

PAINLESS[®]

PERFORMANCE PRODUCTS

Trail Rocker Installation



Instructions

Customizable Trail Rocker Control System

For Installing Painless Part Number: 57100

Manual #90616

Painless Performance Products recommends you, the installer, read this installation manual from front to back before installing this harness.



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If you have any questions concerning the installation of this product, feel free to call **Painless Performance Products'** tech line at 1-800-423-9696. Calls are answered from 8am to 5pm central time, Monday thru Thursday, 8am-4:30pm Friday, except holidays.

Here we have provided you with accurate instructions for the installation of this product. However, if you have comments/suggestions concerning these instructions, please call or email us (our contact information can be found at the top of this page or online at **www.painlessperformance.com**). We sincerely appreciate your business.

Painless Performance Products, LLC shall in no event be liable in contract or tort (including negligence) for special, indirect, incidental, or consequential damages, such as but not limited to, loss of property, or any other damages, costs or expenses which might be claimed as the result of the use or failure of the goods sold hereby, except only the cost of repair or replacement.

Should you damage or lose part of your manual, a full color copy of these instructions can be found online at www.painlessperformance.com

Installation Manual: **90616**

1st Edition: May 2017

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CONTENTS OF THE PAINLESS KIT

Refer to the **Contents Figure** (below) to take inventory. See that you have everything you're intended to have in this kit. If you find that anything is missing or damaged, please contact the dealer where you obtained the kit or Painless Performance at (800) 423-9696.

The Painless Trail Rocker Kit 57100 should contain the following:

- Fuse/Relay Center pre-installed to powder coated bracket.
- Ignition Switch pigtail w/ weather-pack connector, (1) rubber grommet, zip-ties, zip-tie mounts, and dielectric grease.
- Winch Pigtail and installation kit.
- **Parts Kits:** (2) 1" Adel clamps, (2) 3/4" Adel clamp, (4) 1/4"-20 x 3/4" stainless bolts, (2) 1/4" flat washers, (4) 1/4" nylon locking nuts, (1) 1/4" lock washer, (12) un-insulated butt connectors, (12) pre-cut heat-shrink, (8) insulated wire caps, (16) 20-18 ga. 1/4" spade terminals, (16) 20-18 ga. #8 insulated ring terminals, (1) 20-18 ga. #10 ring terminal (4) 30 amp ATO fuses, and (1) 200 amp MIDI fuse.
- **Power and Ground Terminal Kit:** (1) pre-cut 1/4" black heat shrink, (4") pre-cut 1/2" red heat shrink, (1) 16-14 ga. non-insulated ring terminal, (1) 6 ga. 1/4" ring terminal, and (1) 6 ga. 5/16" ring terminal
- This manual (90616)



SMALL PARTS

Included with the Painless harness are parts kits containing miscellaneous terminals, fuses, screws, and nuts. Many of the terminals are non-insulated and will require heat shrink to be applied after the terminal has been properly crimped. Heat shrink has been supplied. These non-insulated terminals allow you to keep a cleaner, more traditional look. When crimping these terminals, take notice to the split in the terminal. Make sure the smooth side of the jaw on the crimper goes towards this split.



TOOLS NEEDED

This installation primarily requires only basic hand tools that may include, but are not limited to:

1. Wrench sets SAE and Metric
2. Ratchet sets SAE and Metric
 - a. 1/4" Drive w/ an extension is recommended for some tight areas of the install.
3. Screwdrivers:
 - a. (2) #2 Phillips Head
 - b. #0 "Jewelers" Flat (slot) Head
4. Diagonal Pliers or "dikes"
5. Wire Cutter/ 18-10 ga. Stripper
6. Hand Crimpers
7. Cable Cutters
8. Cable Crimping Tool
9. Hammer



In addition to these basic hand tools, you may need the following:

Volt/Ohm Meter:

A Volt/Ohm meter is always a good tool to have on hand when installing any type of electrical component into a vehicle. The most basic meters provide the two functions required to diagnose electrical issues commonly seen during a harness install. These two functions are the ability to read DC Voltage and electrical continuity or Ohms. They can be purchased from any home improvement store, local hardware store and electrical supply shop and online.



Heat Gun:

Very useful to shrink the heat-shrink found in the parts kit.

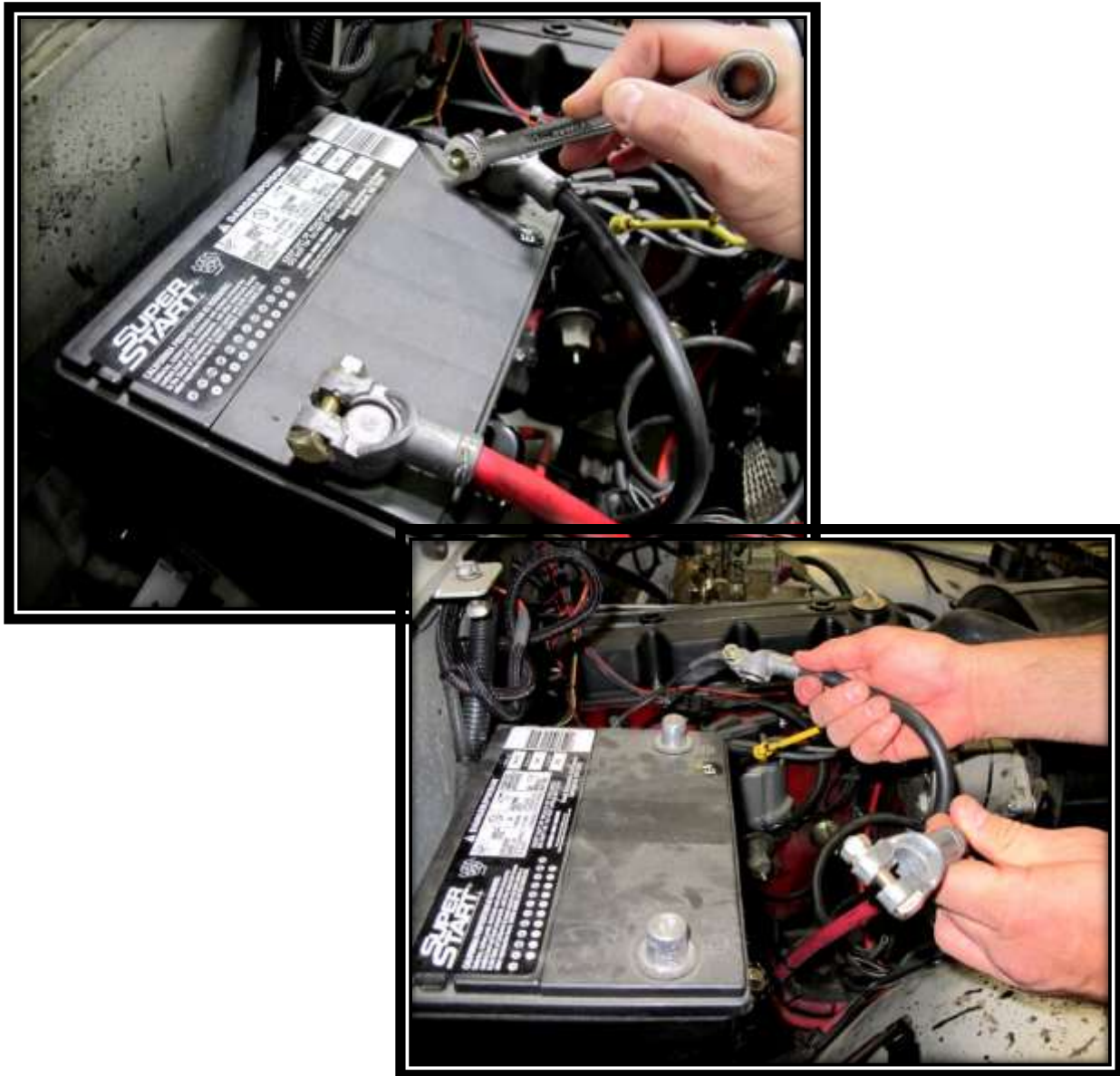
FUSE/RELAY CENTER INSTALLATION

CAUTION: BEFORE THE INSTALLATION OF THIS PRODUCT, DISCONNECT THE POWER FROM YOUR VEHICLE BY REMOVING THE BATTERY CABLES FROM THE BATTERY. THE BATTERY SHOULD NOT TO BE RECONNECTED UNTIL INSTRUCTED



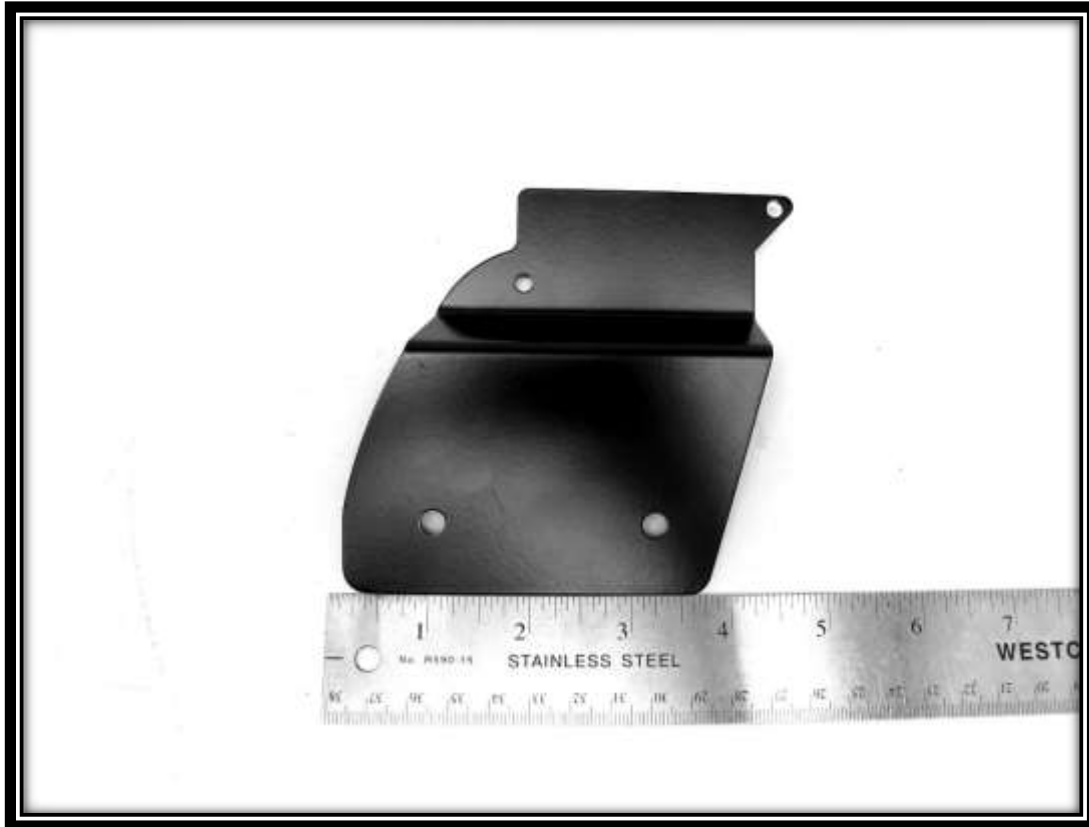
BRACKET MOUNTING

Step 1: Locate your battery and remove the cables, beginning with the negative (-) cable.



Step 2: Find the location where you wish to mount the Fuse/Relay Center. Remember, that the **power cable** and **ground wire** attached to the Fuse/Relay Center are **18 inches** long and must reach the battery. If you wish to mount the Fuse/Relay Center further away from your battery than **18 inches**, you will need to replace the **power cable** with a longer 6 gauge cable and extend the **ground wire** with a butt connector. For steps on removing the power cable see [page 33](#), and for steps on how to properly crimp and use a butt connector go to [page 25](#).

