

**### The Music First MM Phono Amplifier is designed to be a no compromise design to be used with a step up transformer, why use a SUT.**

**Why use a separate moving coil step up transformer?**

**This is two questions in one, the first is why use a step up transformer (SUT) and if using one, why its better to have it separate and not built into the phono amplifier.**

**The first question: Why use a SUT?**

**There are two good reasons why a properly constructed SUT is the best way of listening to a low output moving coil cartridge. The first one is distortion (well, so is the second, but not so obviously). Both a solid state gain stage and a SUT will introduce distortion to the tiny signal, but its the nature of that distortion that is important. A transformer will distort most at low frequencies, becoming increasingly perfect as the frequency increases. By the time the all important mid range of frequencies are reached, the level of distortion is vanishingly small (approaching the mythical straight wire. Because it is basically just that, a wire). A transistor gain stage on the other hand will have a lower level of distortion at low frequencies than a SUT, but that distortion level will stay constant as frequency increases, so by the time the all important mid range is reached, the transistor gain stage will be audibly distorting the signal whereas the SUT will be completely clean. The difference is easy to hear, even the best solid state device will sound edgy and grainy, whereas the SUT will sound like nothing, it will just let the music through.**

**The second reason is similar to the first, but relates to the rest of the phono amplifier. There is no point in dodging the truth here. A good valve phono stage will sound better than a good solid state phono stage, and a great valve phono stage will sound better than anything else (we are ignoring the bad examples that are out there of both types, the fact that you are on this web site shows that you are only interested in the best). By its nature a valve phono stage is that its at its best with the signal level of a typical moving magnet cartridge, so to get the best from a valve phono stage with a low output moving coil cartridge (considering the previous facts about distortion) the best solution is to use a SUT.**

**The second question: Why use a separate SUT?**

**Well, its perfectly possible to build the SUT in the same casework as the phono stage. But to do so we either limit the size of the step up transformer or we have a huge phono stage. Small step up transformers can be made, but remember the discussion about distortion and low frequencies? Well, the solution to get that distortion as low as possible even at low frequencies is to use as large a core to the transformer as possible (there are limits, beyond a certain size other problems start to be introduced). While its possible to make a SUT smaller than the size of a box of matches, doing so will severely limit the potential performance. At Music First Audio, we know that a large core gives audibly better results. So that is what we make. And that is why we make it in its own casework.**