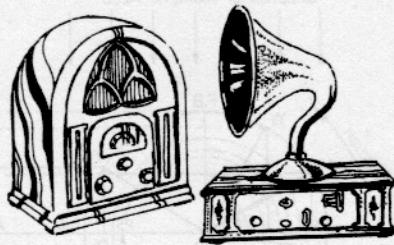


Vintage Radio

by PETER LANKSHEAR



The remarkable Philips V7A "Theatrette"

With the advent of the mains powered receiver in the late 1920's, there was a rapid standardisation of construction methods. The traditional inverted metal tray or chassis, being suited to mass production and keeping high voltages away from unwary fingers, was adopted universally within a very short period. Increasing receiver gain meant that the shielding afforded by the metal-work was valuable.

Different chassis styles soon became identified with certain manufacturers. RCA and AWA tended towards deep chassis, whilst for a while, Atwater Kent featured chassis only an inch or so in depth. At one stage, New Zealand's Radio Corporation, who for a few years sold their Columbus receivers in Australia, used a chassis that was for all the world like an inverted baking dish, complete with rounded corners.

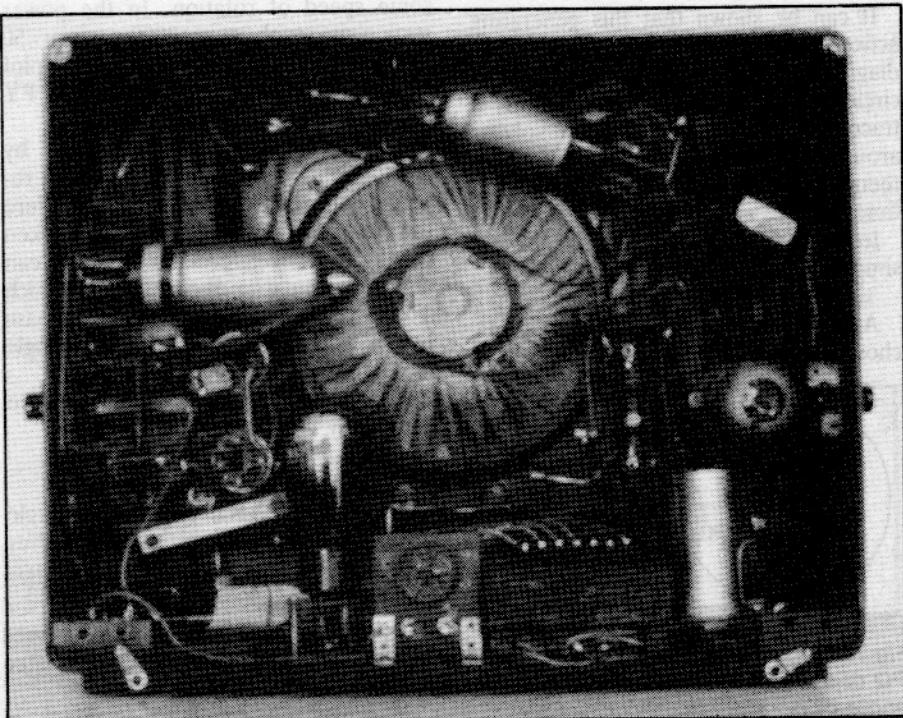
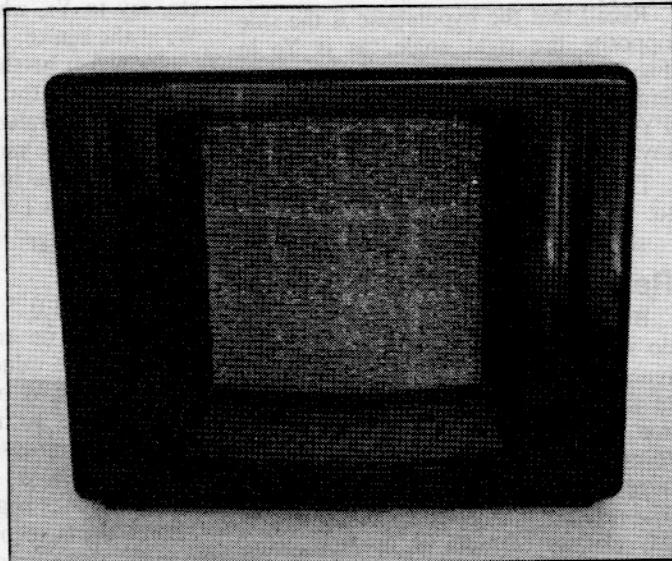
Radios built in America and Australasia had plain chassis. British and European manufacturers tended to have more elaborate metal work and were not so concerned about appearance and exposed high voltage points. For safety and finish, receivers from these countries were fitted with fibre or heavy cardboard backs. In the US, Atwater Kent for a while produced receivers that were so well finished in nickel plate and rich brown enamel that they could be used without a cabinet. Later the legendary Scott and McMurdo silver chromium plated masterpieces were often proudly displayed without cabinets.

