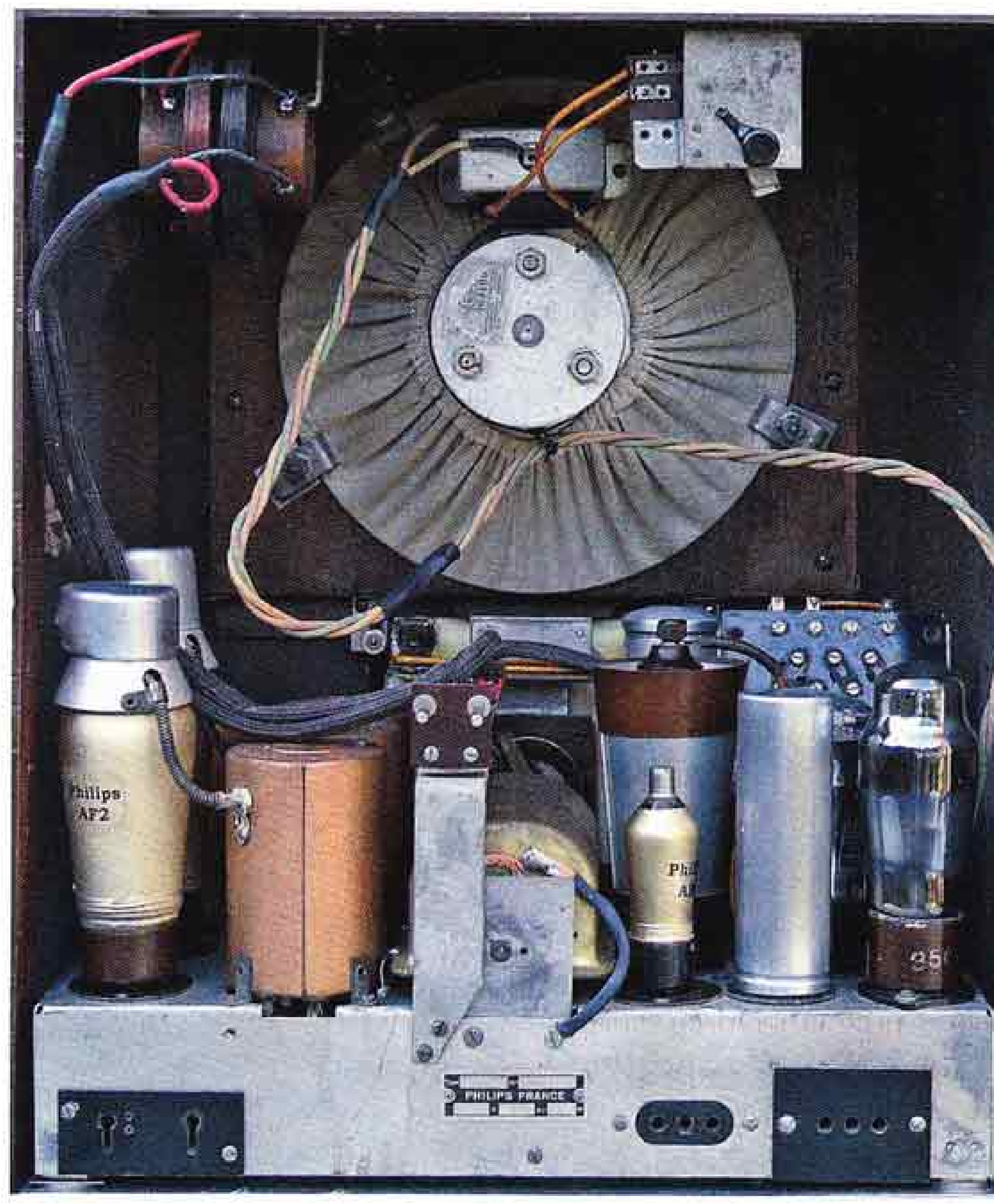
A Philips 638A of 1934 by Gary Tempest

This is a French version of our 472A (Trader Sheet 680) but with more chic to the cabinet having nice curves rather than just a couple of straight bars across the speaker grill.

It is of course a TRF Super-Inductance model with coils wound with Litz' wire on glass formers that has the band pass filter, so there are more of those attractive topside copper cans, (see pictures taken from an excellent Internet site Ref. 1). Technically, and for facilities, it's on a par with the slightly more expensive, when new, 634A 'Ovaltiney' model but with a smaller cabinet and chassis using a reduced diameter for the coil cans. As with all of these Super-Inductance sets the chassis has solid construction and extensive screening.



I was taken with it when I first saw it: the cabinet was quite good and it had a very clean, rust free, and original looking chassis. When I removed this, and looked underneath, it had thankfully had only minimal work done. This was not recent and used French components.

It would seem that Philips often kept the sale price down by cutting a few corners with the build standard. This set does this by dispensing with tag panels and capacitors in cans, unlike the 634A that has them. All the smaller components are strung together, often with stiff bare wire in a "birds nest" fashion. Junctions are made from spirals of thin copper wire before soldering. But at least it has a chassis unlike some later Philips radios (V5 and V7) that didn't.

My aim in restoring it was not to take the easy route and just change the normal culprits by cutting out or bridging, after snipping one end. As this type of chassis is difficult, with possible damage to other components, it's easy to succumb to that. I was determined that I would remove and re-stuff and put everything back close to how it was. Of course as the set had had previous repairs it could not be exactly like it came from the factory.

Thankfully plenty of service data was available. Apart from the Trader Sheet for the 472A, that was easy to cross reference, I found the Philips data for the exact model on the same Internet site (Ref. 1). This was in Dutch but thankfully circuit diagrams and component lists are language independent.

A little about the radio (More in the Trader Sheet for the 472A)

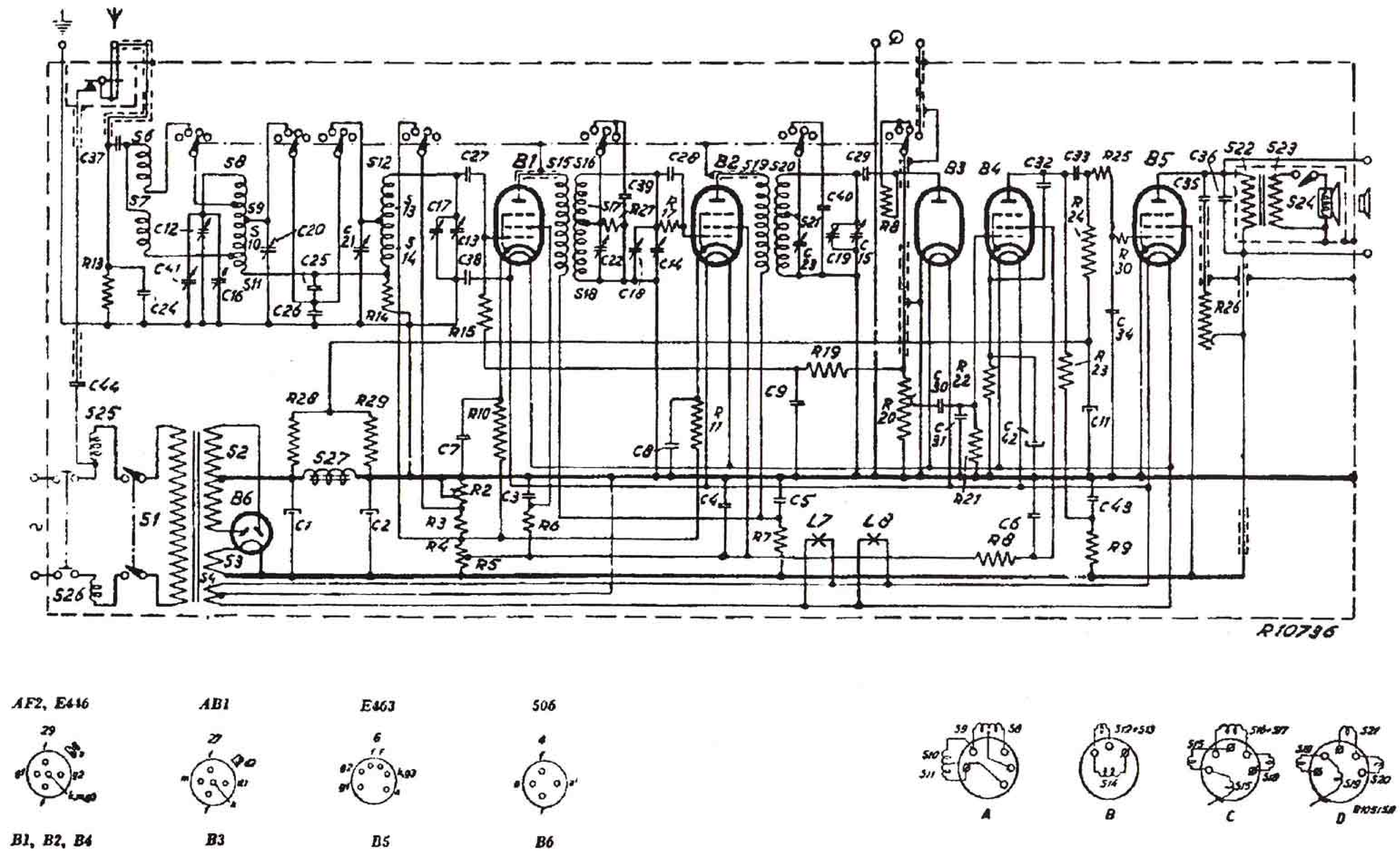
It has medium and long wave coverage with a switch position for external gramophone input. Philips was prescient and marked the switch off position with a binary zero.

