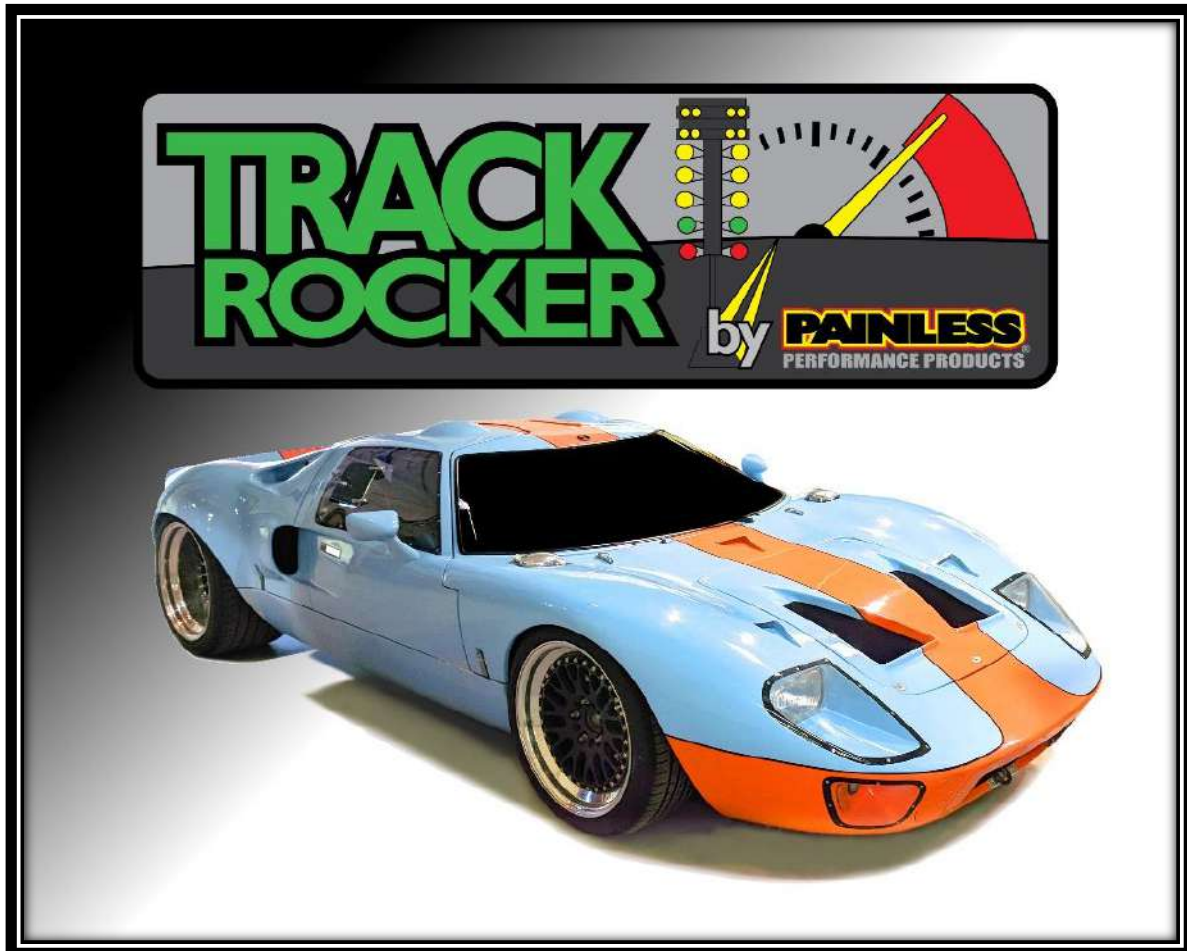


# **PAINLESS**<sup>®</sup>

## **PERFORMANCE PRODUCTS**

### **Track Rocker Installation Instructions**



#### **Customizable Track Rocker Control System**

**For Installing Painless Part Number:**

**58100 – Track Rocker Relay Center**

**Manual #90641**

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

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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.

## The Painless Track Rocker Kit 58100 should contain the following:

- Fuse/Relay Center pre-installed to powder coated bracket.
- **Parts Kits:**
  - **Kit #1:** (1) Ignition pigtail w/ weather-pac connector, (1) rubber grommet, zip-ties, (8) pre-terminated Switch Control Wires, (1) Switch Control Wire connector, and red heat shrink.
  - **Kit #2:** (2) Terminal Blocks, (4) #10 Self-Tapping Screws, and (18) 10-12 ga. Insulated #10 Ring Terminals.
  - **Kit #3:** (14) pre-cut ¼" black heat shrink, (12) Un-Insulated Butt Connectors, (8) Insulated Wire Caps, (4) 30 Amp ATO Fuses, (1) 200 Amp MIDI Fuse, (2) 14-16 ga. Un-Insulated #8 Ring Terminals, (1) #8 Self-Tapping Screw, (2) ¼"-20 x 3" Stainless Bolts, (24) 20-18 ga. ¼" Spade Terminals, (8) 16-14 ga. ¼" Spade Terminals, (1) 6 ga. ¼" Un-Insulated Ring Terminal, (1) 6 ga. ⅝" Un-insulated Ring Terminal, and (24) 20-18 ga. #8 Insulated Ring Terminals.
- This manual (90641)



## SMALL PARTS

Included with the Painless harness is a parts kit 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 a cleaner, weather-proof install. 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:**

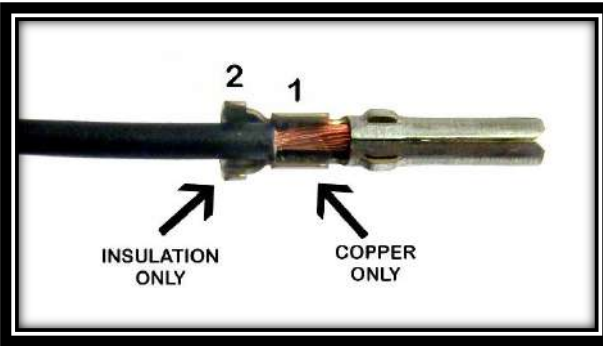
A Volt/Ohm meter is always a good tool to have on hand when installing any type of electrical component in a vehicle. The most basic meters provide the two functions required to diagnose electrical issues commonly seen during a harness install. These two functions are the ability to read DC Voltage and 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.

# INSTALLING FACTORY STYLE TERMINALS



In the parts kit, you will see uninsulated female terminals. These terminals are for the **10-pin connector shell** included in the **Track Rocker Fuse/Relay Center** parts kit, and require roll over crimpers.

- Strip about  $\frac{3}{16}$ " of insulation off of the wire.

