Making cables...

by **Laurie** » 25 Jan 2012, 02:27

I can't stress enough - buy good quality components. A high quality 12 inch patch cable will cost $5 to $10 in parts. This will give you a cable that will last you for life.

Let's start with the connectors... (expect to pay $2 to $5 each).

1) There are numerous manufacturers and numerous styles. There are three manufacturers I trust:
Neutrik (European and Chinese are both very good)
- http://www.neutrik.com/en/audio/plugs-a ... eries/np2c
- http://www.neutrik.com/en/audio/plugs-a ... ries/np2rx

Switchcraft
- http://www.switchcraft.com/productsumma ... Parent=400
- http://www.switchcraft.com/productsumma ... Parent=405

Mode
- http://www.mode-elec.com/Products/audio ... 14-18).pdf
Specifically the 24-610-0 right angle connector - the other stuff in the PDF is "untried" and some of it is low quality. The 24-610-0 is a pain in the arse to solder, and too big for some applications, but it is very low height.

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Cable is not so easy... I've had a few experiences in the last couple of years where cable that should have been good killed the tone. Worse than that, some of the cable I've bought worked well for a couple of years, then went bad...

My new rule with cable is - buy USA, Japan or European made. Spend money on cable! At least $2/foot ($6/m).

Here are some things to check:
A) Ensure the shield completely covers the inner conductors like shown - this is the most important anti-hum attribute of the cable. The shield should be made of strands that aren't so thick they they break too easily - a good test is to unwind the strands and bend them back and forth and see if any break off.

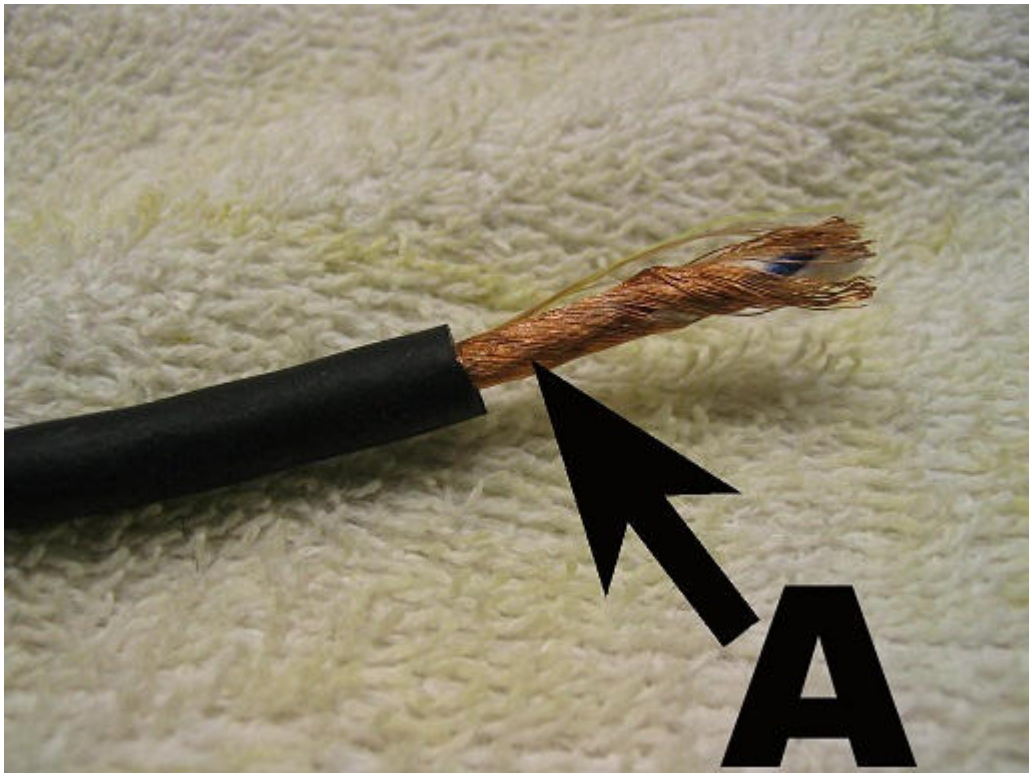
B) The outer insulation layer needs to be thick enough and sturdy enough to take the "knocks". I've found what you see in "B" is about right. Some things to check:
- Is the total diameter of the wire right to fit into the audio connectors we use? (5-6mm or about 1/4 inch is good). Note that the Mode 24-610-0 right angle connector requires thinner cable.
- Strip a piece of the insulation about 40-50 mm (2 inches) long and try to break it - twist it, bend it, scrape it, rub the cut ends on some concrete. If it survives with little or no damage, it should be OK.
- Hold the tip of a soldering iron on the insulation. It shouldn't "cut through like butter" - a slow melt is OK. No melt is better.