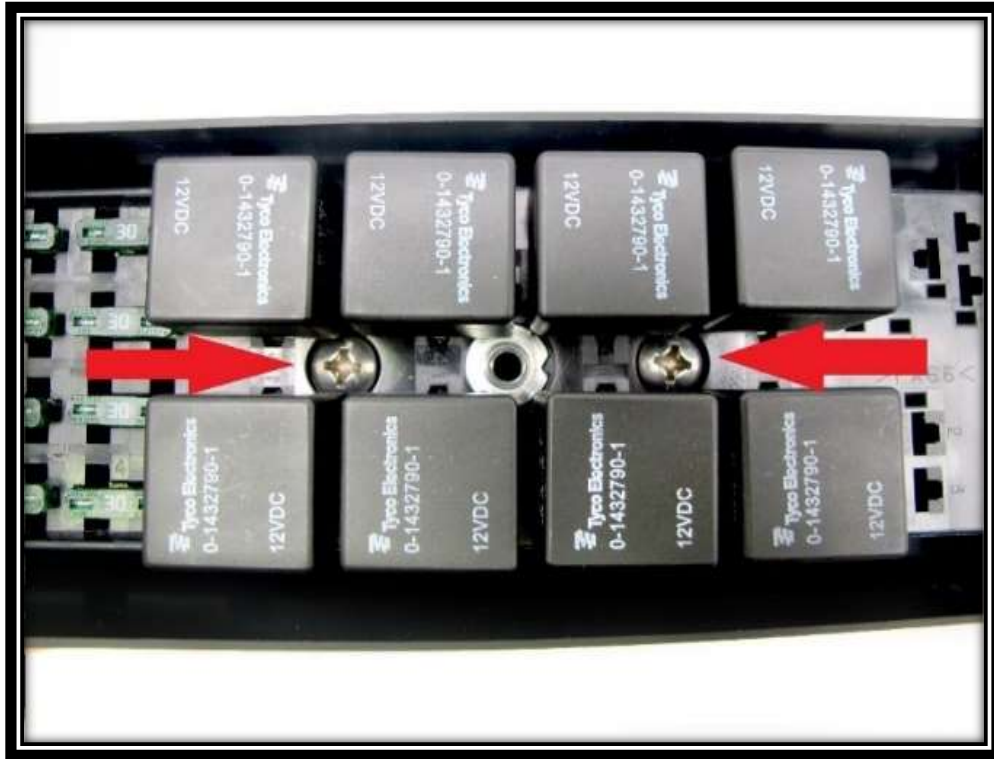
Step 3: The image below shows the bracket removed from the Fuse/Relay Center to better illustrate the distance between the mounting bolts. Once you have your optimal location picked out, you will need to drill **2 holes** in order to mount the Fuse/Relay Center. Use a **1/4" drill bit** and space the holes **2 1/4"** apart.



Step 4: Before mounting the Fuse/Relay Center, remove the lid using a **7/16" wrench** or **socket**.



Step 5: Removing the lid will give you access to the head of the mounting bolts. Use a **#2 Philips-Head screwdriver** to hold the bolts in place when you mount the **Fuse/Relay Center**.



Step 6: With the bolts held in place, mount the **Fuse/Relay Center** with the **1/4" locking nuts** found in the parts kit.



Step 7: Reattach the lid the Fuse/Relay Center.



SWITCH CONTROL WIRE ROUTING

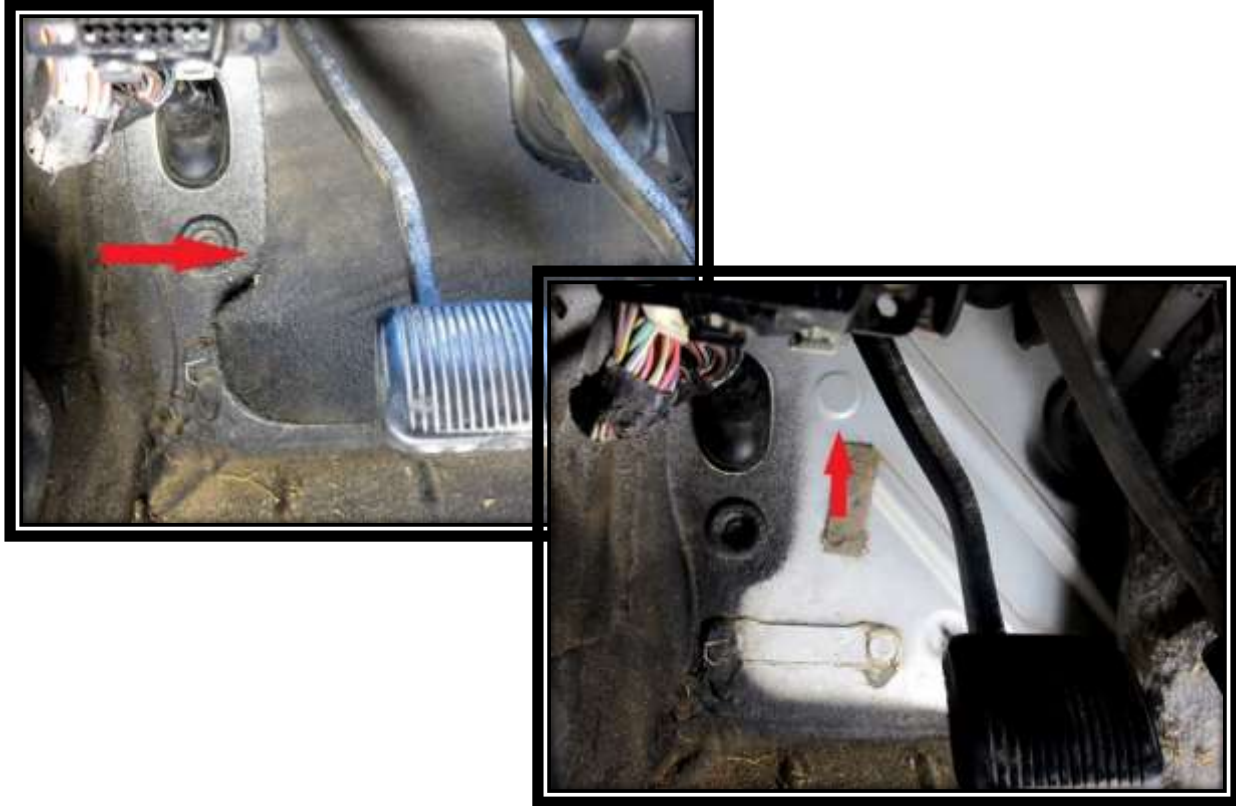
Step 8: Now, locate the **Switch Control** wires. These wires will need to be routed toward the switches you wish to connect to the **Trail Rocker System**.



Step 9: As most switches are located in the interior of the vehicle, the **Switch Control** wires will likely need to pass through the firewall. A **1" grommet** is included in the parts kit to insure the wires pass through the firewall safely. The **grommet** requires a **1 ¼" hole** in the firewall; so, locate an existing hole in or by make a new one.



Step 10: If you are drilling a hole, be sure that there is nothing on the other side of the firewall that could be damaged where you are drilling.



Step 11: Use a **1 ¼" hole saw with arbor** to drill a hole in the firewall. Then, use a **metal file** to remove any burrs.



Step 12: Route the **Switch Control wires** toward the hole in the firewall. Then, secure the **control wires** to the factory harness loom or a secure bracket using **zip-ties** provided in the parts kit.



Step 13: The **Switch control wires** can also be mounted directly to the frame using the included **Adel clamps** or **zip-tie anchors**, included in the **parts kit**. Drill a **1/4" hole**, press in the **anchor**, and mount the **zip-tie** through the **anchor** and around the **Switch Control wires**.



Step 14: Once the **Switch Control wires** are secured pass them through the firewall. Place the **rubber grommet**, included in the **parts kit**, over the **Switch Control wire connector**. Then pass the wires through the hole in the firewall.



SWITCH CONTROL PIGTAIL

Step 15: Locate the **Switch Control pigtail** included in your **Trail Rocker Kit** if you are not using a **Trail Rocker Switch Box**. The wires of this pigtail will run directly to the switches you are using.

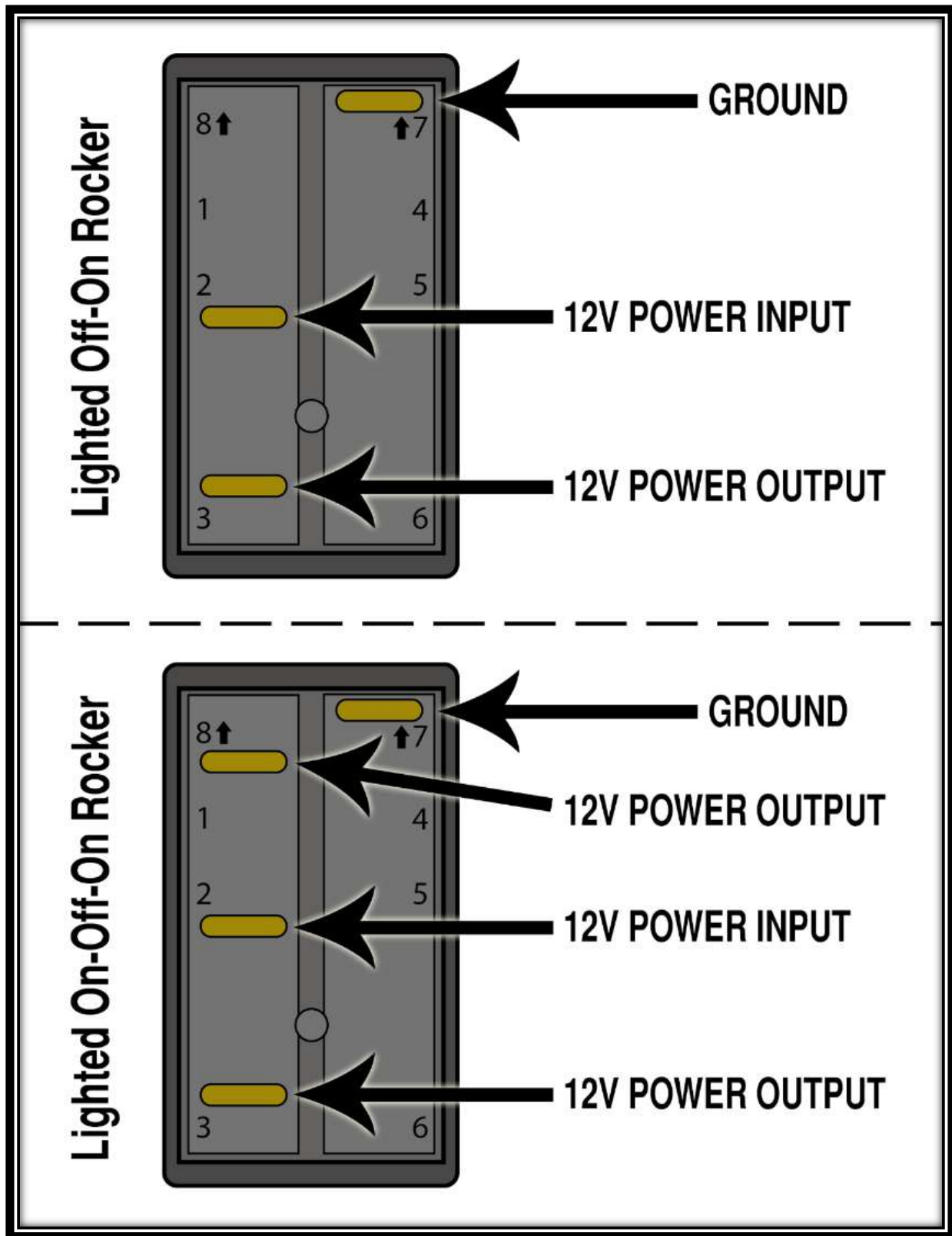


Step 16: Connect the **Switch Control pigtail** to the connector on the **Switch Control wires** you passed through the firewall in the previous section. Stow the wiring harness neatly away, and secure with a **zip-tie** if needed. If you are concerned about this connection being weatherproof, use the provided dielectric grease to fill each terminal of the **Switch Control wire connector**.

