Lab Notes: The Wireless With No Name

Andy Thomas G0SFJ

11 November 2026

I bought this early wireless set at auction for my usual fiver. But what is it?



There is no nameplate on the front, nor inside. It has a painted steel front with wooden sides onto a steel chassis. There are rear connectors:



These are marked: LS ; + ; +HT; SG ; -HT ; +LT ; -LT; E ;and A

The first two are for an external Loudspeaker HT is High Tension but the voltage isn't specified. But because there isn't any mains connector, it is a battery set, and so the voltage won't be *that* high. SG is the Screen Grid connector, but it's not connected here, which was a surprise (more later). LT is the Low tension for the valve heaters. E and A are Earth and Aerial.

There is a switch in the LT line on the front panel.

Aside from that, you might recognise it already. But what follows in this Lab Report is the detective work.

The wavelength meter might be distinctive:



It's filthy but there are two wavebands: One goes up to 1700 – that must be metres, long wave. And the other is down to 250 metres, medium wave.

So it's a MW/LW set. Although it doesn't have Short Wave, it could be used as a base unit with a "Short wave adapter". They were just becoming available after about 1930 (see for example "What Our Readers Think – *Amateur Wireless* February 4 1933): "An efficient screen grid broadcast receiver used in conjunction with the [brand name] short-wave convertor, is definitely more efficient than a straight 3 or 4 valve short-wave receiver".

So let's look inside:



It has 4 valves. V1 to V3 (in this photo, left to right along the top), and V4 at the bottom right. (In this photo the coil assembly from V2 has fallen into there). The coils in grey are numbered 1, 2, 3 from the left of this photo.

These are Coils 1 (v1), 2 and 3.



Coil 1 (above) is on the same tray as the valve holder for what I call V1. Note the tab with a hole in it, which is above the valve holder.



As you can see, this coil (2) has been broken off.



This is coil 3 for what I call V3.

These images of the coil assembly trays are redrawn below.

V4 is not in a tray.

There is a Grid Bias battery to the top right, stepped from 1.5 to 9 volts – this will give a clue to the valves.



Incidentally, Exide had a line in submarine batteries – they sold them to the Imperial Russian navy and with the formation of the USSR continued to trade.

The bottom right has a device marked Lissen.


IS
OS
LISSEN
OP
IP



(Popular Wireless, March 31st 1929).

This is an audio transformer, so V4 must be an audio amplifier. There is a capacitor (I think) there too.

Popular Wireless and Wireless review of September 18th 1926 (pp160/2) described this transformer as:

> "THE NEW LISSEN L.F. TRANSFORMER.
>
> Owing, no doubt, to their new method of trading, details of which were recently given in these pages, Messrs. Lissen are able to place an efficient L.F. transformer on the market at the definitely competitive price of 8s. 6d. Amateurs with short pockets will appreciate this British alternative to cheap foreign productions, for it must be pointed out that this new Lissen component replaces all their previous models. It is a Lissen L.F. transformer and not merely the cheapest one of a range. And having all the backing of this firm's well-earned reputation for careful design and masterly construction as well, who would not buy British ?
>
> An L.F. transformer is a very important component in a set, and can do much more towards making or marring results than say a coil or even a variable condenser. In fact, a really bad L.F. transformer will do more to render loud - speaker work unpopular than a bad loud speaker. " Tinniness," " woolliness," " harshness," and what not are more often due to frequency distortion arising " behind " the L.S. terminals than is realised by many listeners.
>
> The choice of an L.F. transformer requires discrimination-it is much more than a mere hank of wire wound on a lump of ironor, at least, should be if it is to deserve the name.
>
> Messrs. Lissen's new product is well up to Lissen standard. It is well made and nicely finished, and gave very creditable results on test. It is excellent value for money, and we do not think that there is another up to at least double the price that can beat it".

So, I thought that the set might have been a Lissen Kit – they did exist - but it wasn't.

The next step on the trail was that Lissen LF transformers were used by other manufacturers. Here's a Lissen advert from 1929 showing that it was used in a Cossor "Melody Maker" kit:

The MELODY MAKER



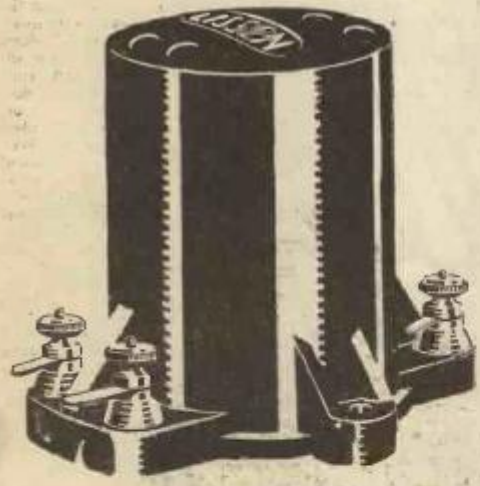
CAN BE BUILT WITH LISSEN PARTS

Congratulations to Messrs. Cossor on an excellent set.

IT has been definitely proved that LISSEN parts can be used for this Set with eminently satisfactory results, as well as for every other type of Circuit which may be popular at a given time, and which requires Standard parts of recognised quality.

LISSEN parts are guaranteed to give satisfaction every time they are used. Test the LISSEN TRANSFORMER against any other, and if you are then willing to part with your LISSEN, and return it within seven days of purchase, your money will be willingly refunded.

Use the other LISSEN parts as well, resistances, condensers, rheostats, valveholders, batteries, etc.