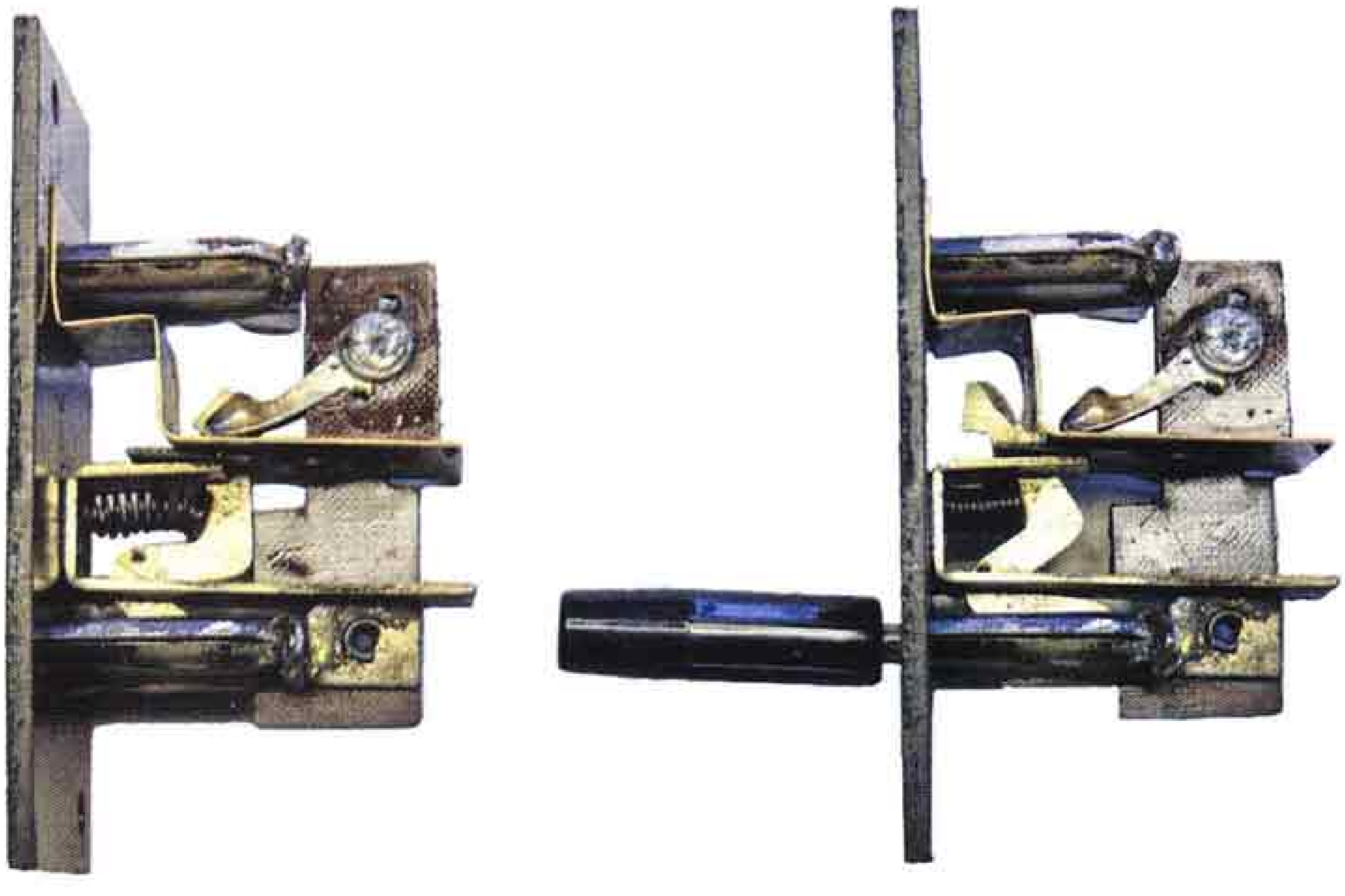
The top lit dial is in two parts, having the wavelengths marked on the rear of a clear plastic sheet that is a permanent part of a mounting fixed to the chassis. A second yellowed plastic sheet, printed in a tiny font with the station names, still fluid at that time, slides in behind it through a slot in the cabinet mounted escutcheon. The idea was that your dealer would supply you with another version as the station names were updated (see picture).

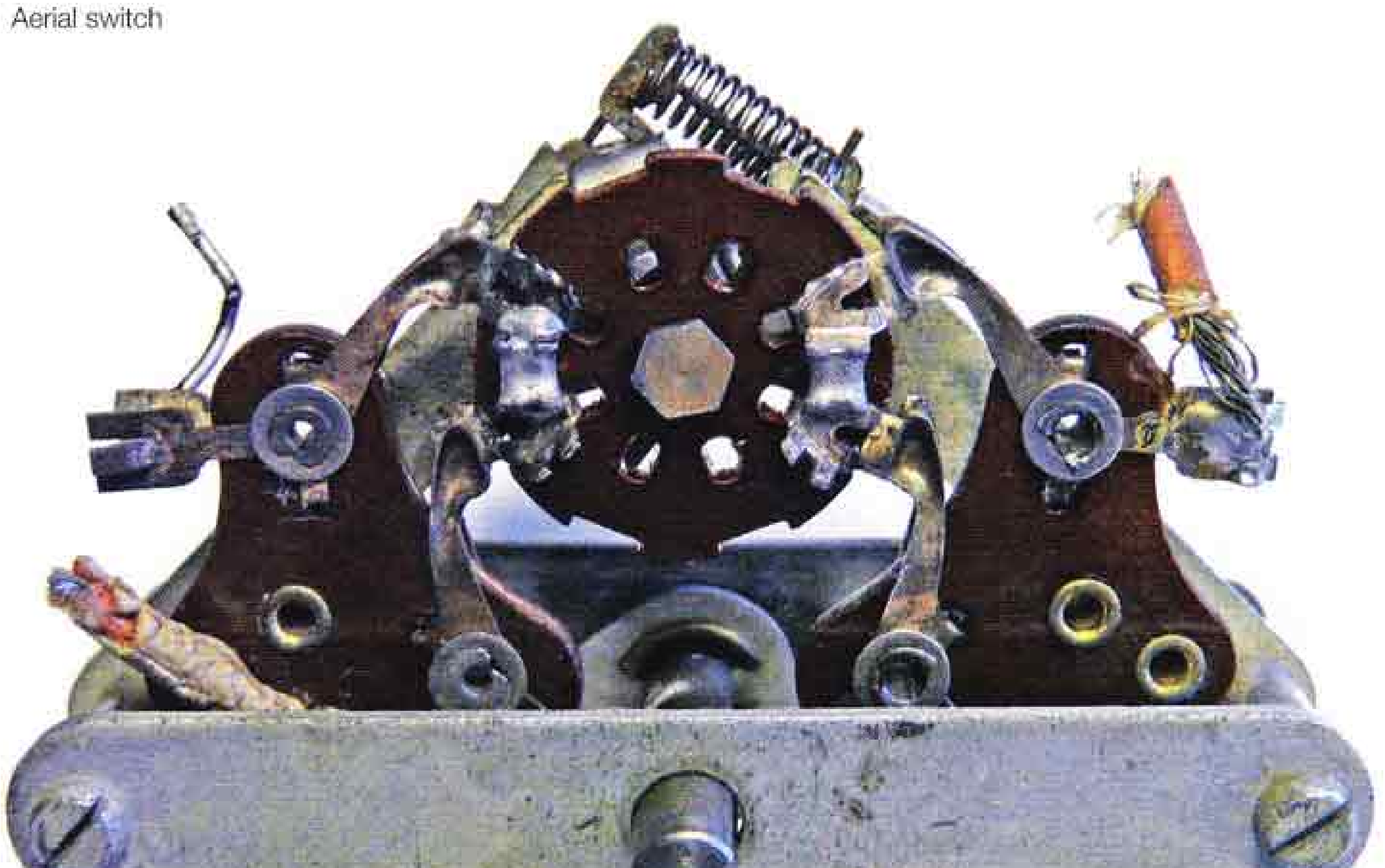
When a plug for a long wire aerial is plugged in (a modern 4mm type works), it operates a switch that changes over from a capacitor from one side of the mains (not reconnected) to be used as an aerial (see picture). The aerial input feeds a bottom capacity band pass filter. Following this are two tuned RF stages with waveband switching for them and the filter.

