# INTRODUCTION TO WIRING THE SYSTEM AND MAKING CONNECTIONS

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## WIRING THE SYSTEM AND MAKING CONNECTIONS:

- What makes or breaks an alarm or remote start system is the installation. Even the best systems on the market will not properly protect a vehicle and function properly if they are poorly installed. A properly installed system begins with how the system's wiring is prepared.

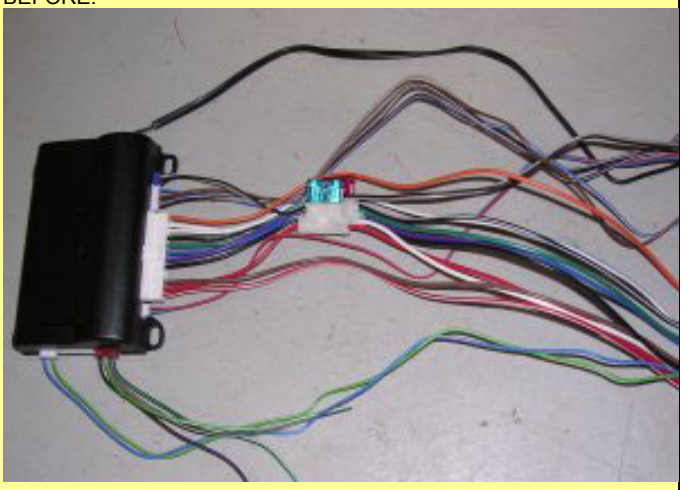
- Most installers prefer to disassemble the vehicle first and find the wires they need before any components are mounted or connections are made. It is recommended that when disassembling the vehicle; place each part in a labeled box or bin. Do not leave pieces on the floor. They could get lost, stepped on, or broken.

- Take time to test each wire to verify that it is the correct wire. Use a quality digital multi-meter. A digital multi-meter is a multi-purpose instrument that combines the features of an ammeter, voltmeter, and ohmmeter into one tool. Never use an analog volt-ohm meter or incandescent test light to test circuits. In today's computer equipped vehicles, the current draw that a volt-ohm meter or test light requires can permanently damage delicate vehicle computers. Always use a digital multi-meter to test circuits. Wire colors and sometimes wire polarities can vary from vehicle to vehicle. Also, take a note of how the vehicle's factory wires are wrapped. Are they wrapped in vinyl tape? Are they covered in split-loom? Are they covered in cloth tape? Wires should be carefully wrapped to match the vehicle's wiring. This will make the system "blend in" with the factory wiring, giving it a factory-installed appearance.

- Study the vehicle and find places to mount components such as the control unit, relays, and sensors. Make sure components won't be in the way of any moving parts. Make sure you can reassemble the vehicle without the alarm/remote start system's components being in the way. Nothing is worse than completing the installation and finding a panel won't fit back on because a relay or the control unit is in the way. Look under the hood to find a spot to mount the siren. Many engine bays are very cramped. Take time to plan how you will run your wires through the engine bay.

- Most installers prefer to screw down or use double-sided tape to secure the system's control module on a counter top or work bench to prep the system's wiring. Some installers chose to wrap the system's wires individually. However, many systems can have over 50 wires. In this case many installers will wrap wires that must go to a similar location together. For example, twist together wires that must go to a similar location like the driver's kick panel, the ignition harness, the passenger kick panel, the headlight switch, under the hood, or to any other location that you are routing wires to. Wrap the wires in tape or split loom to camouflage the wires and make them look like factory wiring. Cap off wires that will not be connected to prevent any shorts.

BEFORE:



AFTER:

- Connections should only be made by crimp connectors or solder connections. When properly performed, both connections are reliable and trouble free.

- It is recommended that a Klein-style crimp tool be used for solderless crimp-on connectors instead of a cheap hardware store crimping tool.

- When making crimp connections, the seam of the metal barrel in the solderless crimp-on connector should be in the concave part of the crimp tool's jaws.

- The only drawback to crimping is that oxidation can build up between the wire and the connectors over time. The oxidation causes degradation in electrical connection. This causes an increase in resistance, which can hurt the overall performance of the system.

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- When soldering, solder should be applied so it flows over the connections. For best results, the tip of the soldering iron should be held below the wire while applying the solder from above. This allows the solder to flow from the top of the wire to the bottom more uniformly. Two or three balls of solder is not good enough because it may contain air bubbles and either brake off over time or have little electrical connection value. A good solder joint should be smooth and shiny. Once the soldering is completed, let the solder joint stand until cool. Tape and seal the solder joint after the solder joint has cooled.

- When soldering, use a drop cloth to prevent solder drips and burns on the vehicle's carpeting. Also a drop cloth makes clean up easier when installation is completed.

- Make certain that wires cannot be shorted to the chassis at any point.

- Cheap electrical tape is not a reliable insulator.
    - It often falls off in hot weather.

- Use good-quality electrical tape; such as 3M, or heat shrink tubing

- Never twist-and-tape wires together without soldering. Never use “wire nuts.” Wire nuts are designed for a stationary, stable environment. The vibration of being on the road could cause a wire nut to eventually fall off the wire leaving the exposed wiring to short to ground, possibly causing severe electrical damage.

- Never use "fuse taps".
    - They can be easily defeated
    - They can possibly damage fuse box terminals

- Avoid using T-taps, especially in high current connections. Many installers get in the habit of using T-taps because they are quick and easy to use. However, over time they can come loose. Also they are not meant to be used in high-current connections such as the outputs from a remote start system to the vehicles ignition, accessory, and starter wires.

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