


Figure 5

good layer of dust, then this is good news as the set is likely to be completely original. Either use the hoover on suck to remove it, or take it outside and select blow...

Asbestos can be a problem, too, if it's flaky. This has to be removed and disposed of in a safe way. Solid asbestos in good condition is best left alone. Work outside; spray it with water; make sure you're downwind of it as you remove it; and double-bag it. You are NOT allowed to put this in your bin, so the correct way is to call your local council to find the right way to dispose of it. Actually wet asbestos is pretty harmless stuff - it's only fine, airborne particles that are harmful - so use your common sense. Clean the area thoroughly, and use a ceramic tile to make any replacement heat shield you may need.

The next thing to look at is the mains cable. If it's the same colour on both strands, then it's illegal and needs to be changed. If not, then gently bend it all the way along its length. If it's nice and flexible then it's probably OK, otherwise change it. If there's any doubt, just fit new cable.

NOTE: Mostly on American sets, but very occasionally on British sets, there is a line cord. This has a resistance in the cable rather then a dropper in the set.

Don't cut one whatever you do. You will overrun the valves. But beware if it's not got a plug on the end of it – the phantom isn't averse to cutting these! The service sheet will tell you if it's got one of these and we'll cover them in a later article.

If there's a plug on the end, do look inside and make sure it's wired right. There are many traps for the unwary in this game and don't trust anyone but yourself. It's your life after all and unless you are Doctor Who, you only get one. And while you're in here, make sure it's a 3A fuse. A lot of people went '13 Amp plug so 13 Amp fuse....'

In years gone by, people ran sets off light sockets, and some of those things exist still. If you have one of these, remove it and fit a plug. It's a good way of powering a radio but now illegal.

Use Servisol (Not WD40!) on the controls to clean and loosen them.

If the switch operates only one pole of the mains, make sure that pole is live. Also, if one pole goes to chassis, make sure this one is neutral. If the set has a disconnectable and reversible mains lead, mark the right way round on the set and the cable.

Examine the valves again for any sign of going soft. Any valve with a white interior will have lost its vacuum and will have to be replaced.

There's often a capacitor across the mains, and this is to remove interference from the mains supply before it gets to the set. Remove this now. Replacements must be X2 capacitors as these are built to fail open circuit. Fit one if you want at the end of the restoration, but leave it out for now.

At this point, before you pick up the meter, ask yourself whether you're working on an AC or AC/DC set. If it's got a mains transformer, it's AC only. If it's got a dropper resistor, then it's AC/DC. Right, get the meter, put it onto the ohms range and go across live and neutral. If the set is switched off, it will be infinite. Switched on, you should get several hundred ohms across the mains input. If not, check the switch, fuses, mains adjustment and the wire itself.

On an AC set, check the transformer thoroughly before condemning it. A faulty transformer is easily spotted by the smell!

On an AC/DC set, take the valves out and put them back in and see if it's better. Ease them out gently, don't wriggle them more than necessary. If they're big valves with a bakelite base pull the base, not the glass. Check the heater of each valve in turn. The service sheet will tell you which

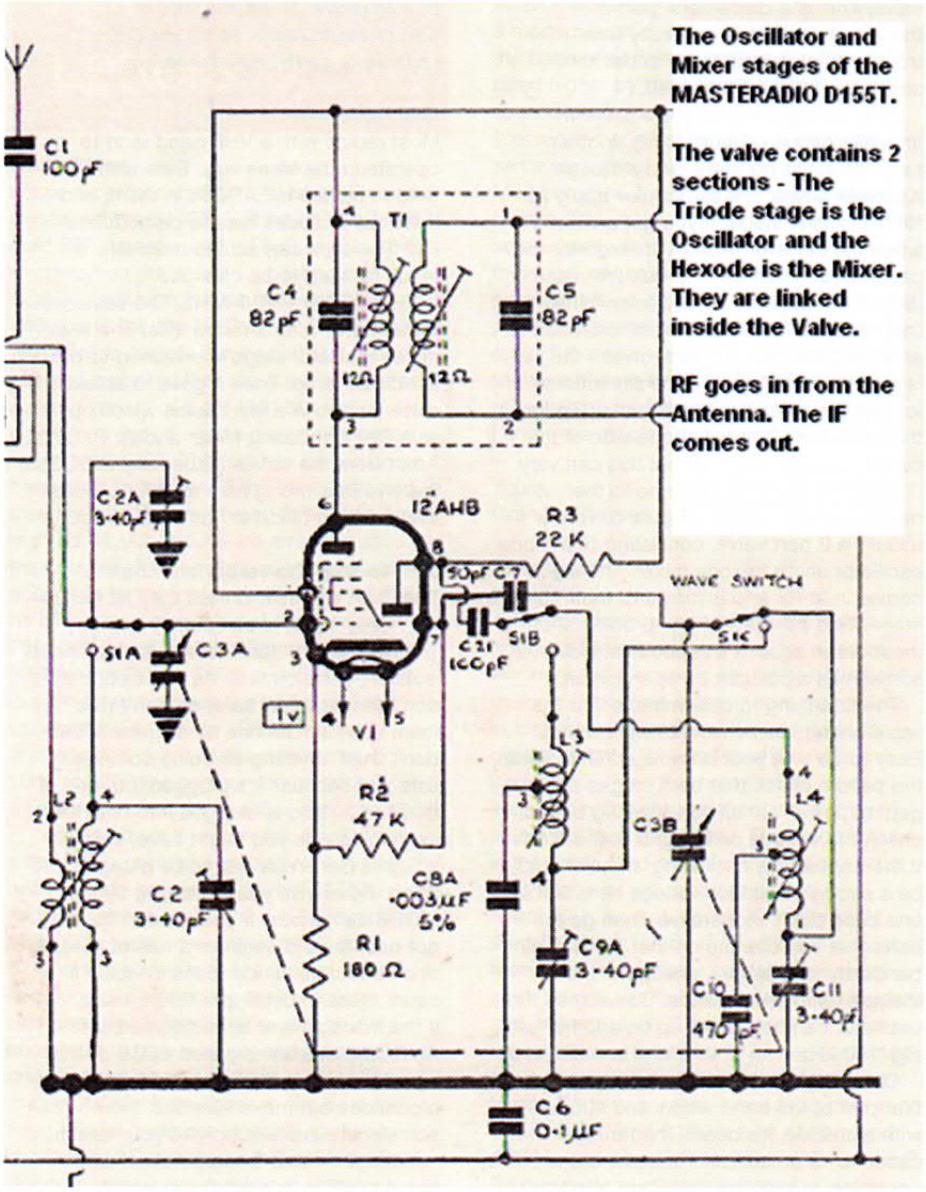


Figure 6

pins to check. Put the valve with the pins toward you and count round clockwise from the pip or the left hand pin after the gap. If a heater has gone, (check again to be sure!) then you need a new valve.

