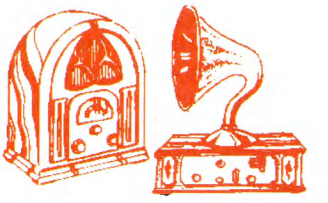
# Vintage Radio

by ROGER JOHNSON



## The Philips 1052 and 1044: clumsy construction

Constructing a domestic mantel radio using three sub-chasses sounds pretty weird, and it was — especially doing it the way Philips chose, with their models 1052 and 1044 of 1938-39. This plus the dial cord stringing made the sets something of a 'nightmare' for servicing or restoration, as we shall see.

Generally speaking, Philips radios were soundly designed, reliable and good performers. However the same could not be said of certain examples of their production engineering. (Kindly note, Philips fans, that it is not the intention of this story to condemn your favourite brand by reference to merely one or two poor examples. To do so would be boorish...)

Unfortunately the fact remains that the Philips 1052 and its battery equivalent the 1044 were assembled on three sub-chasses, in a manner that was not only difficult from a servicing point of view, but in many ways bordering on the absurd. I have only been able to discover two possible reasons for this quirky physical format — both of them speculative.

Mr Ray Kelly, writing in *HRSA Newsletter* No.27 (January 1989) suggests that Philips were not satisfied with the 'no chassis' construction of the V7A 'Theatrette' for 1937, so they opted for a modification; hence the three sub-chasses screwed to a wooden baseboard. Briton, on the other hand, persisted with the 'Theatrette' style of construction.

(In fact, with reference to the 'Theatrettes', one could be forgiven for assuming that the Briton models were made by Philips under some form of agreement, and were finished with the 'Briton' accoutrements. If any reader is certain of this, perhaps they would kindly set the records straight.)

The other reason why Philips may have opted for this approach with the 1052 and 1044 is that they initially had in mind the large table model 2262. Supposedly, it was discovered that a mistake had been made in the moulding plant in which the cabinet for the 2262 was made the wrong size — it was too small. Rather than throw out the small cabinet and re-tool for the 2262, it was decided to employ the smaller cabinet and modify the 2262 design, which resulted in the 1052. Once again, if any reader is certain of this perhaps they would also put the records straight.

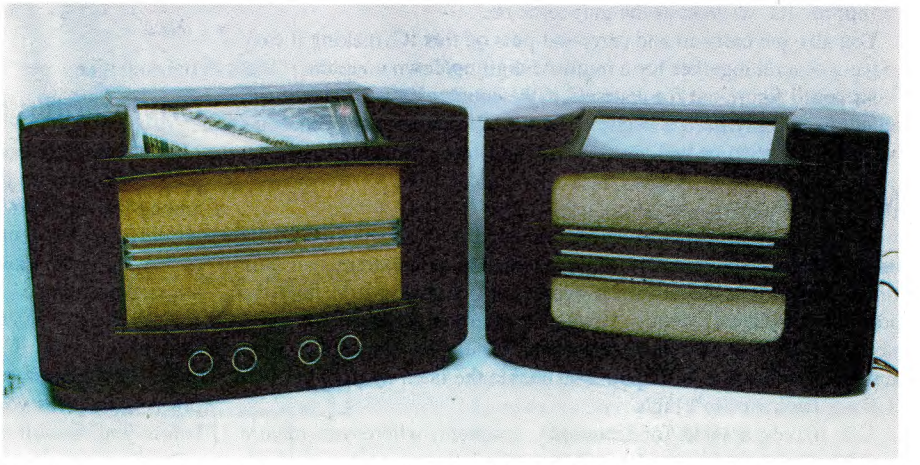


***Fig.1: A comparison between the cabinets of the 1044/1052 mantel set (right) and the more pretentious 2262 (left). One theory has it that the weird three-chassis construction of the former was because the initial case moulding was too small...***

A comparison of the two cabinets is shown in Fig.1. The 2262 is another very good performer, and warrants a feature article of its own.

### The circuit

The 1052 was the mains-powered version, and came in two versions. Both circuits appear on page 239 of the *Australian Official Radio Service Manual Volume 3* (i.e. 1939). The original versions have a serial number less than 8000, whilst the modified version has a serial number greater than 1/8001. The differences are subtle, yet apparent. Note too that each version has its own parts list.

