Tube Hoops

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Spurred on by recommendations from a friend and the advert in the DIY News section of DIY Supplement 80, I decided to fit some Tube Rings on the driver valves of my WAD 300BPSE. Very successful indeed and a worthwhile investment, but to equip all the valves in my Hi-Fi system would need some significant additional investment. There are some different makes available from other suppliers, but at a similar cost. I had already used rubber 'O' rings as a low cost alternative in my valve CD player, but the rubber had hardened over time and ended up lying ineffectively at the base of the valves. I therefore decided to see if I could make something more resilient of my own.

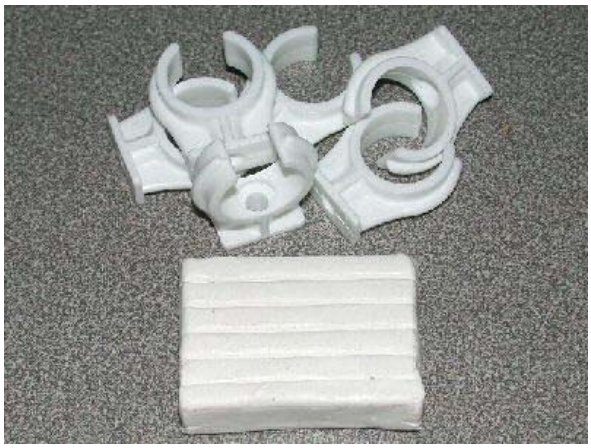

Figure 1. The Raw Materials

The purpose of fitting some sort of clamp on a valve is to reduce the effect of externally-induced vibrations on the delicate electrode structure within a valve. What I needed was something that would stay clamped to the outside of a valve, given that they get hot, and provide the necessary dampening effect.

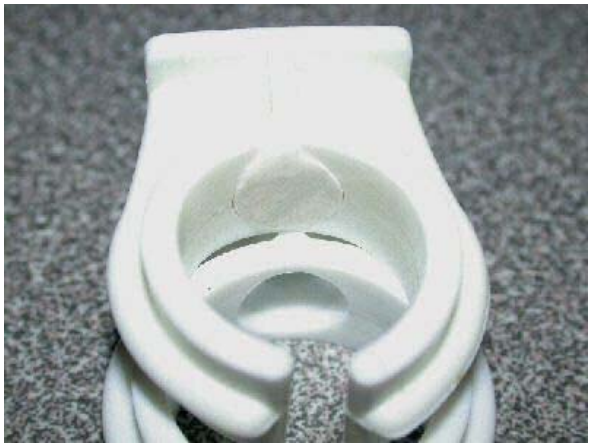

Figure 2. Plugging the Screw Hole with Modelling Compound

I noticed that the most common valves used in preamplifiers and the driver stages of power amplifiers (such as the ECC83, etc.) have a diameter about 19mm. What I was looking for was something that was designed to fit that size. During a visit to a local DIY supplier, I noticed packs of pipe clips for fixing 22mm diameter pipes to walls. Could these be made to clip over a valve and stay in place? The answer was 'Yes' and a packet of clips was duly purchased, together with a small packet of white over-hardening modelling compound from a hobby shop and the 'Tube Hoop' was born (see Figure 1)! The total cost of these items was about £3, which included enough clips to make 15 hoops.

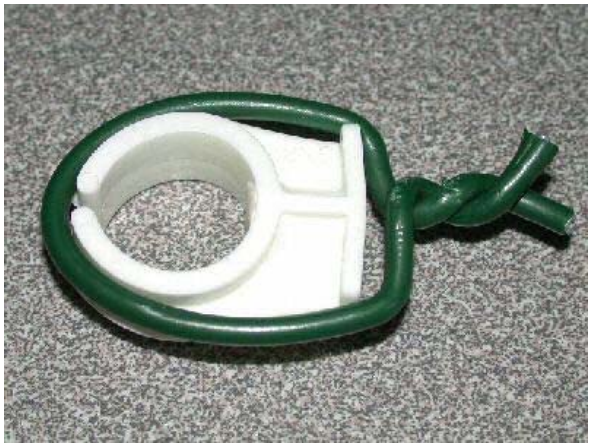

Figure 3. Clamped Clip Cooling Off

Tube Hoop Manufacture

After some experimenting, I came up with the following procedure. First, take a piece of modelling compound and plug the screw hole that is used to fix the clamp to a wall (Figure 2). Make sure that the compound stands proud on the inside of the clip as the pressure exerted by the compound when it has hardened keeps the clip firmly located on the valve during the temperature excursions. Incidentally, I successfully clamped a hoop to a 6AU6 valve that has a smaller diameter of about 16mm, but adding a little more compound to the inside of the clamp.