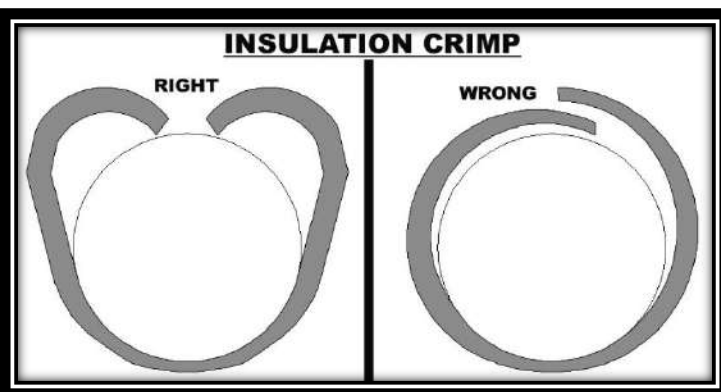


- Insert the wire into the terminal. There are two terminal straps on the terminal. For instructional purposes, we will label them 1 and 2. Strap 1 crimps the exposed copper strands of the wire, while strap 2 crimps the wire insulation. Make your strip length long enough to ensure only copper strands are crimped by Strap 1 but short enough that only insulation is crimped by Strap 2. The photo to the left best demonstrates this.



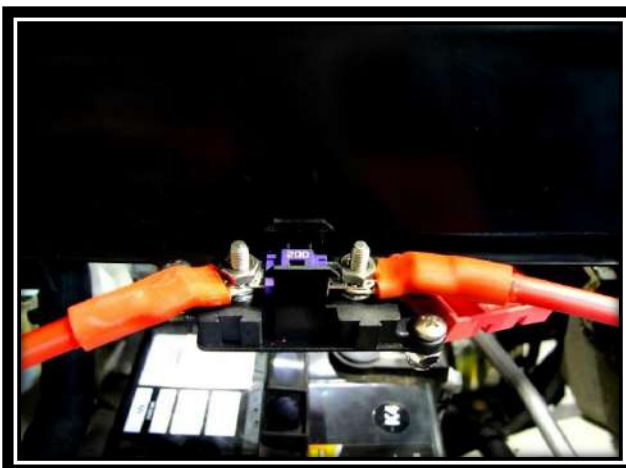
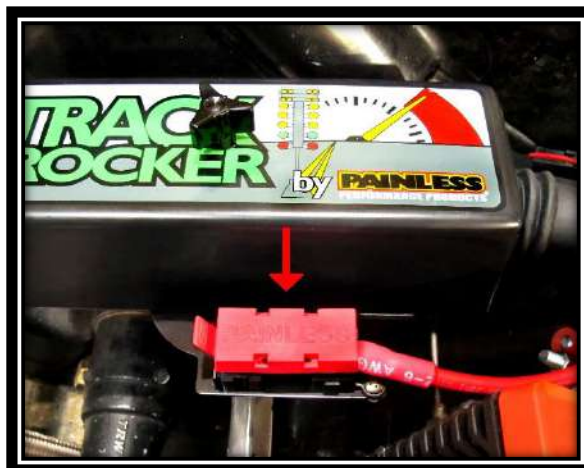
- Using the appropriate jaw on the crimpers, crimp Strap 1. The appropriate jaw depends on the wire gauge as well as the terminal stiffness. If you are unsure which jaw to use, you can always start with the biggest and work your way down until you get a tight crimp.

- With Strap 1 crimped, move onto crimping the insulation strap: Strap 2. Place Strap 2 into the appropriate jaw of the crimpers. This jaw will be larger than the one used to crimp the first strap. Crimp down on Strap 2 making sure the strap folds down into the wire, and not overlapping itself. Refer to the drawing to the left. Overlapping could cause fitting problems with the terminal fitting into the factory connector.



## FUSE PLACEMENT

The main 200 amp midi fuse is located next to 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.



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



## **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 BE RECONNECTED UNTIL INSTRUCTED**



## BRACKET MOUNTING

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

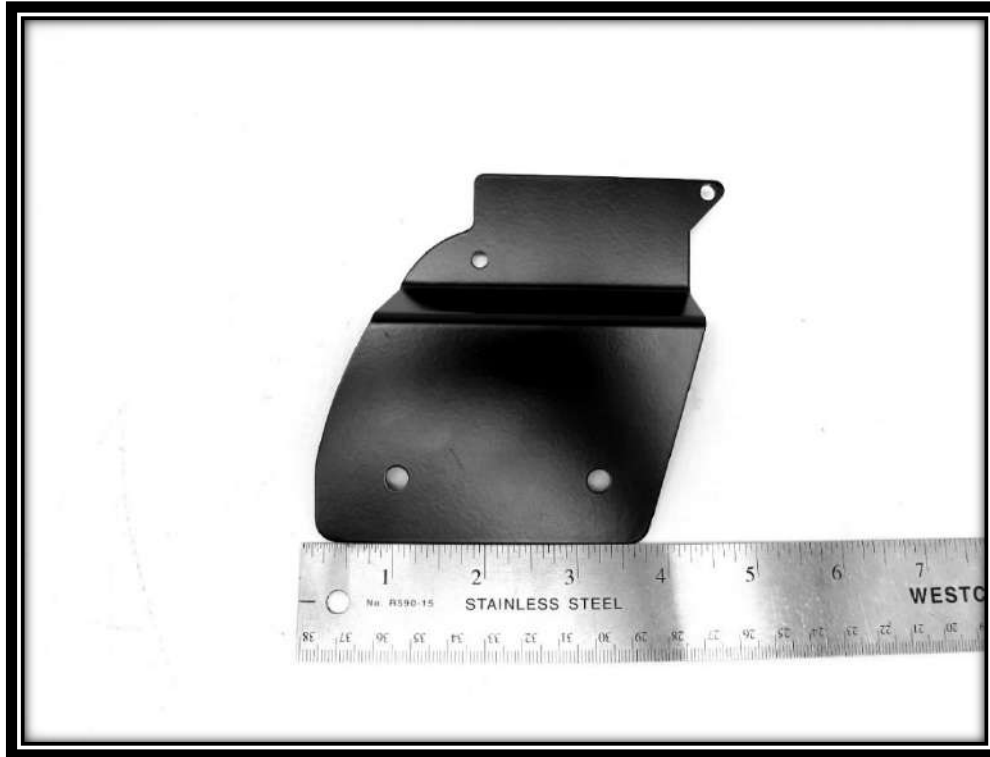


**Step 2:** Find the location where you wish to mount the Fuse/Relay Center. The **power cable** is 8' long and should accommodate most mounting locations. The **ground wire** attached to the Fuse/Relay Center is 7' long and can be grounded to the frame or, preferably, the negative battery cable/post.