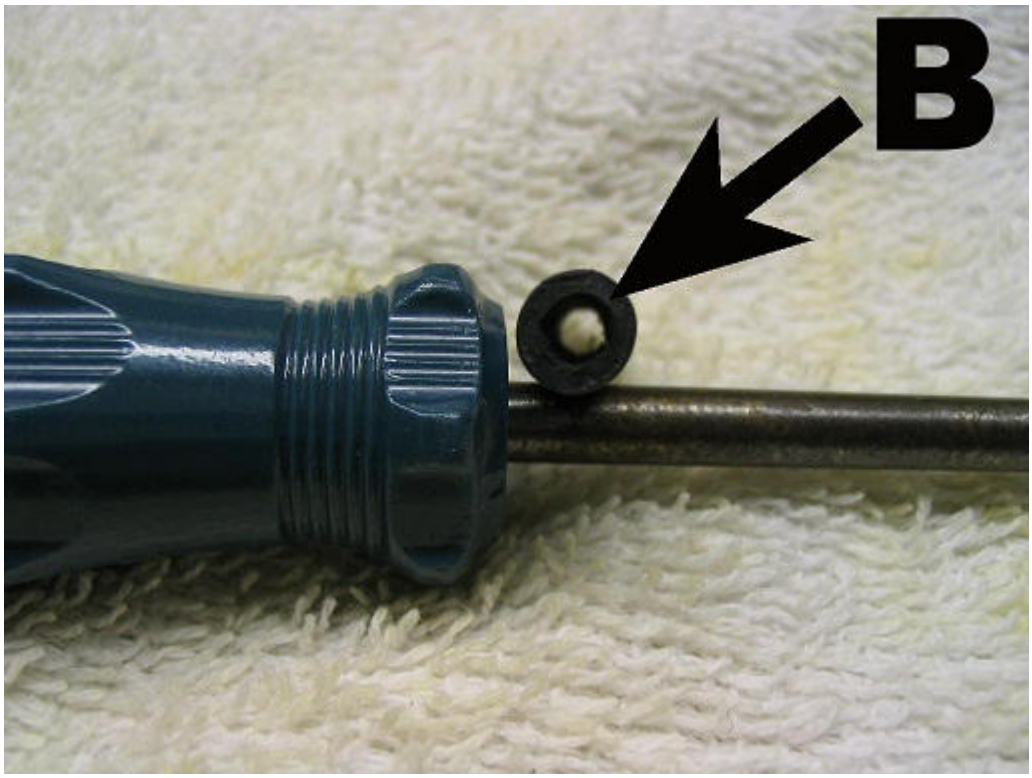
C) Ensure the cable has strain-relief cords. It looks like normal string/twine, but it's really strong - you shouldn't be able to break it without using tools. If the cable doesn't have this, it will fail from the mechanical abuse.

