

WIRE HARNESS ASSEMBLY

Making Proper Connections

One of the most important things to consider when installing car audio equipment is executing good wire connections. Following are the three MECP (Mobile Electronics Certified Professional) recommended wire connection methods.

Soldering

Soldering is generally considered the best wire-to-wire connection for installing aftermarket car audio equipment and is the method recommended by the MECP. Information on soldering technique is readily available online.

Pros

- Longer lasting than other methods
- Takes up less physical space compared to other types of connections
- Most versatile
- Easily reversible

Cons

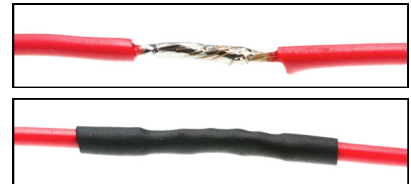
- Requires practice to execute good connections
- Slower to assemble than other methods



Soldering provides solid connections and a neat assembly with minimal bulk.



These connections are easy with soldering but would require an assortment of crimp connectors.



Heat shrinkable tubing is the best insulation for soldered connections.

Tips

- Insulate the soldered wires with heat shrinkable tubing or a *high quality* electrical tape such as 3M brand Super 33+.
- Cheap electrical tape will lose adhesion especially in temperature extremes.
- *Never* use plumbers solder or flux when soldering electrical connections.
- If you need to purchase a new soldering iron, a 40 Watt iron, such as the Weller™ model shown (Cat. #SP40NKUS), is a good choice for car audio work.
- 60/40 (60% lead, 40% tin) regular rosin core is the recommended solder for wire-to-wire connections .



40 Watt Soldering Iron



RadioShack™
60/40 Solder

Crimp Caps

Crimp caps provide the best electrical integrity in a wire-to-wire connection of any non-solder method. Unlike butt connectors, the wires are twisted together inside the crimped fitting.

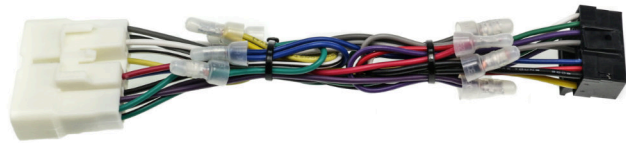
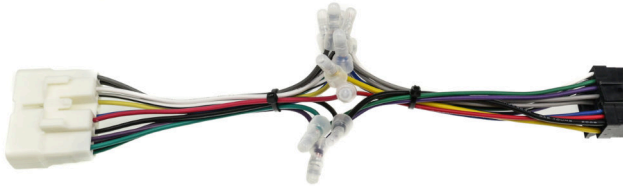


Pros

- Single crimp is quick to assemble
- Requires only a simple crimping tool
- Very reliable electrical connection

Cons

- Takes up more space in the dash area than other methods
- Easy for the caps to snag while installing or removing the harness



Crimp caps may hang up in the dash.

Alternate back-folding of wires may lessen the problem of snagging. Wrapping with electrical tape may also help.

Crimp Butt Connectors

Also known as barrel connectors, butt connectors provide a good wire-to-wire connection. This is the most popular wire connection method.



Pros

- Quick to assemble
- Requires only a simple crimping tool
- Reliable electrical joint when done properly
- Takes up minimal space in the dash

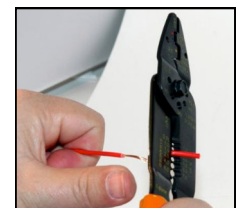
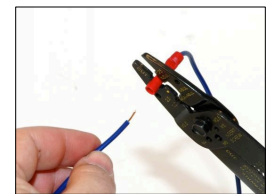
Cons

- Requires two crimped joints compared to a cap connector's single crimp
- The end-to-end joint is less secure than other methods and may detach if a wire is pulled



Assembling a wire harness is easy using a multi-featured crimp tool.

Volunteer Audio highly recommends The Crimper by ChannelLock® for making solid crimp connections with less risk of wire pull-outs.



Assembly Methods Never Recommended

There are other ways to connect wires but the end results may cause poor audio performance, more work in repair time, damaged equipment, and un-necessary headaches.

The following assembly methods are commonly seen but are never recommended.

Wire-tap connectors

These "insulation displacement" connectors are useful in low current draw applications but are not MECP recommended for car audio. They often cut wire strands as they bite through the insulation. Also, they create a large bundle of snag-points inside the dash.



Wire Nuts

Wire nuts are often used by people unfamiliar with wiring attempting their first DIY audio project. Wire nuts are for use in appliances, residential, and commercial wiring. They will make a good connection at first (and are very useful for a temporary testing situation) but will eventually loosen due to the vibrations of a vehicle. Also, like the wire-taps, they create a bundle of points to snag on inside the dash and may get pulled off even during the initial installation.



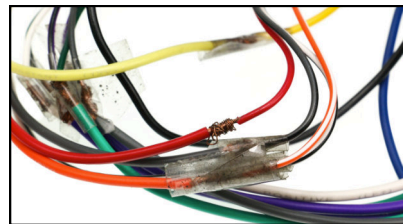
Twist-n-tape

Twisting wires together and wrapping with electrical tape is OK for a temporary connection but will eventually loosen and result in a poor connection that will negatively affect audio signals.



Never, never recommended

Common cellophane tape was used in this version of the *twist-n-tape* wire assembly method. Not surprisingly, the radio never worked properly.



We employ certified MECP professionals