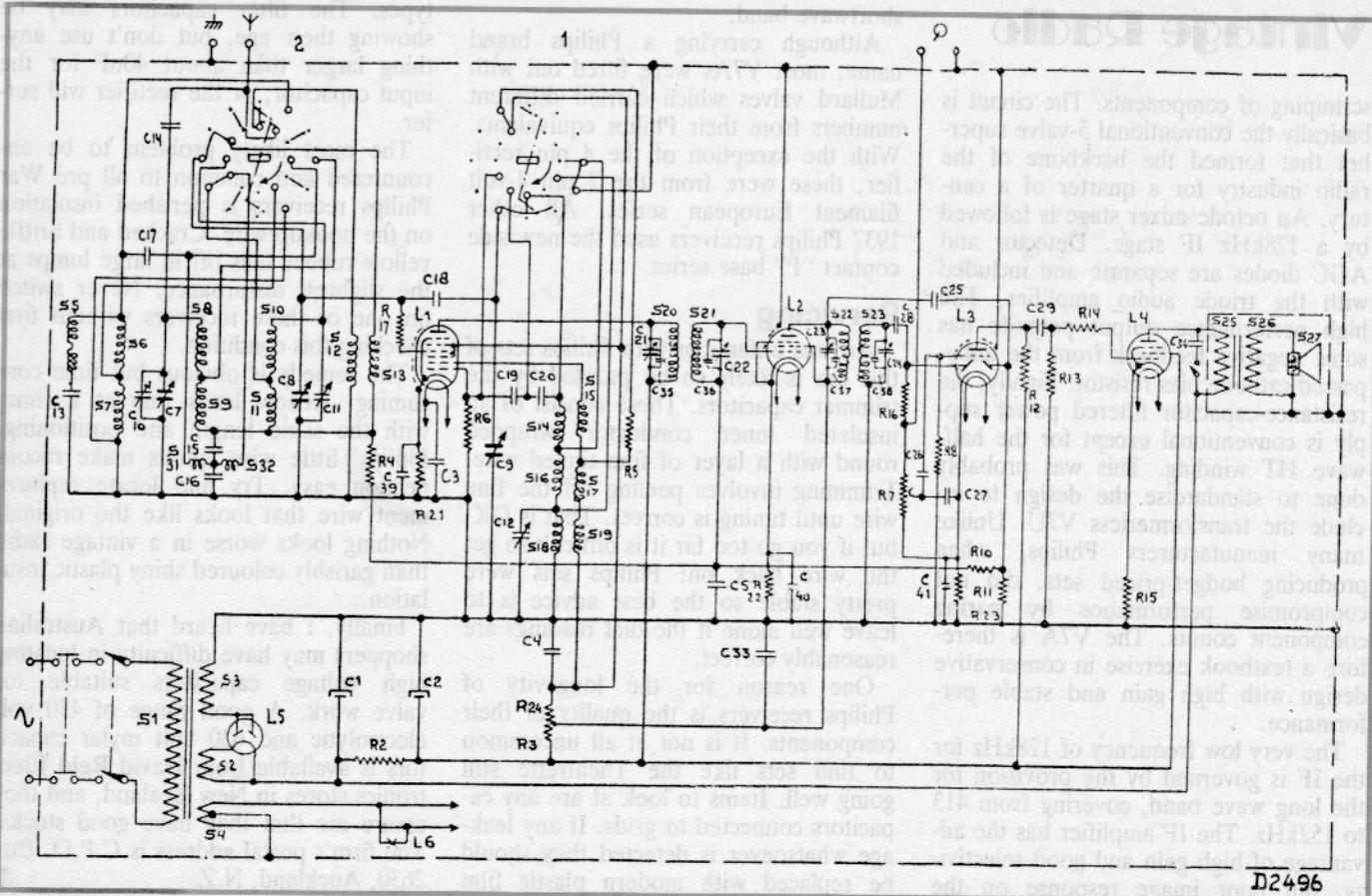
Today's electronics are built on printed circuit boards which, if well designed, can be attractive and tidy. The underside of the traditional valve chassis was, in many cases, what can only be described as "functional". Whilst perfectly adequate, the wiring was not intended for display, and the term "rats

With introductions over, I thought we'd look this month at an unusual model from the late 1930's – one that is not only quite intriguing, but still quite well represented by working examples.

Right: On the outside, the Philips V7A looked very nice – rather like a miniature theatre proscenium, hence the name "Theatrette". It worked well, too.

Below: But inside, it was a MESS – with no chassis, and parts attached willy-nilly all around the inside of the Bakelite cabinet. A serviceman's nightmare!





The circuit for the V7A, a 5-valve superhet. Electrically it was quite a good performer.

nest" was an apt description. Unless the chassis was withdrawn from the cabinet, the wiring was out of sight anyway. That was, until the advent of the Philips V7A!