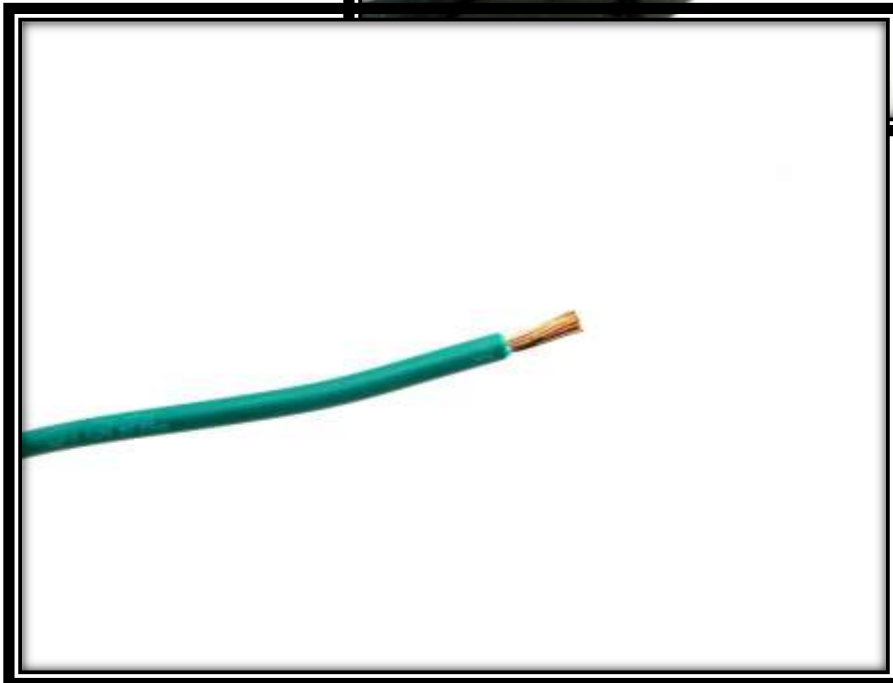
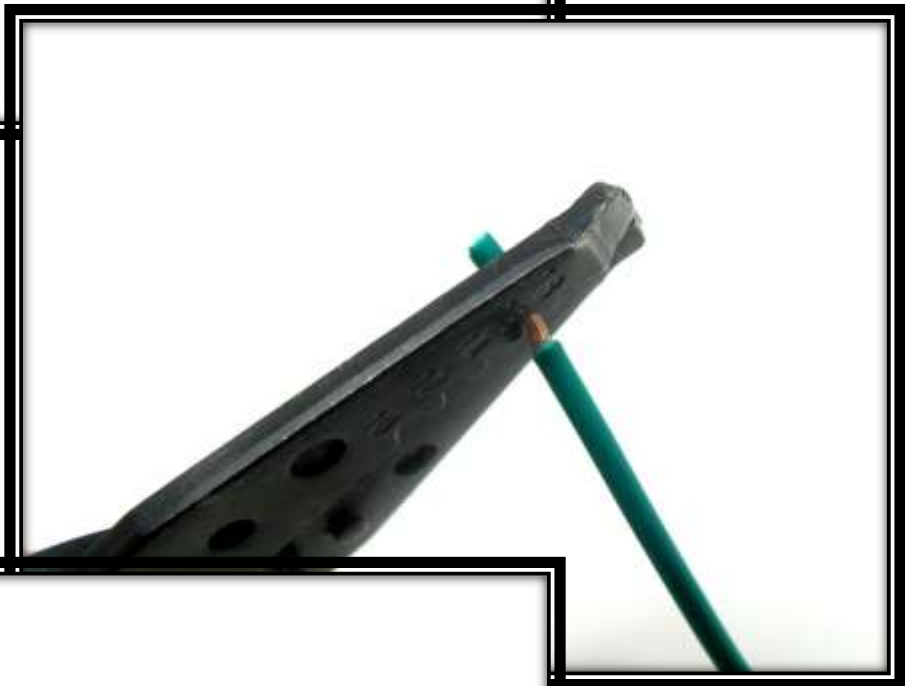
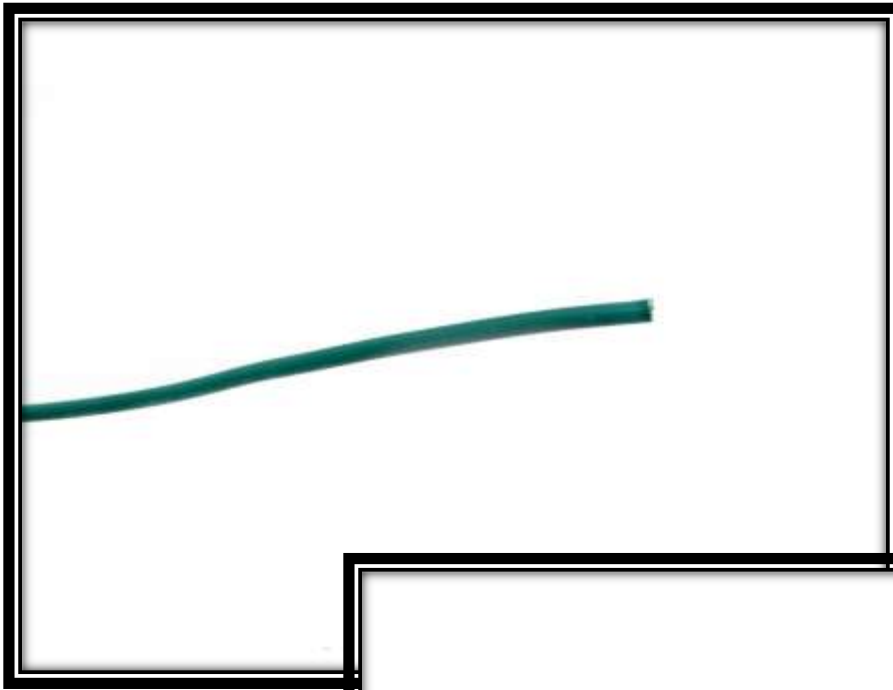


SWITCH WIRING

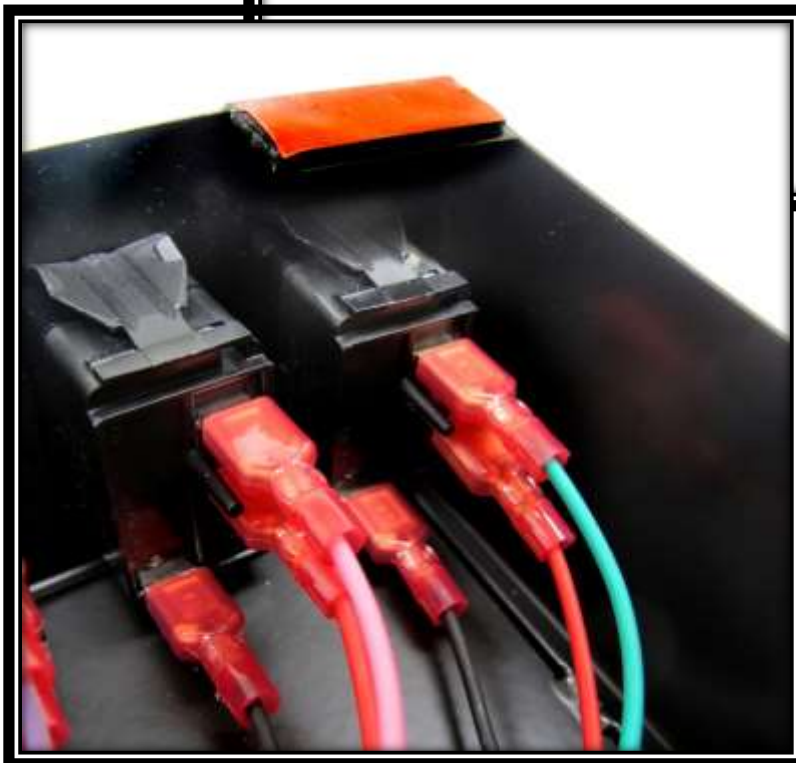
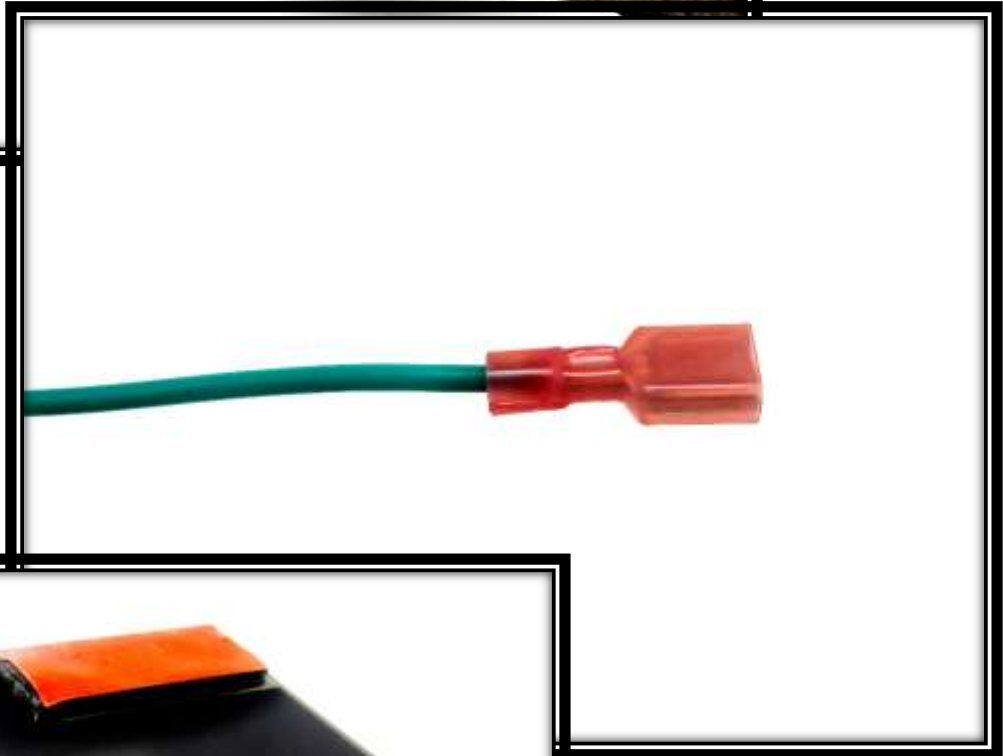
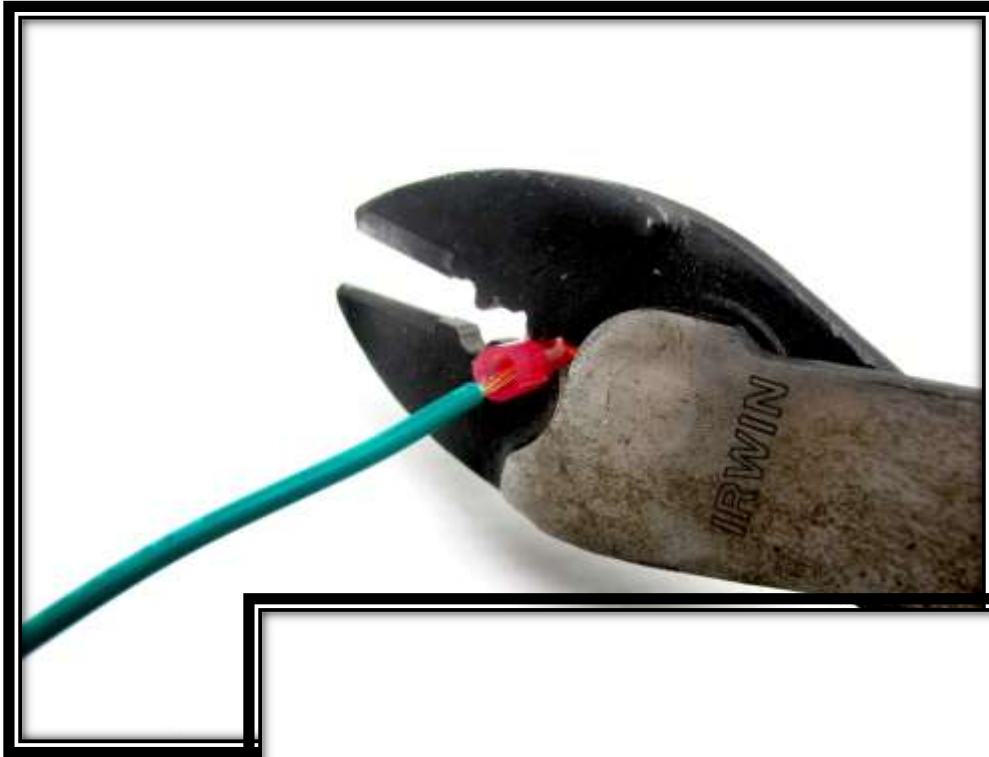
The standard Carling lighted rocker switches, like those sold by Painless, are wired as shown in the diagram below.



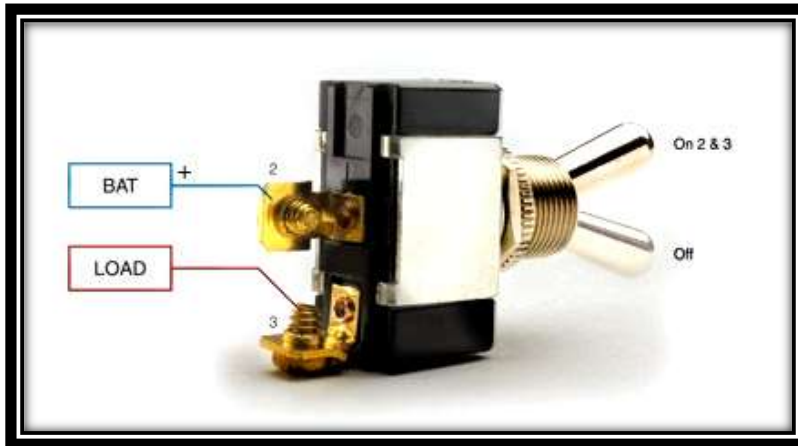
Step 17: Locate the wire on the **Switch Control** pigtail you wish to connect to a switch and strip it about $\frac{1}{4}$ ".



Step 18: Crimp on a **20-18 ga. ¼" spade terminal** found in the included parts kit. Then, connect the wire to the switch.