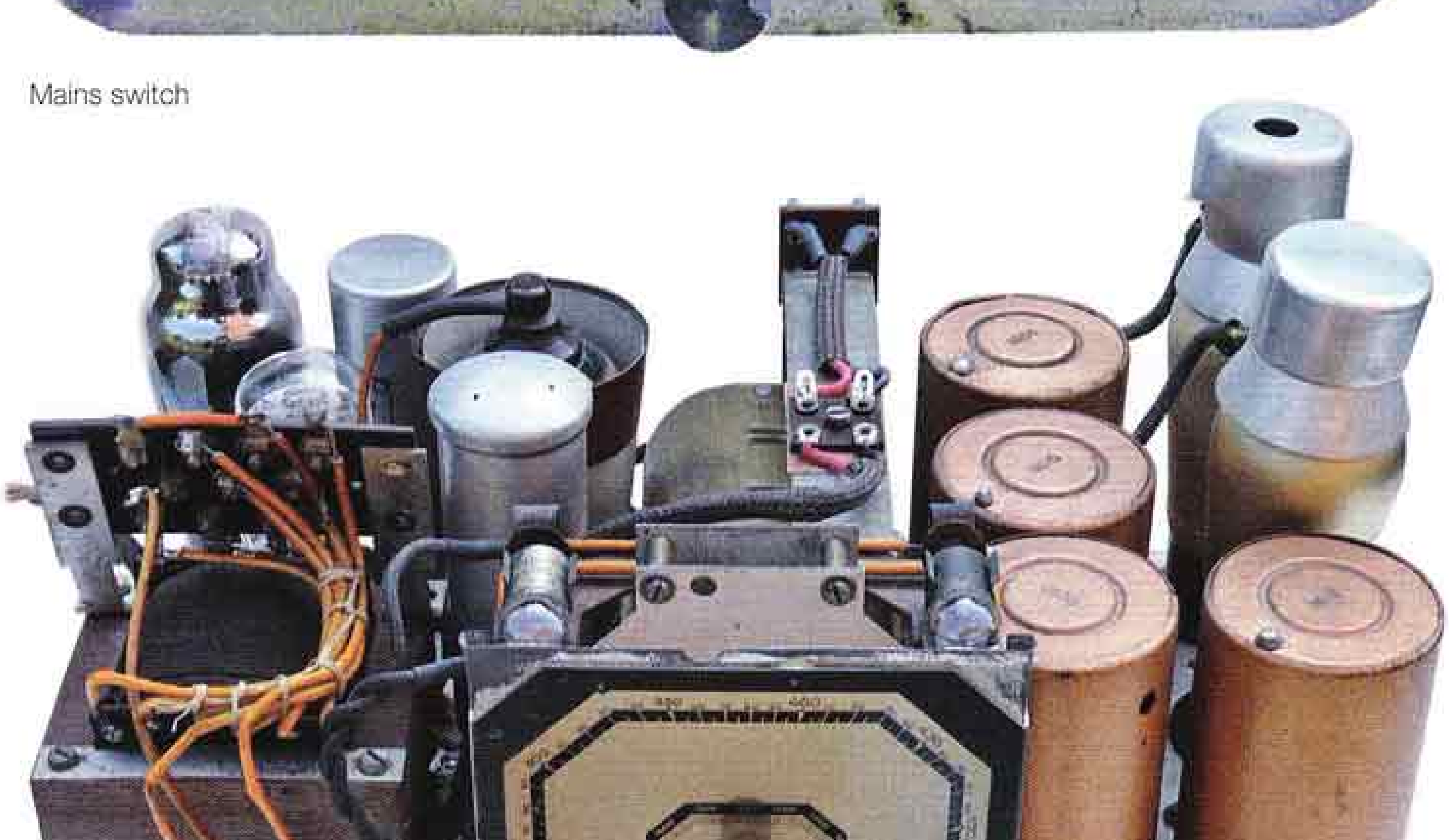
A separate diode detector is then used with AVC derived in the normal way. This is applied to the first RF stage only. Presumably the designer did not apply AVC to the second stage because it could choke on larger signal levels if throttled back. What

638 A




Aerial switch


Mains switch


Chassis finished

was done though was to add a gain levelling potentiometer to the tuning gang drive. This applies more cathode bias to both RF stages, as the tuning goes from the high to the low end of the waveband, compensating for the gain increase with frequency. Philips was not the first to use this method as Grigsby-Grunow, of Chicago, employed it on the massive Majestic 90 models of around 1930. On the Philips, combined with the AVC, it is very effective and neither feature is on the four guineas cheaper Philips 834C of a year earlier. With this a second hand must always be quick with the volume control to avoid ear blast whilst tuning.

Following the detector is a slightly unusual audio pre-amp, in that the metalised valve is fitted with a cone shaped mu-metal screen (as it has no rust I'm assuming that this is what it is) for preventing magnetic hum pickup from the mains transformer. Its circuitry is conventional with good RF filtering, before the output stage. This includes a top cut tone control and sockets for using a high impedance speaker along with a rear mounted switch for optionally cutting off the internal permanent magnet type. Philips was ahead of most other makers in being able to manufacture permanent magnet speakers at this time. As the external speaker sockets are at HT potential I placed a cardboard blanking panel inside the back cover of the finished radio for someone else's safety.

The mains input is via a filter comprising a pair of air cored coils through a double pole switch, to the versatile mains transformer. This, by simply moving links, allows inputs from 100 to 250V.

A full wave rectifier along with a choke capacity filter is used for HT. The choke is in the negative of the HT supply and is used to derive bias for the output valve. Many of us must have seen examples that previous repairers didn't understand what was going on here. My Frenchman was no exception and had replaced the bias smoothing electrolytic the wrong way around (negative to earth).

Old hands please bear with me now or pass on. You will know why they made them so well but there are people who restore radios that don't. This includes a friend, who has done many but just believed it was because Philips liked making a well-engineered product. Of course we can be hopeful too that we may have newcomers to the hobby reading the Bulletin.

They made them the way they did, as that was the only way to get exceptional performance from them. No doubt they would have liked the acceptance of the Superhet to be slower, allowing manufacture without so many later refinements. Then they were only competing with other TRF radios. When many manufacturers were producing Superhets they had to add improvements like the band pass filter (two extra coils) and additions like the pot on the tuning gang that levelled the gain and so on, to be as good as a simple and cheap to make Superhet. But they couldn't sell them for much more and so they were up against a dwindling profit margin.

A reasonable band pass characteristic would be roughly rectanglular in shape of between 6 to 9kHz wide. TRF sets were trying to achieve this at every tuning position across the wavebands. For the Superhets this was not the case, as all frequencies get converted to the IF and the selectivity is mainly determined at that one frequency. In the early days there was usually a little pre-filtering by either a band pass filter or a tuned RF stage. Eventually, once they were able to make IF strips at a higher frequency, with better second image rejection, these could be dispensed with for cost reduction. The Philips Super Inductance sets have excellent coils and a design that keeps a reasonable band pass shape, across the bands, and the best for this, as is to be expected, are the radios that have the two extra coils in a band pass filter (see Wobbulator measurements later).

The Superhet radio chassis can have minimal expense on screening compared to a similar performance TRF one. With a TRF chassis the gain is all at one frequency and typically they tend to be unstable at the high frequency end of the MW band. This is say 1.5mHz; lower down they can be completely stable. With this 638A, for example, it will burp and burble up there, unless the screening is near perfect (more on this later). A Superhet immediately wins, as it only has a small amount of gain at the 1.5mHz before that gets converted to the lower IF. Almost all of the gain comes at this lower frequency.

In summary:

The later and more expensive Super Inductance TRF set had four coils on glass formers in big copper cans. Each section of the tuning gang needed to be screened, and a potentiometer was coupled to it to make for a reasonably constant gain across the bands. The chassis was divided into sections with switch wafers having their own compartment. There is extensive use of screened wiring.

The Superhet radio could have coils on cheap cardboard formers in small aluminium cans. Its tuning gangs could be un-screened with no coupled potentiometer as the IF strip was essentially of constant gain (but modified by AVC action of course). Compartments were dispensed with and the switch wafers used only a piece of metal between them (performance sets) or nothing at all.

Naturally Philips covered themselves and were making a Superhet, the model 588, in 1934 whilst at the same time continuing with the Super Inductance sets. But economics spelt the end of these, wonderful as they are, and by 1936 there were no new models (Source: Ref. 2).