Lissen Parts for the Cossor Melody Maker

1 Lissen L.F. Transformer (Price 8/6).
1 Lissen .001 Fixed Condenser (to be put across the primary of the L.F. Transformer) (Price 1/6).
1 Lissen Base-board Rheostat, 7 ohms (Price 1/6).
2 Lissen Key Switches or Lissen 2-way Switches (Price 1/6 each).
2 .0003 Lissen Mica Fixed Condensers (grid leak clips are included) (Price 1/- each).
1 .0001 Lissen Mica Fixed Condenser (Price 1/-).
1 .001 Lissen Mica Fixed Condenser (Price 1/-).
1 .002 Lissen Mica Fixed Condenser (Price 1/6).
1 Lissen Mansbridge type Condenser, 2 mfd. (Price 3/6).
1 Lissen Grid Leak, 3 meg. (Price 1/-) and 1 Lissen Combinator (Price 1/-).
1 Lissen Grid Leak, .25 meg (Price 1/-).
1 Lissen Grid Leak, 4 megs. (Price 1/-) and 1 Lissen Combinator (Price 1/-).
3 Lissen Valve Holders (Price 1/- each).
1 Lissen 9-volt Grid Bias Battery (Price 1/6 each)



Also use the Lissen H.T. Battery

All these Lissen parts for the Cossor Melody Maker are obtainable from 10,000 radio dealers throughout the country. Ask for Lissen parts in a way that shows you will take no other, and be sure of perfect results.

LISSEN

LISSEN LIMITED,
8-16, Friars Lane, Richmond, Surrey.
Managing Director: Thomas N. Cole.

But it wasn't a Cossor either.

So it's neither a Lissen nor a Cossor kit. But we have a date: 1927. That's a hundred years ago next year (2027).

But by the end of 1928 there's a new kid on the block:



The LF transformer to the left is apparently superior.

So let’s return to the chassis to see if there are any other clues.

There is a small bulb at the back; it couldn’t illuminate anything much from there, but might be a current limiter.

This is marked as 2.5 volts.



The significance of this is that the LT circuit must be around 2 volts, one accumulator, and that has implications for the valves. The pictures have already shown that they have 4 pins.

Interesting, its origin is “Foreign”!



Any more clues?

Now, apart from the Grid Bias battery (9 volts or less) there is a Grid Leak resistor on V3. This tray has a square base for the valve, not round like the others, indicating a different type of valve.

I tried, but I couldn't read any markings. But I measure it as 1.45 M Ohm. Usually these are 2 M Ohm. Not bad for a specified 2 M ohm resistor after 100 years!







Cleaning up the dust, I found two sets of patent application numbers ending /30, meaning patent applications of 1930.

Each coil assembly tray gave this patent number:



And the variable condenser {capacitor] this one:



So I searched these patent applications from 1930 and found out that the patents had been granted to the General Electric Company. Here is the printout from the patent search engine *Espacenet*:

"GB347047A Improvements in apparatus for wireless signalling

Applicants

GEN ELECTRIC CO LTD; NEVILLE JAMES MCAINSH; FREDERICK CLARK

Classifications

IPC

H04B1/08;

CPC

H04B1/08 (EP);

