

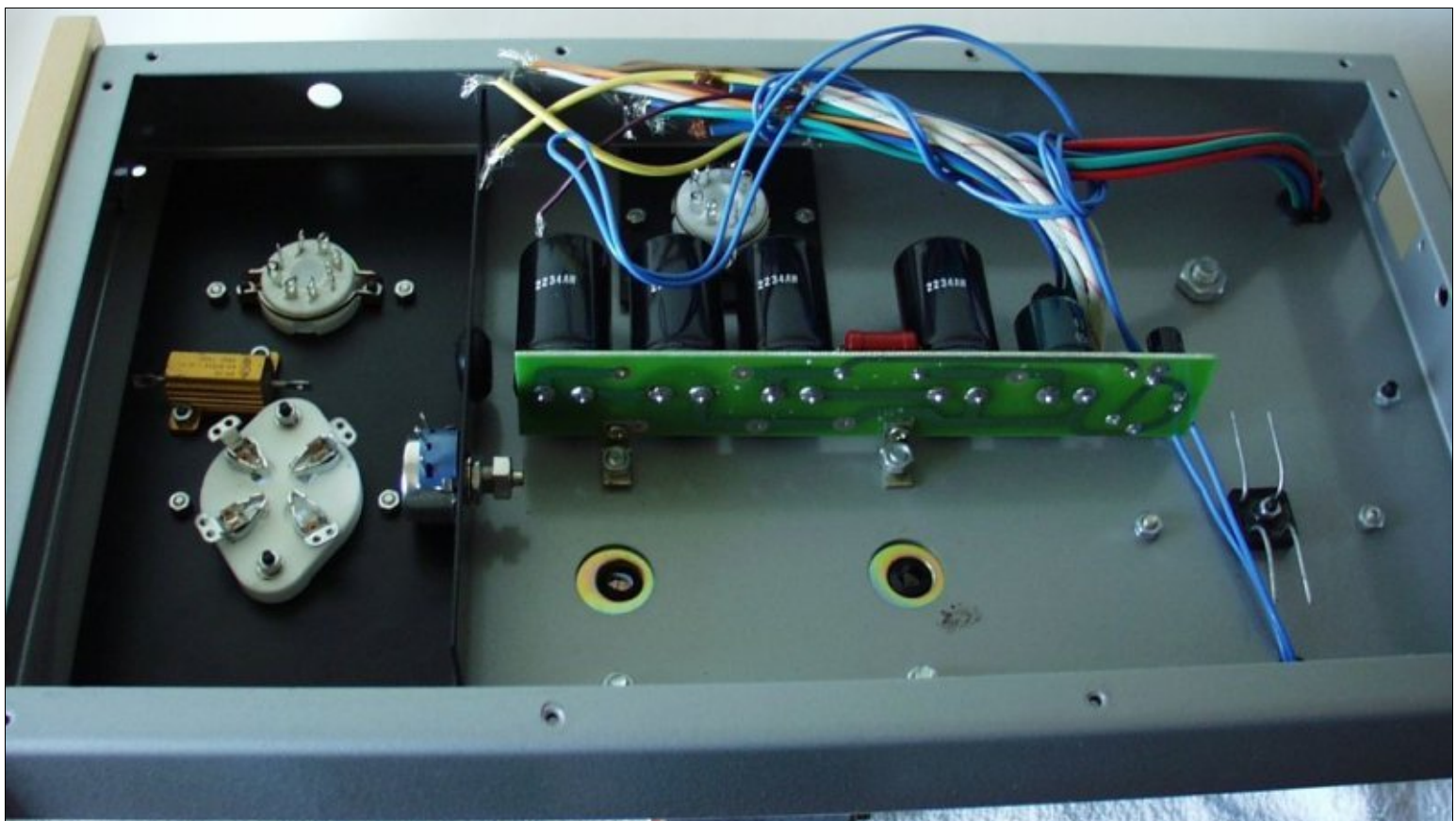
Billie / Ladyday 300B SET Basic Build

Introduction

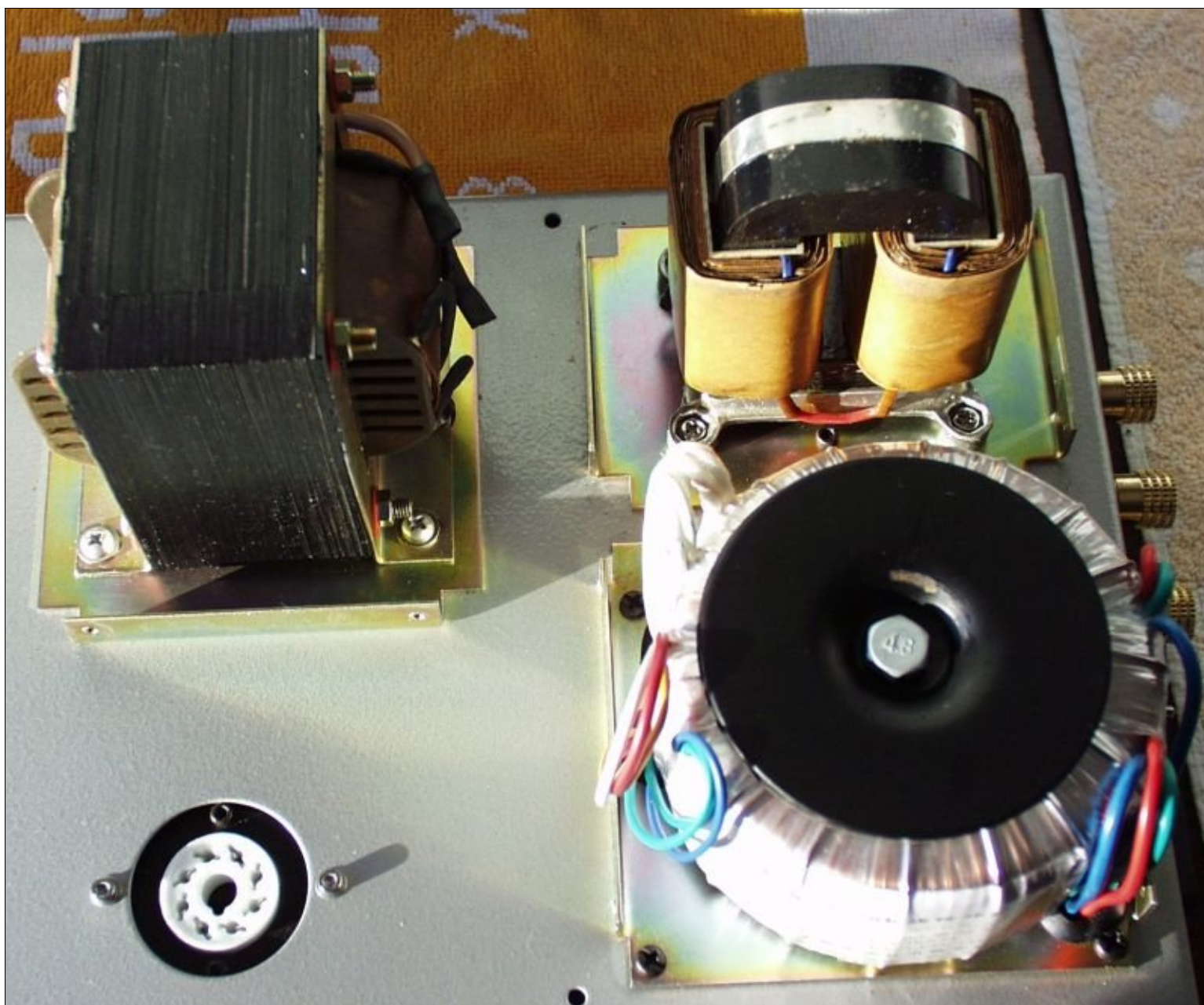
The Billie is a Single Ended Triode (SET), zero-feedback mono block valve power amplifier kit. It provides 9W of pure class A power amplification. 9W does not sound like much but valve amplifiers always seem to 'sound bigger' than their power rating. SET based amplifiers like the 300B, 2A3 and 45 etc have gained a kind of cult status and are regarded as some of the best sounding tube amplifiers. If you look at the range of gear some hi-end HiFi manufacturers are selling you will usually find at least a 300B or a 2A3 amplifier in the line-up somewhere.

