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Subject: Re: Heat exchangers Wayne

Posted by [Wayne Parham](#) on Mon, 24 Oct 2005 21:32:30 GMT

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Check all the T/S parameters. If there's blockage of the cooling vent, you'll probably see an increase of Fts. The parameter that shifts the most from voice coil heating is Qes. If any of the values change at low signal levels when the plug is inserted, that's definitely a problem. So test Fts first. If it is OK at low levels, try it again at higher power levels. If it doesn't shift when the plug is inserted, then you'll know no restriction has occurred. Then, using a cool driver to start with, test Qes at various power levels. I suggest comparing two identical drivers, one with the plug and one without, comparing the two at various power levels. Alternatively, you can test using the same driver at two different times, making sure the second test group is run after a long period of time has passed, giving the driver time to cool. Start out at low power levels and work your way up, making measurements at consistent predefined points. The T/S parameters are non-linear, meaning they don't remain consistent as power is increased. They'll shift depending on signal level. So compare a driver with the cooling plug to a driver without using the same drive signal to test with. Also, don't use one woofer that's brand new and compare with an older one that's seen a lot of high-power use. Either compare two woofers that are similar to begin with, or use a single woofer and compare at two different times, giving ample time for woofer cool-down between test runs. Ultimately you'll want to test at high power levels, because that's where the problem lies. What you want is the driver with the cooling plug should have basically the same T/S values as the one without - except at very high power levels. As power increases, the woofer with the cooling plug should not shift as much as the one without, particularly in voice coil resistance, which is reflected in Qes. So what you want to see is voice coil resistance remaining low and therefore Qes remains low. The ultimate test is to measure response, compression and power handling. If the heat exchanger is working well, then response will remain consistent at high power levels. It won't develop as much of a bump in LF response because Qes won't rise as much. Compression will be reduced so total output will rise and power handling will increase. If the device provides these things, then I'd say it has done its job.

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