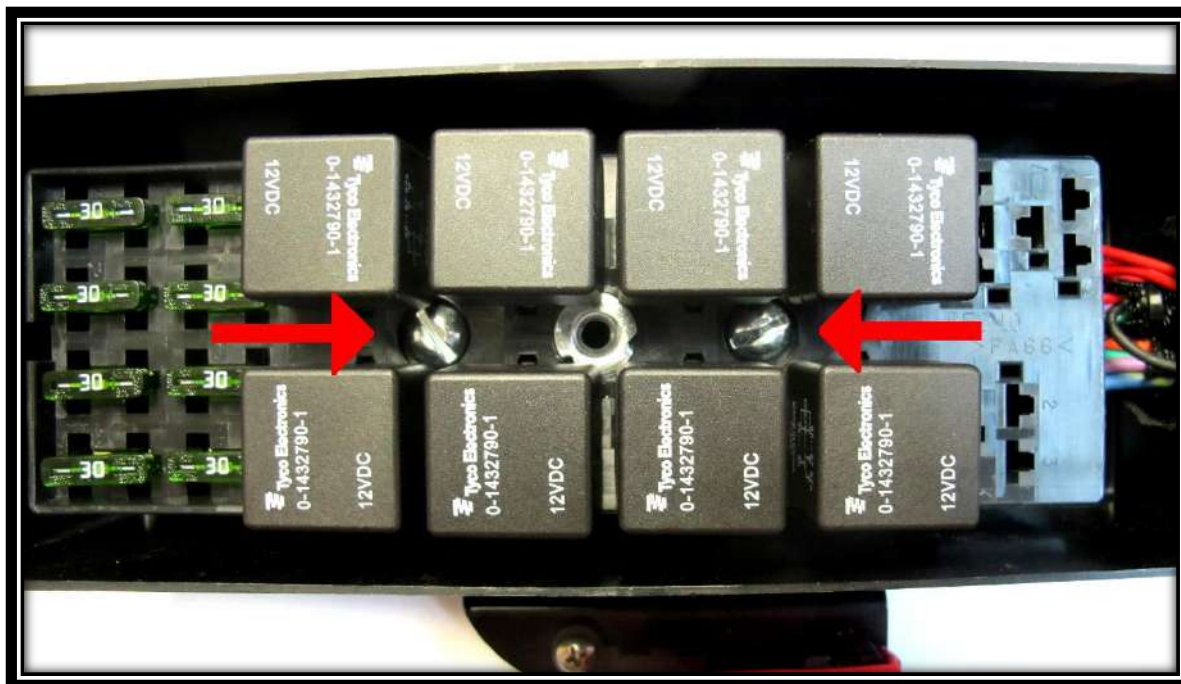
**Step 3:** The image below shows the bracket removed from the Fuse/Relay Center to better illustrate the distance between the mounting bolts. Once you have your optimal location picked out, you will need to drill **2 holes** in order to mount the Fuse/Relay Center. Use a **1/4" drill bit** and space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



**Step 4:** Before mounting the Fuse/Relay Center, remove the lid.



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

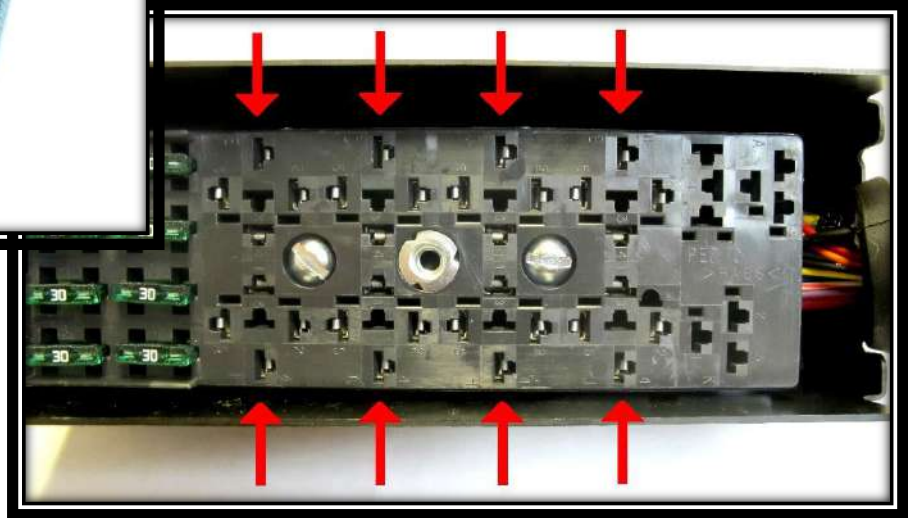


**Step 6:** With the bolts held in place, mount the **Fuse/Relay Center** with the **(2) 1/4" nuts and washers** that come attached to the **Fuse/Relay Center**.





Step 7: Also, if needed, there are longer, **3" bolts** provided in the parts kit. You'll need to remove all the relays in order to install the longer bolts.



Step 8: With the Fuse/Relay Center mounted, reattach the lid.



## SWITCH CONTROL WIRE ROUTING

**Step 9:** Now, locate the **Switch Control** wires. These wires have a connector pre-installed and will need to be routed toward your **Track Rocker Switch Panel** (sold separately) or to other control devices (i.e.: toggle/rocker switches or ground outputs from aftermarket ECM/Engine Control Modules).



**Step 10:** Depending on where the **Fuse/Relay Center** is mounted, the **Switch Control** wires may need to pass through the firewall in order to reach the interior of the vehicle. A **1" grommet** is included in the parts kit to ensure the wires pass through the firewall safely. The **grommet** requires a **1 ¼" hole** in the firewall; so, locate an existing hole or drill a new one.