Priorities

GB1803630A·1930-06-12

Application

GB1803630A·1930-06-12

Publication

GB347047A·1931-04-23

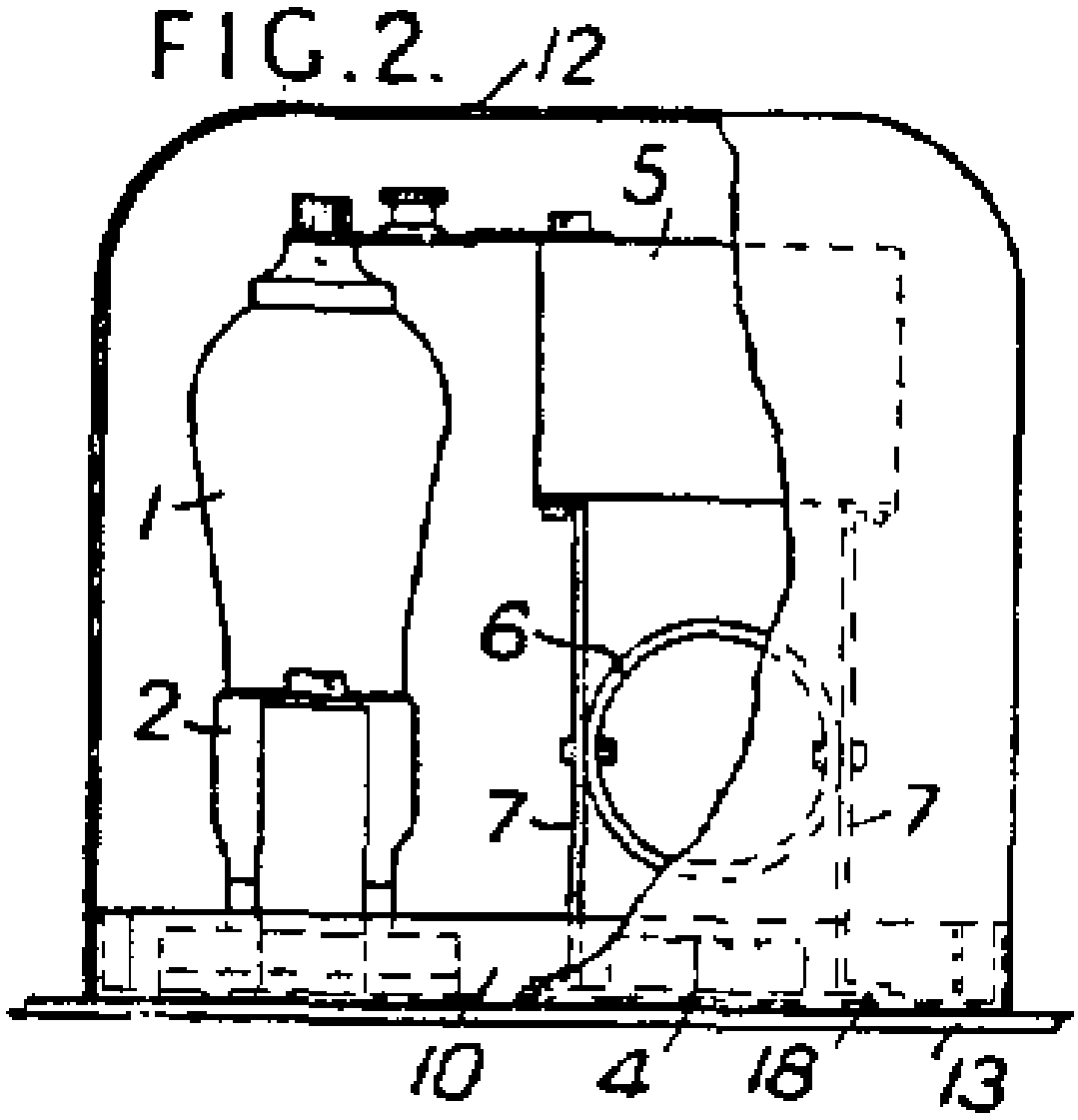
Published as

GB347047A

Improvements in apparatus for wireless signalling

Abstract

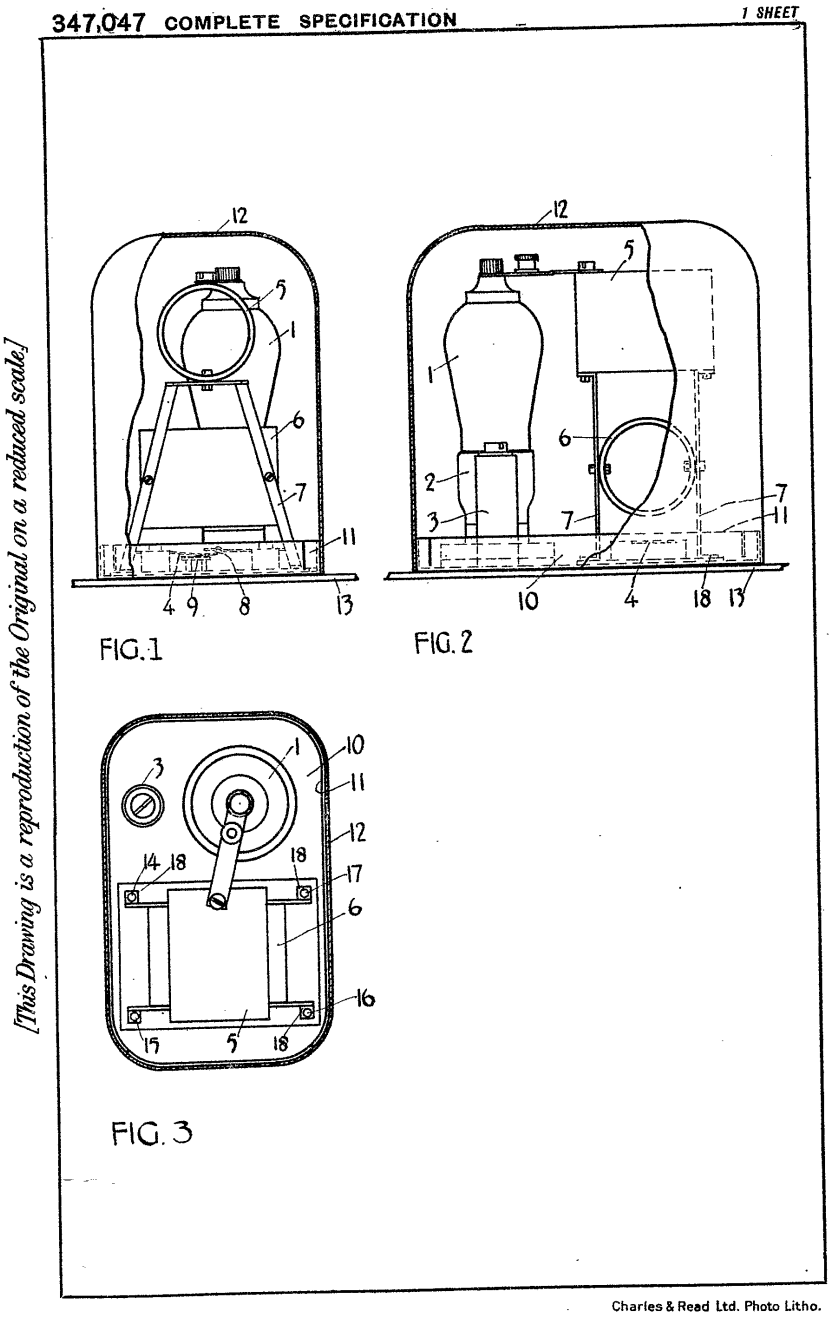
347,047. Inductances. GENERAL ELECTRIC CO., Ltd., Magnet House, Kingsway, London, McAINSH, N. J. and CLARK, F., of General Electric Co., Stoke, Coventry. June 12,1930, No. 18036. [Class 37.] A unitary structure for wireless sets comprises coils, wave-range switch, valve-holder, &c., all mounted on a tray, and the means for fixing the coil supports to the tray is also utilized for fixing the tray to a baseplate. As shown, the coils 5, 6 are mounted on a four-legged frame 7 which is held down on a tray 10 by four bolts passing through lugs 18, the bolts also serving to fix the tray 10 to the baseplate 13. The wave-range switch is placed at 4, and the associated valve 1 is mounted in a holder 2. A metallic cover 12 fits over the upturned edges of the tray 10.



You can see the tray at the bottom and the vertical and horizontal coil assembly, it's clearer to view in the diagrams below. There is a connection to the Top Cap of the valve.



This is the wrong valve but you can see it has a screw-on top cap.