Both versions consist of a basic 4/5 valve superhet. The valve line-up in each case is the P-based EK2 converter, the pre-octal series 6D6 IF amplifier, a type 75 detector/AGC/audio and the P-based EL3 in the output. The types EK2 and EL3 and their octal equivalents were extensively used by Philips. The rectifier is the reliable four-pin 80 in the earlier version and its octal equivalent the 5Y3-G in the later version.

By reference to the circuits we see that the earlier version (Fig.2) has a separate coupling coil, L6, to facilitate the bandpass coupling, whilst in the later version bandpass coupling is provided by a tap on L5. Also, in the later version, AGC is switched out of the converter valve on short waves by switch bank 5, where as in the earlier version this is achieved by the 'cold' end of the short-wave secondary coil being connected directly to the back-bias system.

In the modified version, the EK2 screen resistor, R4, is taken straight to HT instead of via the oscillator anode resistor denoted as R7 in the original. In the later version, the broadcast band coil of the EK2 oscillator anode coil is shorted on short waves by virtue of S4. Otherwise the circuits appears to be the same.

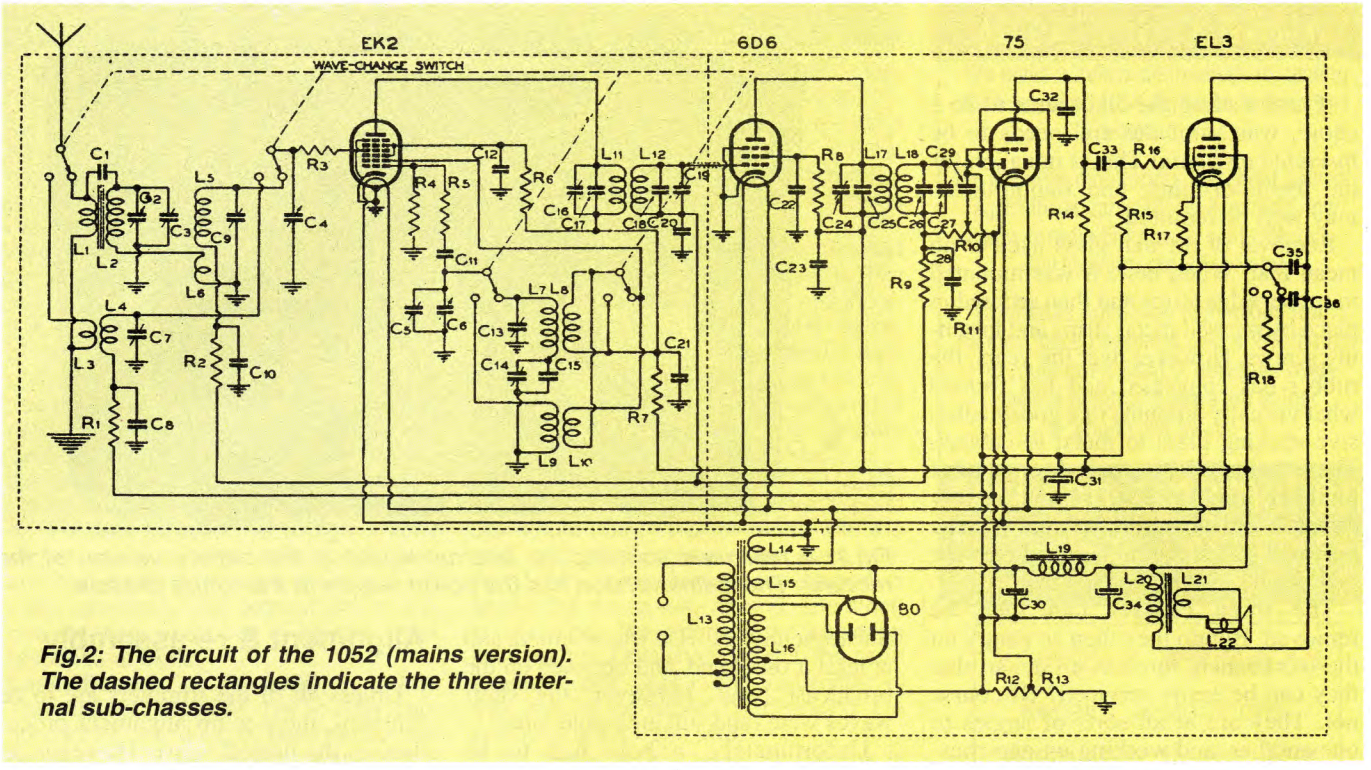



*Fig.2: The circuit of the 1052 (mains version). The dashed rectangles indicate the three internal sub-chasses.*

## Battery version

The battery version is designated as model 1044, and it is this version which is shown in the photographs. The construction of the two is almost identical. In the mains version the power transformer, rectifier and filter capacitors are all mounted on the middle chassis.

