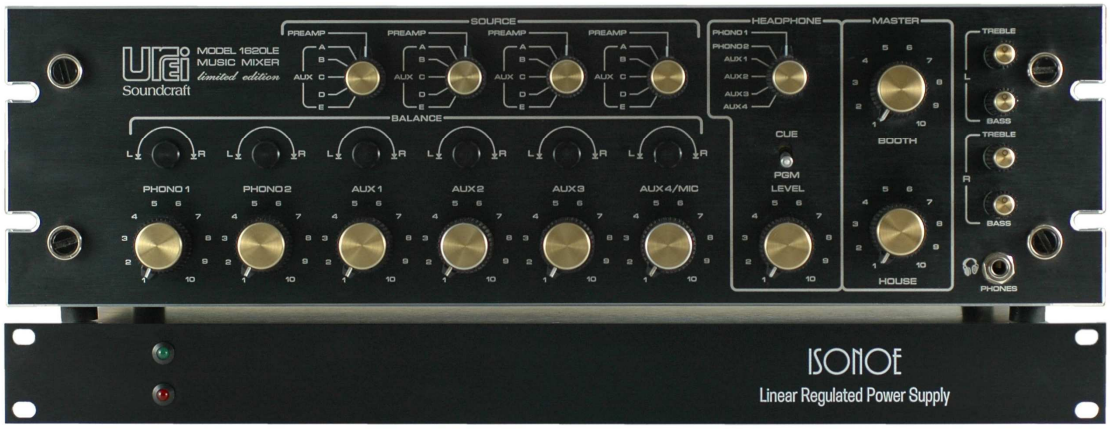
ISONOE®

UREi 1620LE Modifications



Having restored and modified tens of original UREi 1620s, Isonoe were approached by a client for the purpose of upgrading his UREi LE. The draft was to create a unique mixer, upgrading it in every respect, regardless of cost – even if this ended up costing more than an original 1620. Improved noise performance and lower distortion were the goals.

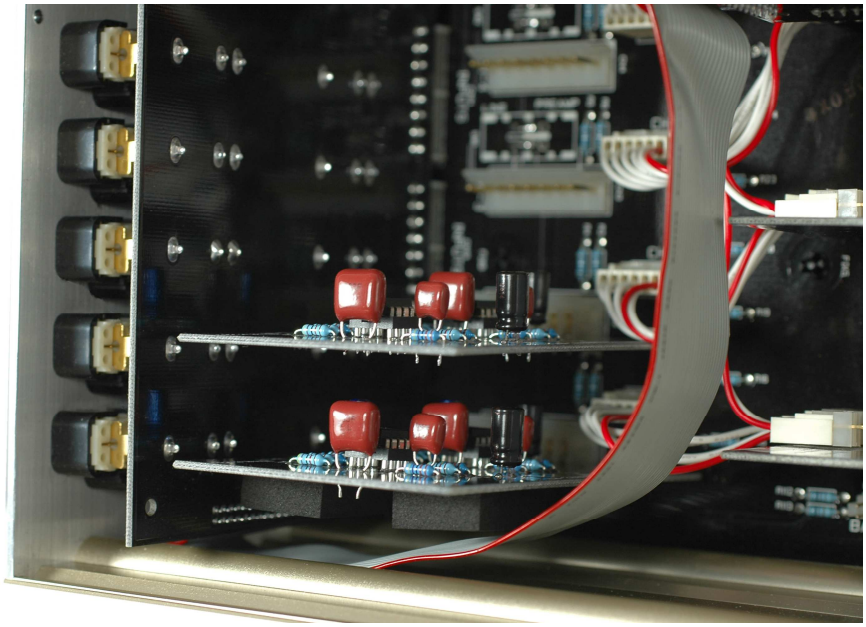
The reissue version differs from the original 1620 in many aspects, the key areas being:

- Through-hole plated / double-sided main PCB (original 1620 is single-sided non-PTH).
- Dual opamps throughout (original uses quad)
- Chinese-made output transformers
- The power supply is very similar to the original, with an EI transformer and 7800-series regulators