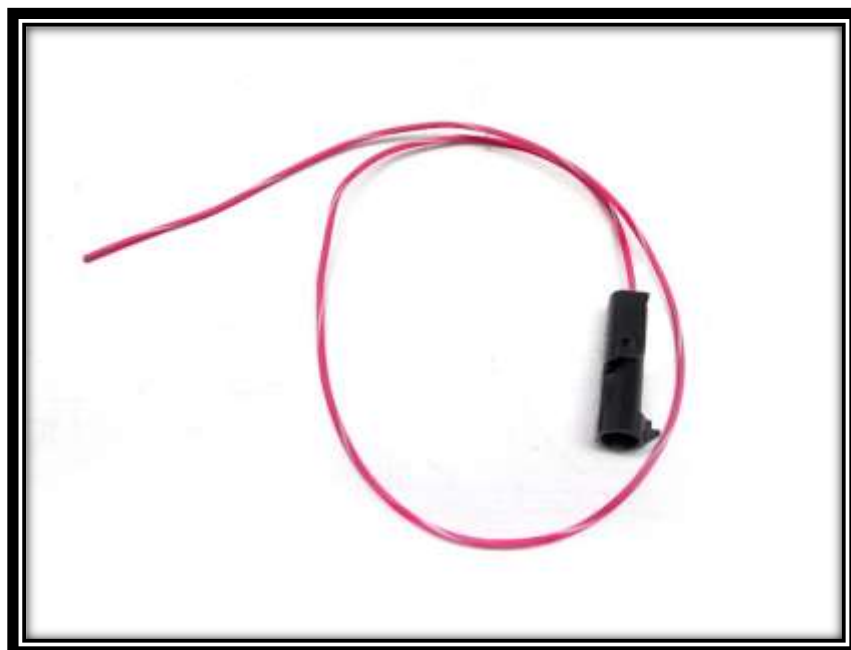
Step 19: The ground wire is only necessary if you are using a lighted switch. A standard, non-lighted, 2-wire switch only requires a power wire and an activation wire.



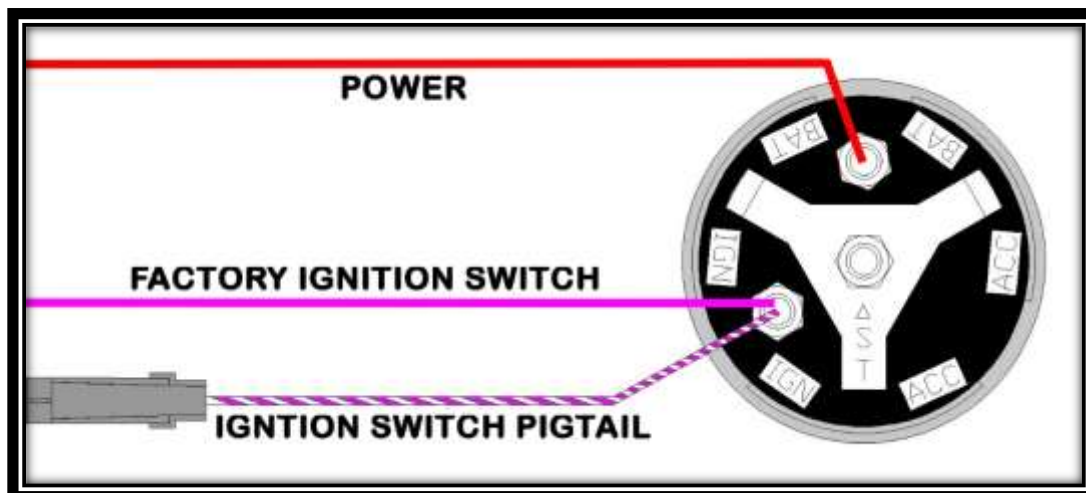
IGNITION SWITCH PIGTAIL INSTALLATION

THESE STEPS ILLUSTRATE HOW TO HOOK UP YOUR TRAIL ROCKER TO IGNITION SWITCHED POWER AND ARE COMPLETELY OPTIONAL. IF YOU WANT TO OPERATE YOUR SWITCHES WITH A CONSTANT POWER (AS SHIPPED), SKIP STEPS 20 - 29 AND MOVE ON TO THE RELAY OUTPUT WIRES SECTION ON PAGE 25.

Step 20: Now locate the **Ignition Switch Pigtail**. This pigtail connects to the ignition switch and gives the Trail Rocker System ignition switched power instead of it being constantly hot. The following steps will show you how to connect the pigtail to a universal ignition switch or splice it into a factory ignition switch connector.



Step 21: If you are using a universal ignition switch with threaded posts, like **Painless Part# 80153**, the pigtail can be connected directly to the ignition post using the included 20 – 18 ga, #10 ring terminal.



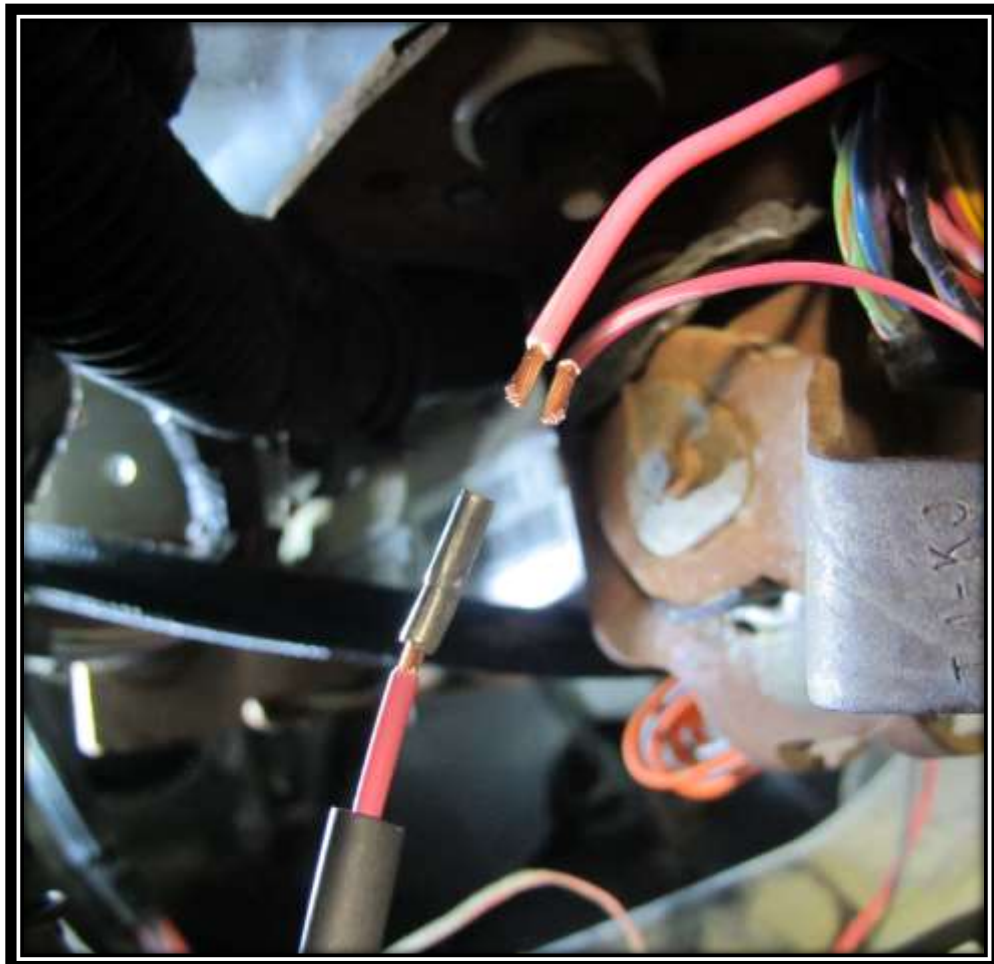
Step 22: If you have a factory ignition switch you made need to locate the **ignition switch connector** on the steering column. To do this, you may need to remove an **access panel** or **steering column cover** as seen in the examples below. You can disconnect the ignition switch connector, if you wish, but it is not necessary.



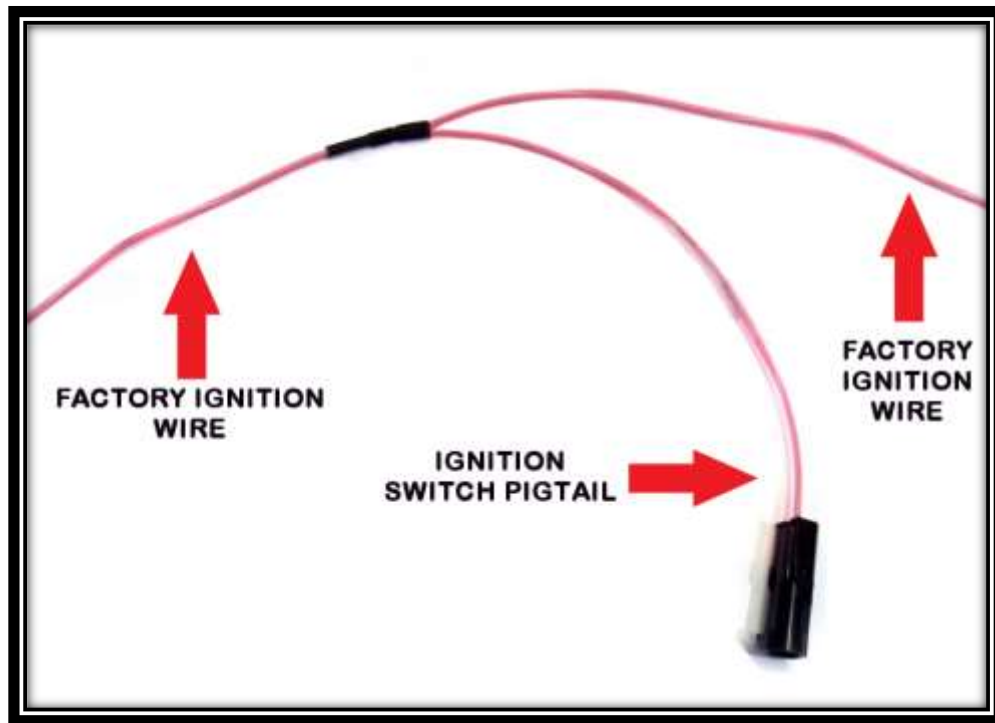
Step 23: Then, cut the 12V ignition wire about 2" – 3" from the connector. You will connect the pigtail to both ends of the cut 12v ignition wire using the **uninsulated butt connectors** from the parts kit. We have provided you with excess wire in order for you to make the necessary splices to the pigtail that accommodate your personal needs.



Step 24: Now, strip the factory **wire $\frac{3}{8}$ "**. Once stripped, fold the copper wire in half to ensure a tight connection to the **butt connector**.



Step 25: Then, strip the other factory wire and the **ignition pigtail ¼ inch**. Then slide both wires into the other end of the **butt connector** and crimp. (**NOTE: make sure to slide the **heat shrink** over the wire before crimping**).



Step 26: After crimping, slide the **heat shrink** over the connection. Using a heat source, heat the **heat shrink** ensuring a tight wrap around the connector.



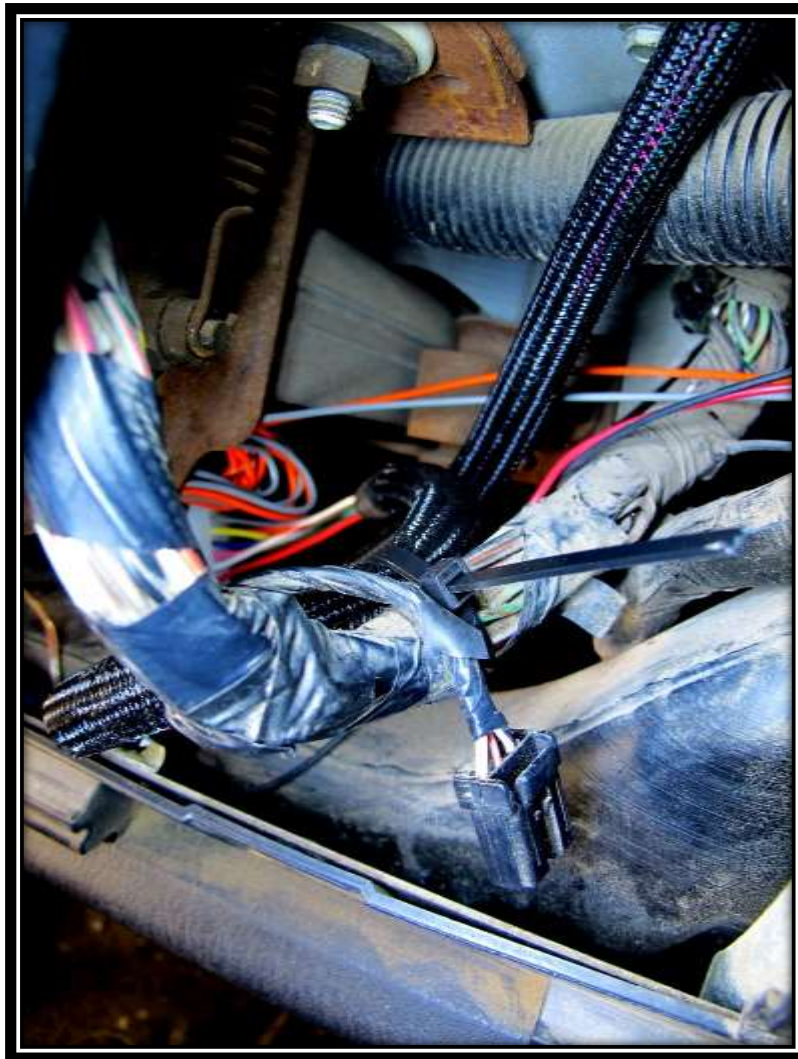
Step 27: Reinstall the factory ignition switch connector, if you disconnected it during the install.