**Step 11:** 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.



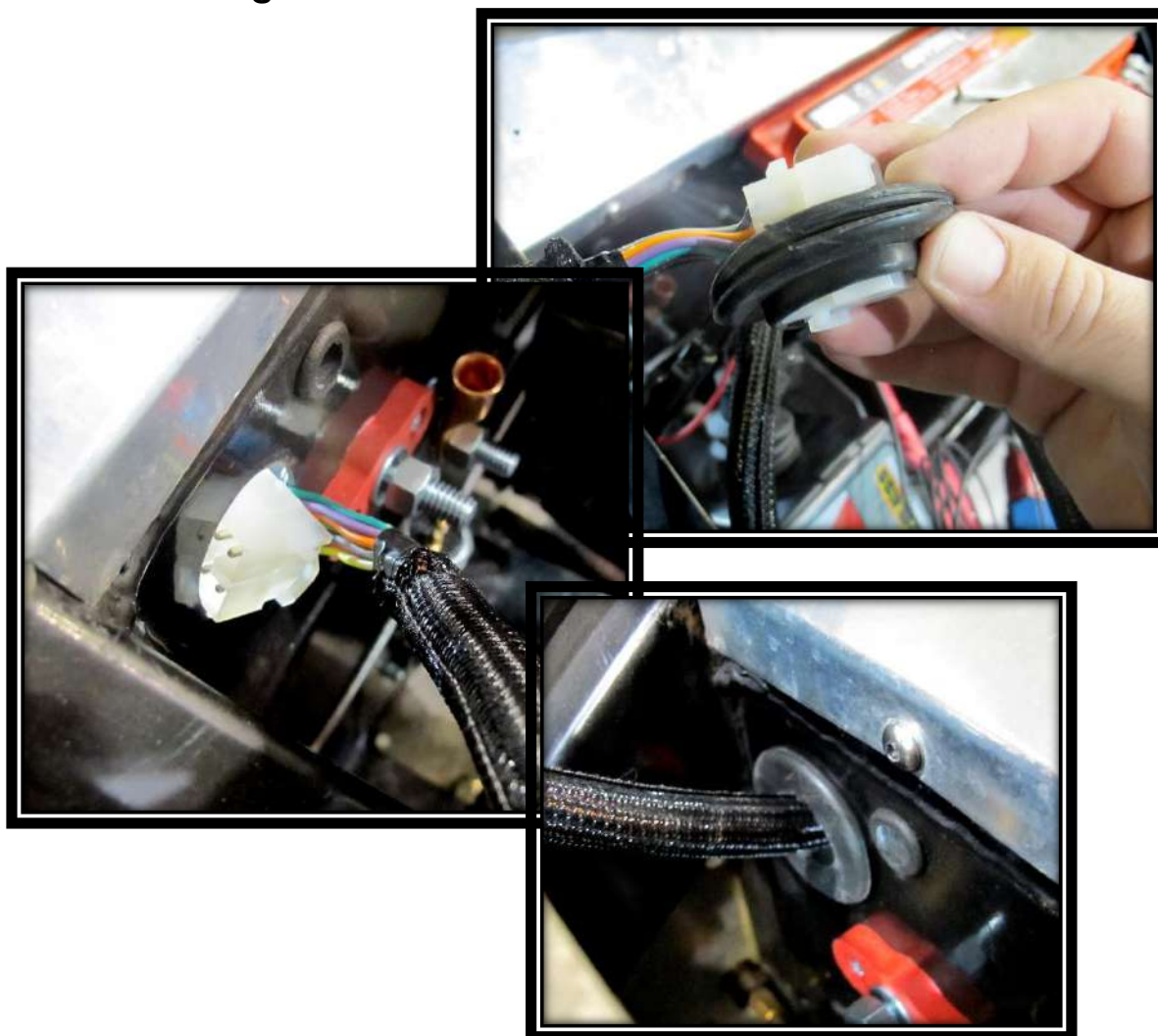
**Step 12:** Use a **1 ¼” hole saw with an arbor** to drill a hole in the firewall. Then, use a **metal file** to remove any burrs.



**Step 13: 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.**

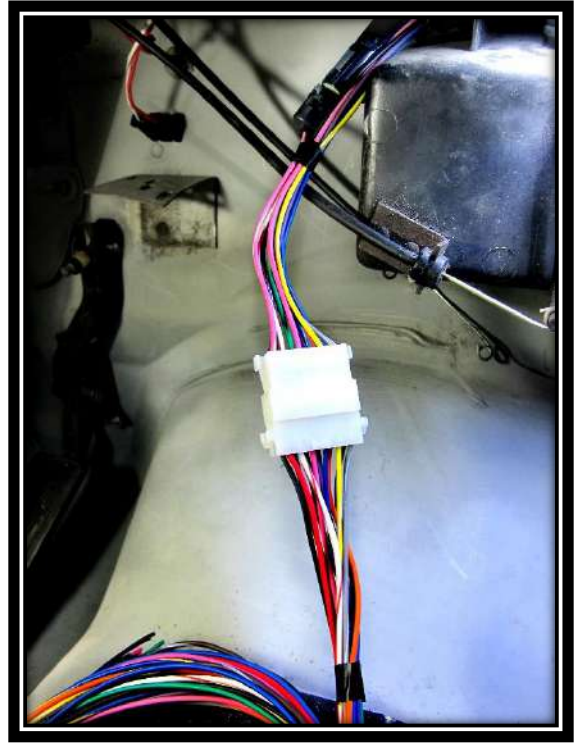
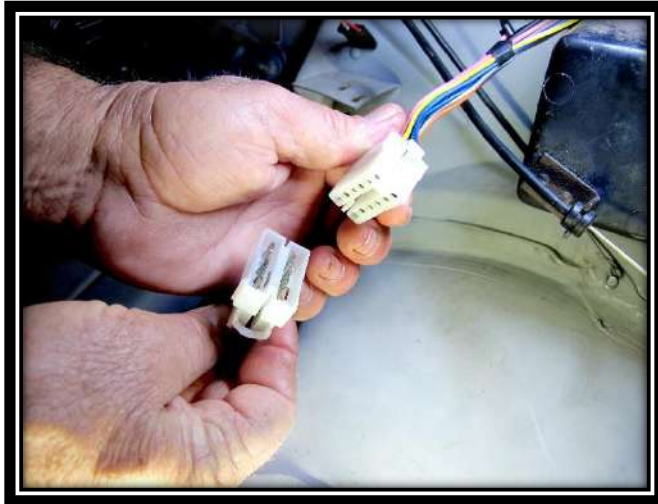


**Step 14: Once the Switch Control wires are secured pass them through the firewall. Place the [rubber grommet](#), included in the parts kit, over the Switch Control wire connector. Then pass the wires through the hole in the firewall.**