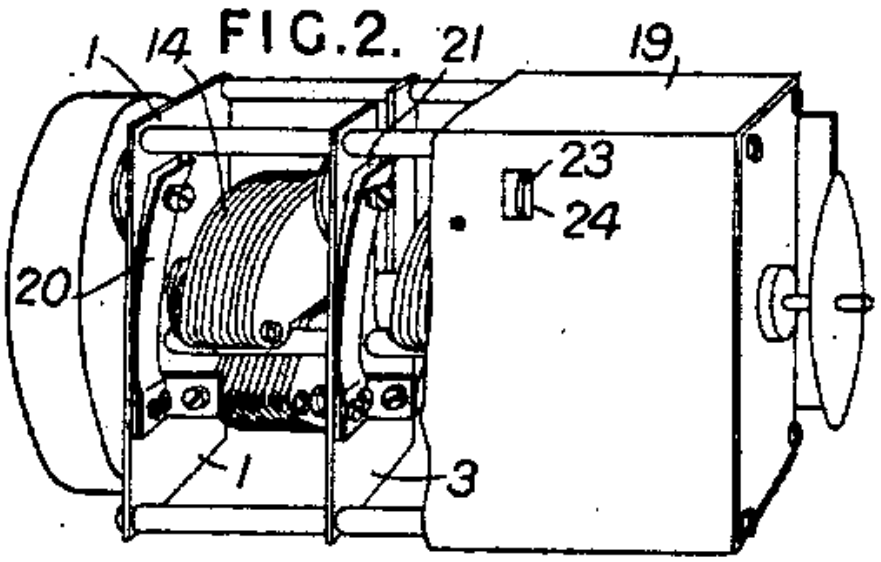


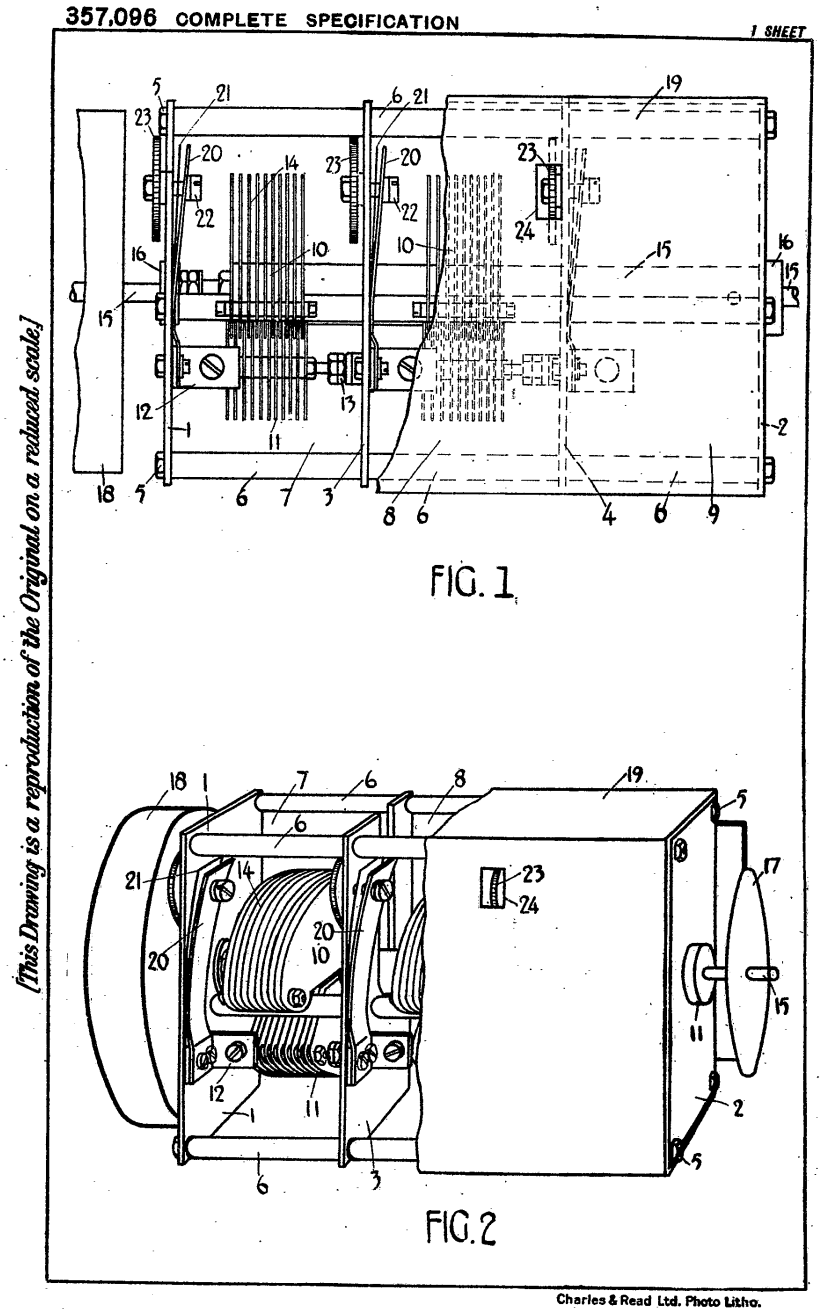
This shows me that the 4 trays inside the set were shielded trays containing the valve and coil assemblies.