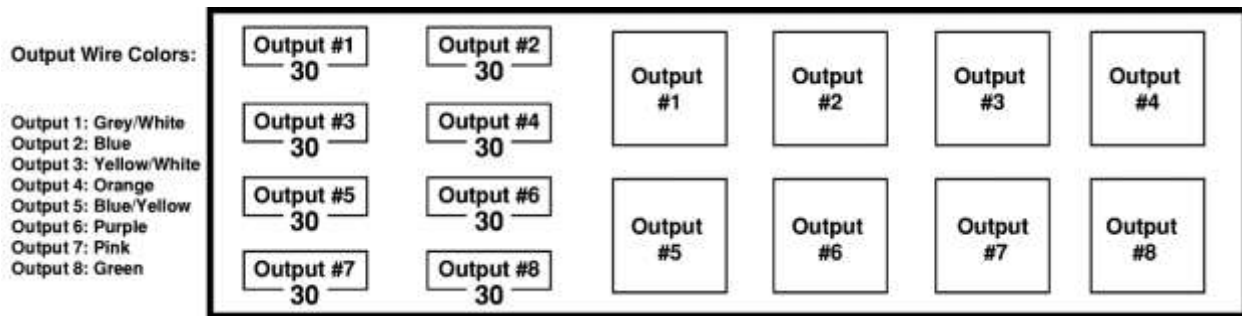
Step 28: Now, locate the factory hot weather pack connector on the Switch Control wires coming from the Fuse/Relay Center and unplug it. Then plug in the ignition switch pigtail to the weather pack connector.



Step 29: Secure the wires using the provided [zip-ties](#), and replace any panels you may have removed.



RELAY OUTPUT WIRES



Route these wires to the location of your components. Ensure to route them safely, and avoid high heat areas, moving parts, and sharp edges. Painless recommends using grommets for any wires passing through metal to avoid wearing through the wire insulation and causing arcing. Make sure any accessories and/or components you install are properly grounded.

See **Steps 30-34** starting on [page 26](#) for a common example on connecting the relay output wires to most accessories.

Relay Output Wire Color Diagram:

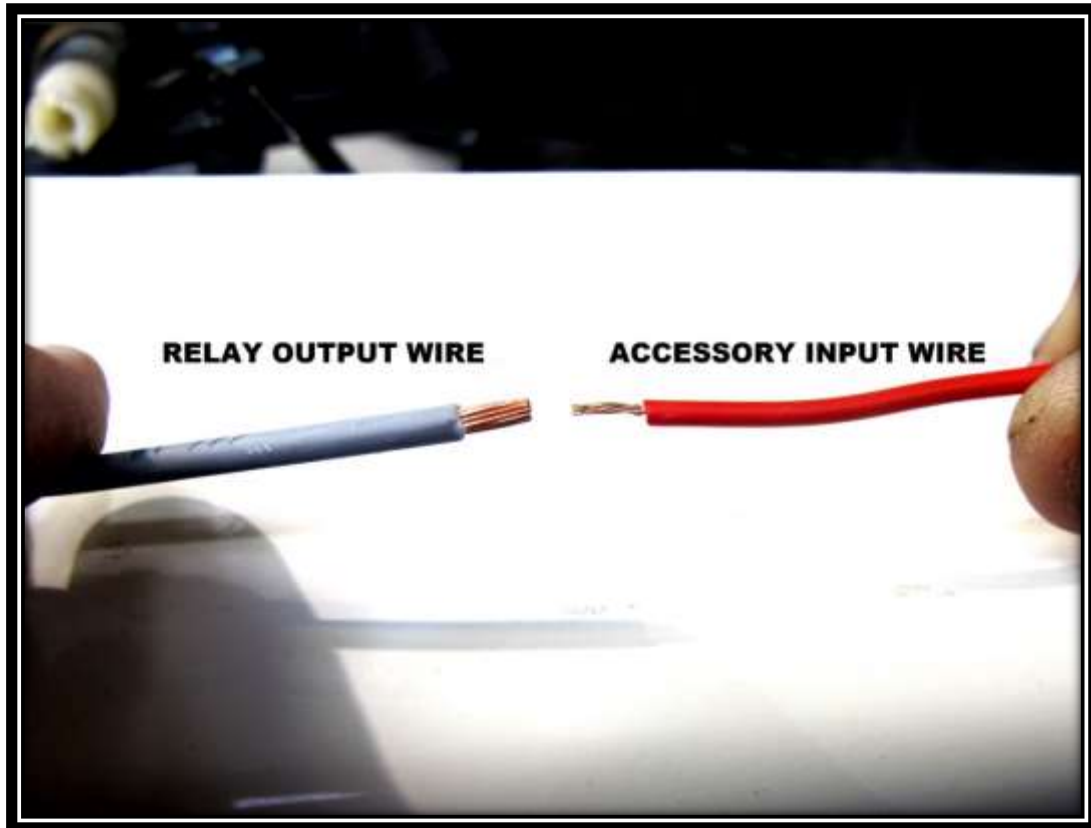
- Wire #1: Grey/White
- Wire #2: Blue
- Wire #3: Yellow/White
- Wire #4: Orange
- Wire #5: Blue/Yellow
- Wire #6: Purple
- Wire #7: Pink
- Wire #8: Green

Winch Control wires:

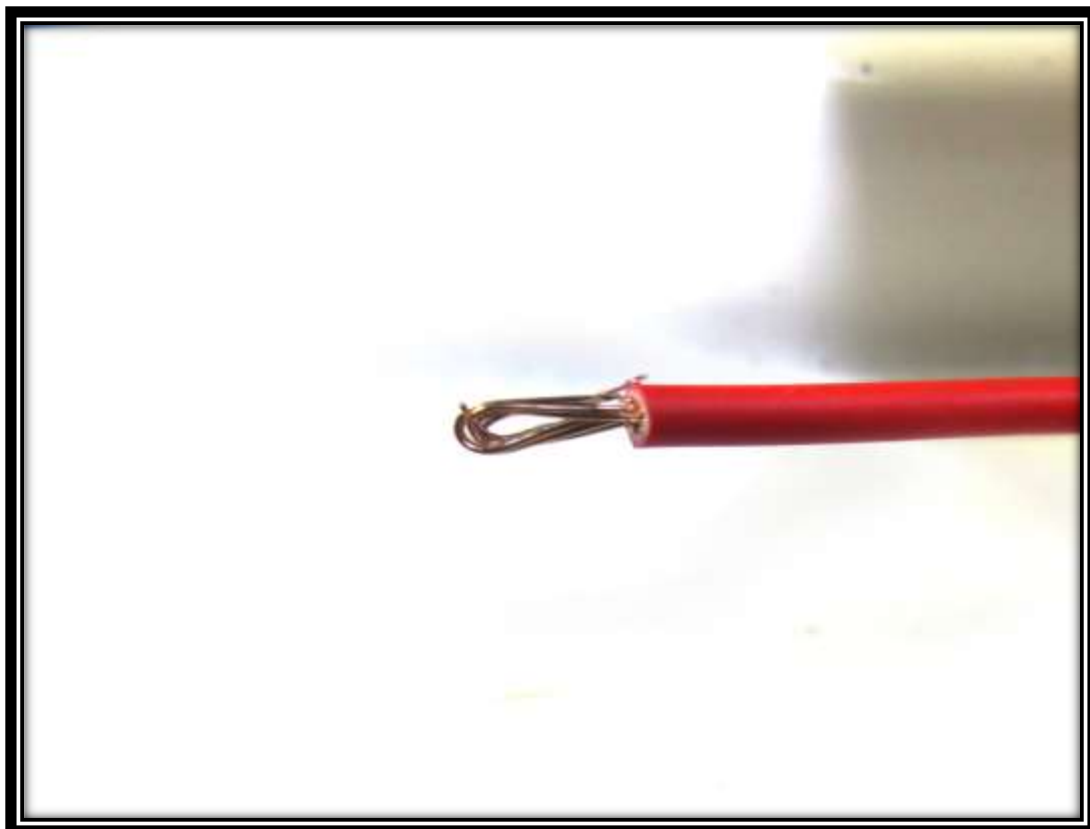
- Winch Control In: White/Red
- Winch Control Out: Brown/White

For winch switch installation, see [page 29](#).

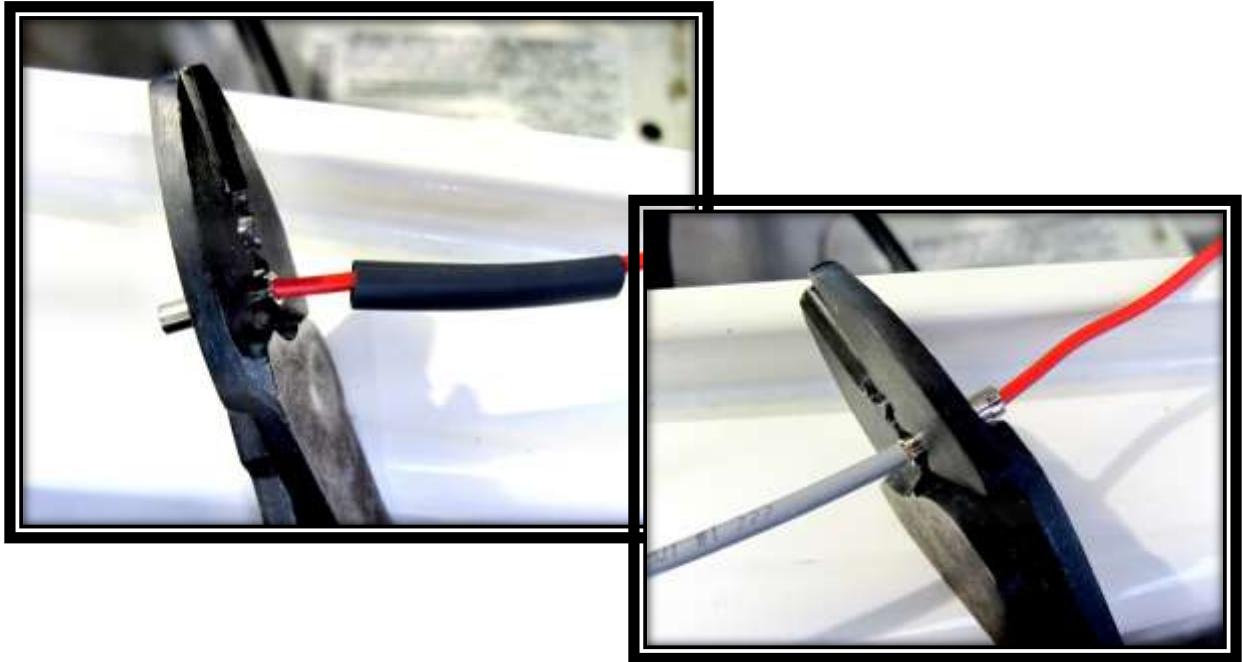
Step 30: Locate the relay output wire from the Fuse/Relay Center you wish to use. Then, locate the input wire on the accessory you are installing.



