Wiring Repairs

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There aren't enough fingers and toes in the world to count how many bad wiring repairs I've seen on Citroens. The usual method employed is to strip the wires, twist them together and then put a loose piece of tape over the connection. This is guaranteed to fail and worse yet, will cause additional problems when it does fail. Another common method is to use the crimp connectors and crimping tool commonly found in auto parts stores. This is a little better but because the connection produced by manual crimping is not airtight it will corrode and fail over time. The goal when connecting two wires together is to make a connection that is safe and will not fail for the life of the car.

The tried and true method I've used for years is to solder the wires together and then use heat shrink tubing to insulate and seal the connection from the elements. It's as simple as that. Let's go over the tools and steps needed to make a good connection.

You will need a soldering iron, rosin core solder, heat shrink tubing and a heat gun or hair dryer. All of these things can be found at Radio Shack or Home Depot type stores or you may already have them. Soldering irons come in different sizes. The smallest are for small electronic work and the largest for heavy gauge wire. The best one for automotive work is the 100 to 150 watt "soldering gun". Most wires and connectors on Citroens are heavy enough that a small electronic "pencil grip" soldering iron will not work. Some wires, like the battery to starter wire, will require the use of an oxy/acetylene or propane torch.

The first step is to strip at least ½" of insulation off each wire to be connected. Make sure that the copper is shiny and clean. If it's dark and/or corroded in any way soldering will be difficult. If possible cut the wire back until you get clean copper. If it's not possible to cut the wire back then use a piece of sandpaper to clean the copper strands as much as possible.

The second step is to place a piece of heat shrink tubing on one of the wires. The tubing should have a diameter just large enough to slip over the joined wires and long enough to cover all of the connection plus a ¼" on each side. Shrink tubing shrinks about 50% in diameter when heated. Keep the tubing at least a couple inches away from the heat of the soldering iron while you are soldering the connection.

The third step is to twist the wires together. Keep the connection tight, neat and straight.

The fourth step is to solder the wires together. Safety glasses are recommended while soldering and gloves

are a good idea also. Use rosin core solder intended for electronic circuits. Do not use plumbers solder, soldering paste or acid core solder. The rosin in the solder will help the solder stick to the copper. This process is called “tinning”. Apply only as much solder as is needed and if too much heat is used the wire insulation will melt. If you are just learning how to solder use a couple of wire scraps to learn on and refine your skills. Look over your solder connection. All sides of the connection should have solder on them and the copper should wick up the solder into the strands. If you have too much solder on the connection a slight tap on the work surface while the solder is liquid will remove the excess. When you are satisfied with the results move on to the next step.

The fifth and last step is to slide the previously placed heat shrink tubing over the connection. Make sure all copper wire is covered. Use the heat gun or hair dryer to shrink the tubing. A slower way to shrink the tubing is to use the heat from the soldering iron. But it’s a fine line between too much heat from the soldering iron and not enough.

You can use the same procedure for connecting a wire to a connector. Heat shrink tubing is a great insulator and can be used to cover the part of the connector and the wire. If the connection will be subject to repeated water spray then place a dab of silicon sealant on the connection before you slide the heat shrink tubing over the connection. When the tubing shrinks it will push out any excess sealant.

That’s it! Now all your wiring connections will be trouble free for many years.