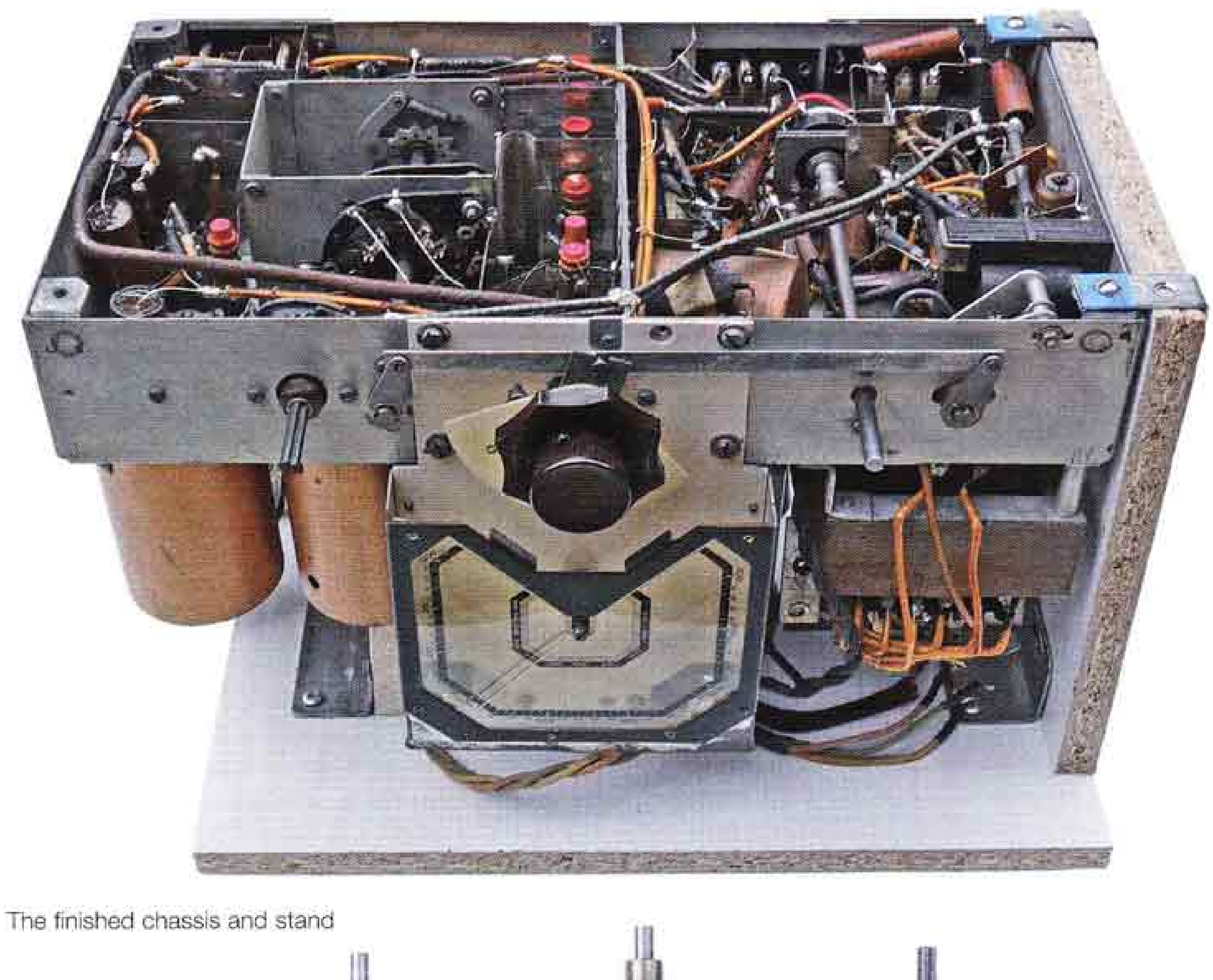
Chassis and circuit differences to the 472A

As you would expect, the valve line up is different using numbers never before seen by me. Fortunately these Philips types were in the AVO valve tester book and had for most of them Mullard direct equivalents (those used in the 472A). All the valves tested good apart from the output valve that

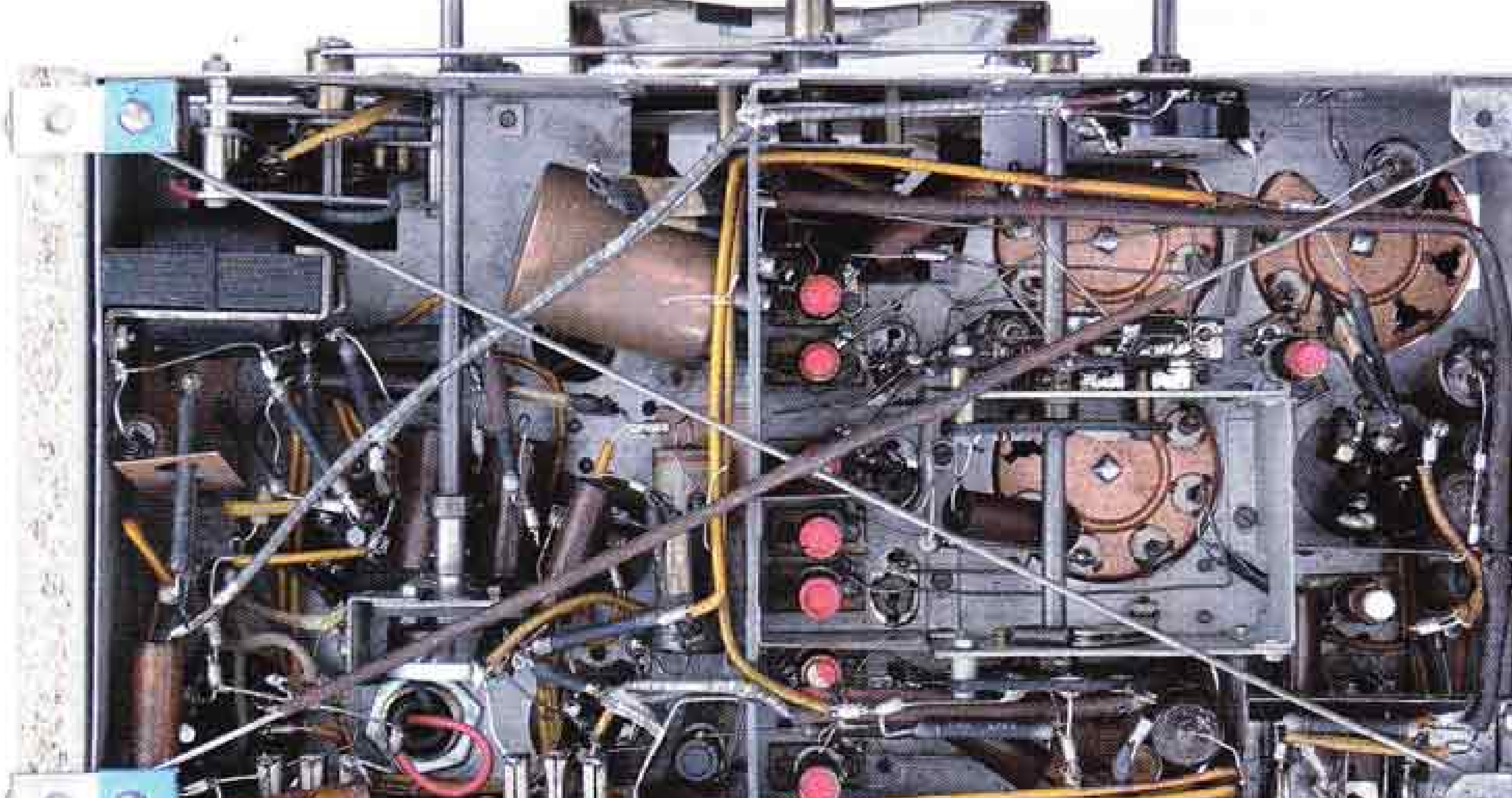
An opened coil can

The 'works'