If the valves are OK, check the wiring again and the dropper. Probably a section is open. If this is the case, get a suitable resistor (big power wire-wound type) and solder this across the section that had gone. Make a mechanical connection first, good and tight, and use good solder. This is to prevent the part from dropping off, rendering the set inoperative and, by sheer bad luck, falling onto a priceless shag pile carpet.

Some sets put the dial bulbs between neutral and chassis, but wherever they're in the circuit, they normally have a resistor across them so that the set works if the bulbs fail. The dial bulbs do tend to fail on old sets, and if you can replace them now, then they provide a warning that the set is on.

The next step is to check voltage between the HT rail and chassis. (Fig 1.) Should be high, but you should see the smoothing capacitors charge up. If you don't, they could have gone – will check this later. Any low resistances here need to be checked out. Usually it's a capacitor. Check on the HT line by lifting everything in turn while watching the meter.

Assuming there's no short here, we can turn our attention to the output transformer and speaker. With the ohmmeter on the lowest range, go across the speaker terminals. You should hear a quiet crackle in the speaker. Go to the output transformer and do the same. If you don't hear the crackle here, check connections, etc.. The meter may read a few ohms regardless, because of the secondary winding of the output transformer.

If an O/P transformer does go, it's the primary that's more likely to fail. This is worth checking before you apply power. Measure between the HT rail to the anode of the O/P valve, and you should get a reading, usually a few hundred ohms. If you don't, follow it through and check. Most transformers are OK, but sometimes they go. If that has happened, put the set aside and get another out to try. You can get a set going if it has mains or output transformer failure, so all is not lost. We'll come back to this one later on.

The time has arrived...

I told you at the beginning not to switch on an unknown set – now you see why. Those checks took a long time to write out, but in most sets they take minutes to do. Those tests will have shown up all the dangerous and most of the costly faults, and we haven't even powered the set yet!

So – put the knobs back on to make them easier to turn, put the multimeter between HT and Earth and switch it to the 1000v range. (Figure 1 again.) Switch on at the set, put volume and tone midway, and tune to Radio 4 long wave. (Easy to find and you can get it anywhere!).

Now for the moment I've put off...

Plug it in at the mains socket and switch on here, keeping a hand on the switch just in case. Old sets need to warm up of course, but the dial lights should come on if they are OK. The valve heaters should start to glow almost straight away. Then the HT should rise up on the meter and then fall off as the valves warm up. See what the set does or does not do.

On an AC set, the valves are powered by a separate winding on the secondary of the mains transformer. If they don't light up, check for fuses and wiring. If one fails to light, check that one valve.

On an AC/DC set, if some light brightly and some not at all, switch off and check the heater chain. Some have small capacitors to deck and check these. Also it's possible that a valve has a heater to cathode short inside it. This is either the last valve lit or the first unlit valve. This is rare in a valve radio!

If it comes on with a loud hum, with or without stations breaking through, then switch off and replace the smoothing can. There are several ways to do this. The simplest is to put the replacement caps out of the way under the chassis and leave the can in place. These cans have one earth by the way and red inputs for the capacitors. Some use chassis earth, so it might be worth checking the contact.

Other ways are removing the can, opening it up and fitting new capacitors inside the can. Or, at BVWS and other radio events, you can buy smoothing caps. I just put replacement caps under the chassis and forget it.

Be careful with replacement capacitors here though. There's something called ripple current. It's usually marked on the smoothing can. This has to be twice the normal working current. Any supplier of capacitors should specify this.

You might hear a station. If you do, then there is little else wrong. Tune across all bands and check them all. But there is something you need to check now. You will see a capacitor joining the first grid of the output valve to the anode of the AF amp before it. I tend to change this capacitor before first powering the set in many cases now, but changing this one capacitor can make one heck of a difference to the set. Switch off, turn the set over carefully and look at the parts underneath and the diagram Figure 2.

This cap has 100v or so on one end and

is meant to pass the audio signal but not the HT to the output valve. It's probably leaky after 50 years in situ, and even if it has been changed in the past, change it again.

If it's left, the radio will sound terrible and eventually the valve and the output transformer will fail. It's the first part you should check, even if the set sounds OK. You should notice a difference with this capacitor changed. Then measure at the control grid (G1) of the output valve and it should not be positive. If it is, then the valve is faulty. Depending on how bad it is, you could live with it. Some output valves cope better than others.

Now, leave the set on for a couple of minutes, then gently feel the smoothing can. If it's cold, great. If it's hot, especially if it's hot enough to make you pull your hand away, then change it anyway before problems start.

Detailed Fault Finding

First there are four rules of fault finding:
1: Repairs are 10% changing parts and 90% fault finding.
2: Fault finding is 40% use of your instruments and 60% observation.
3: Check the simple things first!
4: Start at the mains plug and work towards the antenna.

If you don't hear a station or a loud hum, don't worry. Plug in an aerial (a length of wire will do!) and try again. If the set has a gram setting, switch to this and see if you get a hum when you put a finger on the gram socket. If not, tune across all the bands and see what happens. Do you hear anything in the speaker? Does the speaker crackle when you change bands? Is there a very low hum? Does it work on VHF only? Is one band out or are they all out? Is there a rushing noise in the speaker at one end of the band? (If there is, cast a suspicious eye over the oscillator!).

Anyway, if you don't hear anything from the speaker, check the voltages round the output valve – figure 3. Check for HT on the anode and the second (called screen) grid, check heater volts if it isn't lit, and check the volts at the cathode. If there is a resistor here, check it!

If all this seems OK, check the speaker and the secondary winding of the O/P transformer. If you disconnect one of the wires to the speaker there should still be a low reading across the secondary of the O/P transformer. A few ohms at most. If not, the O/P transformer needs replacement. Very rare!

There should be a crackle when your screwdriver touches the control grid. Also on the anode of the AF amp.