As for the variable condenser:

“357,096. Condensers. GENERAL ELECTRIC CO., Ltd., Magnet House, Kingsway, London, MASKEL, W. A. C. and McAINSH, N. J., of General Electric Co., Stoke, Coventry. June 12, 1930, No. 18037. [Class 38 (ii).] In a gang of variable condensers 10 having a common control means, a separate trimming condenser for each unit includes a resilient separate from the main condenser plates and mounted on a conducting plate forming part of a metallic casing carrying and enclosing the condensers. Adjusting means are provided arranged to bear on the free edge of the resilient plate to vary the trimming capacity. In the example the resilient plate 20 is supported on an end or separating plate 1, 3 of the casing and is insulated from it by a sheet of dielectric 21. Plate 20 would be electrically connected to the fixed series 14 and the end- or separating plate, which would be earthed, would form the other electrode of the trimming condenser. Adjustment is effected by means of a screw bearing on the plate 20 and rotatable by means of a wheel 23 through a suitable aperture 24 in the side plates of the casing 19.

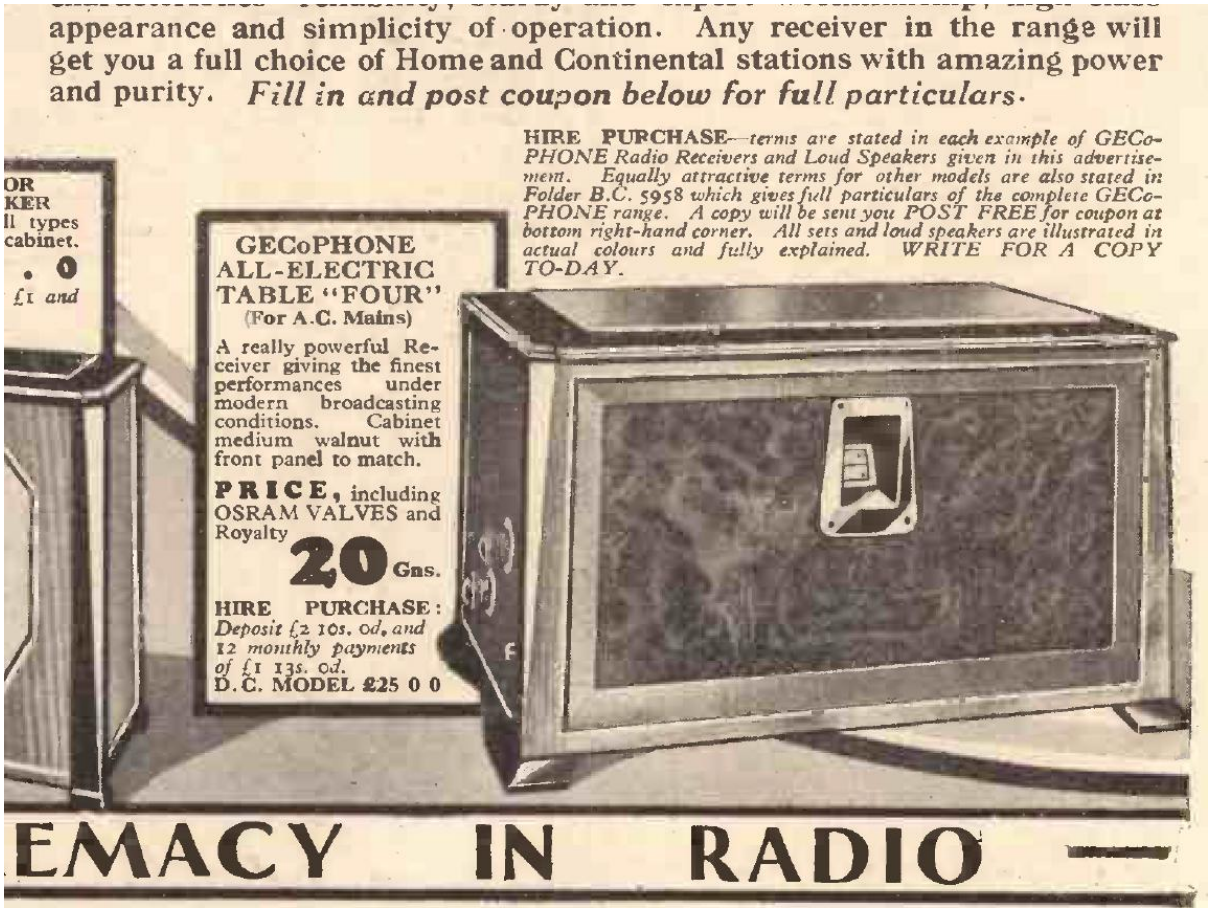
Front-page drawing from GB357096A


FIG.2.
1
14
21
19
23
24
20
1
3


357,096 COMPLETE SPECIFICATION
1 SHEET
[This Drawing is a reproduction of the Original on a reduced scale.]
FIG. 1
FIG. 2
Charles & Read Ltd. Photo Litho.

So we now know that the main components were made by General Electric in 1930. A little later than the 1928 Lissen transformer but in the same ballpark.

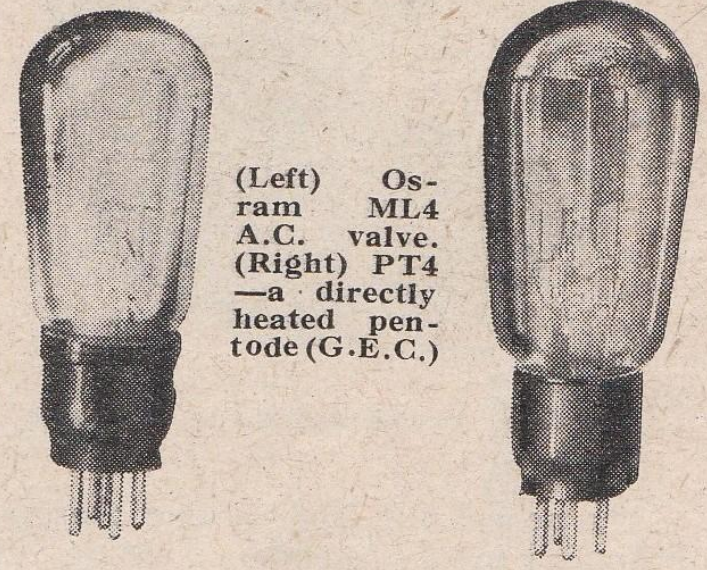
Now, let's find a GEC 4 valve MW/LW radio from around 1930:



And here it is - the GECOPHONE TABLE 4, DC version. It looks like the previous owner has replaced the wooden front panel with steel. 1931 September 5th, *Popular Wireless.*

The set was presented to the Olympia show of 1931. Wireless World reported stand by stand on all the new wireless sets and components. This is what they had to say about the Table 4:

Of advanced design is the Table Model "All-Electric Four" receiver, with two screen-grid stages. The metal chassis construction is boldly conceived, and careful attention is paid to the screening of practically every component. There is one-dial tuning control and an illuminated scale calibrated in wavelengths. Particularly ingenious is the seven-contact switch controlling wave-band change, radio-to-gramophone, and the on-off mains switch. A positive action is ensured by spring-loaded ball and socket contacts, except for the mains switch, which is cam-operated. A ganged control of the series-aerial capacity and of reaction is so arranged that regeneration does not take place until the aerial coupling is tight. Both condensers concerned are of unconventional design and contain a single moving plate which is able to rock only through a small angle. To enable the



(Left) Osram ML4 A.C. valve. (Right) PT4 —a directly heated pentode (G.E.C.)

highest quality to be obtained on nearby transmissions, a local-distance switch is fitted, which brings into action a resistance shunted across one of the tuned circuits. The output valve is a P.T.4 pentode, which delivers to the loud speaker some 1,800 milliwatts undistorted output. The price of the receiver is 20 guineas.

Wireless World, 23 September 1931 p347

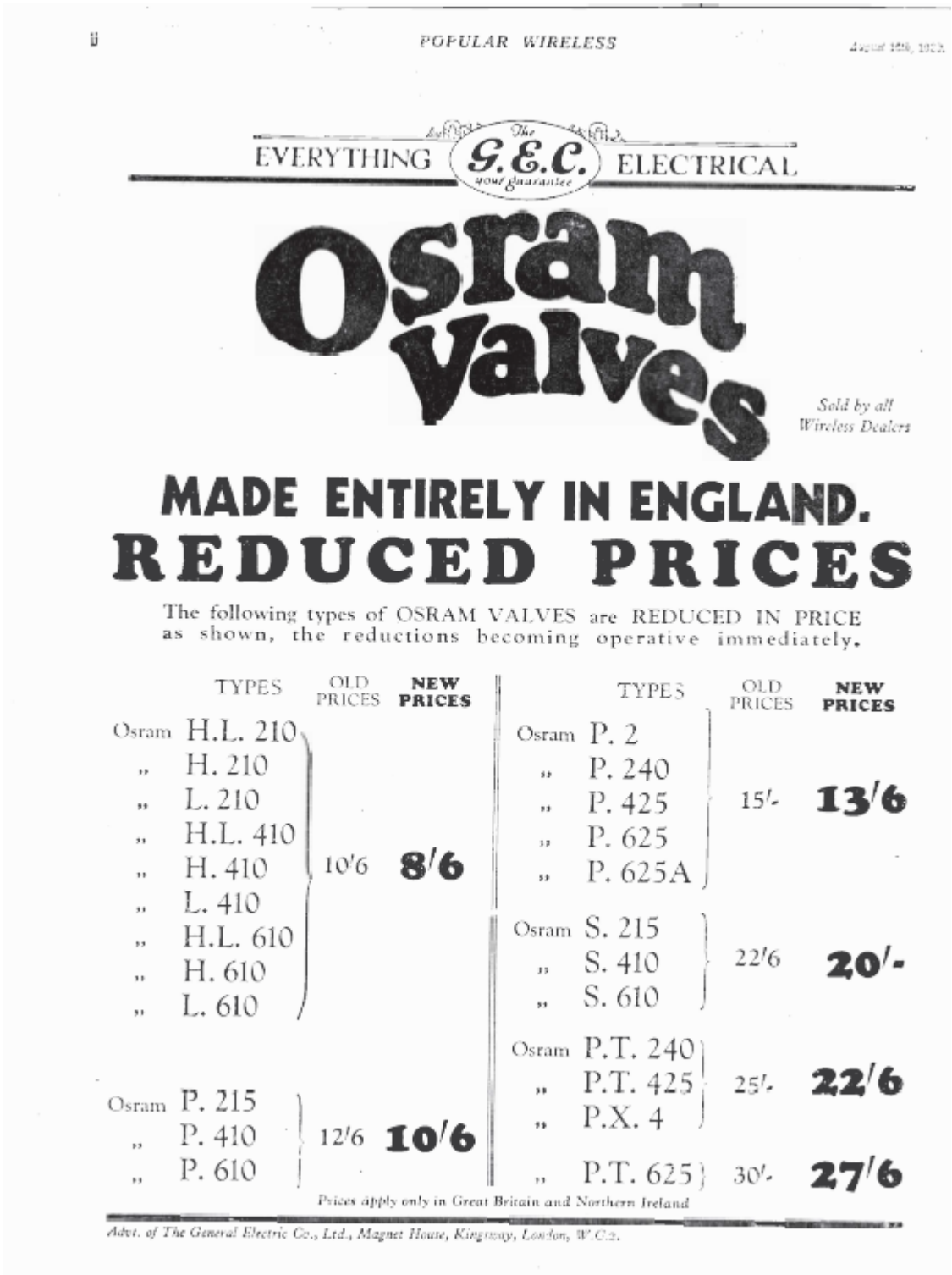
So that 2.5 volt bulb illuminates the dial!

Note that there is no reference to the LT switch - unless that is the local/distance switch?