The Billie comes as two separate mono block chassis each using a 5Z3P rectifier tube, 6SL7 (ECC35) driver tube and a 300B power tube. The advantage of a single 300B on the output is that the audio circuit is much simpler and it is cheaper to swap and play around with different 300B types when complete, 300B's being quite expensive. You only have to purchase 2 tubes rather than 4 if it was a push-pull or parallel based unit. The circuit is very minimalist in nature providing a simple and direct audio path. That coupled with a choke filtered power supply and traditionally made output transformer makes this a very nice kit. The unit is also available pre-built from Opera Audio (Consonance) as the M500. Standard power tube is the Valve Art 300B, a chinese 6N9P/6SL7 driver tube and a chinese 5Z3P rectifier for the basic Billie / Ladyday kit. Resistors are red firecrackers (military spec. metal film). The output tube can be upgraded to the TJ or Valve Art meshplate and the rectifier to the TJ 274b along with various tweaks and options for circuit component upgrades.

The Billie has now been replaced with the Ladyday+ with quite a few improvements over this original design, notably the deeper chassis, powder gray metal front instead of the cherry wood front and more taps on the power and output transformers for greater flexibility in power tube type and usage. However, this build overview is still relevant since the the standard Ladyday kit with 300B tubes is the same build as the original Billie.



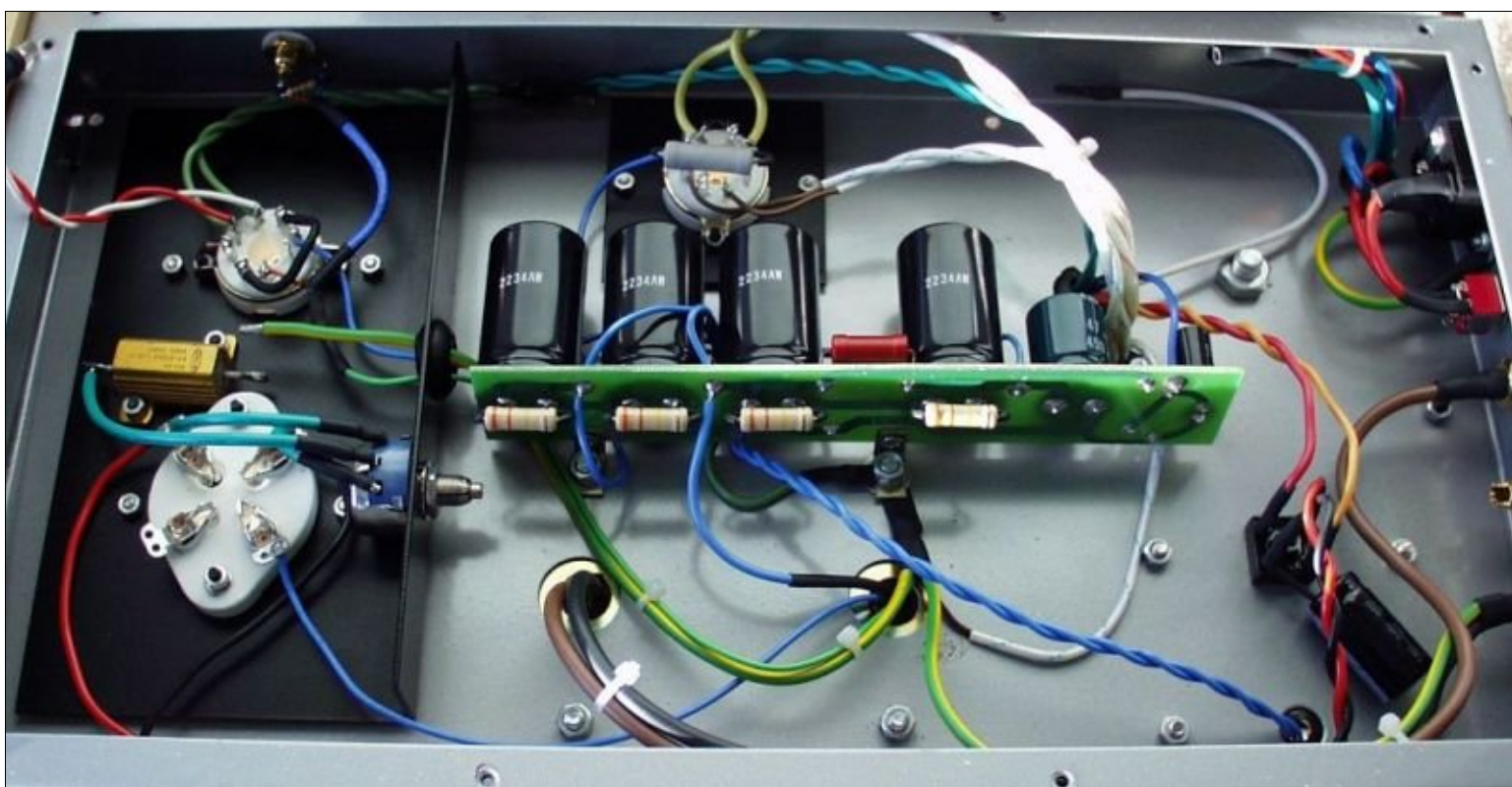
This is one of the units as it arrives. It comes with a high number of parts already fitted. The Transformers and valve sockets are already mounted and the PSU PCB is ready built. This makes a pleasant change from other kits, plus it is likely to minimise any transit damage since those heavy transformers cannot move about.