Now check the voltages around the AF amp – figure 4. Check the voltage on the anode and cathode against the information in the service sheet, and try touching the grid - (there should only be one!) - with the screwdriver to see if there's a crackle. Go to the volume control and try the central wiper. Turn the volume control up full and see if you get anything from the top (not earth) tag.

The detector stage is in the same valve. This is a diode here (part of the valve) and this is generally little trouble. Look out for leaky capacitors and the volume control itself.

After the second IFT, there is the IF amplifier circuit – Figure 5. It's another pentode stage normally, and although it's lower power, the same rules apply as for the output stage. If you get a whistle when the set is off station, then go for the capacitors. When an amp has too much gain, it will become an oscillator. When this happens, the IF of the station received and the oscillation will beat unless the set is exactly on station. So the set whistles a lot and becomes hard to listen to. Go for the capacitors in the cathode side of the circuit. Usually 465 kHz, but this can vary.

After the first IFT, we come to the mixer-oscillator stage – Figure 6. This is usually a 2 part valve, consisting of a triode oscillator and a hexode mixer. The signal comes in at RF and is mixed to the IF by this stage. This can have a few problems, but in most cases again it's capacitors. However, sometimes a coil can go open circuit.

The first thing to determine is that the wave-change switch is making contact. Easy to do with your ohmmeter. Then, with the set on, check that both stages are getting power. On all non-working bands, check the voltage on the grid of the triode. If the oscillator is oscillating, there should be a strongly negative voltage here. If it's one band that's inoperative, then go for parts that just operate on that band. If all bands are inoperative, check the parts that are used on all bands. Sometimes the oscillator can be picked up on another set. e.g. 198 kHz + an IF of 455 kHz = 653 kHz.

One thing that sometimes happens is that part of the band works and suddenly, with a crackle, it's dead. The tuning capacitor is at fault and at some stage in the operation, two of the vanes are shorting out somewhere. Some tuning capacitors seem to suffer from tin whisker syndrome too. This is where the metal grows crystals of itself and shorts out. Curing this is simple – remove the tuning capacitor, turn it fully out, and shove it in the dishwasher. It'll come up a treat actually (and women's expressions are often a joy to behold when they empty their machines and find something like this!

Then re-grease the bearings and try it. The best way to test it is to put the ohmmeter across it and watch as it is closed. If it shows a short, look at individual vanes under a strong light and bend it carefully to suit.

Sometimes, unfortunately, the coils go open circuit. Look and see if the wires have come off on the soldered joints. If not, you have three options: Firstly, advertise for another coil to go in its place. Secondly, unwind the coil and find the break. Remove a bit of the insulation with a nail file (raid the wife's drawer!), twist the two ends together and insulate, then rewind and try it. Thirdly, live without that band!

You can get unwanted oscillation here too: look for capacitors, broken earthing wires and, sometimes, missing shields.

Sometimes a set can seem deaf or insensitive. The aerial side is also prone to faults, so check the capacitors on the aerial side.

VHF Reception.

Most radios with a VHF band tend to operate in the same way. Sets with VHF tend to have a U/EABC80 in them, and there are 2 diodes here to demodulate FM. There's a cap across them which tends to need to be changed.

I.F. is higher – 10.7 MHz. The same valve is used, but with different IFTs. The AM mixer/oscillator stage is switched to provide another IF amp, Then it goes to an extra valve (or two in a few cases) which operate as a Self Oscillating Mixer and an RF amp. Apart from the valves (Especially U/ECC85) there is little wrong here as a rule, unless the phantom twiddler has been about.

Just to stop the verbal brickbats...

They hurt you see. Unless they hit me on the head, which is completely numb.

At this stage, here's some advice about isolating transformers. As I've said, they don't render a unit safe, so don't rate them as vital. Get one by all means, but don't trust anything as being completely safe just because it's plugged into one of these. If a radio is plugged into one, then everything else you might have, such as a Signal Generator has to be plugged into it too. Otherwise you're making things MORE dangerous. If you have or haven't got one, the old engineer's rule of keeping one hand behind your back is vital. I'll cover these in detail in a future issue, if the management let me come back! An RCD (sometimes called ELCB or trip switch) is cheap and a good idea. It's not a panacea but make sure that there's one somewhere in the supply to your bench.

Voltage or bulb limiters now. If a set has a rectifier, or a valve heaters for that matter, under running them can be counter productive. If you have a valve rectifier, and the chances are you have, then low or no HT tests nothing that you can test with the set off. Hit it with full voltages and see what happens!

Finally...

Most of the faults described involve capacitors, but resistors are not blameless. They tend to go high in value or open circuit. Another thing they are famous for is a low crackle or noise on the speaker. They may read OK, but if you get this, go changing resistors, especially any off the HT line.

If a set is driving you mad, go and do something else and come back to it. It's amazing how often you will go back to it and find the fault.

If in doubt, ASK. If you have someone you can call, great. If not, try www.vintage-radio.net

Thanks to Dilys Taylor and Jeffrey Borinsky for turning my random thoughts into a readable magazine article – easier said than done!.

Use the set when you've finished restoring it. Or while you're fixing the next one. And have fun!

Letters

Dear Editor

I have recently acquired a Western Electric crystal set type 44001A. It has a black and gold BBC transfer and a PMG reg No 134 engraved on the panel suggesting that it is quite early.I am familiar with the type 44001 and the similar Cosmos Radiophone and Aeolian Aeriola Junior and at a casual glance I assumed that the A suffix signified a minor variant of the 44001 but the diagram in the lid shows major differences to the type 4401. This set has six terminals compared to the five of the other sets and they are of a different type. Three terminals marked A1, A2 and A3 are arranged at the corners of an equilateral triangle and according to the instructions in the lid may be linked by a moveable strap to cover 250 to 600m, 600 to 1000m and 1000 to 2000m. For 250 to 600m a mica capacitor is connected between the aerial and the variometer. For 600 to 1000m the aerial is connected direct to the variometer. For 1000 to 2000 the series mica capacitor with a second mica capacitor is connected in parallel with the variometer. Crystal sets with built in coverage of long waves were not common before the advent of 5XX and the change from type 44001 is radical enough to justify more than an 'A' suffix.