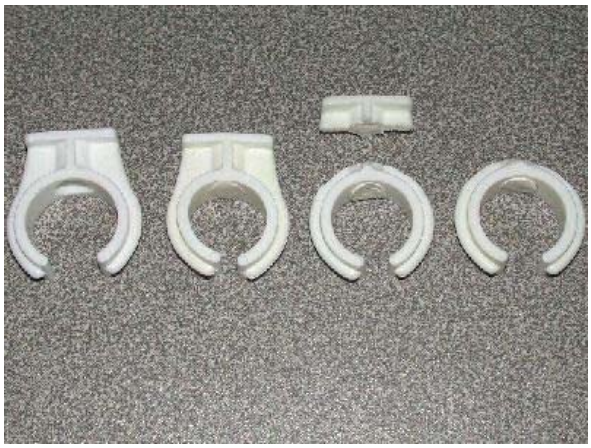

Figure 4. The Stages of Manufacture of the Tube Hoop

Next, pre-heat an oven to around 265ºF (130ºC or Gas Mark ¾) and heat the clip for half an hour, as recommended by the modelling compound manufacturers. This will harden the compound, but also soften the pipe clip.

In order to ensure the clip fits snugly around the valve, you will need to squeeze the clip together while it is cooling off. For this purpose, I made a clamp from a short length of garden wire that I twisted to the appropriate shape with a pair of pliers, as shown in Figure 3.

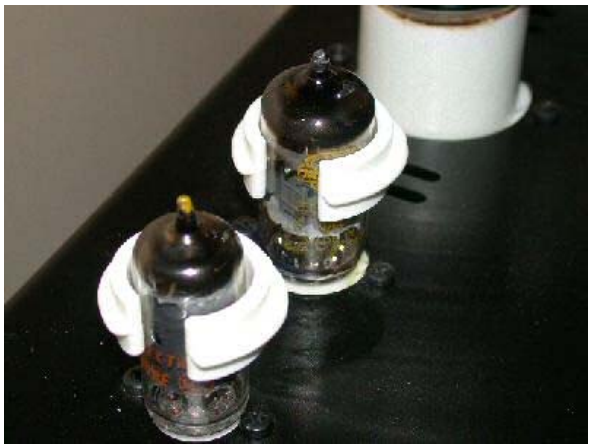

Figure 5. Tube Hoops Fitted to a 6AU6 and an ECC82

When cool, the clip is removed from the clamp and the bracket part is removed with a junior hacksaw. Finally, the rough edge is filed smooth with a file and some sandpaper to achieve the finished hoop. Figure 4 shows the various stages of manufacture of the Tube Hoop.

Figure 6. The 6922 Valve in the PreII shows off its new Apparel!

Fitting the Tube Hoops

As mentioned previously, I had made a special pair of hoops with additional modelling compound on the inside to fit the 6AU6s of my power amplifier. Figure 5 shows my 300B PSE proudly sporting its set of hoops.

Similarly, the PreII and PhonoII valves were treated in the same way (Figures 6 and 7). Finally, the perished rubber rings in my CD player were replaced. With reference to Figure 8, it can be seen that the gap in the hoop allows the valves to sit close to the adjacent circuit board without fouling it.

Listening Tests

So how do the hoops sound? Well, as with the other systems, there was noticeably more detail and clarity to the sound. The bass was slightly tighter, but the most noticeable effect was in the top end, taking away any residual harshness from violins. Image placement was also improved.

On the down side, it has to be said that they don't look as great as the commercially made offerings, but they are a splendid way of testing the effectiveness on the exposed valves before committing funds to the professionally made devices. Of course, this doesn't matter for the valves hidden away inside preamplifiers and the like.

These hoops definitely work and at a cost of £3 for 15, they have to be worth a try.

--ooOoo--

Figure 7. Hoops Fitted to the Three ECC83s in the PhonoII

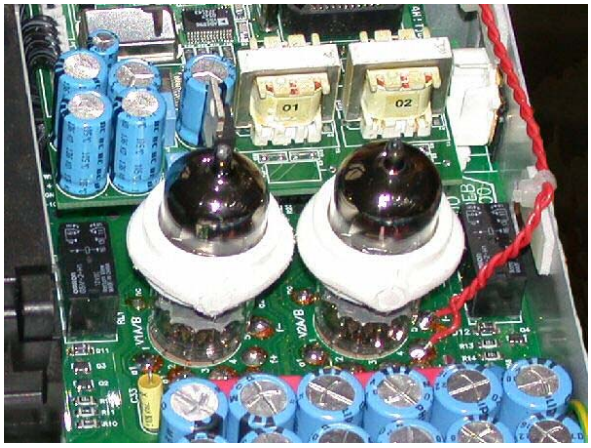

Figure 8. The Hoops Replacing the Rubber Rings in the CD Player