Europe 6 pin base

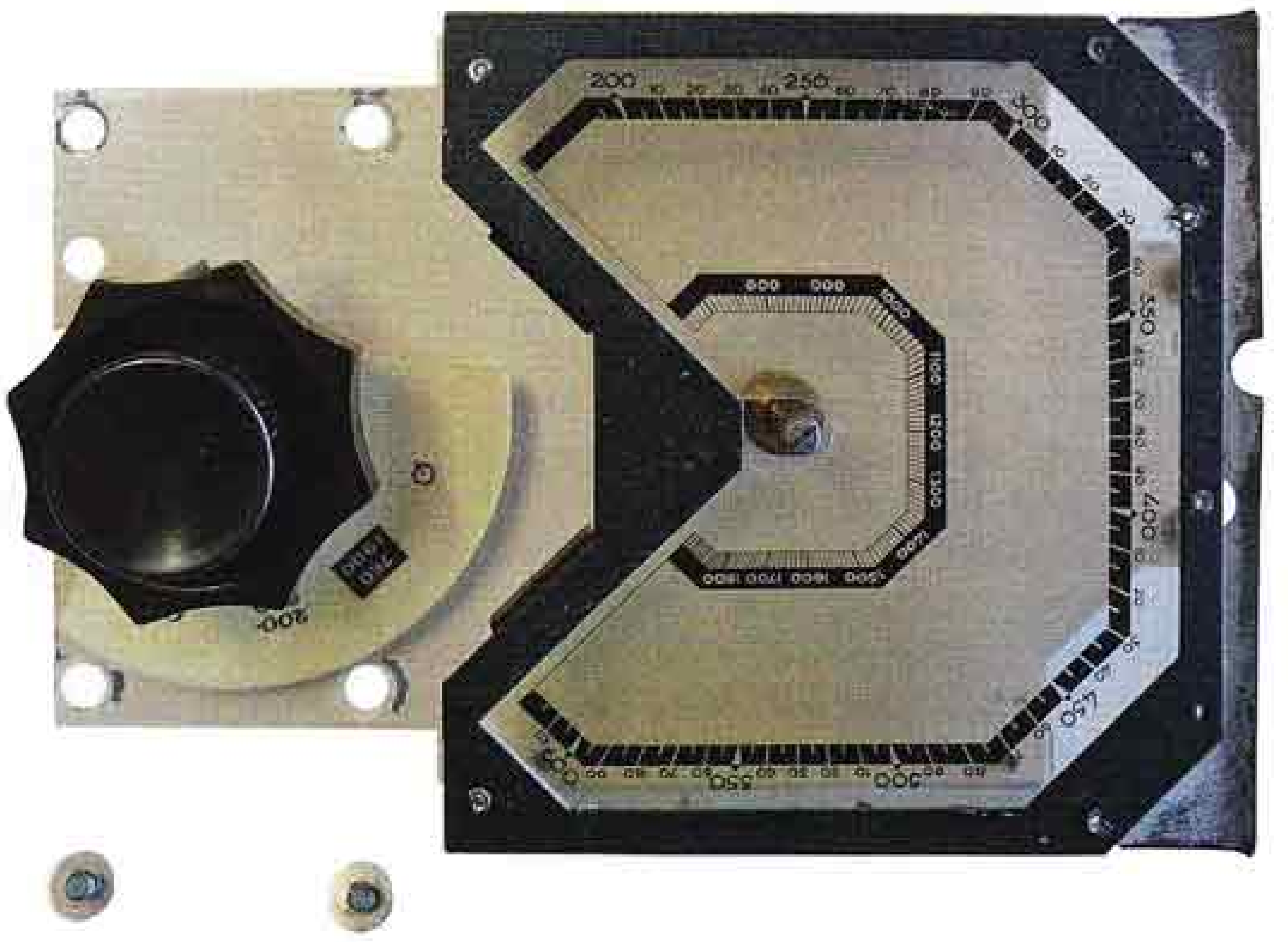


The finished chassis and stand



All done

SG20 re-metalising



The wavelength dial and fixing screws

should have been an E463. The previous repairer had fitted an AL4, which has a Ct8 side contact base, by using an adapter made from a socket and the original valve base. What he hadn't done was to change the bias from the 6V it needed, from the 22V used for the original type. The obvious replacement was a Pen4VA, as per the 472A, and I had a good one of these. It was here that I thought I was losing it, as the B7 base wouldn't fit the socket. It was similar but the spacing was definitely different even though the AVO valve data book said the E463 also had a B7 base. Thank goodness for the Internet and a search on there confirmed that the base was a Europe 6 pin, B6 but it does have one unused hole (see picture) so that at first glance and even a second look made me think that it was B7. It was fairly easy to get around as I have mastered how to change bases on valves. Off with the B7 base, on the Pen4VA, and on with the B6 base salvaged from the adapter.

I haven't confirmed every detail of the circuits between the sets; they are very close but there is an extra trimmer shown on the circuit and the layout diagram for the 638A. It is in parallel with another on the first stage of the band pass filter. Obviously not all chassis had this as mine and one pictured on the Internet didn't.

Chassis restoration

After removing the chassis and the loudspeaker from the cabinet, the first thing was to clean the chassis on top, which was only removal of dust and dirt. I took the loudspeaker bag off and it washed without shrinking in tepid water. Some rust on the speaker rim needed treating, as did the flexible cone surround, which had many radial cracks. It was reinforced by painting with thinned material glue that dries transparent.

To deal with the underside needed a stand made from scrap. What a curious thing it is under there at first sight (see picture). There are cross ties, which are bicycle spokes, going from corner to corner of the chassis. I had found before that Philips often added quick modifications to solve a problem and this must be one of them. The chassis underside is subdivided into separate areas giving excellent screening between stages. However, it would appear that not enough thought had gone into the wiring, some of it screened, that had to go between them. If it had, then the screening plates would have been notched such that the wire was below the chassis edge. As it was, running over the tops of the screens, when on a bench, and possibly even in the cabinet, it would be crushed and subject to damage. So they fitted the spokes as protective devices. They were the first things to remove for access.

Next it was essential to remove the dial, for protection, along with the distributed switch drive mechanism. The dial needed to come off anyway, as the tuning felt rough with its years of dried up lubricant. Actually, this was very easy, just four screws for the dial, a couple to loosen for the switch drive and one wire to disconnect that goes to the gain levelling potentiometer.

Slowly most of the power and audio end of the chassis was stripped out. The mains wiring to the switch had crumbling rubber insulation and the switch had no snap action. Once cleaned and lubricated it worked really well.

One of the electrolytic capacitors had been replaced previously and one was the original wet type. Even though both had threaded ends they were re-stuffed using the Hoselock connector method (Ref. 3). I'm really taken with this as it's stronger than a cut and re-joined can and there is no visible mark.

Philips wax paper capacitors are not so good that they can all be left alone. Many were down to 2M Ohm at 10V dropping rapidly as more voltage was applied. For one example it was down to 500K at 100V and falling. Some had already been snipped out and changed including the capacitor de-coupling the anode supply, to the RF valves, which in failing had taken the 1K feed resistor with it. Unfortunately, it had been done without removing the aerial switch, which gives decent access for soldering, resulting in a very dry joint. Fortunately I had some old types to replace these that looked close to Philips originals. These and some others got re-stuffed.

Removing these capacitors can be difficult and a little alarming as often they join with resistors in soldered spirals. If they had left a little wire at the end of the resistors, to clamp on a pair of forceps as a heat sink, it would have been much easier. My fear was damaging a resistor and of course I had no matching spares. The resistors are a carbon film over a ceramic body with crimped on brass end caps (was this the Philips engineers once again being years ahead of their time?) and I could imagine with too much heat and stress these coming off or worse loose to make an intermittent connection. As protection I filed two semicircles in an old pair of pliers that just gripped the end caps. Where I needed three hands then the pliers were held closed with a rubber band. Of the resistors only one was found bad, being 60% high, and I believe this was from overheating caused by a previously incorrect component replacement.

The volume control, showing signs of a previous attempt to repair it, was worn out. Fortunately I was able to adapt the existing bracket and coupling for the extension spindle to a reasonably vintage looking replacement.

Of course some of the original varnished sleeving had to be replaced as it is so brittle now that very little movement causes it to crack. Also, sometimes the only way to proceed was to cut out groups of items and then unsolder them on the bench. I bought new yellow fibreglass sleeving but it was far too bright. The solution was to paint some lengths of it with walnut varnish.

With all items back on the chassis I was almost there but first I used just a little De-Oxit on the switch wafers and 'worked' the switch. I was reluctant to buy this expensive switch cleaner as I already had two cans from other makers in the cupboard. But I'm impressed with it; it seems to work long term where others don't. It's also good, on previously cleaned valve bases, by applying a little in the sockets and working the valve up and down.

Time for Power Up Instability

With all the previous close attention the set worked straight away with correct voltages, AVC and gain levelling across the bands. But it did have instability at the high frequency end of the MW. The metalising, to those valves that had it, looked good but I had to remake the connections to it. After cleaning, a few turns of tinned copper wire or solder braid are ways of doing it. But alas, for the two RF valves, the result simply wasn't good enough, whereas temporarily wrapping the valves in aluminium foil with a solid earth made the chassis unconditionally stable.

Valve metalising

The lowest resistance reading I got for one NOS Mullard VP4A, that I had in stores, was 6 Ohms but this was variable up to 10. This was measuring from the metalising and cathode pin to near the top of the valve. Making a reliable contact isn't easy and the best way was to use the meter probe in a pad of fine wire wool lightly rubbed on the surface.

Unfortunately the valves in the radio had readings no where as low as this. Intermittent measurements gave readings between 50 and a few hundred Ohms. One valve, a Dario, was found to be pretty much open circuit in places between two wire wool pads scrubbed on the surface a couple of inches apart. The other, a Philips, was better but still had areas in the hundreds rather than a few Ohms. To me it can only be that the metal particles held within the paint separate or fall off with time and continual heating and cooling.

The easy cure would have been to buy another NOS VP4A, the Mullard equivalent to the RF valves used, assuming I could find one. However, valves are getting scarcer and I didn't want to pension off otherwise good valves just for this. You may have read on forums that painting valves with Weld Through Primer, sold at car repair outlets, provides a conductive coating. It may conduct for an electric welder, scrubbed on the surface and at the voltages they use. However, it is no good for screening valves measuring as being non-conductive to an Avo meter, according to a friend who tried it. It does apparently make a good primer, for the cleaned glass of bare valves, for something designed for the job. This is Electrolube Nickel Screening Compound, with a resistance of less than 1 Ohm / Square, from DC to blue light, sold by the larger electronic component suppliers. It's expensive at about £20 a can but of course amortised over a few valves maybe acceptable.