All of the above is in untouched, original condition. Unfortunately the detector had been vandalised, being very crudely converted to cats whisker and galena. The original fixed crystal and the cup for the moving crystal were loose in the box; the fixed crystal is almost identical to that in my Cosmos Radiophone but instead of a dull blue–grey it is a metallic gold colour. Substituted for the fixed crystal in the Cosmos, it works slightly better against pyrite moving crystal than the original. The moving crystal holder, unfortunately was empty and could not be reinstated because of the way the cats whisker had been added. I would be grateful to any reader with information about this set.

LL (Bill) Williams

Dear Editor,

Having read Roger Chacksfield's comments in the winter BVWS Bulletin, I have to say I agree with him. While I marvel at the finished restoration by say Gary Tempest, and am impressed by the sheer amount of work he puts into these projects, I wonder if it isn't often just a little over the top. Most of us want the radios in our collection to function reliably and safely, but surely there comes a point where overkill takes over. Is it really necessary to fit modern components inside old cases on the underside of a chassis which will never normally be seen even if the back of the set is removed? The visible parts should be made to look as good as possible but always remembering that to my mind an old set is more authentic when it looks like an old set rather than a modern reproduction, even if most of the parts are original. Antique furniture is rated higher by the experts when it looks complete, clean, but well used, rather than "untouched original condition". I feel the same way about old electrical equipment. Members who have read my articles from time to time in the Bulletin will note I restore sets to safe working order but looking their age, rather than "as new". The only exception is an exposed chassis with steam pipe wiring, where it is usually necessary to rebuild the whole set and re-wire it in order to make it work at all. I wonder how many other members feel as I do, even though I enjoy the articles by the perfectionists.

Yours,
Graham Dawson

Dear Editor

In reply to Graham Dawson's letter:

For me the best part of the old radio hobby is the restoration. It is for a retired engineer the electronic equivalent of model making. However, many model makers put in lots more hours than I do and go to far greater lengths for what they perceive as perfection. I don't accept that as no one sees under the chassis then why bother with what happens there. The crucial thing is that I see, and care, for the radios I do.

In whatever way someone does a restoration, as they see it, it's really up to them: it's their radio. If an article is published then I wouldn't write a critical letter about work I didn't like but be grateful for any ideas and interest given. Occasionally, for articles I thought were exceptional I have contacted the authors and said how much I enjoyed them. Encouragement is needed, there is no other reward and it takes a lot of time and effort to put an article together. Why bother? It's a question I often ask myself; it would be far easier to join the 'silent majority'. But it's nice to share enjoyment and knowledge and it encourages better effort and understanding, because of appraisal, even if others see only words and pictures.

As I don't criticise other people's work, in letters to the Editor, so I don't expect it of mine. It may not be how they like it but hopefully my articles contain a smidgen of enjoyment, a tad of education, a bead of inspiration etc even for just a few readers, for a short while, and that should be enough.

I can't accept this caretaker role of radio history, by doing as little as possible to them (20's and museum pieces excepted). It's certainly not how vintage car collectors see things, where they are rebuilt to showroom condition and are much appreciated that way. However, there are an awful lot of 30's and later radios, and the smaller band of collectors, and others, in a couple of generation's time, will be able to cherry pick for what they like best. The lesser number of 'over the top', as some think of mine, or the more untouched, complete with rust and bruises, as others like them now.

Now to the thoughts of a friend and fellow member who, possibly wisely, doesn't go into print. "Maybe there would be more new and younger collectors and interested public if more of the radios looked and played as they did when they left the factory. Where is the Wow! in so many of the tatty, unattractive and poorly sounding sets people get to see and hear?"

In his collection he has a beautifully designed radio with the best example of cabinet refinishing I have ever seen, done by a master craftsman. That and a very pretty dial with a time consuming chassis restoration, which works flawlessly, makes this the set that most visitors really get enthusiastic about.

Yours truly,
Gary Tempest

Dear Editor,

I feel that I must reply to the letter in Vol 30, No.4 by Roger Chacksfield if only to reiterate one essential part of the code of practice and ethos of the BVWS which is to preserve and restore vintage radio equipment.

In my view we are really caretakers of our treasured old wireless sets which hopefully, will live on much longer than we do. There are very few members who are capable of restoring an elderly wireless set to new condition as this demands a high degree of craftsmanship, technical ability and patience. Another superb example of this appears in the latest edition of the Bulletin. These complete restorations may survive even hundreds of years and are an important archive.

I agree that a thirties radio should look like one, but as in many cases the scratched cabinet, torn loudspeaker cloth, accumulation of dust and grime can easily be renovated and cleaned without too much trouble by most of us while still keeping some semblance of ageing without the abuse. Most components can be replaced, but if putting new capacitors into a sealed can is too formidable, the replacement could be wired into the circuit neatly with the disconnected can in place. A slightly rusty chassis may be cleaned and rubbed with a little application of aluminium paint. Early cabinets were French polished but later ones were finished with a cellulose laqcuer; this can be easily obtained from a car repair shop, scratches and other signs of abuse can be quickly covered. A little methylated spirit will clean finger marks from around control knobs.

As far as safety is concerned an earthed chassis on an AC only set is essential as is also a lightly fused plug and a safe mains lead, even if the latter has to be plastic covered. Also any accessible high voltage points onto which a child could poke their finger can be discreetly covered without loss of vintage authenticity. Time spent is usually a factor with all of us and it follows a law of diminishing returns, but we all take a pride in our work which will last well into the future.

Finally, (and I have not seen this point mentioned before) the clock repairers of old used to keep worn parts that had been removed, in a safe place within the clock case. I think that we should not throw away those leaky electrolytics and burnt resistors

put place them in a polythene bag in a safe place within the cabinet (ie not next to a hot valve) to preserve another bit of history.

Best wishes,
Tony Dutton

Re: Roger Chacksfield's letter, BVWS Bulletin Winter 2008, regarding over restoration.

To me, he confuses "patina" with straightforward abuse. A dictionary definition on patina gave: "A pleasing surface sheen on something that develops with age or frequent handling". Apart from a very few of my radios none have had a pleasing surface sheen when I first acquired them.

Mostly they have been knocked about from rough treatment with rusty chassis, from meagre initial finishes and being carelessly stored in damp places. Changing a few components and leaving the rust is just continuing the decay. If a chassis is stripped for refinishing there's no point in putting back the old wire. It looks terrible and solders poorly due to contamination from the rubber that is often broken or crumbling away inside the cotton covering. If the chassis isn't rusty it just gets cleaned and the wiring, unless very poor, is left as it is.

