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Subject: Breaking in New Drivers

Posted by [Bob Brines](#) on Sun, 17 Sep 2006 12:16:08 GMT

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I am amused at claims of long break-in times for audio equipment. Everything from drivers to interconnects. From my personal experience: When I first fired up my Lowther DX2's, it took a couple of hundred hours for the speakers to settle down and give a decent, pleasing sound. This confirms the conventional wisdom that Lowther drivers take a long time to break in. I installed phase plugs in a pair of Fostex FE167E's. It took about a week for the speakers to settle down to an end state sound. Therefore, it takes maybe 50 hours for phase plugs to break in. Wait a minute! It takes 50 hours for a piece of wood to break in? That's crazy. More experience: I manufacture a small number of speakers. The last step in the process is to take new drivers out of the manufacture's boxes and install them in the new speakers. I then play a test CD through the new speakers to check that all is well – no rattles, buzzes or anything else untoward. At the end of 10-15 minutes of testing, the new speakers sound EXACTLY like my demo's that have thousands of hours on them. The answer is that break-in has little to do with the physical equipment and is primarily a psychoacoustic phenomenon. I haven't discovered anything new. This has been discussed on the web any number of times by those more learned than I. I am just confirming the fact. What happens is your brain becomes accustomed to whatever you have listened to for a protracted period of time. That sound is learned as "correct". When you change a component, the new sound is not "correct" and must be learned. The more different the sound, the longer it takes to learn that sound. THIS is break-in. Because my ears are used to the sound of the speakers I built, no break-in is required, or at least only a very short period of time. However, when I installed phase plugs, the sound changed quite a bit, so it took some time for my ears to become accustomed to the new sound. There are any number of techniques for breaking in new drivers, particularly for testing. The most common method of breaking in woofers, and full-rangers fall into this category, is to run a low frequency test tone, 10-20 Hz, through the driver for a number of hours. Then the T/S measurements are taken. Problem #1: Unless the driver has been exercised to Xsus, break-in hasn't happened. Problem #2: Unless the driver is allowed cool down for a number of hours, the T/S parameters obtained will be wrong. (This is for small signal T/S measurements. Large signal testing is different, but not generally necessary for full-rangers that will be operated at less than a one watt normal level.) I have found that simply pushing and pulling a driver to Xsus one time with my fingers produces at least 90% of the needed break-in. Retesting a driver after many hours of use produces the same numbers within the normal range of error. I don't know how long it takes to break in the high end of a driver. My experience is that it is probably as short as a few minutes, but no longer than a very few hours. The massively long break-in periods generally reported have nothing to do with drivers and everything to do with psychoacoustics. You don't believe me? Well, the only test you can do is to replace your well broken-in drivers with brand new ones straight out of the manufacture's boxes. Then see how long it takes for them to settle down. You will be surprised. Bob