The battery version does not have bandpass tuning. Perhaps the designers assumed that these sets would be sold mainly in the rural locales, where selectivity was not such a pressing issue, and consequently they were able to effect a cost saving.

The circuit is otherwise fairly straightforward with the exceptions that AGC is switched out of both the converter and the IF amplifier on short waves, and grid leak bias is applied to the converter on short waves. The valves types are the P-Based KK2, KF3 and KL4, and the octal based 1K7-G detector/AGC/audio. It seems that there was no P-Based duo-diode pentode for 2V operation, only the KBC1 duo-diode triode — which probably did not offer enough gain.

There is only *one* variable trimmer for all of the front end adjustments. Even though 'trimmers' are shown in the circuit, only C6 — connected across the oscillator gang (not the coil, but gang) — is actually a variable trimmer. All of the other types, including the IF transformers, have the pre-set wirewound types. Alignment, therefore, becomes a bit of a problem!

## Getting it apart...

The first hurdle confronting the novice restorer is getting one of these sets apart. Admittedly, there is a detachable floor to the cabinet, but that is fairly pointless because removing the floor does not reveal any of the under-chassis components at all. In fact, each of the three sub-chasses is bolted in some way to the cabinet floor.

Is simply unscrewing the obvious screws sufficient to remove the chasses? Good heavens no! The first job is to unthread the dial...

The really dumb aspect about the dial is that the pulleys are mounted on the *inside* of the *cabinet*. Think about that! The only way this can be achieved is to remove the dial glass, and then you can place your hand through the dial aperture, and by feeling your way along, unthread the dial cord. One needs to feel one's way, because one cannot actually see a darned thing.

***Fig.4: Photographing a black hole is not easy, but the pulleys on the inside of the cabinet can be seen here. It makes disassembly very interesting — not to mention reassembly!***

If unthreading the dial seems to be a chore, wait until the dial needs to be *threaded up again*! That is not a job for the feeble-of-mind, and tranquillisers may well be required.

Removal of the dial glass itself is no mean feat. When new, it was mounted in rubber edge strips and then secured in place by pressed metal strips and fastening screws. However over the years, the rubber has congealed and has formed what virtually amounts to a gooey adhesive sticking glass to metal to cabinet. The solution? With a hair drier or paint remover gun on low setting, gently direct warm air over the rubber. The heat will soften the rubber, and then the dial can be *carefully* prised free.

The three chasses can then be removed. But do they then sit neatly on the workbench, three in a line, so that they can be easily serviced? Of course not. They are at all sorts of angles to one another, and working on one chassis invariably means that the other two are subsequently left dangling in a most unsatisfactory manner.

## The RF and IF coils

Both the short wave and broadcast band coils are wound on a common former in each comparment, resulting in two and not four coil assemblies. This in itself is not a real problem except that the assemblies are very hard to dismount. The cans are firmly crimped around the entire diameter of the base plate, and then secured to the chassis by means of small tabs which are part of the chassis metalwork. The danger here is that if the tabs are opened too far to release the cans, they will either break off, or they will have lost their tension when the coil cans need to be replaced.

In the example shown, the set failed to operate because the oscillator section of the broadcast coil was open circuit. As there was absolutely no availability of a replacement coil, something had to be found which would at least enable the set to operate on the broadcast band. Also the KK2 had at some stage been replaced by a 1C6, with no apparent alteration to the remainder of the circuit.

One of the first jobs was to remove the six-pin socket and re-install a P-based socket and a type KK2 converter. Having done that, a temporary oscillator coil was 'tacked' in place and wired to the switch. Although the KK2 tested quite good on the transconductance tester, it failed to oscillate at all.

