Subject: Re: My impressions
Posted by Wayne Parham on Tue, 18 Oct 2005 17:00:20 GMT
View Forum Message <> Reply to Message

The Tuba 24 is definitely a lightweight that packs a heavyweight punch. Small bands can have a

It dissipates heat as fast as it sinks it. It feels warm to the touch, but at full power it's only 130º. Without the heat exchanger, motor temperature rises to 195º under the same conditions. At that temperature, the pole piece re-radiates heat back into the voice coil, literally baking it. The glue burns and becomes brittle, and fails to hold the voice coil. When the voice coil comes undone, the speaker begins to buzz as the winding vibrates against the pole piece in the gap. Eventually, the voice coil breaks and the speaker fails entirely. The use of a heat exchanger prevents this. Power levels can be substantially increased, and the motor stays nice and cool so the voice coil glue never fails.I don't know if you've seen the tests I did on the heat exchanger, but I did a series of temperature measurements. I measured the pole piece at various power levels, with and without the heat exchanger installed. So that kind of lets you know what to expect in terms of longevity.LAB12 destructive testLAB12 test with heat exchanger installedAs for compression due to voice coil heating, the acoustic measurements at the Prosound Shootout shed some light. The sweeps were actually pretty long duration, not gated MLS signals. So they probably heated the voice coil pretty well at high power levels. Compression can be seen as less than 3dB increases between measurements where power was doubled. Each speaker rises 3dB between measurements until it reaches a certain point, where SPL doesn't increase much anymore because compression has set in.We had planned to do another series of tests that included a lengthy heat soak period, but we simply ran out of time. That would tell us what the speakers acted like after the magnets were very hot. The heat exchanger is really of most benefit in that situation, becaue it prevents the magnet from getting so hot that it re-radiates heat and bakes the voice coil.