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Subject: Solder Joint Design

Posted by [brian](#) on Tue, 27 Apr 2004 01:10:49 GMT

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Hello all, If You were to solder two parts leads together what sort of join would You make? Does it matter? Would an audio component sound the same if the wires of it's solder joints were twisted together before soldering in one instance, and wrapped around each other in the manner of a blood knot in a second experiment? [as in this illustration [http://www.jacksonholeflyfishing.com/library/blood\\_knot.htm](http://www.jacksonholeflyfishing.com/library/blood_knot.htm) but of course without passing the ends through that center opening. I only refer to the wrapping instead of the usual method of bringing two wires parallel to each other then twisting them.] Can excess wraps create an inductive coil? Do You prefer some third method?

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Subject: Re: Solder Joint Design

Posted by [Wayne Parham](#) on Tue, 27 Apr 2004 04:02:20 GMT

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Good soldering is largely mechanical. Or better said, a good solder joint is one that is mechanically good even if the solder isn't applied. Solder helps protect the connection and hold it in place. It is also a conductor, so it helps make sure the connection is consistent. You'll find circuits that operate in the RF bands, even pretty high ones, that have twisted wires and other things that increase inductance and capacitance. In high-frequency work, it naturally begins to have an effect. When you do alignments on a radio, if you move components around you'll affect the alignment. So the wires and parts should be in a fixed position because those parallel paths and twists and bends have an effect. But for audio, it becomes a little less of an issue, particularly in the output circuits. If you're running low impedance circuits at low frequency, inductance and capacitance have to be huge to have any reactance. The inter-element inductance and capacitance between paths have little effect. But when impedance is high, the effects start to become more and more in scale, particularly as frequency goes up. If impedance is high enough, even relatively low frequencies might be influenced somewhat. All this strays a bit from your question. If you're talking speaker outputs, then the best splice is to wrap two wires together so that they are a good connection even without the solder, and then heat the ends and melt solder to flow uniformly over them. That will protect the joint. If it's preamp level stuff, try to limit connection path length and keep it shielded as much as possible. Twisted pairs are good where shielding isn't possible.

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Subject: Re: Solder Joint Design

Posted by [brian](#) on Thu, 29 Apr 2004 04:56:21 GMT

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Thank You Wayne. That helps a lot. Brian

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