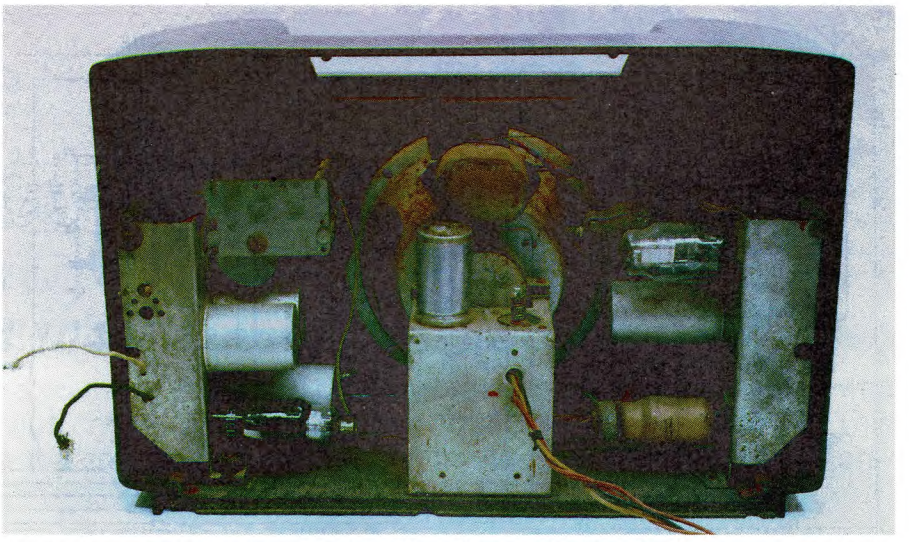


***Fig.3: A rear view showing the internal layout of the battery version of the receiver. The mains version has the power supply in the centre chassis.***

Subsequently, the 1C6 was returned, and at least it oscillated, and operated on the broadcast band. However, the short waves were (and still are) quite mute.

Unfortunately, a hole had to be drilled in the chassis to accommodate for the variable slug of the oscillator coil. The resulting temporary repair looks most ugly and unprofessional.

## Wait, there's more

If the convoluted assembly/disassembly system is not enough to try one's patience, the next anecdote could qualify one for sainthood. After the 'assembly' was working quite well, it all of a sudden ceased completely. The obvious checks were undertaken, and after some time and further tests, it was concluded that the signal was not reaching the KF3 grid. This was despite the actual coils being continuous.

The lead from the first IF transformer to the KF3 grid is quite long, and is shielded for obvious reasons. Now would this lead use 'normal' shielded wire such as one is accustomed to finding, say, connecting to a volume control? Nope, not when we're talking Philips. The central conductor is *solid* tinned copper wire of about 22 gauge, threaded through tiny ceramic beads, then sheathed in the shielding! Consequently, after the top cap connection to the KF3 had been removed and replaced a few times, the solid core had fractured. It was in due course replaced with something a little more conventional.

Whilst one could argue about the improved loss characteristics etc. of the ceramic beads, one certainly could not justify its use from an engineering perspective. That little fault was unnecessary, infuriating and time wasting.

## Alignment & re-assembly

Unless all of the trimmers are to be replaced, there is no alignment procedure in the normal sense. However, as one or two regional South Australian stations were received in daylight hours on 10 or so feet of aerial, it was deemed that sensitivity would be unlikely to be improved even if the IFTs had fully adjustable circuits. Electrically, the set works quite well, except that the audio quality is a little poor, probably due to the speaker having lost a degree of its magnetism.

There is absolutely no guide to restringing the dial. There are two systems; one for coupling the knob spindle shaft to the capacitor drum, and the other from the drum via the pulleys to the dial pointer. Having pondered over the matter considerably, it was realised that the spindle-drum would need to be threaded first, and then once assembled inside the cabinet, the remainder would have to be completed. Words cannot describe how to do it. It is one of those instances where an experienced person will 'see' how it goes together, while others will unfortunately be left floundering.

In the various internal photographs, the dial glass has been deliberately excluded, because it was hoped at the time of repair that a discarded chassis might appear one day with good coils that could replace the originals. Three years later lady luck smiled, which was the stimulation for this month's story.

In summary, there is little wrong with the performance of this design. The problems are mechanical, not electrical. Anyone who has successfully completed a repair on one of these sets can congratulate themselves for a job well done. ❖