The Theatrette

In 1937 Philips introduced a radio that was remarkably good value. Selling in Britain for 6 guineas and about double that in this part of the world, it featured the European Long Wave Band, Broadcast Band and the main Short-wave Band. There was an 8" speaker, a large illuminated dial and a well made Bakelite cabinet.

The impression given by the recessed speaker opening is that of a theatre proscenium, whilst the curved dial can be likened to the footlight area of a stage. Not surprisingly the V7A was called the "Theatrette". With its distinctive appearance, excellent performance and above all, remarkably good price, the V7A sold well. It proved to be very durable and many have survived to this day.

There had to be a catch somewhere. How could a radio with such an excellent specification sell at about half the price of the competition?

All is revealed

The shallow cabinet of the V7A has the conventional type of well fitting back concealing the internals from prying eyes and fingers. The average owner was not concerned about removing the back so did not know, or for that matter, care what was inside. All he knew was that he had purchased a sensitive, nice sounding radio that was reliable and obviously good value.

If, however, the back is removed, what is revealed is not for delicate sensibilities. The V7A has no chassis and the rats nest of wiring is quite exposed. In fact, it looks a thorough mess. Even the IF transformers are unshielded. The general impression is of a workbench lashup that has been dumped unceremoniously into the cabinet. There are valves sitting at all angles and loose wires are hung on the ends of components without the benefit of tie points.

Mess production!

To produce rock bottom prices in a competitive market, conventional manufacturing techniques demanded economies in loudspeaker and cabinet size and quality. Multiband operation and an elaborate dial would also have been

out. But these were the very things that made for ready sales. The V7A had all of these features, so savings had to be made in other directions. The two remaining items were metalwork and labour. Chassis metalwork was eliminated by strategic placement of components around the cabinet, with the resultant apparent chaos. Labour costs were cut to an absolute minimum by extreme attention to time and motion studies.

The result was an unusually successful receiver that outlasted many of its more expensive and conventional contemporaries, and which has now become a collectors' item.

Variations of the original "Theatrette" may be found. A later model was the "Matador" using side contact "P" base valves, whilst Mullard, a Philips subsidiary, sold a more ornate style they called the "Westminster". For DC mains there was the transformerless V7U, but I am unaware of any being sold in this part of the world.

The circuit

Like most receivers from Philips, the V7A was well designed electrically. There were few shortcuts and no

scrimping of components. The circuit is basically the conventional 5-valve superhet that formed the backbone of the radio industry for a quarter of a century. An octode mixer stage is followed by a 128kHz IF stage. Detector and AGC diodes are separate and included with the triode audio amplifier. The high performance output pentode has some negative feedback from the un bypassed cathode bias resistor. Finally, the resistance-capacitor filtered power supply is conventional except for the half-wave HT winding. This was probably done to standardise the design to include the transformerless V7U. Unlike many manufacturers Philips, when producing budget-priced sets, did not compromise performance by paring component counts. The V7A is therefore a textbook exercise in conservative design with high gain and stable performance.

The very low frequency of 128kHz for the IF is governed by the provision for the long wave band, covering from 413 to 152kHz. The IF amplifier has the advantage of high gain and good selectivity, but poor image response on the

shortwave band.

Although carrying a Philips brand name, most V7As were fitted out with Mullard valves which carried different numbers from their Philips equivalents. With the exception of the 4 pin rectifier, these were from the 7 pin 4-volt filament European series. All other 1937 Philips receivers used the new side contact "P" base series.

Servicing

Anyone unfamiliar with Philips sets of this era is likely to be puzzled by the trimmer capacitors. These consist of an insulated inner conductor wrapped round with a layer of fine tinned wire. Trimming involves peeling off the fine wire until tuning is correct. That is OK, but if you go too far it is difficult to get the wire back on! Philips sets were pretty stable so the best advice is to leave well alone if the dial readings are reasonably correct.

One reason for the longevity of Philips receivers is the quality of their components. It is not at all uncommon to find sets like the Theatrette still going well. Items to look at are any capacitors connected to grids. If any leakage whatsoever is detected they should be replaced with modern plastic film

types. The filter capacitors may be showing their age, but don't use anything larger than about 40uF for the input capacitor, or the rectifier will suffer.

The most likely problem to be encountered and common to all pre War Philips receivers is perished insulation on the hookup wire. Cracked and brittle yellow rubber falls off in large lumps at the slightest disturbance. Never switch on one of these receivers without first checking this condition.

The remedy is obvious but time consuming. Renew leads one at a time, with the same length and positioning. Philips' little wire spirals make reconnection easy. Try and locate replacement wire that looks like the original. Nothing looks worse in a vintage radio than garishly coloured shiny plastic insulation.

Finally, I have heard that Australian shoppers may have difficulty in locating high voltage capacitors suitable for valve work. A good range of 450 volt electrolytic and 630 volt mylar capacitors is available from David Reid Electronics stores in New Zealand, and they assure me that they have good stocks. The firm's postal address is C.P.O. Box 2630, Auckland, N.Z.

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