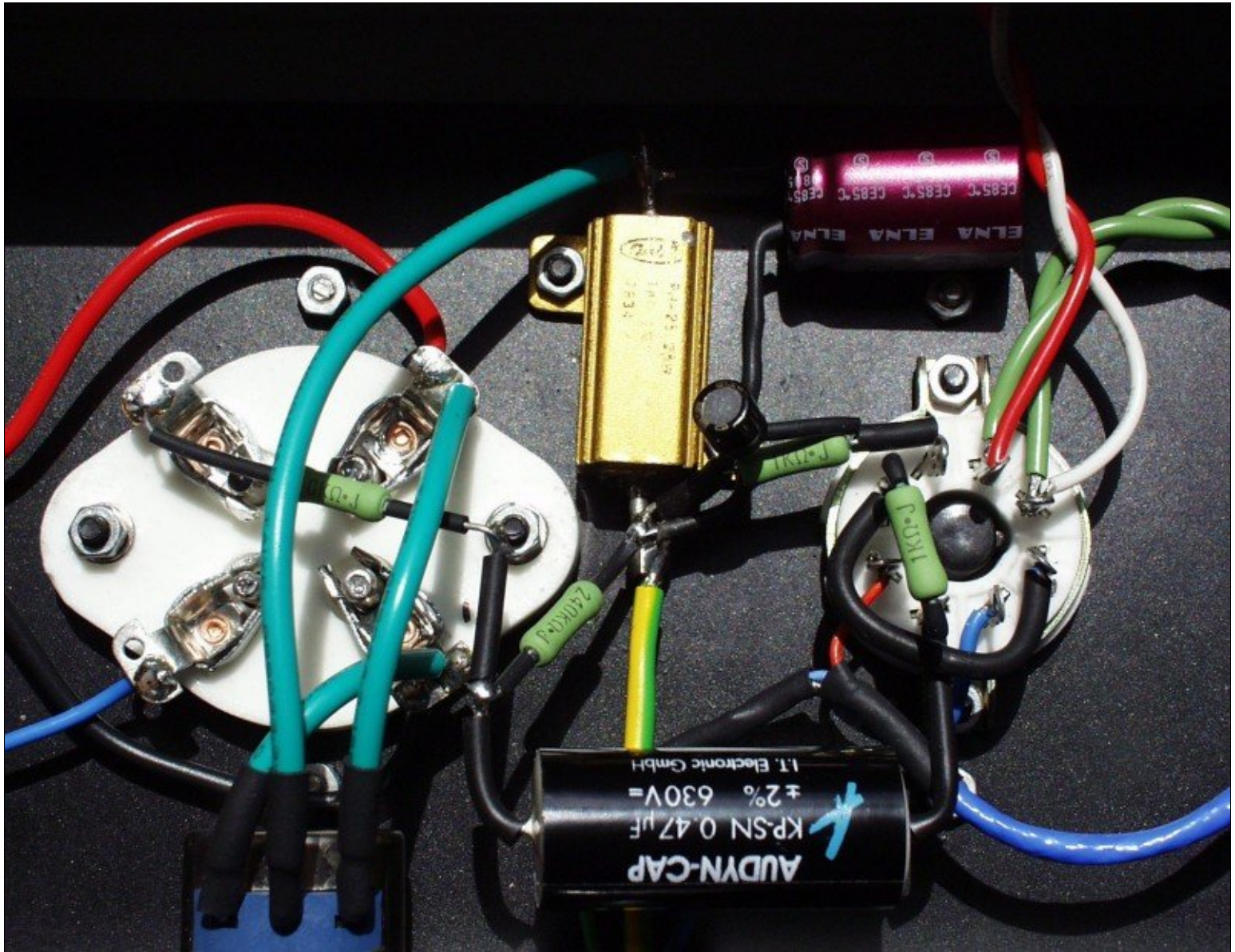
The transformers. Choke is top right. Output transformer top left. Mains toroid bottom right. The choke and output transformer are traditionally wound using paper and varnish insulation layers. The output transformer is high quality. It uses selected silicon steel in c-cut form. The primary and secondary coils are wound in the same direction to achieve close coupling.