I cleaned the valves, masked off and prepared a spray booth from a large cardboard box. This is essential, as is a proper respirator and goggles, as it's a dusty business. However, once sprayed and allowed to dry the results were impressive. From the metalising pin, to the top of each valve, a typical result was 1.5 Ohms with no wire wool pad needed.

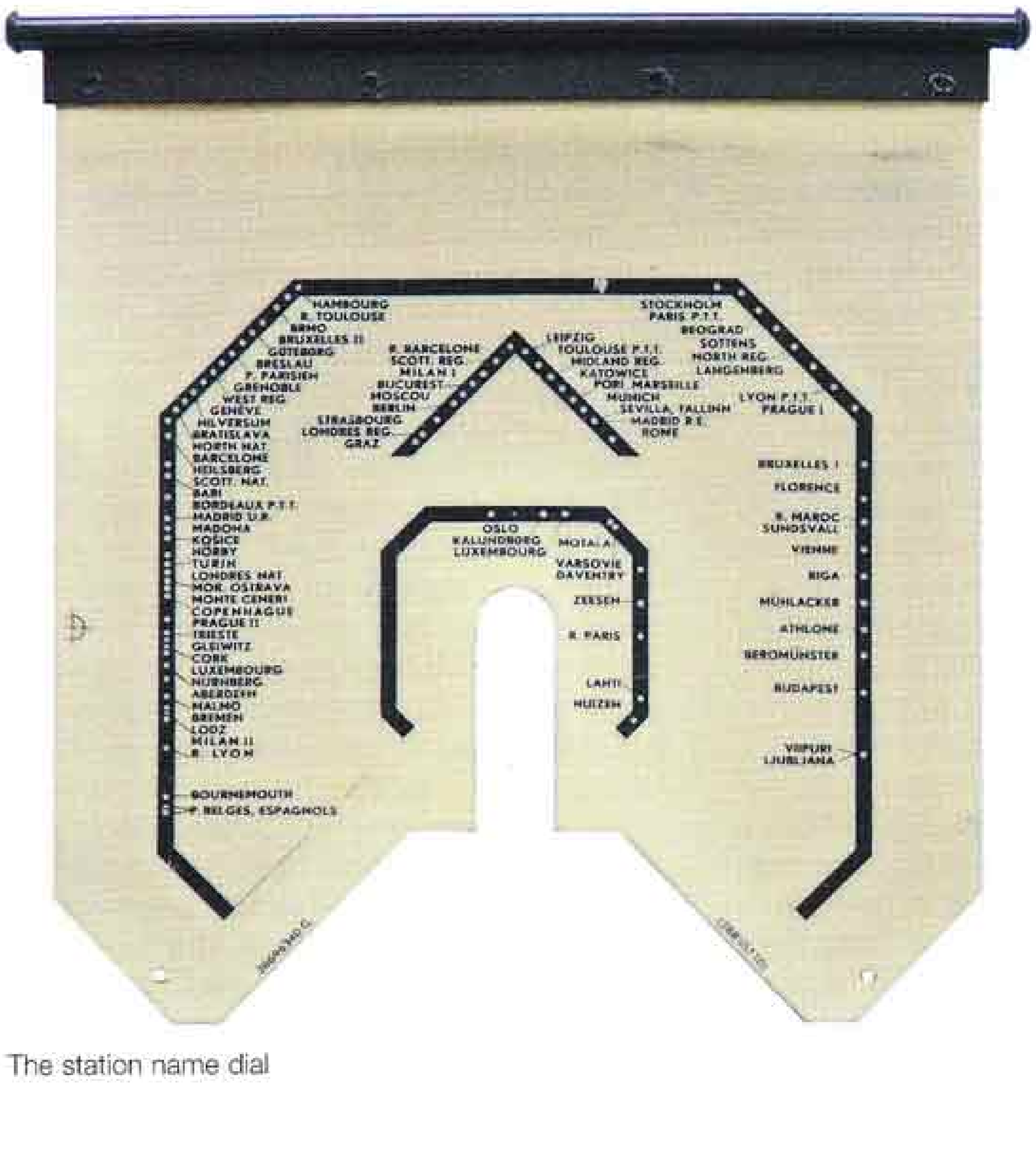
From weighing the can before and after, and knowing how much the makers said was in there, it was apparent that it would only be good for four valves of this size, or possibly five, with experience and if used more sparingly than I did.

The same friend, who had used the spray before, told me that a primer is needed if it's used on the bare glass of stripped valves: without this it falls off. Not having any Weld Through Primer I phoned Electrolube Technical Sales but didn't get a positive recommendation. They readily agreed with my suggestion that Zinser spray shellac, which seems to adhere well to everything, might work.

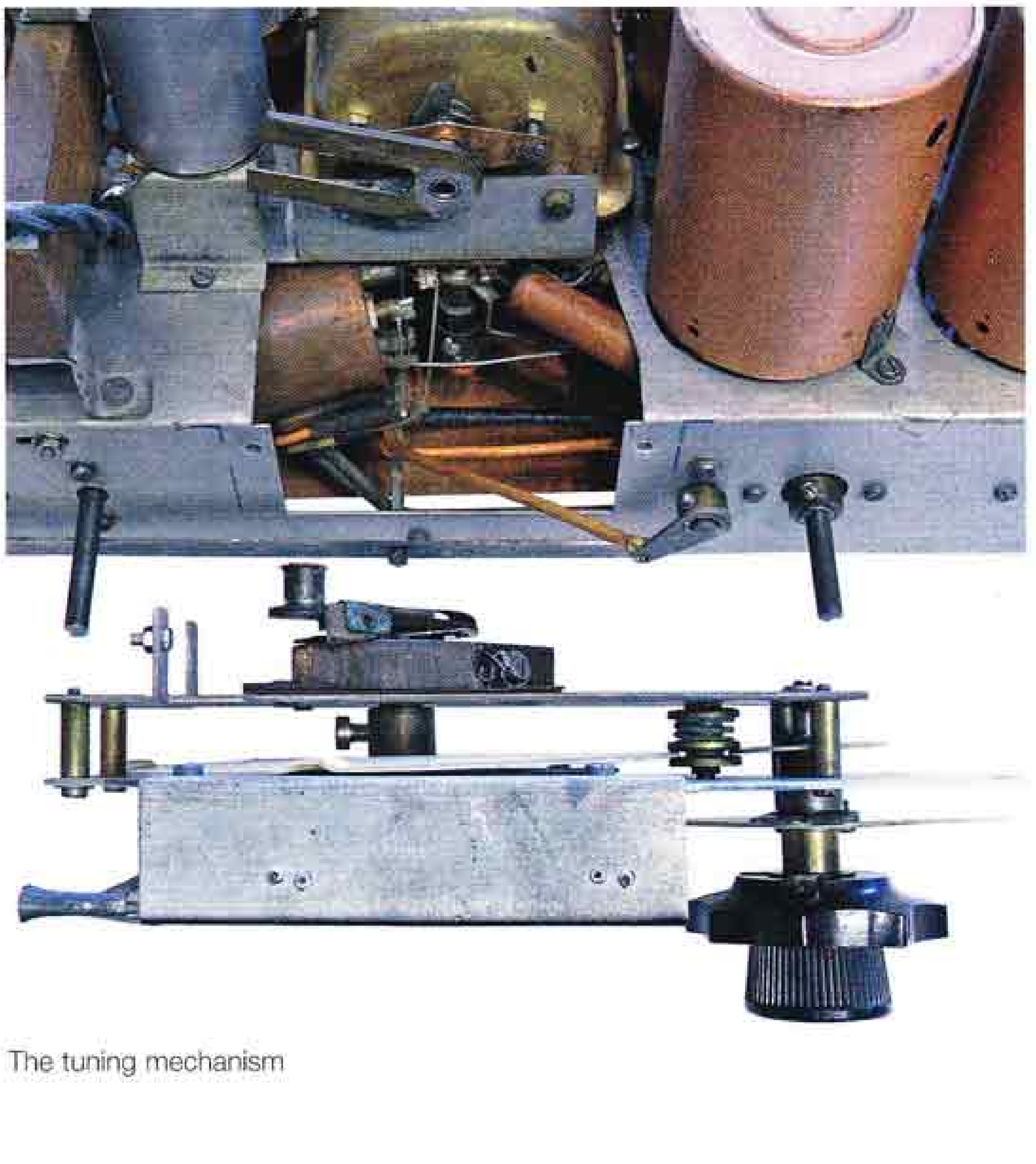
I had a good SG20 DC valve, which are very rare, that had almost zero metal coating left so it was ideal to try. After cleaning and scouring with emery cloth, I soldered a band of de-solder braid around it as a pickup to the old copper drain wire. Then, after cleaning with thinners and masking off, I tried a couple of coats of Zinser before the nickel spray the following day (after removing the masking over the pick-up band of course). Over some weeks, a few cracks appeared in the finish but it hasn't flaked off. Possibly a shrinkage problem with the primer and next time I'll try putting the valve in the valve tester for a few hours before the nickel spray. On the valves that had secure metalising, and were nickel sprayed directly, then no cracks have appeared.