Why ignore making old radios safer often with minimal alteration? Replacing dangerous wiring for a start, fitting an earth if possible (three-core cotton covered cable is available) and for AC/DC radios, converting them to isolated chassis (in US fashion) if feasible. I haven't fitted thermal fuses yet: now there's an idea.

There are too few next generation collectors and interested public to be custodians of all the radios when this generation of enthusiasts has passed on. In my opinion the radios that stand the best chance of a place in a warm room are those that are attractive, have excellent condition cabinets, have been fully electrically restored, and are safe (although not completely complying with current regulations). For the rest it will be back to the damp garage, shed or worse. Please note I'm not referring to the 20's scientific era items for which there will hopefully always be aficionados.

I found this letter disheartening and certainly not helpful in providing copy for the Bulletin for which there is always a need. If only the minimal restoration advised by the letter writer is undertaken there won't be much enjoyment in it for me, or much to write about. But he should try it, which as far as I can tell he hasn't done so far. This will give others the chance to feel the despair at his work or lack of it, which he does with mine.

Gary Tempest

Dear Editor,
I feel I must compliment Terry Martini on his well researched and emininently readable article on the history of Clarke and Smith. It was fascinating and informative and painted a vivid picture of a company succeeding in those tough years after the war.

In the light of the present turmoil in global economics, it is interesting to see that they were undermined by their subsequent involvement with others who turned out to be more interested in building a conglomerate based around property and finance rather than producing useful products which could be sold to satisfy a need.

Sincerely,
John Holloway

Bed Swap scheme
What has a bed swap scheme to do with old radio collecting ?

Traditionally the United Kingdom has always been separated from the rest of Europe. Even in the European Community Alliance UK has alway kept some sort of independence (currency. Shengen etc.). While this situation ended up to be not entirely negative it has resulted in some sort of separation of UK from the rest of the European Community in all walks of life including collecting.

In order to widen our collecting and cultural horizons I propose a scheme whereby members of all the related European collecting clubs would set up a scheme to swap accomodation (and only accommodation) in order to visit each others swapmeets and fleamarkets.

The scheme should be based on a central calendar held by just one club where all the meeting dates will be kept and published on the Internet. Then members wishing to travel to visit these meetings would contact appointed officials of the various clubs to arrange when and where to stay in local members' houses for the duration of the swapmeet.

Host member would be allowed to sleep and use of the bathroom only and meals and other services should not be required or expected.

Later, if the scheme is viable and successfull, the same could be expanded for overseas swaps and visit,

What do you think? Please let me know.

enrico@Brighton-UK.com

Dear Editor
I'm researching hybrid valve/transistor radios, manufactured in the late 1950s/ early 1960s. I wonder if readers could kindly send me the manufacturer and model number of any such sets they know of?

Stef Niewiadomski
e-mail: stef@altera.com
Saddlestones House
Faringdon Road
Stanford-in-the-Vale
Oxon
SN7 8NN

Dear Editor

A coherer Discovery
Some 25 years ago (I can't remember the exact date) a friend at work informed me that his father–in–law, a Mr Breen, who had worked for a long time at EMI Hayes, had recently passed on and left a quantity of radio bits and pieces. Knowing my interest, he told me that I could take anything that I wanted. One box contained a quantity of resistors and while sifting through them I came across a glass tube which turned out to be a Marconi Coherer. Clearly my perusal of my fathers copies of Harmsworth's Wireless Encyclopaedia had been of use! Under 'Marconi Coherer' it gives a detailed description, a line drawing and a circuit diagram for its use. The only other useful reference in my library was in a copy of the 'Illustrated Wireless Dictionary' by EH Chapman (Radio Press Ltd. 1926). Under 'Coherer' there is a brief description but also a photo – unfotunately of poor quality, with the caption 'Early forms of coherers as used in Commandantore Marconi's first transatlantic wireless transmission in December 1901.

In both cases the coherer is bound to a bone rod with a square end, not a glass rod as the one recently auctioned at Wooton Bassett. My coherer, unfortunately has no provenance apart from the above and no bone adjusting–rod, only two yellow/ green braided flexible leads, four to five inches long, bound to the tube at each end and soldered to the coherer output wires. The electrode gap is V shaped as shown in the Harmsworth drawing.

Although of some interest I didn't deem it had any great value and it has languished in a drawer ever since I first found it! I only got it back out after receiving the 2008 Winter Bulletin with the accompanying BVWS notice. How after 100 or so years can anyone verify the provenance of one of these items? How many were made and how many still exist? If anyone has an interest in my one I would be willing to sell it for far less than the one sold recently at auction, providing that I could be reasonably certain that it was going to a genuine collector and not some speculator whose only concern is making a fast profit.

It's not only a case of buyer beware but also seller beware! Perhaps I'm being too idealistic?

Ray Bayliss

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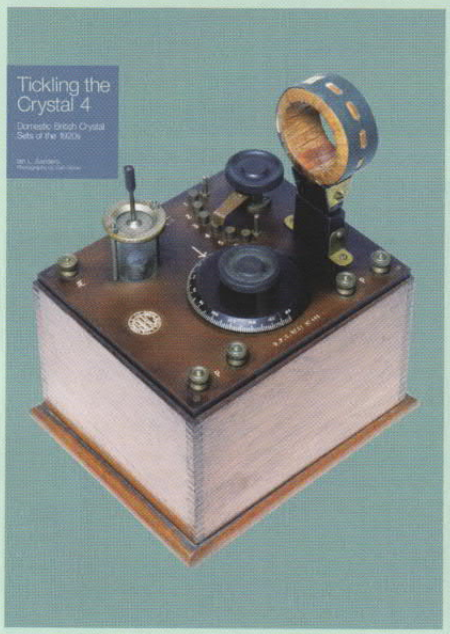

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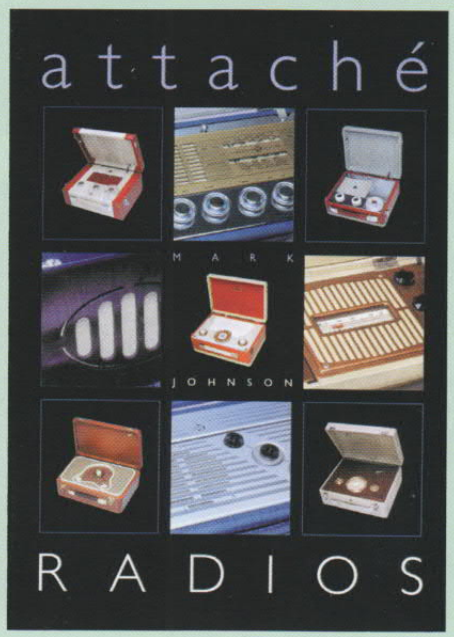