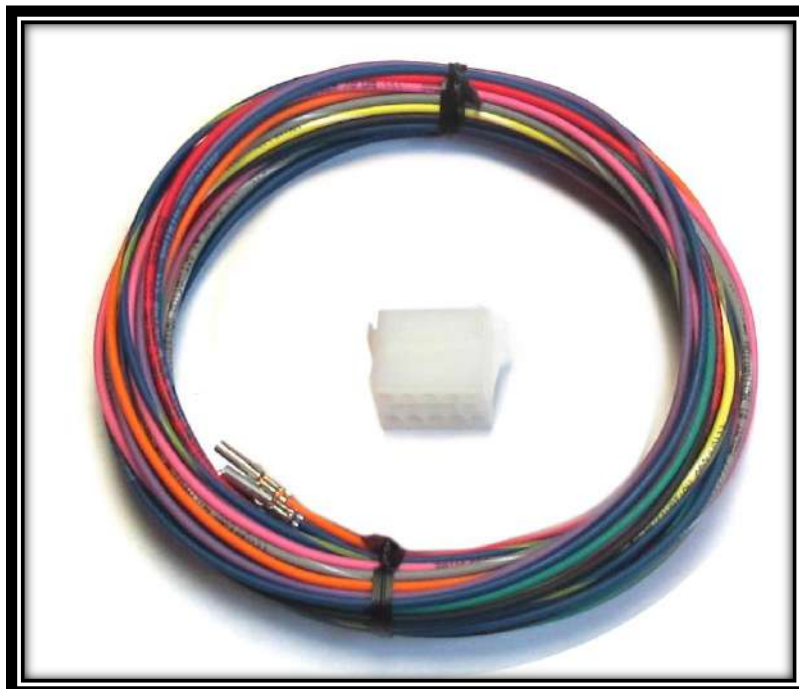


## **SWITCH CONTROL PIGTAIL**

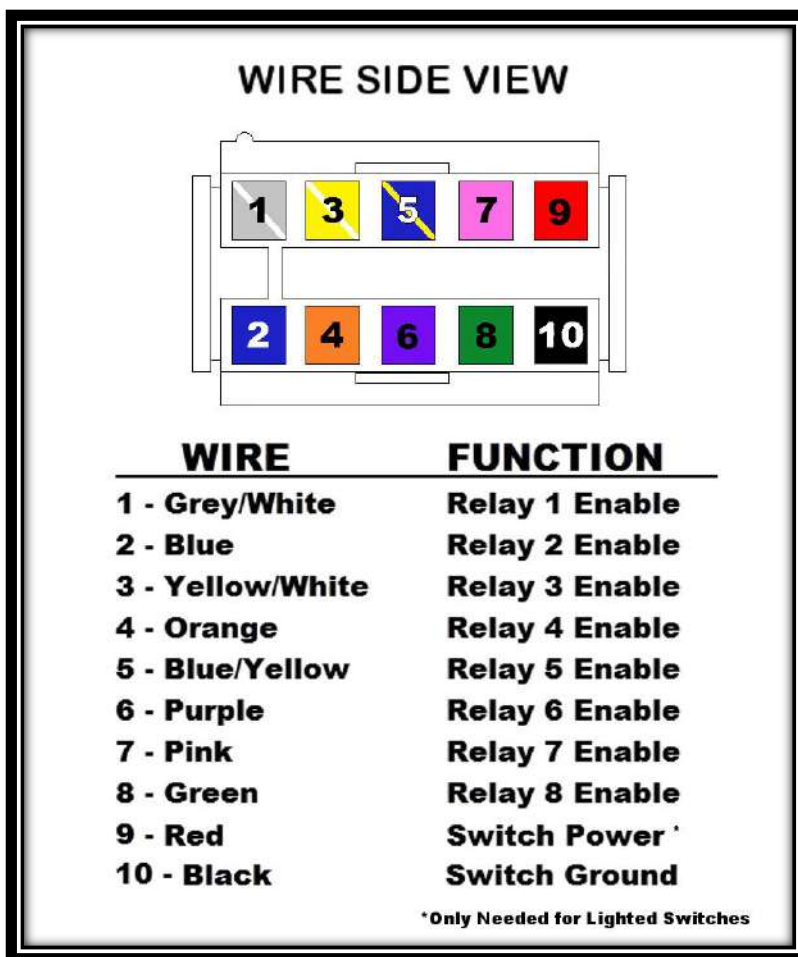
**Step 15:** With the Switch Control wires routed to the interior, connect them to the plug coming from your Track Rocker Switch Panel. Stow the wiring harness neatly away, and secure with zip-ties as needed. If you are concerned about this connection being weatherproof, use the provided dielectric grease to fill each terminal of the Switch Control wire connector.



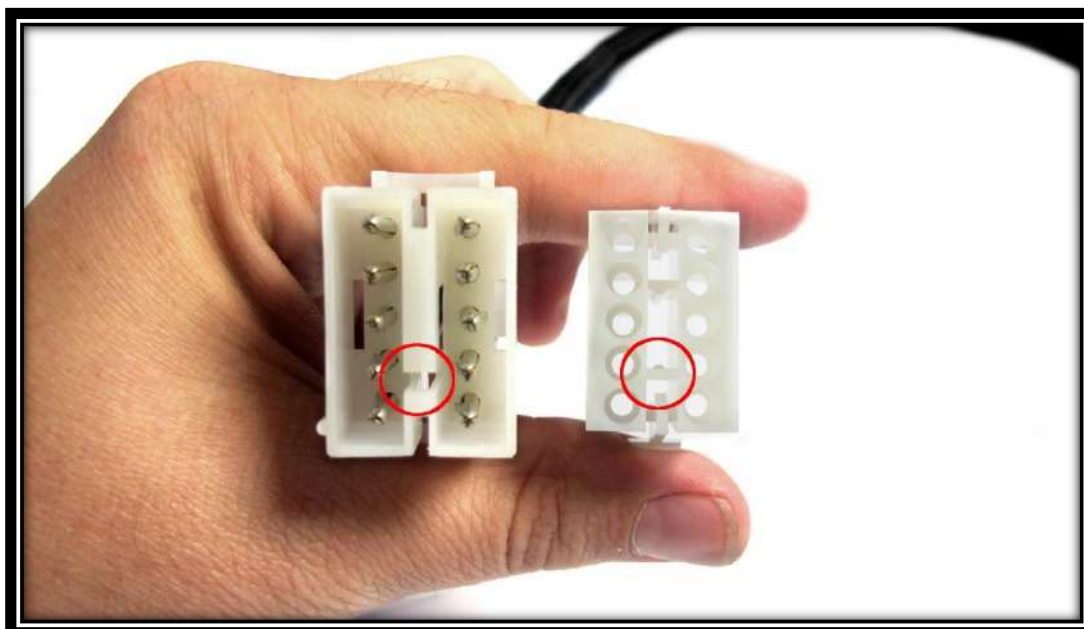
**Step 16:** If you are not using a Track Rocker Switch Panel, locate the Switch Control pigtail and 10-pin connector included in your Track Rocker Kit. The wires of this pigtail will run directly to the switches you are using.



**Step 17:** It may help to familiarize yourself with the wiring diagram below before installing the wires from the **Switch Panel Pigtail** into the **10-pin connector housing**.