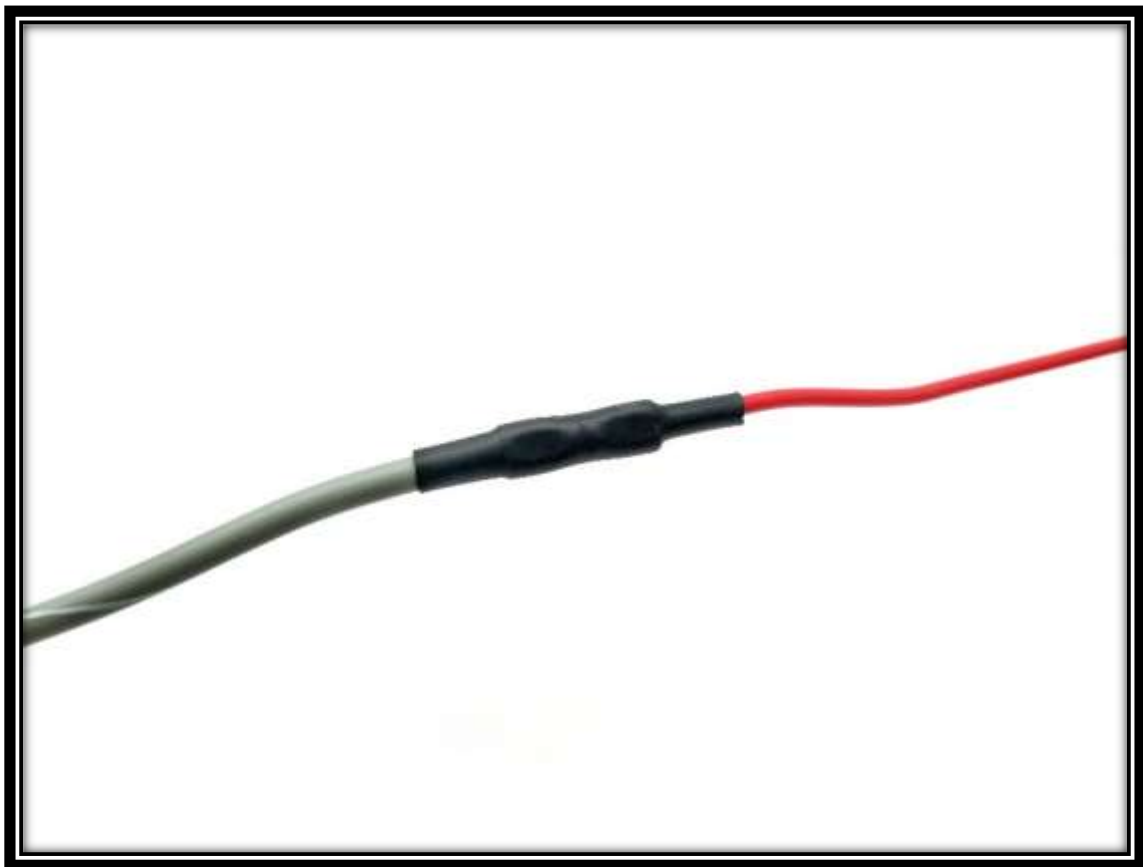
Step 31: The relay output wires and include butt connectors are **12 gauge**. You may need to double up the accessory's input wire if it is smaller and **12 gauge**.



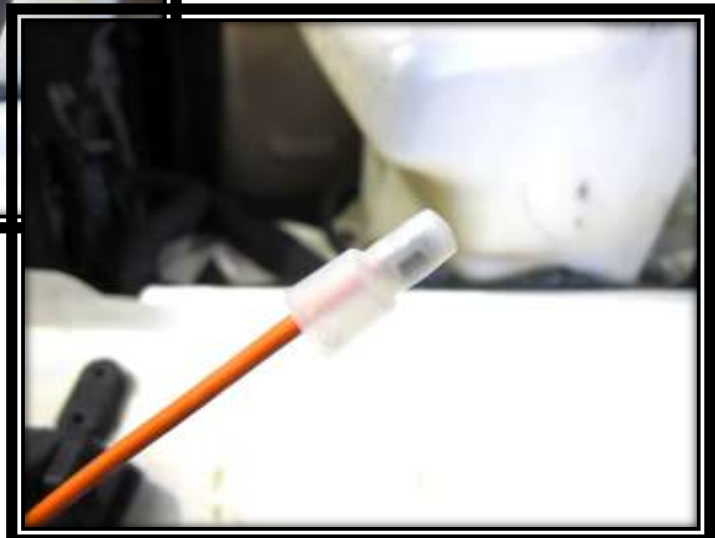
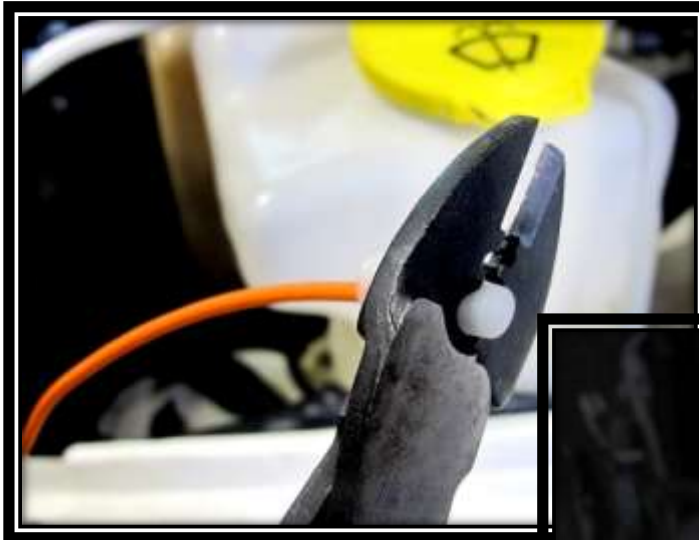
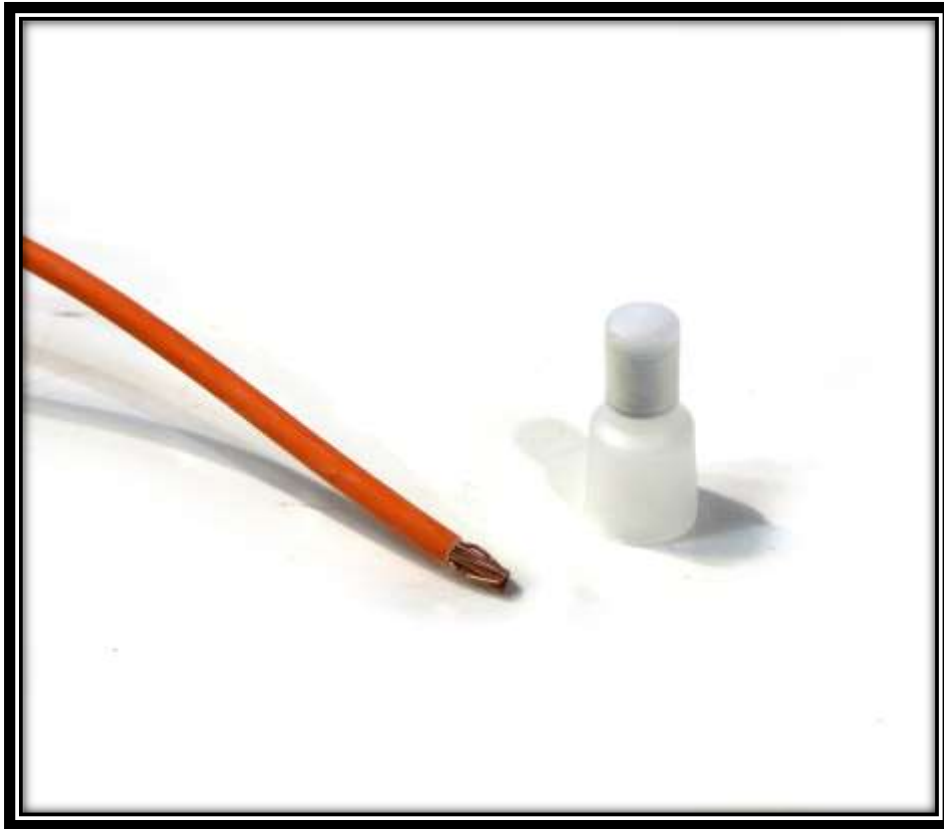
Step 32: Slide a piece of heat shrink from the included parts kit over the accessory wire. Then, use an un-insulated butt connector to crimp together the accessory wire with the relay output wire.



Step 33: Use a heat gun to apply heat to the heat-shrink and secure the connection.



Step 34: Cap all unused relay output wires by crimping on the provided insulated wire caps. Then, carefully store and secure the extra wires out of the way from heat and sharp edges on your vehicle.

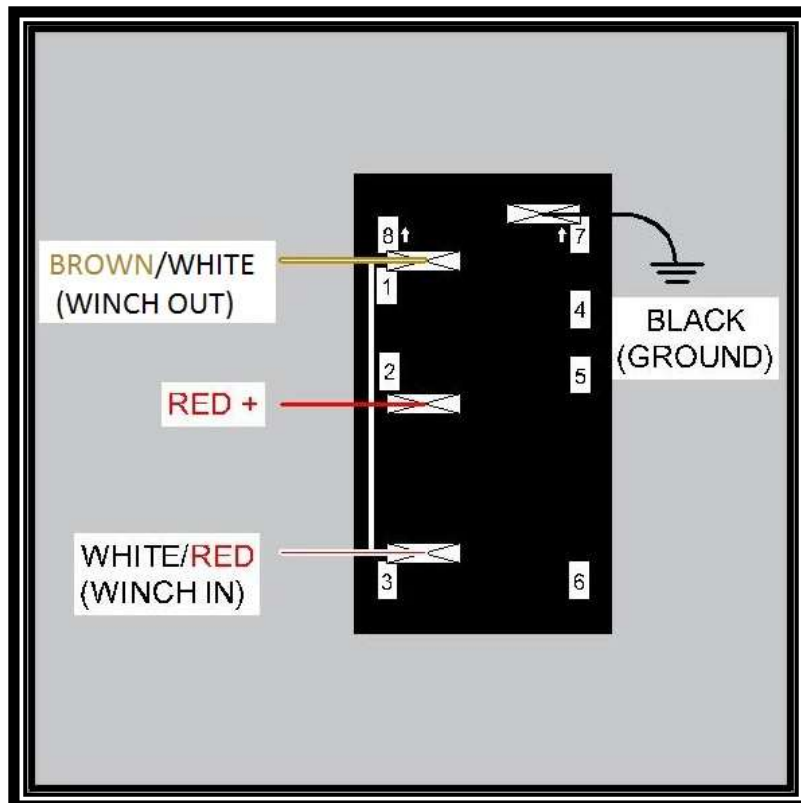


OPTIONAL: PAINLESS PART#: 57150 - WINCH
CONTROL ADD-ON KIT

The Painless Winch Control Add-on Kit (Painless Part #: 57150) is available online at www.painlessperformance.com. Steps 35 - 38 show you how to install a Winch Control Add-on Kit and connect the control wires to the switch.



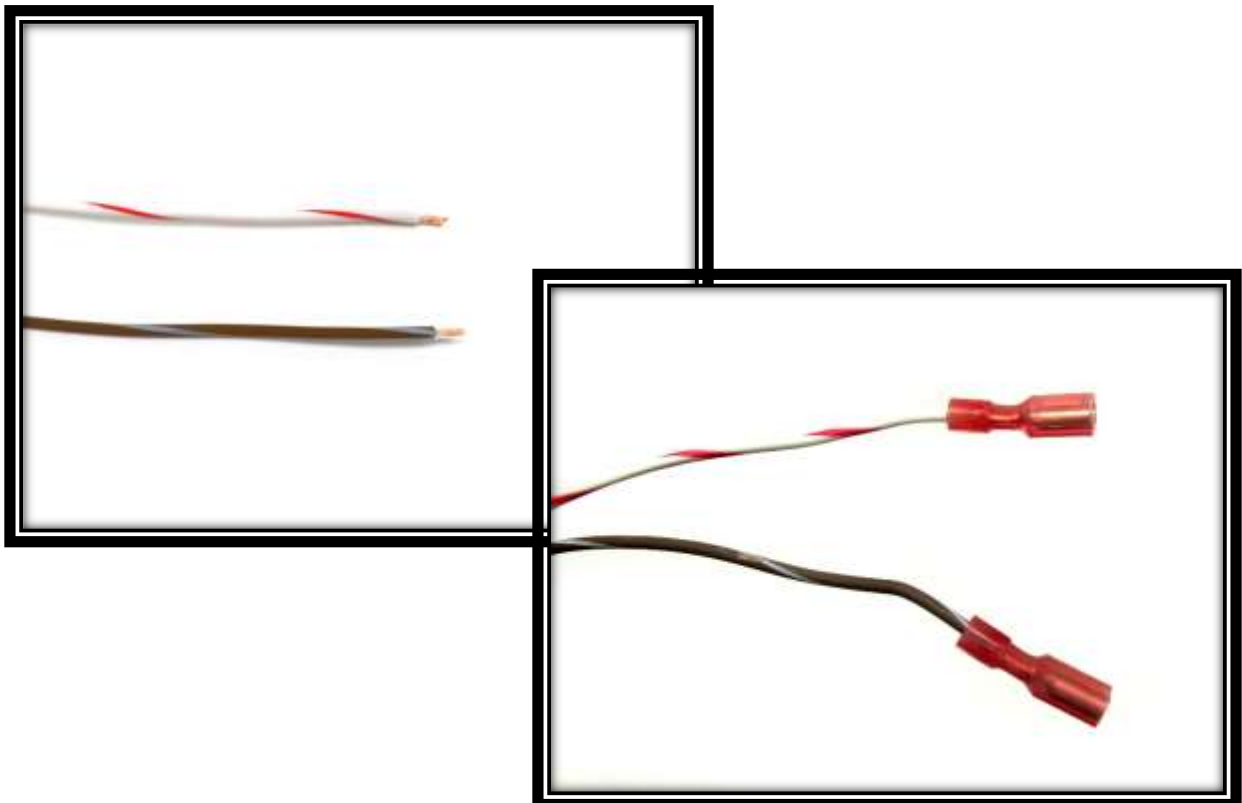
Step 35: Before connecting the wires to the Winch Control Add-on Kit, take time to familiarize yourself with the wiring diagram below.