Alignment

These radios are so well constructed from very stable components: tuning gang, coaxial trimmers on ceramic formers, the best coils and excellent screening that I didn't expect and indeed had been told that these chassis do not need anything to be done. It's very awkward anyway and a tool has to be made to adjust the trimmers mostly located in confined spaces (see note below). But it was worth reading how to do it on the Trader Sheet for the 472A. A lot of space is devoted to it. Basically the trimmers are adjusted for maximum, at the high frequency end, for each wave band, starting with the MW. This is with the wavelength dial mechanism centred in its adjustment range. I simply had not appreciated that the four screws that mount it have fairly large washers and the holes in the mounting plate are roughly three times that of the screw diameter. Then with the trimmers set, there follows a description of how to move the mechanism, up or

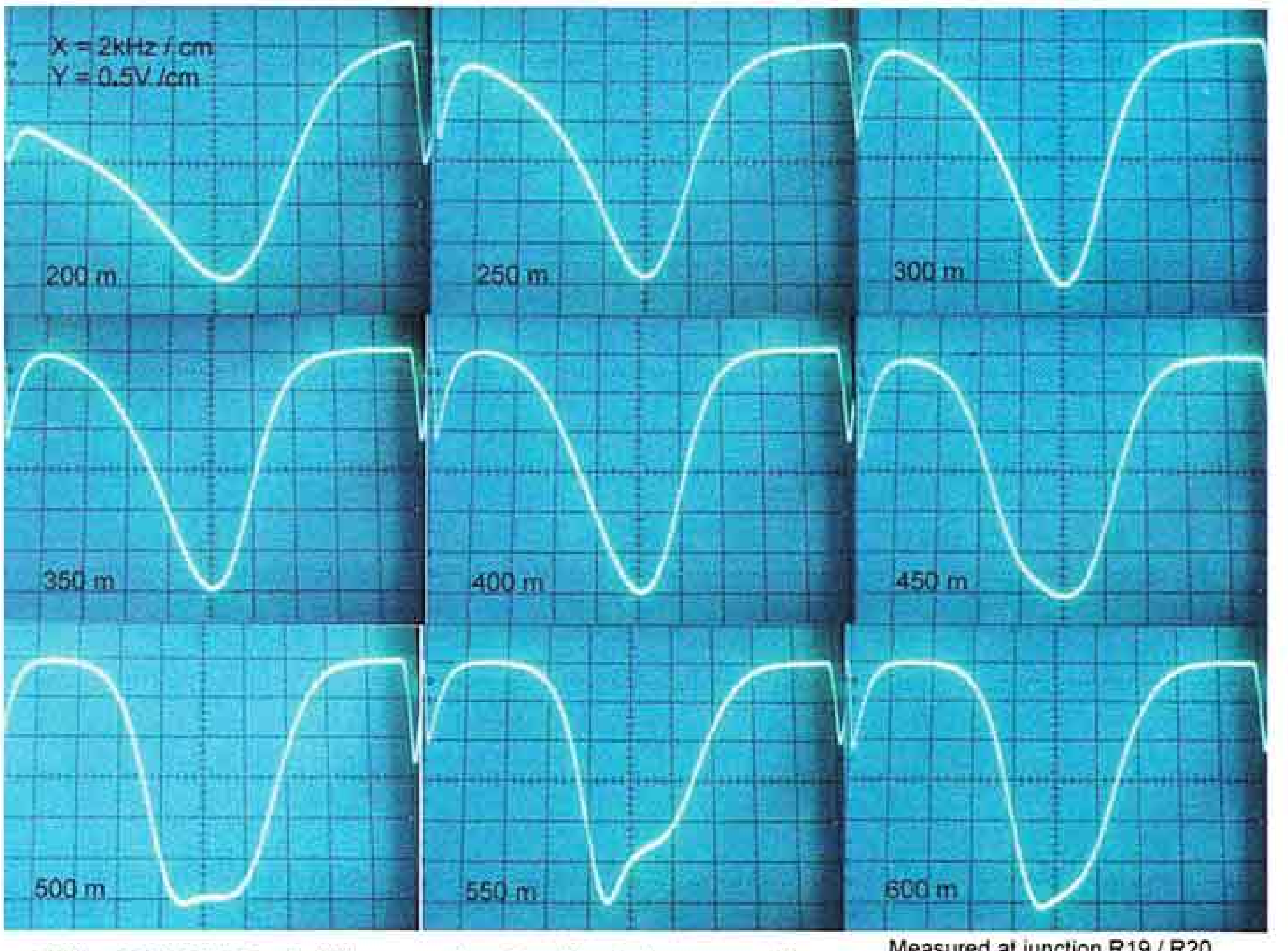


The station name dial


The tuning mechanism

Philips 834C trimmer capacitors

638A MW bandwidths



Philips 638A MW Bandwidths   Input to skt. via dummy aerial.   Measured at junction R19 / R20 820pF to ground

down and laterally, so that the tracking of the pointer is accurate to the wavelength markings. This is a really clever piece of design by the Philips engineers. By moving the dial mechanism, the roller at the rear (see picture), changes position in the forked arm of the tuning gang. As the roller can be shifted in four directions this gives a lot of possibilities. Effectively the roller can be set to move in various eccentric paths whilst the forked arm is describing a circular one. I ignored all the fine detail, given by Trader, and assumed that the trimmers were set correctly for the low wavelength end of the band and moved the dial mechanism to achieve a correct pointer setting at 550m. After a few iterations between this and 250m the pointer was amazingly accurate at almost any setting. It was almost spot on at 550m, dead on at 450m and 350m, half of a small division (about 1/16") out at 250m and one small division low at 200m. On LW I only checked for R4 and the 1500m marker, or 200kHz. This peaked at 199kHz with the signal generator and frequency counter.

There is a good tip here: when taking off the dial mechanism mark around it with a fine marker pen so that it can be put immediately back in its original position.

As the outer wavelength dial can be moved to facilitate tracking then the replaceable inner dial, with the station names that slides in behind it, through the cabinet escutcheon, may be incorrectly registered to it. However, this has been allowed for by making the escutcheon adjustable, up and down and in being able to angle slightly. For side to side correction the chassis can be moved a little on its mounting holes.

Note: I did remove a trimmer on a Philips 834C set (see picture) and they are beautifully engineered. The outer brass casing slides along the ceramic post enclosing, as it does so, the fixed tube at the bottom. The air gap is tiny.

Gain levelling

This was interesting to me to make some measurements on it. Firstly, I disabled the AVC by an earth across C9 and then used the lowest possible modulated signal to measure the audio from the output of the pre-amplifier. Then stepping across the wavebands I measured the difference with the levelling and without it by applying an earth to the R2 and R3 junction.

MW results briefly were: 550m 2dB, 450m 12dB, 350m 28dB, 250m 38dB
LW results: 1800m 3.5dB, 1600m 12dB, 1400m 20dB, 1200m 33dB, 1000m 46dB, 800m 54dB.

At first viewing this seemed very severe: time for a little thinking. The voltage developed across a single tuned circuit at resonance is proportional to its dynamic resistance. This from the old formula is R = L / Cr where r is the tuned circuit losses (this is the resistance of the coil, leakage, eddy current losses etc all lumped together). For a high R, then a large inductance would be used with a small C, to tune it. However, at the high frequency end of the band C must still be sufficiently large compared to the strays. Obviously the resistive losses should be as small as possible. As the set is tuned across the band, to the high frequency end, C (the tuning capacitor value) reduces and R will increase. The increase will be offset by a rise in the losses but this is a Super-Inductance radio, renowned for its low loss coils, and so R will still increase significantly. Now for a doubling of frequency (approximately the range measured) the capacitance will have to reduce to one quarter, because of the square root sign in the formula for resonant frequency. Thus, if there were no increase in the losses at all, R could increase by four times or 12dB. Now we have four tuned circuits so across the band the gain in this theoretical case could rise by 48dB.

From this understanding it is easy to see why the "standing bias", as it is called in the 472A Trader Sheet, is reduced on MW with switch contacts shorting out R3. On LW the coil inductance value will be larger and the losses less because of the lower frequencies. So R, and the gain of all the stages, would be greater than the MW case without this adjustment.