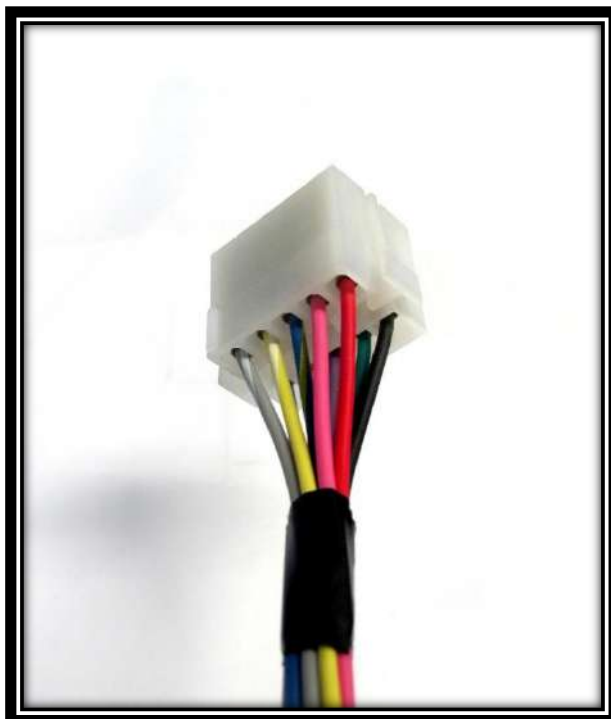
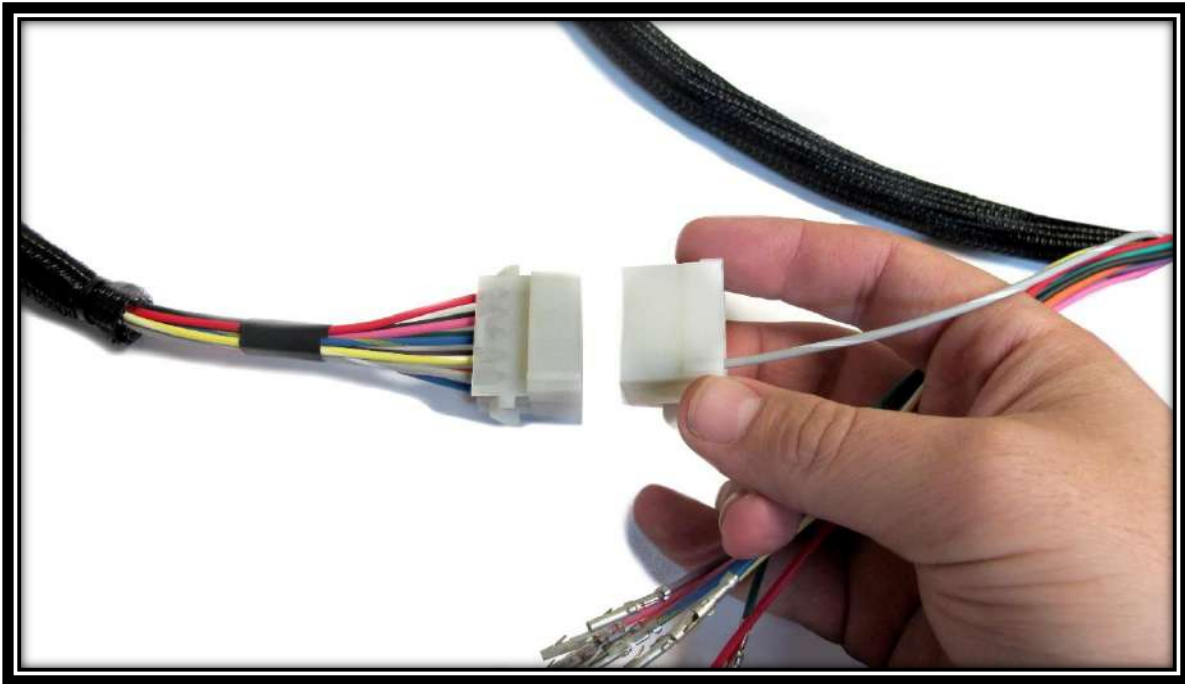


**Step 18:** Locate the **10-pin connector housing** included in the parts kit. Note the locating tab for orientation.

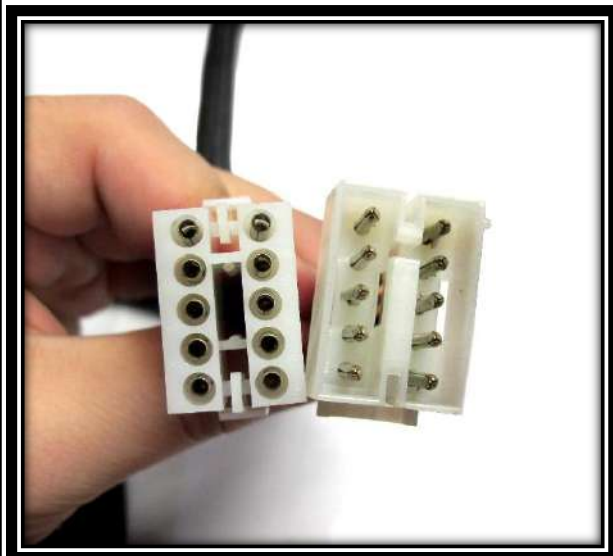




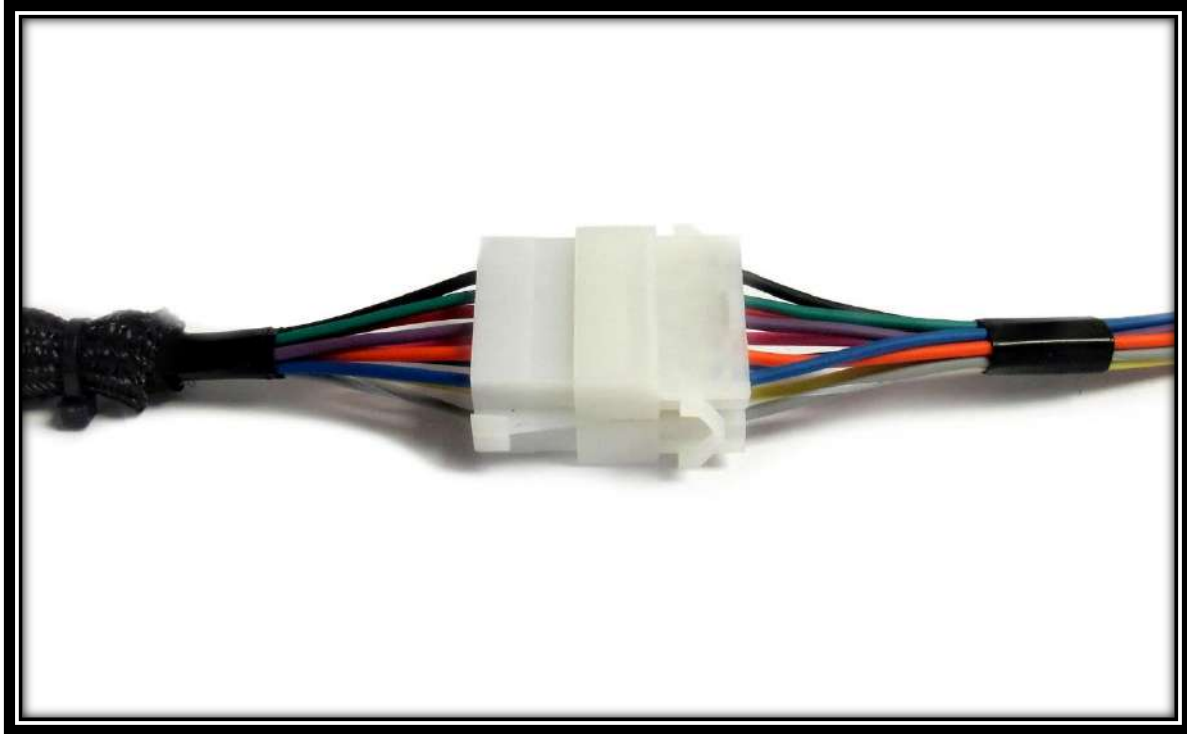
**Step 19:** Insert pre-terminated wires into the **10-pin connector housing**. Make sure, while inserting the pins, that once connected the wire color matches the one across from it. The diagram on **page 14** illustrates the pinout of the **10-pin connector housing** from the wire side.