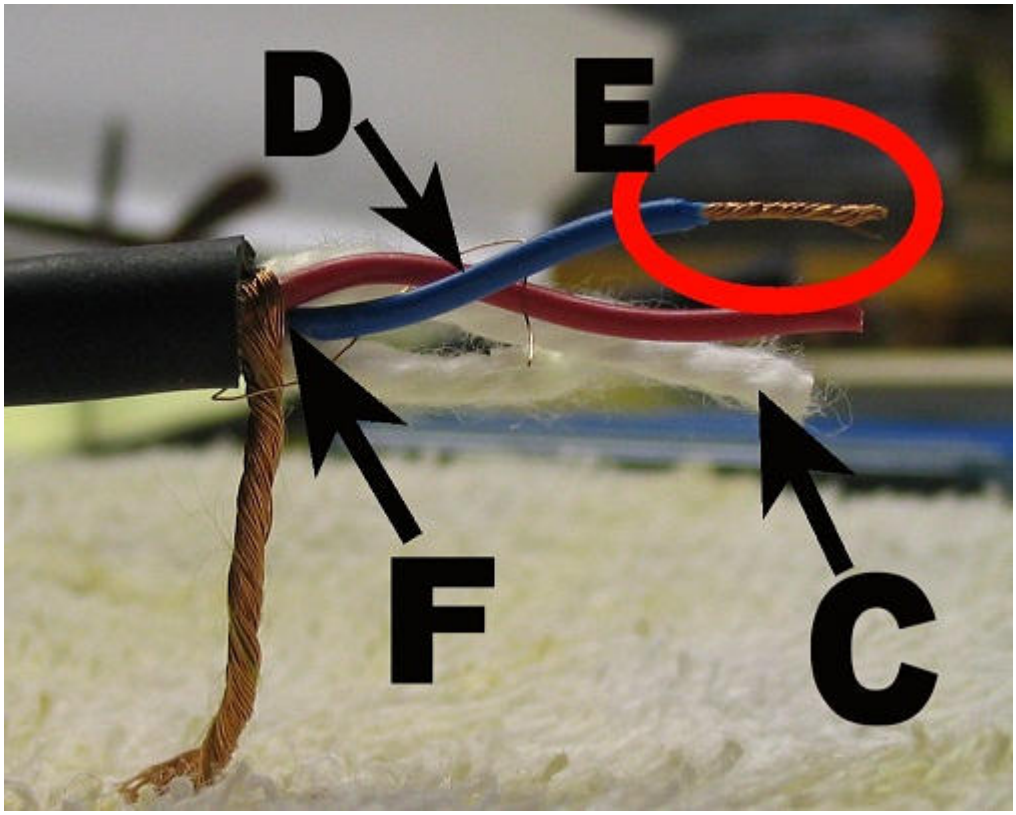
D) I use two conductor cable. Twist the stripped ends together and solder them both to the tip of the 1/4 inch jack - that way if one breaks, the other will still carry the signal.

E) Check the insulation on the signal wire conductors - it shouldn't be "paper thin". The thickness shown is about right. Also check that there are at least a dozen strands in the signal wires, and that it's not easy to break them - strip a small piece and bend the strands back and forward to see if any break off (be careful when you strip the wire to do this test - excessive pressure from the stripper can weaken the strands and they will break because of that).

F) A very important property of the signal wires is their resistance to heat - if the insulation melts when you are soldering, you will get a short at point F. To test this, strip the cable as shown in the "C,D,E,F" pic. Use a soldering iron to "tin" the sheild, just like you would if you were about to solder it onto the 1/4 inch connector. Once the solder has cooled, check the insulation on the signal wires (the blue and red plastic in the pic). There should be no, or very little, marking on the insulation from the heat.


A


B



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And finally soldering. Use high quality solder. 60/40 leaded solder will give best results. Buy a good soldering iron. You'll be doing builds and repairs for years, yes? Spend $100 on a temperature controlled Hakko or Weller soldering station. And practice, practise, practice. You'll throw out the first few cables you try to make. Don't worry, keep at it.

Buy one of these:
http://www.thinkgeek.com/gadgets/tools/a4bb/

Use a sharp (Stanley) knife for stripping the outer insulation - take care to not put pressure on the copper strands with the blade of the knife. Buy something like this for stripping the inner wires:
http://www.idealindustries.com/prodDeta ... dId=45-292

And buy a good multimeter for testing the completed cables. I always advocate looking for a used Fluke in your local Cash Convertors.

Total cost...
$70 for connectors and cable
$100 for a soldering station
$50 for solder tools
$70 for used Fluke meter

Under $300 and you are set for life. Just need to buy new connectors and cable when you run out.

http://www.youtube.com/watch?v=Pijbk8lEpC8

Laurie

Re: Making cables...

by **Zerksies** » 25 Jan 2012, 03:08

Also G&H connectors are good as well

Zerksies