Subject: crossover board assembly
Posted by dprice on Mon, 29 Aug 2011 22:20:48 GMT
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Is there any trick to using the crossover PCBs? Do I just trim the leads to length and tack in place with solder? Or do I need to drill little holes to pass the leads through?

A close-up photo of one done right would be appreciated.

Subject: Re: crossover board assembly
Posted by Wayne Parham on Mon, 29 Aug 2011 23:02:17 GMT
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No trick to it at all. Just trim the component leads to fit and solder them on. The photo below shows me drawing an outline on some gasket material, and it also shows a crossover in enough detail for you to see what I mean:

Subject: Re: crossover board assembly
Posted by dprice on Tue, 30 Aug 2011 00:03:32 GMT
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Perfect! Thanks!

Subject: Re: crossover board assembly
Posted by Maxjr on Tue, 30 Aug 2011 19:39:57 GMT
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Wayne, what silicone adhesive do you recommend for securing the inductors and coils down?

Subject: Re: crossover board assembly
Posted by Wayne Parham on Tue, 30 Aug 2011 21:03:18 GMT
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Use a clear silicone adhesive, and use plenty of it. You can get it just about anywhere. Form a healthy cushion under each coil and give it several days to cure. It will film over quickly in an hour or two, and after 24 hours the outer film is solid enough you can safely move the board and mount

it in the loudspeaker cabinet. But don't put any pressure on the glue blob or shake the coils too much. The center won't harden for several days, and you can break it loose if you put too much force on it too soon. After a couple weeks, it will have formed a solid cushion of silicon rubber that's durable enough to handle strong vibration without breaking loose.

Once the silicon adhesive cures fully, it's perfect for this application. It is rigid enough to support the coils and prevent vibration yet flexible enough to cushion them. It is a strong bond that won't break loose even when transported or vibrated by powerful bass notes. But it really does take a long time to cure fully, several days, around one to two weeks.

As an aside, this extended curing period has been a minor source of frustration for me and some of my customers. I usually allow about three days for the silicon to cure before shipping the boards, but this isn't long enough for full curing so the cushion is still weak. On occasion, I'll have the crossovers done well in advance of a backordered driver or something, which is actually a blessing in disguise because it gives the adhesive longer time to cure. But when I ship the boards after just three or four days of curing time, it's a roll of the dice whether or not the shipping company is gentle enough to get them there without breaking the adhesive. Even if they're packed very well, the vibration of the heavy coils can easily break a silicon adhesive cushion that isn't fully cured. If that happens, just grab a tube of silicon adhesive and reapply.