**Step 20:** Once completed, the connector should appear as it does to the left & below.



**Step 21:** Link the two connectors and join the wiring harness from the **Fuse/Relay Center** to the **Switch Control Pigtail**. Use **zip-ties** to secure the wires up under the dash and out of the way.



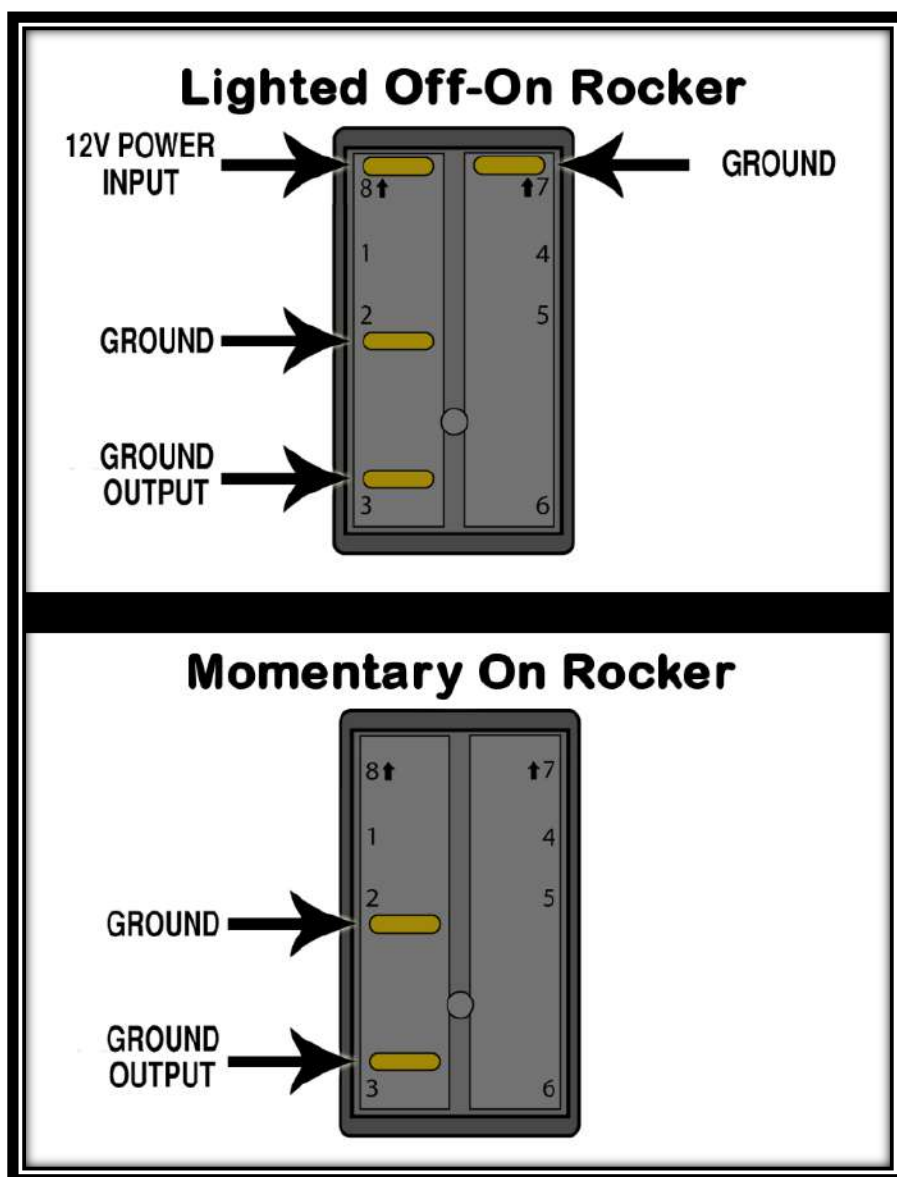
## SWITCH WIRING

Your Track Rocker Relay Center is meant to be used in conjunction with one of our many Track Rocker Switch Panels.

