Upgrading the WAD Series II Modular Pre-Amp
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The WAD Series-II Modular Pre-Amp, as supplied, is a high quality kit of excellent design. The point of having a valve pre-amp is to provide any necessary gain and, more importantly, buffering and drive for the power amplifier. Essential to any quality valve equipment are high-grade audio transformers and the Series-II certainly has these. However, there is scope for improvement with some of the other passive components. Any upgrading process is a law of diminishing returns and the dilemma facing kit suppliers is finding the balance between quality and cost. It is therefore appreciated that many will be perfectly content with the sound of their Series-II 'as supplied'. What is presented here is an approach that will give real discernable improvements to the Series-II without going 'over the top'.

In my case, the Series-II was purchased to replace a high quality, but transistorised pre-amp and drive a WAD K5881 Mk II. Having built the kit with the supplied components, it was clear from the outset that there was now considerably more detail in the sound than with its transistorised predecessor, although I felt that the bass was a little thinner than I was used to. Maybe I was confusing this bass "lightness" with "tightness"? The sound was also brighter, making strings sound a little on the harsh side. So the question was: where do I go from here?

Following the positive experience I had with upgrading my K5881 with Black Gate electrolytics, paper-in-oil capacitors and Shinkoh resistors in strategic places, I decided to give my Series II the same treatment. The first thing I did was to replace the cathode electrolytic of the Pre-II with an equivalent Black Gate electrolytic (C8/9) and all the resistors with Shinkohs. There were no problems with fitting in the new components. The replacements were pretty much the same size as the items they were replacing and anyway there is plenty of room on the circuit board (Figure 1). After the prerequisite hour or so of "burn-in" for the Black Gates, I was amazed at the improvement. All the detail was there, not a hint of harshness and the base extended to a depth, clarity and tightness that I had not experienced before.

Figure 1. Upgraded Pre-II

Spurred on by success with the Pre-II, I turned my attention to the Phono-II. Looking at the circuit, it seemed a good target for some paper-in-oil capacitors. There was no problem with finding a replacement for C10/C11 0.1uF 250V. As can be seen in Figure 2, the replacement paper-in-oils were accommodated on the circuit board by drilling an extra hole to the left of the space for the old component and fitting the capacitor vertically.

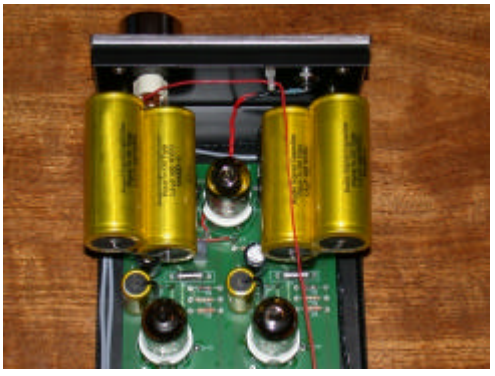

Figure2. Upgraded Phono-II

Replacing the 2.2uF 250V of C18/C19 was a different story however! After some investigation, I decided to use two 1.4uF 400V paper-in-oils in parallel. Alas, each capacitor is somewhat larger than the available space on the PCB. To be precise, they are over 2.5" long and 1" in diameter and I had to get four of them in there somehow! This was a bit of a "How do you get four elephants in a Mini?" problem, but I managed it by putting them lengthwise on stilts so they fitted in the top left and right corners of the case (Figure 3). It is important to ensure that the 'stilts' are strong enough to hold the capacitors and soldered on both sides of the printed circuit board to give the necessary strength to the assembly. It is also important to position the capacitors so that they fit snugly into the corners of the lid so that, when assembled, the capacitors are held firmly in position. I also strongly advise the use of sleeving to ensure that there is no risk of touching other components. Although appearing flimsy, the result is surprising firm when the lid is in place.

Figure3. Fitting the Capacitors

I reconnected and powered on - what a difference! I was now getting the same excellent bass that I was enjoying with my other sound sources, but with the extra detail and depth that only records seems to be able to produce. I can genuinely say that the results are truly breathtaking! There is really nothing to compare with a first class direct cut vinyl.

Finally, a couple of small modifications that I can thoroughly recommend are purchasing an additional mains on-off switch and knob and fitting this to the Phono-II to enable it to be switched on independently from the pre-amp. I am sure that I am not alone in using my CD player at least as much as my record deck and this modification saves wearing out the valves in the phono stage unnecessarily. I also fitted a matching blue LED and fed it from the 6.3V DC heater supply. The switch and knob is of the same type as used in the PSU-II and the two poles are used to switch the heater and HT supplies. Care is needed when drilling the front panel and a good tip is to put a strip of adhesive tape across the panel before drilling. This reduces the likelihood of scratching and tends to stop the drill bit slipping. The switch and LED were positioned to mirror the layout of the PSU-II, thus making the Series-II a very elegant trio of units.

Figure4. The Revised Front Panel

To summarise, I recommend Black Gate electrolytics, paper-in-oil capacitors and quality resistors (at least in the signal path) to obtain what is quite frankly a startling improvement in sound, almost as much as was achieved from the installation of the Series-II in the first place. The system copes admirably with everything from the delicate sound of a harpsichord playing Vivaldi to the magnificent splendour of a piece of Bach organ music.

In conclusion, it is worth pointing out that it seems that paper-in-oil capacitors as well as the Black Gates seem to need a period of settling in after installation. Let the system run with music playing, not just powered up with no input, for an hour or so before attempting any subjective assessment of sound quality. I think you will find the effort of upgrading worthwhile and it won't break the bank!

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