Now to the valves. We already know that they have 4 pins and a heater of 2 volts.

This rules out the PT4 mentioned above, because according to the online valve museum it has 4 volts on the heater and is a 5-pin valve. But the illustration clearly shows a four-pin valve.

So here are some advertisements from General Electric for their Trade mark “Osram” Valves.



POPULAR WIRELESS

EVERYTHING G.E.C. ELECTRICAL

The G.E.C. your guarantee

Osram valves

Sold by all Wireless Dealers

MADE ENTIRELY IN ENGLAND.

REDUCED PRICES

The following types of OSRAM VALVES are REDUCED IN PRICE as shown, the reductions becoming operative immediately.

TYPES	OLD PRICES	NEW PRICES
Osram H.L. 210, „ H. 210, „ L. 210, „ H.L. 410, „ H. 410, „ L. 410, „ H.L. 610, „ H. 610, „ L. 610	10/6	8/6
Osram P. 215, „ P. 410, „ P. 610	12/6	10/6
Osram P. 2, „ P. 240, „ P. 425, „ P. 625, „ P. 625A	15/-	13/6
Osram S. 215, „ S. 410, „ S. 610	22/6	20/-
Osram P.T. 240, „ P.T. 425, „ P.X. 4	25/-	22/6
„ P.T. 625	30/-	27/6

Prices apply only in Great Britain and Northern Ireland

Advt. of The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2.

This advert is from *Popular Wireless* of August 13th, 1930. It gives a "shortlist" of available valves.



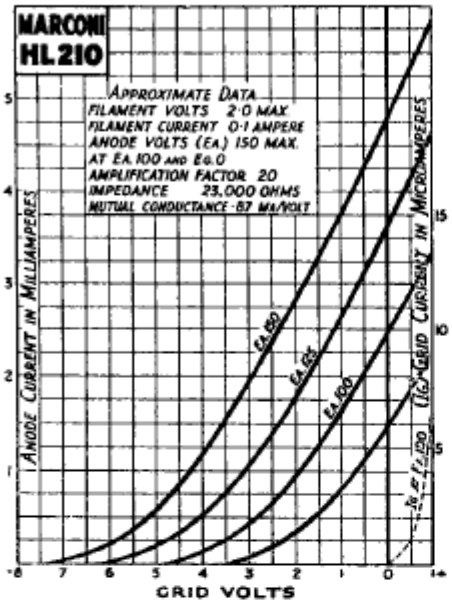
This is from *Popular Wireless* of November 2, 1931. It adds to the shortlist.

The back panel does have a connector marked “SG” but there is nothing connected to it. However, underneath the set there is a 22k (measured 21.69kOhm) resistor connected to the HT+ rail and going to V1 and V2 in parallel, so the set could have used two Screen Grid valves, which is what the *Wireless World* review states.

Of the GEC Osram valves listed above I can find the L2, HL210 and P215 as meeting the criteria of 4 pin and 2 volt heaters. These are candidates for V3 and V4; V3 uses the grid bias resistor, and V4 has a capacitor and the Lissen transformer, so it will be an audio amplifier.

The L2 is an old friend! It was still in use in 1938 for the Air Ministry valve buzzer Mk 2, and later for the WS17 [AR6].

MARCONI 2-VOLT VALVES



L 2/B, Low Magnification, 8/6

L2/b is primarily a low frequency amplifying valve of high efficiency which combines a large amplification factor with a comparatively low impedance. It provides a high stage gain with transformer coupling and will deal with large inputs without overloading. L2/b is also an excellent detector, either of the anode-bend or power-grid type when preceded by one or more H.F. stages.

Approximate Operating Data.

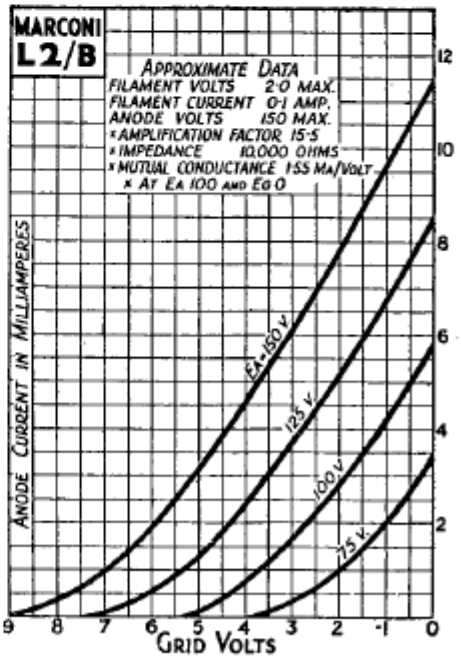
Circuit.	Anode Volts.	Grid Bias.
Power-grid detector	80–150	Connect grid leak to positive end of filament.
Anode bend detector	50–150	$-1\frac{1}{2}$ to $-7\frac{1}{2}$
L.F. amplifier ...	75–150	$-1\frac{1}{2}$ to -6

HL210, Medium Magnification, 8/6

H.L. 210 is a general purpose valve of similar characteristics but rather lower mutual conductance than Marconi HL.2. In addition to its suitability for sets in which H.L.2 might, on account of its very high efficiency, cause instability, HL.210, having a small bulb, is particularly recommended for portable sets in which space is limited.

Approximate Operating Data.

Circuit.	Anode Volts.	Grid Bias.
Grid leak detector	50–150	$-1\frac{1}{2}$
Anode Bend detector	100–150	–3 to –6
L.F. amplifier ...	75–150	$-1\frac{1}{2}$ to $-4\frac{1}{2}$
H.F. amplifier ...	50–150	Zero or negative according to circuit.