The output transformer has 8R and 4R taps. I just wired up the 8R tap and ground from the transformer and insulated the 4R tap. Hence the middle socket is unused in my case.



This shows all the Billie wiring completed. The resistors and capacitors still need to be wired up to the 6SL7 and 300B sockets. I decided to complete all the wiring first and wire the components last.



All components fitted. As you can see it is a simple circuit. I replaced the Rubycon capacitor which connects across the 300B cathode resistor with a Elna. I also replaced the Solen coupling capacitors for a Audyn Film-Foil types I had in my parts box.



The tall valve at the back on the right is the 5Z3P rectifier. The smallest valve at the front is the Chinese 6SL7 and tall valve at the front is the Valve Art 300B.



One completed Billie, the other looks identical, trust me. Shown fitted with the chinese supplied valves. The Billie is very heavy and of tank like build.

Overview

The standard build Billie's have very low noise at the output. They come with a hum pot fitted inside as standard. When this is adjusted you can get the noise level very low. My digital voltage meter (DVM) read 0.2mV on the output, speakers connected and the amp switched on. Using a DVM is not 100% accurate and it only gives an approximation but is useful if you do not have a scope. When I put it on the main speakers I could not hear a thing. Absolutely silent with my ear right up against the main speaker cone and the tweeter. At first I thought it may not be working but it was when I played something. This is one of the quietest valve kits I have ever built, without having to do any mods to make it quieter. There is a mod which lowers the noise floor even more to essentially zero. In-fact it is much quieter than my mosfet transistor amplifier.

Sound

With the standard supplied 300B Valve Art tubes and the Chinese driver and rectifier the Billie exhibits a fairly light sound with an extended top end. The bass is a little shy but this setup can work quite well in a system that can be dark sounding. This basic build exhibits a good sound with detail not normally heard in valve push-pull amplifiers like KT66/KT88 units without extensive component tweaks and valve upgrades. The basic build gives a taster of what SET is all about and what the Billie is really capable with some time and further tweaks. From first use I was impressed but this is was the first SET based amplifier I had heard in my own system having used push-pull valve amplifiers like the WAD kat88 in the past. This was a step forward in the right direction.

I later decided to do some easy tube rolling. Changing the driver tube to a NOS Sylvania VT-299 (6SL7) opens the whole sound stage and brings in lots of detail. I then replaced the rectifier with a Mullard GZ33 and this added weight and authority to the sound and again brought in a touch more detail. This driver and rectifier combination balanced quite well with the Valve Art 300B if not perfect. Changing the driver and rectifier tubes is fairly in-expensive and very simple so it is worth experimenting with these to begin with. Most British and American NOS tubes will provide sonic gains over the china made tubes. The unit stayed in this form for a month or so when I later upgraded the power tube to a TJ meshplate 300B bringing in further sonic gains.