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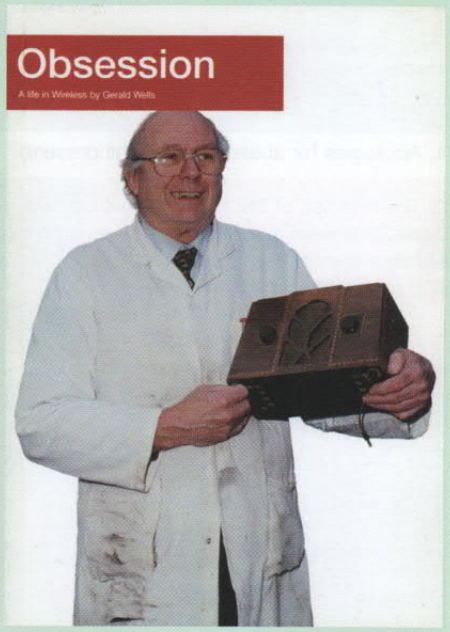

Obsession

by Gerald Wells

Gerry Wells had led an extraordinary life. Growing up in the London suburb of Dulwich in the inter–war years, he shunned a conventional 1930's childhood, preferring wireless and other household items. After the war he managed a career as a radio and TV service engineer and even designed and managed amplifiers, PA equipment and TVs. Today he runs the Vintage Wireless and Television Museum from the same family home from where he was born in 1929.

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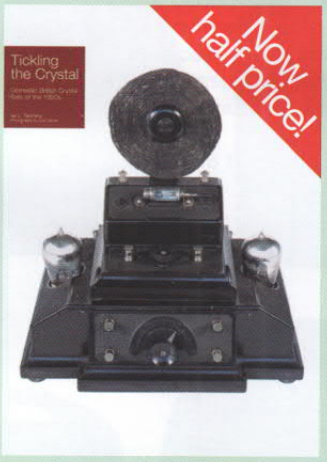

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BVWS Books

Minutes

Minutes of the BVWS Committee meeting held on the conference phone at 7.30 pm on Thursday 23rd October 2008.

Present: Mike Barker (chair), Graham Terry, Guy Peskett, Paul Stenning, Terry Martini, Jeremy Day, Jon Evans, Ian Higginbottom, Carl Glover, Martyn Bennett.

1. Apologies for absence: none (all present)

2. The minutes of the meeting held on 27th June 2008 were accepted as a true record. Matters arising: item 9, work on the 405-alive website will continue

3. GT reported that so far 1513 members had renewed their membership and that 134 had yet to do so. The renewals include 6 honorary and 57 complimentary memberships.

4. JD reported that at 23 October the Society's account balances stood at £37,032 (deposit) and £6,044 (current).

5. CG reported that Christmas issue of the Bulletin was full and on schedule.

6. GP reported that larger tables will be provided at the 2009 NVCF and that the 2008 prices will be held. There will be an exhibition of Eddystone equipment organised by Alan Ainslie. It is possible an active amateur radio station will be set up. It is intended that the mailing of stall invitations to non members and the appearance of the stall application forms on the NVCF website will coincide with the mailing of the Christmas bulletin.

7. The Society's event calendar was discussed and it was agreed to exchange the February and June Harpenden meetings. The February meeting will be a swapmeet with mini auction and the June meeting will be a major auction with the AGM.

8. Christmas DVD. TM reported the Sargrove film had been cleared for release by John Liffen of the Science Museum. The film is quite short (16 minutes) and additional material will be required. The Chairman will investigate the possible inclusion of a film about Amplion. A quantity of Murphy slides with audio commentary is available but will need to be transferred and matched up which will probably not be possible in time for this year. JE reported that he had some good quality short films on social history which he will send to TM for consideration.

9. The Chairman reported a request from the British Amateur Television Club for sponsorship of their proposed TV streaming service. He will investigate further. Donations to the BVW&TV Museum Trust were discussed. The last donation was £121.58, proceeds from the Bring and Buy stalls at Society swapmeets. The Chairman raised the question of funding the restoration of a CRT for the Museum's HMV 900 prewar TV. The idea was discussed sympathetically and initial agreement given, but further detailed costings of such a project will be needed.

10. AOB:
(i) IH thanked the Chairman and the auction team for the professional way his collection had been dealt with.
(ii) GT suggested that to reduce abuse the Bring and Buy stall should open later (11am) - approved.
(iii) Martyn B had made contact with the French organiser of the CHCR swapmeet to discuss cooperation with us.
(iv) The capacitors sold by the Society will be advertised in the Bulletin as well as in the Sales and Wants list.

The next meeting will be held on Saturday December 6th, venue tbd. The meeting closed at 21.42.

Minutes of the BVWS Committee meeting held at Pound Cottage, Coate, Devizes SN10 3LG at 6.30 pm on Saturday 6th December 2008.

Present: Mike Barker (chair), Graham Terry, Guy Peskett, Paul Stenning, Terry Martini, Jeremy Day, Jon Evans, Martyn Bennett.

1. Apologies for absence: Ian Higginbottom, Carl Glover,

2. The minutes of the meeting held on Thursday 23rd October 2008 were accepted as a true record. Matters arising: item 8, the Committee commended TM on the transfer of the important Sargrove film. TM reported that two copies would be sent to John Liffen as a token of appreciation for his help.

3. GT reported that on the day of the meeting the membership stood at 1524 including 57 complimentary and 6 honorary members.

4. The Treasurer (JD) tabled interim accounts for the Society and the NVCF. They showed a rise of £1,230 to £38,828 in the net assets of the Society and a profit of £3,538 from the 2007 NVCF. He announced that subscription rates would be unchanged for 2009. (GP announced that charges for the 2009 NVCF would also be held at 2008 levels.)

5. The Chairman reported for the Editor that the winter Bulletin was at the printers and should be delivered to the Museum for mailing next week. Several pages of the Spring issue were now complete.