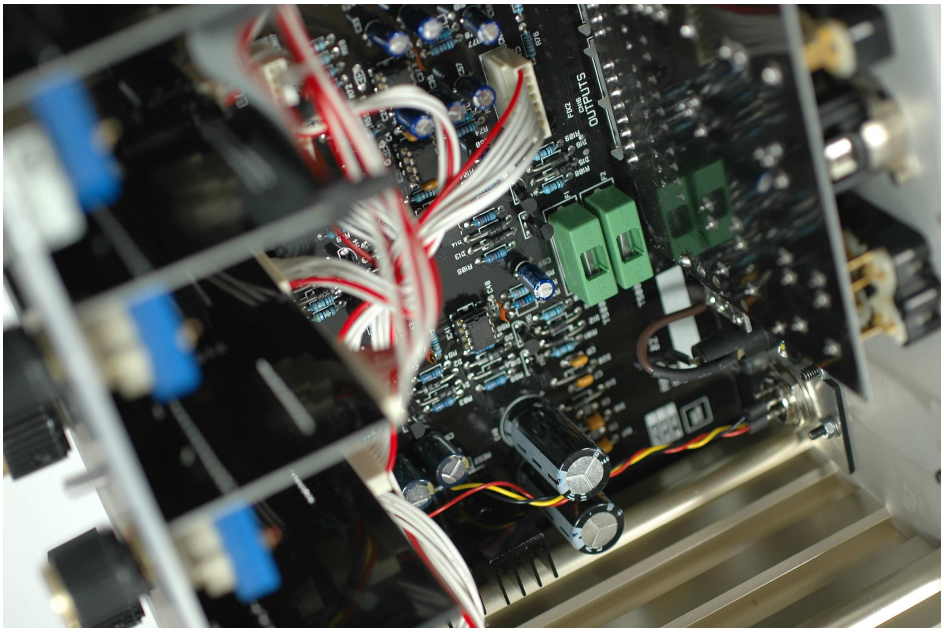
We were shocked to find that 25 years after the original was released, the reissue was even noisier! We tested several LE versions to ascertain that this wasn't confined to our client's example.

The first and most obvious upgrade was to strip out the 7800 regulators, install connections for an Isonoe LRPS in their place, fabricate a connector plate and install it in place of the original IEC mains inlet:

The second stage was to desolder the original electrolytic caps (a type not noted for sonics) with a temperature-controlled rework station and replace with audio-grade caps. The commercial-grade RIAA caps were also replaced with 1% tolerance polypropylene film / foil caps:

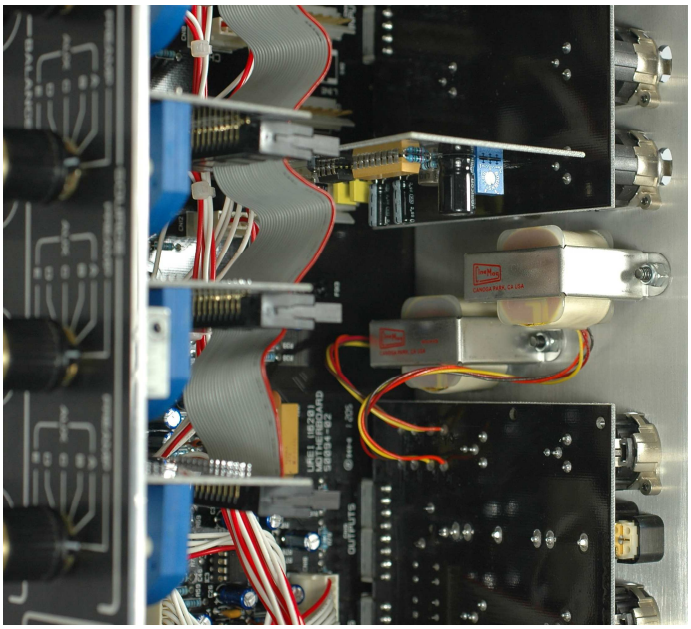


Op-amp replacement was the next procedure. No one we spoke with had replaced op-amps on an LE edition before. Simply swapping out docile TL072s with high bandwidth modern op-amps is a risky procedure, as one does not know if power bypassing and the PCB layout are up to scratch, potentially creating ultrasonic oscillation. The removal of the op-amps was performed with a temperature-controlled rework station. Care and patience had to be applied to ensure no damage to the PCB resulted.



IC sockets, together with additonal power decoupling were fitted to enable a wide range of opamps to be tried. Eventually a combination of Burr Brown and National Semiconductor opamps was settled upon.

The rather non-descript output transformers were replaced with bespoke specified transformers, manufactured for us by the renowned Cinemag in California. This proved to be a highly worthwhile upgrade, with the Cinemag units offering noticeably better performance from a measured and subjective standpoint:



Other modifications were performed, such as balance pot bypassing (plugs were machined from Delrin to go in their place) and bypassing of the rather flimsy slide switches.

When it came to testing, the improvements surpassed anyone's expectations. Not only was overall THD down to somewhere around a quarter of the original figure, but noise was drastically better – measuring lower than the best original 1620 we've seen!

In independent listening tests, a highly modified Bozak DLC, original 1620 and the rebuilt LE were compared. The panel agreed the LE sounded different, but equally good. In some cases listeners even preferred it, citing its detail, clarity and speed.