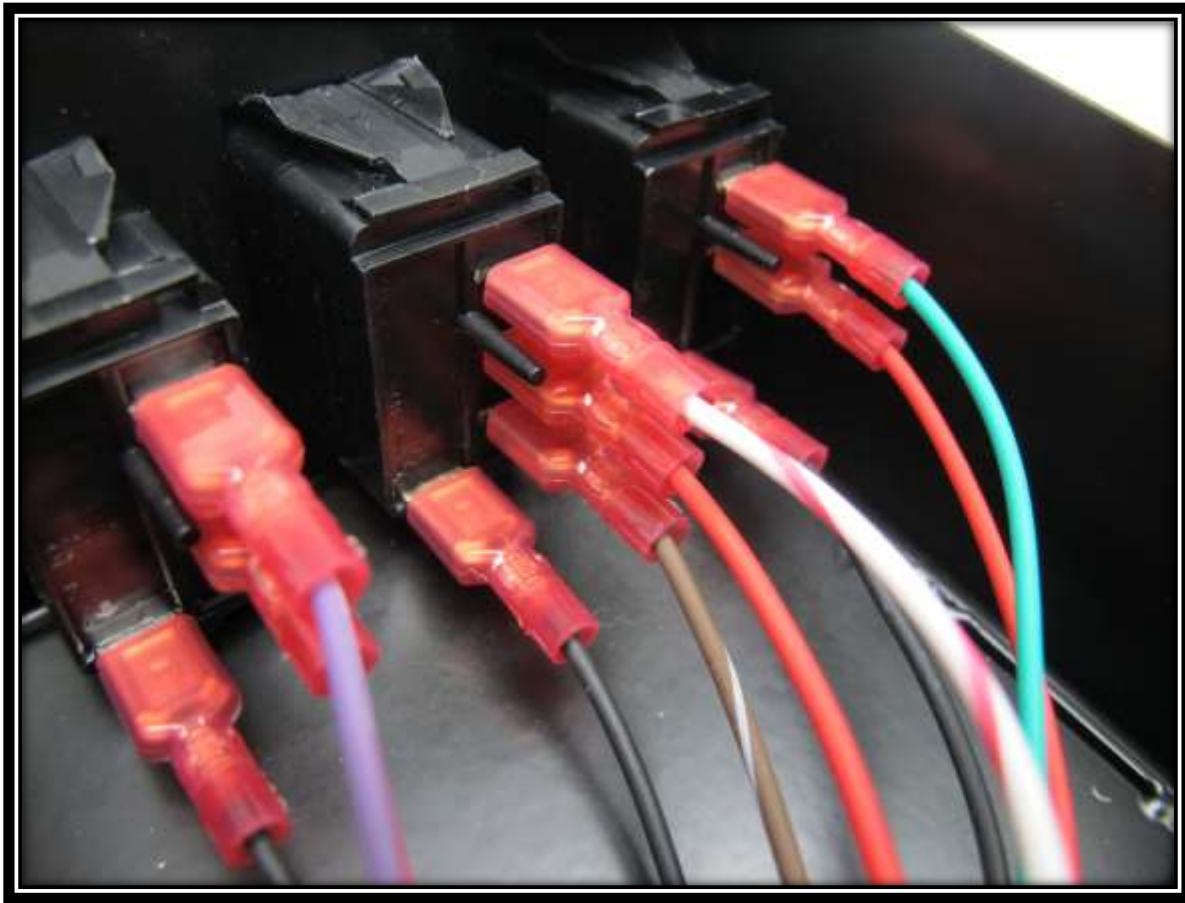
Step 36: Insert the Winch Control Add-on Kit into the empty socket you are using.



Step 37: Locate the winch control wires on the Switch Control pigtail, and crimp on the spade terminals found in your parts kit.
WHITE/RED = WINCH IN, BROWN/WHITE = WINCH OUT



Step 38: Connect the power, ground, and control wires to the Winch Control Add-on Kit as seen below.



OPTIONAL: WINCH PIGTAIL

If you are hooking up your winch to your Trail Rucker System, read the following steps for attaching the included winch pigtail.

Step 39: Locate the **winch pigtail** included in your parts kit. Then locate the winch connector on your Fuse/Relay Center.



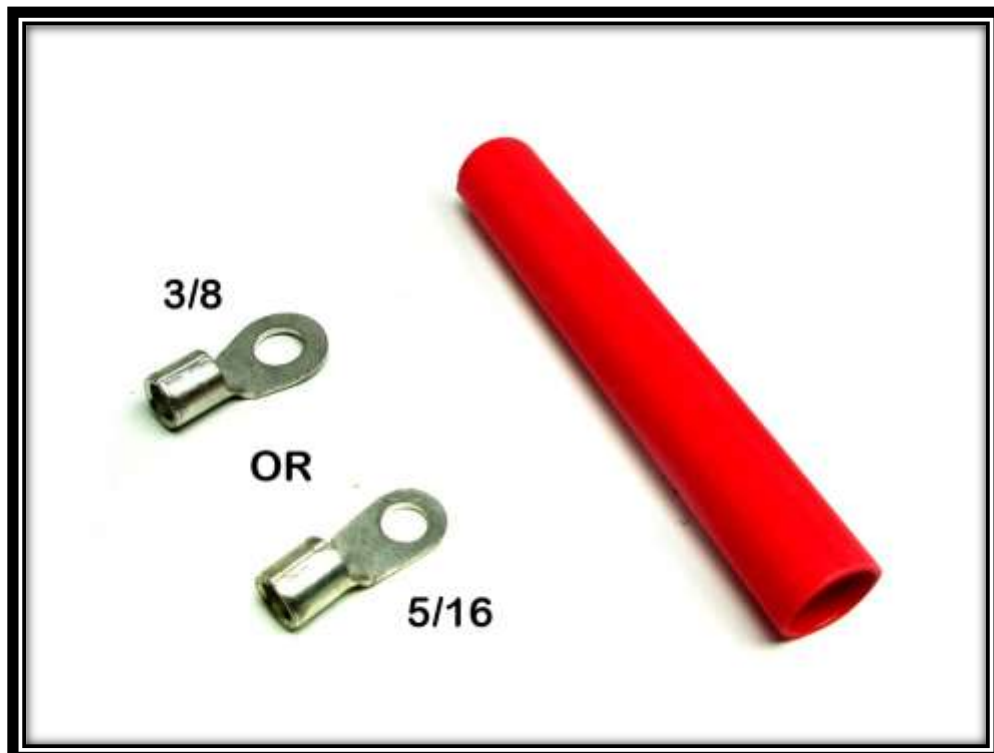
Step 40: Remove the cap from the winch connector on the Fuse/Relay Center. Then plug in the **winch pigtail** and route the wires safely to your winch.



Wiring diagrams for specific winch set-ups can be found at <http://www.painlessperformance.com/schematics> under the Trail Rucker section.

FINAL STEPS

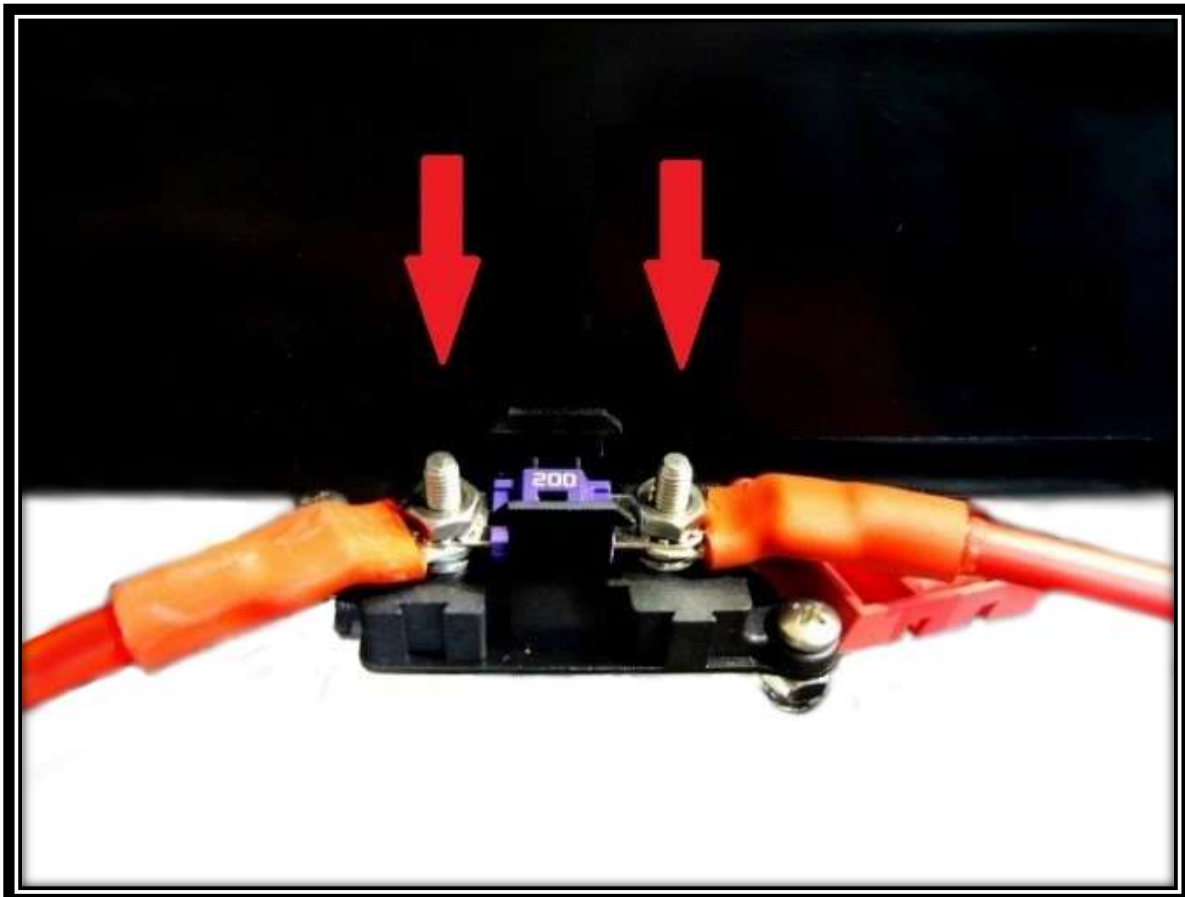
Step 41: After completing the previous installation steps, you may now reconnect your battery terminals. Locate the **6-gauge, unterminated, red cable** coming from the **Fuse/Relay Center MIDI fuse, heat shrink**, and the appropriate sized (for your particular application) **non-insulated ring terminal**.