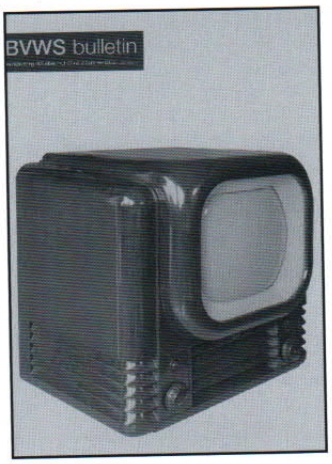
6. TM reported that the Christmas DVDs had been delivered to the Museum. He reminded the Committee that material for future DVDs was in very short supply. There was an urgent need to clarify the copyright position on BBC archive material. The Chairman proposed taking legal advice on the position. JE was working on the transfer of a set of Murphy slides and accompanying audio material.

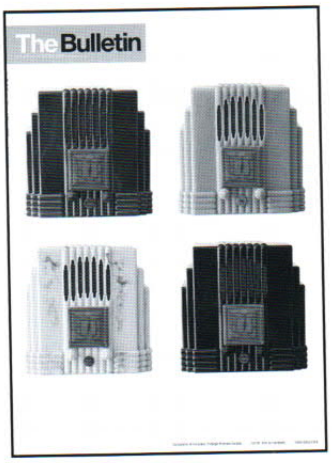
7. The Chairman reminded the Committee to review the year's Bulletins and vote for the best article on restoration for the Geoffrey Dixon-Nuttall award. The Duncan Kneale award for preservation was discussed and the unanimous decision was taken to award it to Paul Marshall for his preservation of a TV outside broadcast unit.

8. AOB
(i) GT suggested that next year the Bulletin issue dates be moved forward one month to February, May, August, and November. Membership cards could then be sent out with the spring issue eliminating the special mailing and its considerable cost in postage. The Chairman will check with CG that this doesn't raise any problems for him. The Treasurer noted that this would put the printing costs for 5 issues into the 2009 financial year but otherwise could see no problem.
(ii) A discussion took place around the issue of the numerous communications being received by the Committee about the sale of the Marconi Coherer at the September sale. A statement to Society members which gave the factual details was agreed upon for the Winter Bulletin posting.
(iii) Martyn Bennett reported on discussions of matters of mutual interest with one of the French Societies.
(iv) TM raised the question of cleaning the Museum.

The meeting closed at 8.15 pm

Eighth page advertisements cost £22.50, quarter page advertisements cost £45, half page: £90 and full page: £180. Cheques made payable to 'BVWS' please





Back issues

Vol 10 Numbers 2, 3 & 4 Inc. The KB Masterpiece, Extinct Species "A Monster Defiant".

Vol 11 Numbers 1, 2, 3, 4 Inc. BTH VR3 (1924) receiver, Marconi's 1897 tests, Origin of the term 'Radio', Baird or Jenkins first with TV?

Vol 12 Numbers 1, 2, 3, 4 Inc. the Emor Globe, The Fultograph, Ekco Coloured Cabinets.

Vol 13 Numbers 1, 2, 3 Inc. Direct action tuning, The Philips 2514, Noctovision.

Vol 14 Numbers 1, 2, 3, 4 Inc. Cable broadcasting in the 1930's, The story of the Screen Grid.

Vol 15 Numbers 2, 3, 4 Inc. The wartime Civilian Receiver, Coherers in action, Vintage Vision.

Vol 16 Numbers 1, 2, 3, 4 Inc. The Stenode, The Philips 2511, Inside the Round Ekcos.

Vol 17 Numbers 1, 3, 4, 5, 6 Inc. Wattless Mains Droppers, The First Philips set, Receiver Techniques.

Vol 18 Numbers 3, 4, 5 Inc. The First Transistor radio, The AVO Valve tester, The way it was.

Vol 19 Numbers 1, 2, 3, 4, 5, 6 Inc. The Birth of the Transistor, Super Inductance and all that, reflex circuits, A Murphy Radio display, restoration.

Vol 20 Numbers 1, 2, 4, 5, 6 Inc. Radio Instruments Ltd., Japanese shirt pocket radios, Philco 'peoples set', notes on piano-keys, the story of Pilot Radio, the Ever Ready company from the inside, the Cambridge international, the AWA Radiolette, this Murphy tunes itself!

Vol 21 Numbers 1, 2, 3, 4 Inc. Marconi in postcards, the Defiant M900, GPO registration No.s, Personal portables, the transmission of time signals by wireless, the Ekco A23, historic equipment from the early marine era, the birth pains of radio, inside the BM20, plastics, Ferdinand Braun, pioneer of wireless telegraphy, that was the weekend that was, the first bakelite radios, BVWS - the first five years, the world of cathedrals, Pam 710.

Vol 22 Numbers 1, 2, 3, 4 Inc. Another AD65 story, the Marconiphone P20B & P17B, listening in, communication with wires, the story of Sudbury radio supply, French collection, Zenith Trans-oceanics, Farnham show, Alba's baby, the first Murphy television receiver, AJS receivers, Fellows magneto Company, Ekco RS3, Black Propaganda.

Vol 23 Numbers 1, 2, 3, 4 Inc. Sonora Sonorette, Bush SUG3, RNAS Transmitter type 52b, North American 'Woodies', Why collect catalin, Pilot Little Maestro, Theremin or Electronde, The Radio Communication Company, Early FM receivers, an odd Melody Maker, Black propaganda.

Vol 24 Numbers 1, 2, 3, 4 Inc. The Superhet for beginners, Triode valves in radio receivers, History of GEC and the Marconi - Osram valve, KB FB10, Great Scotts!, Riders manuals.

Vol 25 Numbers 1, 2, 3, 4 Inc. Repair of an Aerodyne 302, Henry Jackson, pioneer of Wireless communication at sea, Zenith 500 series, Confessions of a wireless fiend, RGD B2351, John Bailey 1938 Alexandra palace and the BBC, Ekco during the phoney war, Repairing a BTH loudspeaker, The portable radio in British life.

Vol 26 Numbers 1, 2 Inc. How green was your Ekco?, The Amplion Dragon, Crystal gazing, The BVWS at the NEC, Installing aerials and earths, novelty radios, Machine-age Ekco stands of the 1930s, Volksempfänger; myth & reality.

