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Subject: Re: So how does this all work then..?

Posted by [Wayne Parham](#) on Mon, 09 May 2011 20:52:25 GMT

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You're not being a pain, no trouble at all. That's what we're here for!

And I know what you mean about the information overload! Sometimes, it can be just a bit too much. All the little details, and all for just two moving parts.

You can purchase the crossover boards (populated or unpopulated) at the Pi Speakers shopping cart. See the link for prices. You can also use the shopping cart to get shipping quotes. Just put the items in the cart and start the checkout process. It will ask your address and provide a shipping quote before requesting payment information. You can order at that time if you want but you don't have to.

The smaller wood thickness (16mm or 5/8") is not a problem but I can't say for sure that the furniture grade plywood will satisfy. It's a little bit of an unknown, in that you can never tell if plywood has internal voids or not. Some plywoods - even pretty good panels - have voids between laminates that may contain debris. If there are any voids that contain debris, it will buzz.

Sometimes, pretty often, actually, you'll build a cabinet that sounds pretty good for several months or even a year or two and then one day you notice it buzzes. You'll think you have a problem with a driver and replace it, only to find the same sound. Then you'll realize it's the cabinet. What happens is the debris is held in place with a little bit of glue that squishes into the void during manufacturing but then later, the debris breaks loose. So that's the problem with plywoods. Those voids - the debris inside, actually - makes most plywoods a problem.

One plywood product that almost always works well is Baltic birch. The laminates are thinner and the glue is more likely to fill a void, leaving nowhere for debris to move.

Onto the woofer. The "stock" TD12S driver has a Faraday ring, and the Apollo upgrade adds to that. It's mostly for thermal control.

As an aside, there are three things in play with the conductive metal embedded in the magnet. One is flux modulation control, making a sort of bucking circuit. Another is the modification to voice coil impedance. And a third is wicking the heat out of the core. All three things can be improved by putting (thermally/electrically) conductive material in the motor core. Of course, this reduces the amount of magnetic material in the core, so you have to make that back up. But with proper placement of conductive material, you can improve flux stability, thermal dissipation and voice coil inductance linearity. The thing is, the optimum positions for the conductive material are different, depending on which of these things you want to optimize.