Wobbulator measurements

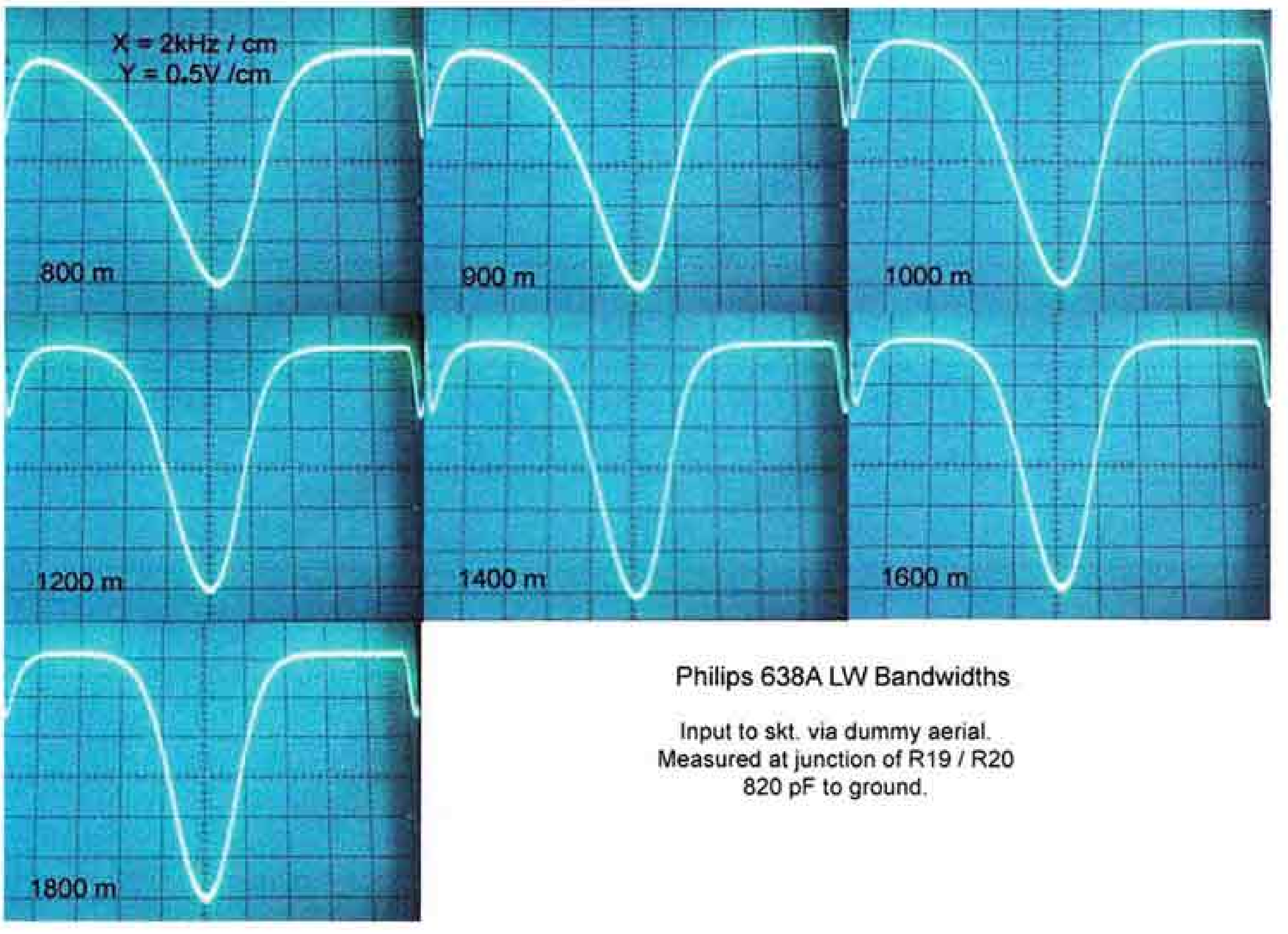
There is an impressive pass band characteristic right across the MW band. With my Philips 834C radio, which doesn't have it, the shape departs from 450m to 600m into two peaks, with a valley, even after optimising with the trimmers. This is of course what extra filters smooth out.

On LW there is little performance difference, between the radios, which I put down to the lower frequencies making good tuneable filtering easier to achieve. I confirmed these bandwidths by measuring the carrier frequencies of a modulated signal generator, using a frequency counter and oscilloscope. This was monitoring the detected audio for the half height point (6dB). Results were slightly lower (say 10–20%) to the bandwidths shown on the LW Wobbulator picture.

So LW has not much more than analogue telephone bandwidth (300 - 3400 Hz). This may have been fine at the time with sensitivity and selectivity being of prime importance and a mellow sound being normal.

On MW another way of measuring the overall performance of the radio was to use my 'house transmitter' modulated with an audio signal generator. This was checked first and gave a flat modulation depth to just beyond 5kHz. With the radio tuned to 400m, and measuring at the audio pre-amp

638A LW bandwidths



Philips 638A LW Bandwidths

Input to skt. via dummy aerial.
Measured at junction of R19 / R20
820 pF to ground.

anode, then the demodulated audio was 3dB down at 3.5kHz and 6dB down at 3.7kHz.

On MW the radio sounds much like any of the period and doesn't seem muffled, to me, on LW on the mainly speech of R4. But I do listen to mostly old radios so maybe I'm used to the smooth sound.

Cabinet

It was pleasing to see that there was no serious damage but the finish on top and part of the front had been eaten right through where someone had stuck some sort of tape over it, ironically, possibly to secure a layer of protection. Apart from that the veneer was good other than having dozens of marks that looked as if someone had tapped all over it with a steak hammer. It was the thickest lacquer I have ever come across, and seemed like about 1/16" thick and mainly had protected the veneer. It was beyond my touch up abilities and so was gently stripped using thinners. During stripping the damaged metal foil, for use as a screening plate, was scraped off the inside bottom of the cabinet. The best way to replace it was by cutting a plate from 0.5mm sheet aluminium.

Actually, before removing the old finish I squirted some woodworm holes and took Roger Grant's recommendation (article Bulletin Spring 2011) and painted the whole of the inside with "Rentokil Woodworm Treatment for Furniture" which I found in my local hardware store at £5.35 for 250mL.

It was refinished, after staining, with Mohawk cellulose lacquer. I made the colour lighter than the original thinking it had darkened with age. It was so dark that all the attractive marquetry could not be seen unless under flood lights.

The grill cloth was beautiful and I would have liked to have saved it but it had a few holes and being cream in colour the bottom was soiled black. What finally finished it was trying to remove it before a good soak of the baffle board with the worm killer. Perhaps the little varmints like to be near the vibrations as they had had a good chew on this. Fortunately I found an attractive replacement, at a reasonable price, from a new source (Ref. 4).

Conclusions

Overall this is an excellent radio that is impressive for its quality of components and attention to detail. I forgave the makers completely for stringing the components together. There are lots of clever things including being able to set the dial pointer for accuracy across the dial.

The only negative is that the cabinet is flimsy, compared to some others, being made from 1/4" plywood with insubstantial bracing. This had allowed the sides to bow in a little at the rear. However, it had been beautifully veneered with detailed marquetry.

It was a most enjoyable and interesting restoration with a satisfying outcome. I have heard people say that these were the best TRF radios ever made and it may well be true. For sensitivity and selectivity this 638A is as good as any Superhet I have of the same era and quite a few from many years later. Of course, for sensitivity it's not as good as one having a tuned RF stage. Hum level at any volume control setting is commendably low. For interest, I temporarily removed the mu-metal screen on the AF pre-amp and 50Hz hum (volume independent) was immediately noticeable, which could have been annoying for low level listening.

It seemed to me a very well featured radio and I wondered how it compared with a couple of other radios, from the same year, at about the same price. It was easy to think of myself, with my wife, in the shop, with the radios being demonstrated by a smartly dressed salesman. So I looked up two radios shown in Reference 2: the Ferranti Arcadia (Fig. 463) and the Marconiphone 296 (Fig. 440).

The Arcadia is a 5V + R Superhet. The Marconi, fractionally cheaper, is a 4V + R Superhet. Both have a low IF and so a band pass filter is used. To aid tuning an indicator is fitted to each. The sets have a decent dial with fixed station names. Of course there are gramophone sockets but this is not switched on the Arcadia; a tag has to be removed from a panel for use. Tone controls are present on both and provision for an extension speaker but the internal cannot be switched off on the Marconi. Both have speakers with field coils. There are no mains filters, using coils, and only single pole switches are fitted. All of these radios have attractive wooden cabinets.

Back to the shop and the imagined conversation:

"That nice Mr Marconi did invent it dear, so maybe it should be that one"
"Yes! Madam but all the others are old established firms and just as good now"
"Isn't that Philips foreign?"
"Yes! Sir but they do have works here including Mullard's who make all the valves"
"But the others use a new technique called Superhet?"
"It is in its infancy Sir and will no doubt improve. The Philips is what we call a Super-Set; it's the coils you know"
"The Philips does seem to pick up more stations and sound better with no hum"
"Ah! Very observant of you Sir. It's the good design and the better permanent magnet speaker that does it"
"Alright then, we will take the Philips"
"A wise choice Sir"

Having never had a chance to try the Marconi I can't say about its performance. However, I do have a restored Arcadia, from 1933 in a different cabinet to the one shown in RR. From the Trader Sheet pictures the chassis looks almost the same with the same valve line up. There are some circuit changes but mainly around the audio stages. I can't really think that the RF performance is much improved which on my version is nowhere near as good as that of the Philips. The build quality was inferior as well.

Ref. 1: vintageradiomuseum.ontheweb.nl/
Ref. 2: Radio Radio, by Jonathan Hill.
Ref. 3: Radio Bygones No 124
Ref. 4: Bret's Old Radios, bretsoldradios@att.net