Supplements:

1 'The story of Burndept'.
2 'WW 1927 data sheet'
3 'Seeing by wireless' the story of Baird Television
4 Reproduction Marconi catalogue

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News and Meetings

GPO registration Numbers

Martyn Bennett is the custodian of the BVWS GPO Registration Numbers list. As many members know, the project of assembling this list was started in the early days of the BVWS and was carried on by the late Pat Leggatt. Members are strongly urged to help build the list, whenever they get the opportunity, particularly as it is something that will help with the identification of vintage wireless in years to come. The list is by no means complete and the GPO no longer have a record of the numbers granted to wireless manufacturers. The BVWS Handbook contains the current listings - one in numerical order and one ordered by name. Please let Martyn have any additions, or suggestions for corrections, by mail or over the phone.

Martyn Bennett, 58 Church Road, Fleet, Hampshire GU13 8LB
telephone: 01252-613660 e-mail: martyB@globalnet.co.uk

2009 meetings

22nd February Harpenden Auction and AGM
5th April BVWS North West meeting, Lowton
19th April Workshop at Vintage Wireless and Television Museum
10th May NVCF, Leamington Spa
6th June Garden party at Vintage Wireless and Television Museum
7th June Harpenden swapmeet
5th July Wootton Bassett
19th July Workshop at Vintage Wireless and Television Museum
14th August Friday Night is Music Night at Vintage Wireless and Television Museum
13th September Table top sale at Vintage Wireless and Television Museum
18th October Harpenden swapmeet
1st November Workshop at Vintage Wireless and Television Museum
22nd November BVWS North West meeting, Lowton
6th December Wootton Bassett

Workshops, Vintage Wireless and Television Museum:
For location and phone see advert in Bulletin. 11:00 start.
Harpenden: Harpenden Public Halls, Southdown Rd. Harpenden. Doors open at 10:00, tickets for sale from 09:30, Auction at 13:30. Contact Vic Williamson, 01582 593102
Audiojumble: The Angel Leisure Centre, Tonbridge, Kent. Enquiries, 01892 540022
NVCF: National Vintage Communications Fair
See advert in Bulletin. www.nvcf.co.uk
Wootton Bassett: The Memorial Hall, Station Rd. Wootton Bassett. Nr. Swindon (J16/M4). Doors open 10:30. Contact Mike Barker, 01380 860787
Lowton: Lowton Civic Hall, Hesketh Meadow Lane, Lowton, WA3 2AH
For more details with maps to locations see the BVWS Website:
www.bvws.org.uk/events/locations.htm

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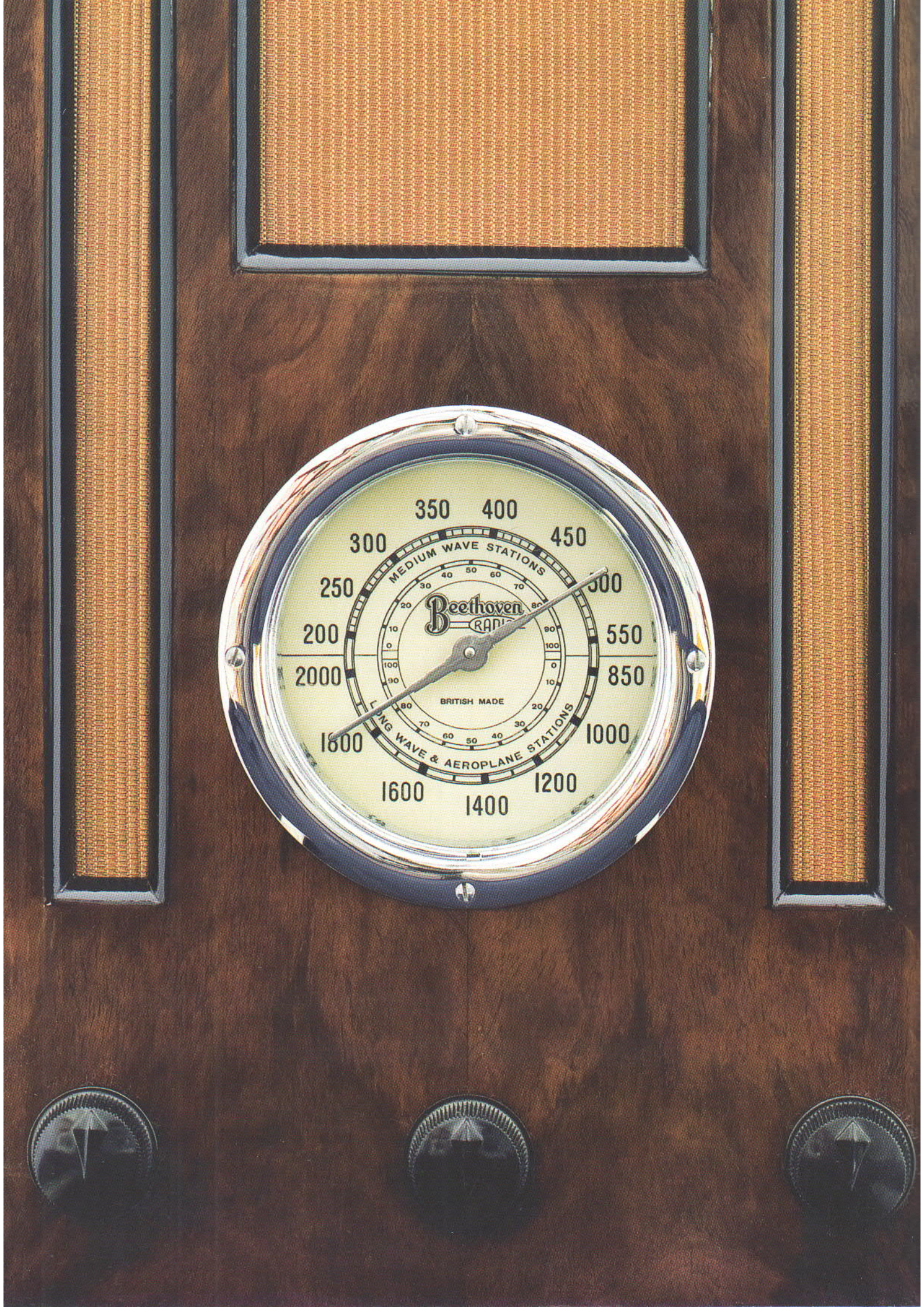
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