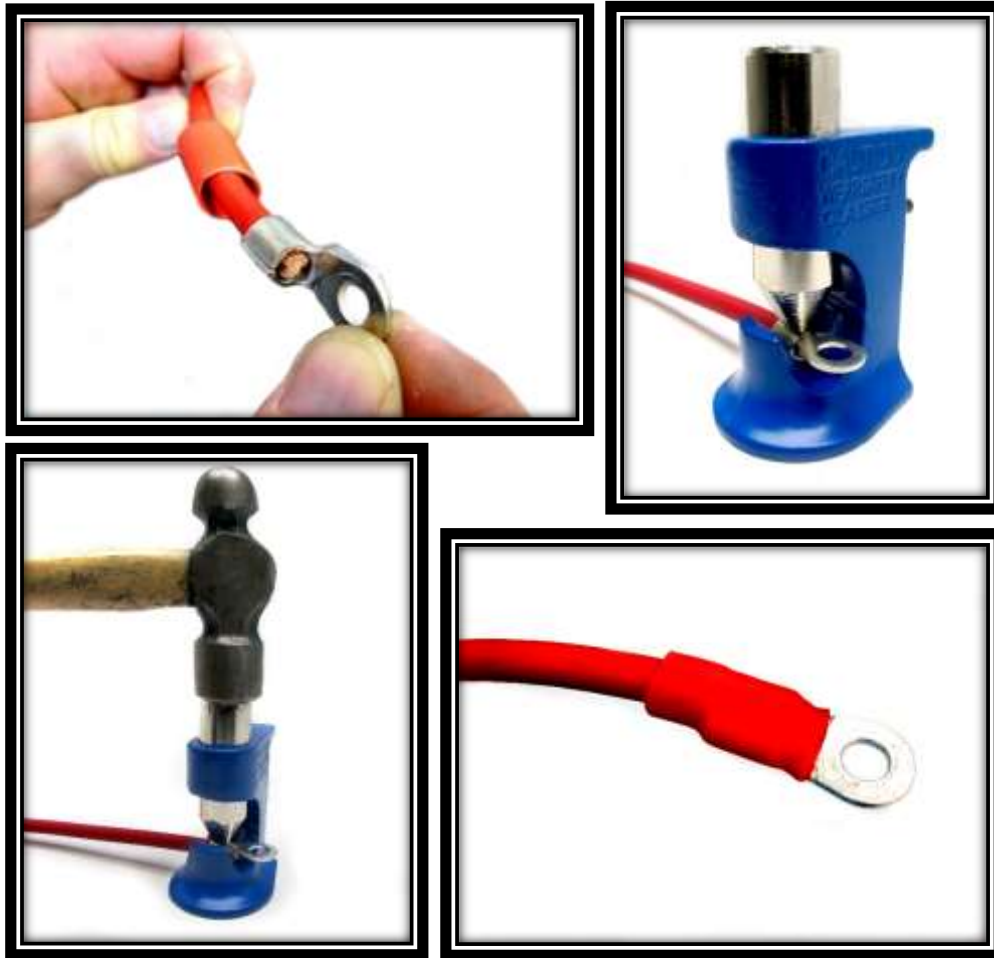
Step 42: Notice that the **6-gauge red cable** does not have a ring terminal on one end. This is so you can cut the cable to the length you need for your specific application. Mark the length you need to route the cable to the positive terminal. Cut and strip the wire about **1/2"**.



Step 43: Once the cable is stripped, remove it from the **Fuse/Relay Center MIDI fuse** in order to crimp on one of the included **5/16"** or **3/8"** **ring terminal** from your parts kit. To remove the cable lift up the fuse cover on the **Fuse/Relay Center bracket**. Then, remove the **2 nuts** and **200-amp MIDI fuse** holding the cable in place.



Step 44: These **ring terminals** can be difficult to crimp. It can be done with a chisel and hammer or with a crimping tool like the one below. These crimping tools can be found at your local parts store or online. Once the terminal is crimped, secure it with about **1" of heat shrink**.



Step 45: Next, re-install the cable and **200-amp MIDI fuse** to the **Fuse/Relay Center** and connect it to the positive battery terminal.



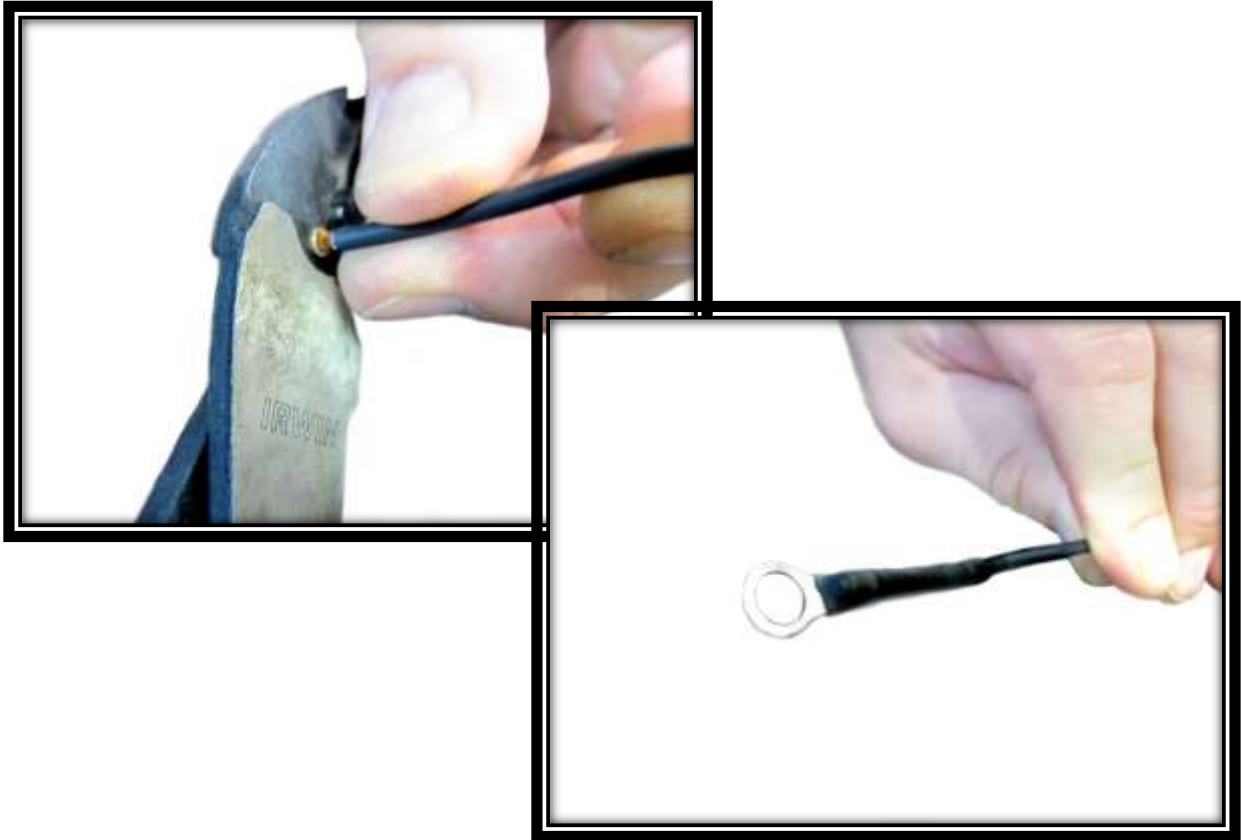
Step 46: Then, rout the ground wire coming from the **Fuse/Relay Center** to the negative battery terminal.



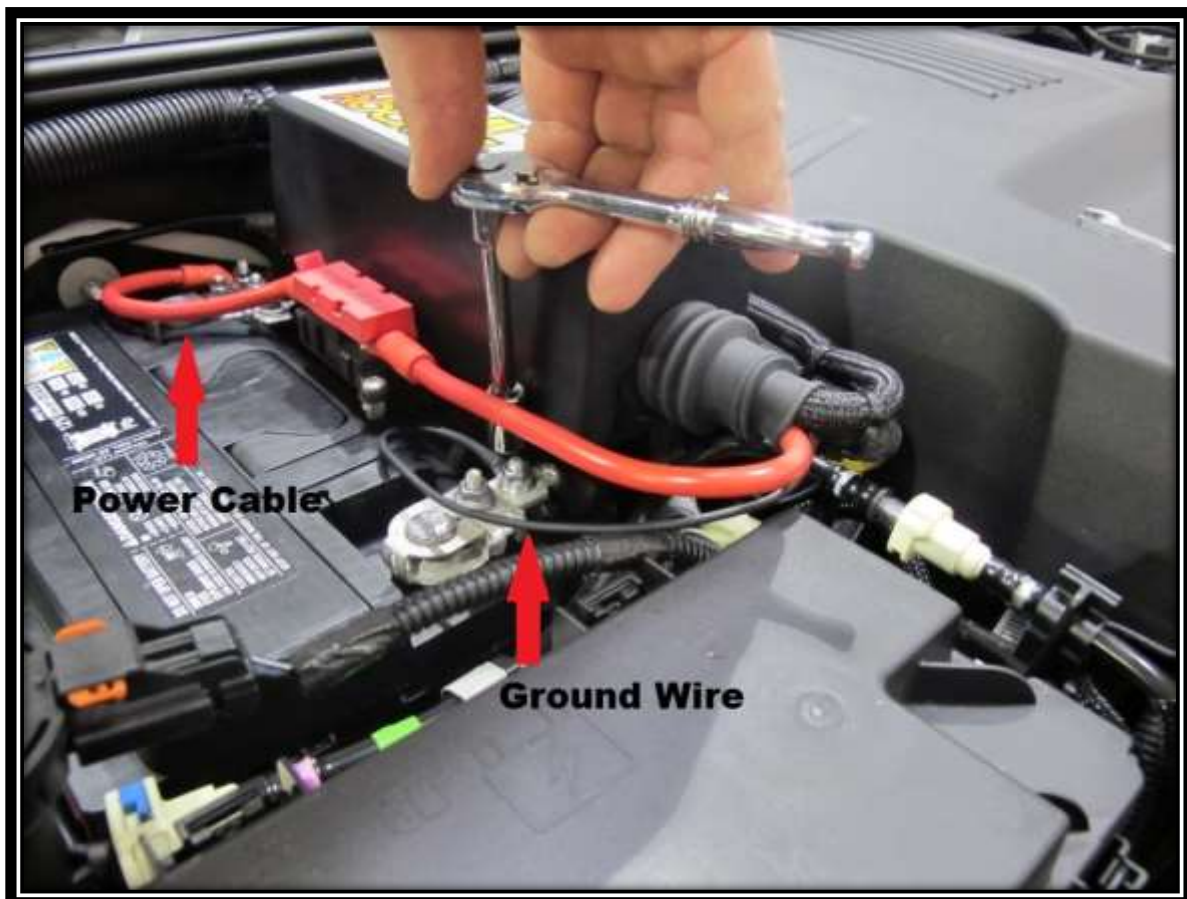
Step 47: Locate (1) $\frac{1}{4}$ " **black heat shrink** and (1) **16-14 ga. non-insulated ring terminal**. Strip the wire about $\frac{1}{4}$ " and slide the **heat shrink** over it.



Step 48: Crimp on the **ring terminal** and secure it with the **heat shrink**.



Step 49: Hook the terminals back up to your battery. Connect the red cable to the positive terminal and the ground wire to the negative terminal.

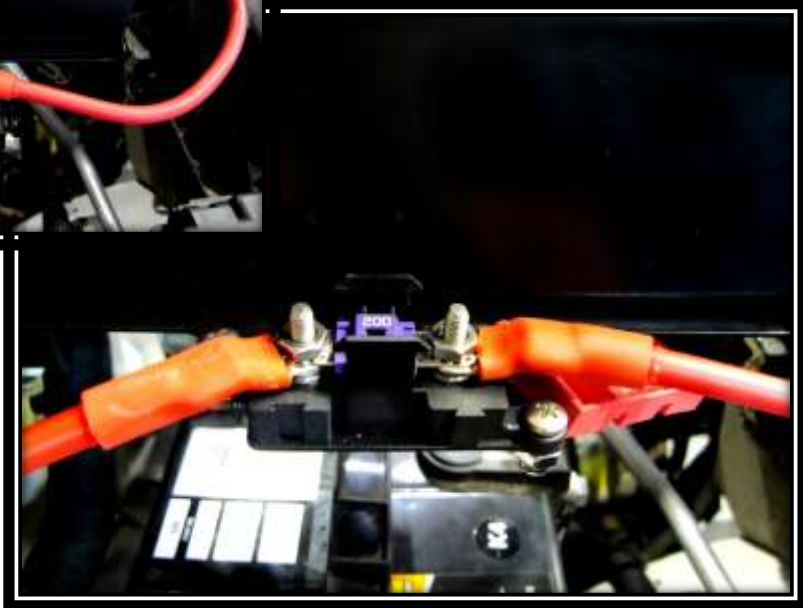


Step 50: With the battery connected, you can now test out and enjoy your new Trail Rocker!



FUSE PLACEMENT

The main 200 amp midi fuse is located on the fuse block on the side of the **Fuse/Relay Center** mounting bracket.



The **Fuse/Relay Center** contains eight 30 amp ATO fuses and eight 30 amp relays that can be accessed by removing the lid from the **Fuse/Relay Center**.



Trail Rocker Fuse Centers are equipped with 8 Indicator Fuses. These fuses are equipped with an LED light that will turn on when the fuse is blown, thus indicating when the fuse needs to be replaced.



Painless Performance Limited Warranty

and Return Policy

Chassis harnesses, fuel injection harnesses, and Trail Rocker units are covered under a lifetime warranty.

All other products manufactured and/or sold by Painless Performance are warranted to the original purchaser to be free from defects in material and workmanship under normal use. Painless Performance will repair or replace defective products without charge during the first 12 months from the purchase date. No products will be considered for warranty without a copy of the purchase receipt showing the sellers name, address and date of purchase. You must return the product to the dealer you purchased it from to initiate warranty procedures.

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