Page 1 (No. of pages:- 2)

VALVE ELECTRONIC **CV1662**

GENERAL POST OFFICE: E-IN-C (S)

(POVT 86)

Specification: G.P.O./CV 1662/Issue 1 Dated: 18-9-46 To be read in conjunction with K 1001	SECURITY Specification: Restricted Valve: Restricted

→ indicates a change

TYPE OF VALVE: Triode
CATHODE: Directly heated
ENVELOPE: Metallised glass
PROTOTYPE: P 215

MARKING

See K 1001/4

RATING			Note
Filament current	(A)	0.2	
Nominal filament voltage	(V)	2.0	
Max. anode voltage	(V)	150	
Anode impedance	(ohms)	4000	A
Amplification factor		7.0	A

BASE

British 4-pin (B4)

CONNEXIONS

Pin	Electrode
1	Anode
2	Grid
3	Filament -
4	Filament +

CAPACITANCES (pF)		
Cag	(max)	12.0
Cak	(max)	12.0
Cgf	(max)	12.0

DIMENSIONS

See K 1001/A1/D1

Dimension	Min.	Max.
A (mm)	-	108
A (in)	-	51

This valve type is obsolete and this specification is for record purposes only.

NOTE

A. Measured with Va = 27, and Vg = 0

Rota 1564 S/45

In addition, there are the SG valves for V1 and V2. A candidate valve with four pins and 2-volt heater is the S22:



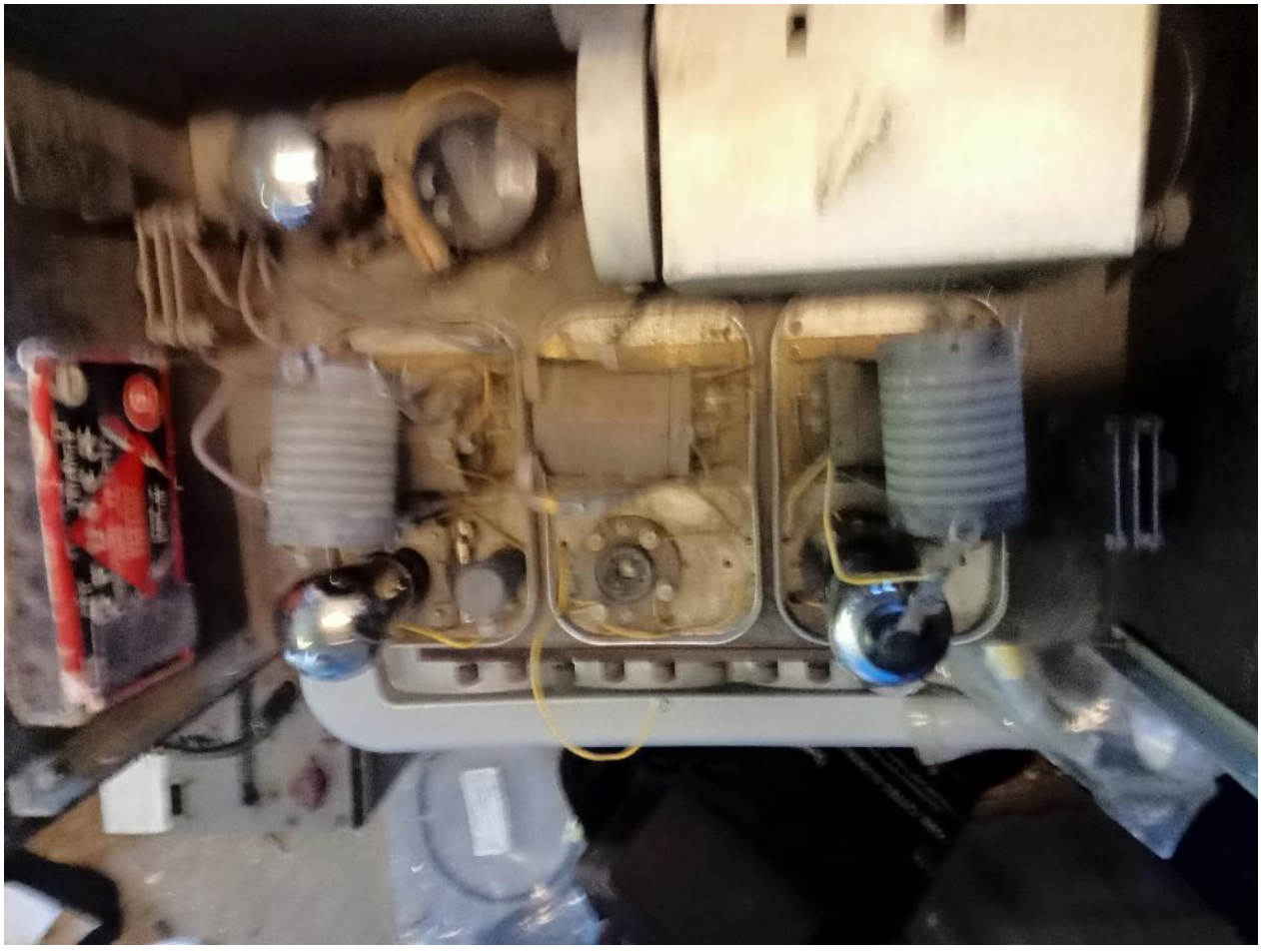
Popular Wireless, July 2nd 1932

Note that the Top Cap on this valve has the screw that can fit the hole in the tab on Coils 1 and 2.

So the valve round-up could be:

V1 and V2: S22
V3: HL210
V4: L2

It would look something like this:



Although the coil tab at V2 is broken, and V1, V3 and V4 are probably not the correct valves (but fit, from my small collection).

Conclusion

Well, there we are. A GECOPHONE TABLE 4, a 4-valve MW/LW battery/ DC set from 1931. Modified front panel and LF amplifier valve. Nearly a hundred years old!

73 de Andy G0SFJ
12 November 2026.