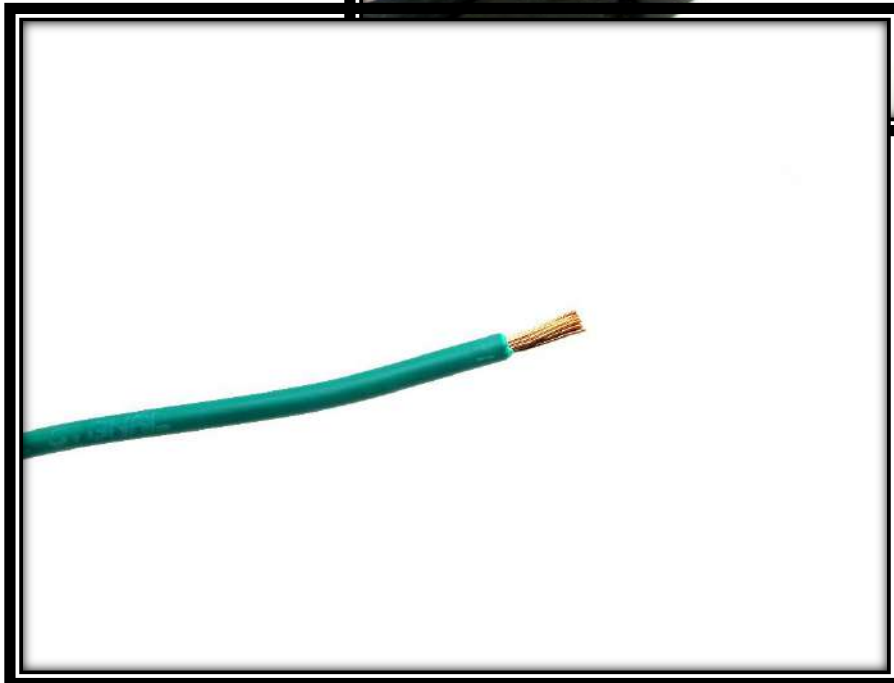
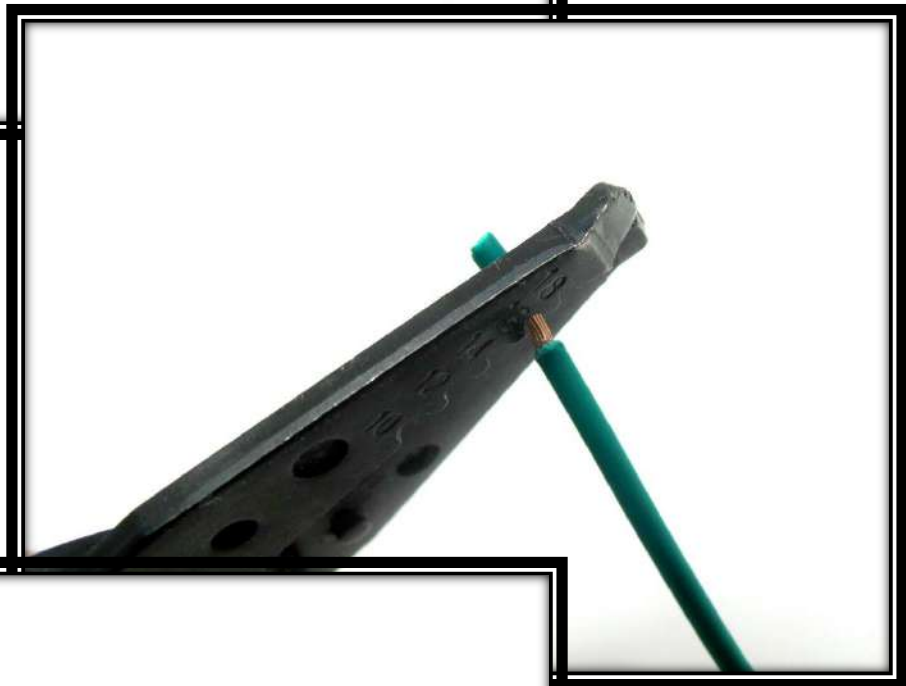
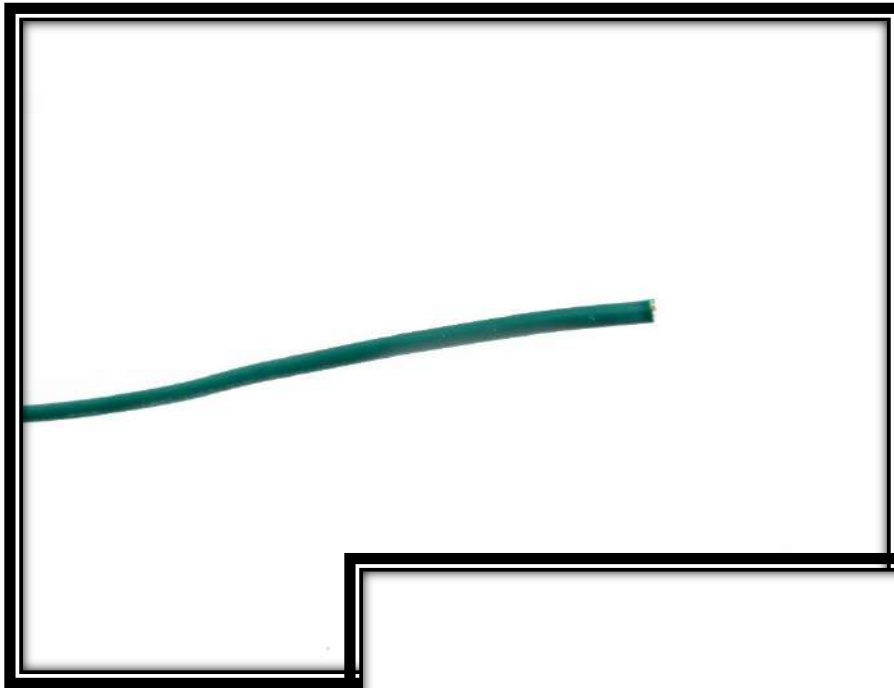
	Panel Mount	Roll Bar Mount	Flanged Mount
8 Switches	58101	58102	58103
6 Switches	58104	58105	58106
4 Switches	58107	58108	58109

However, the Track Rocker can be used with most switches on the market using the pigtail mentioned in the previous section. Below are just a few examples of how to wire some of the most common toggle switches.

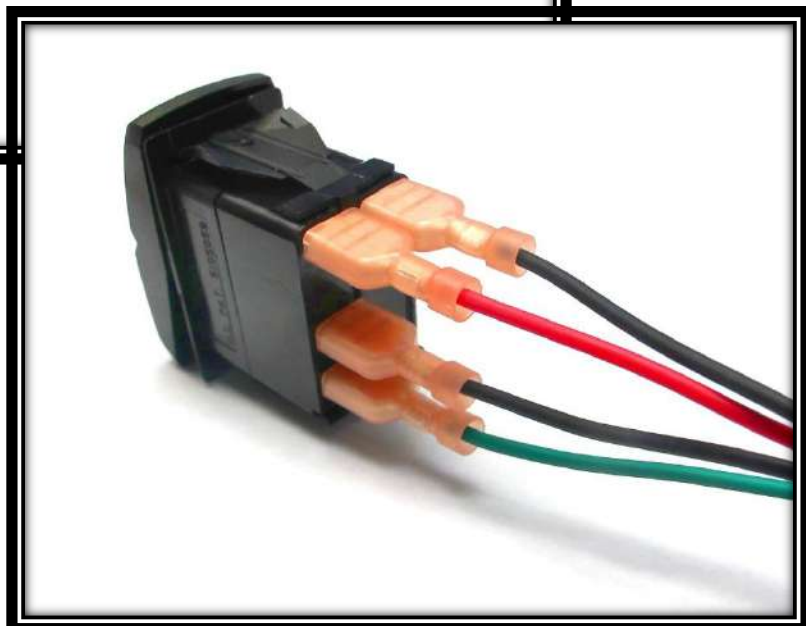
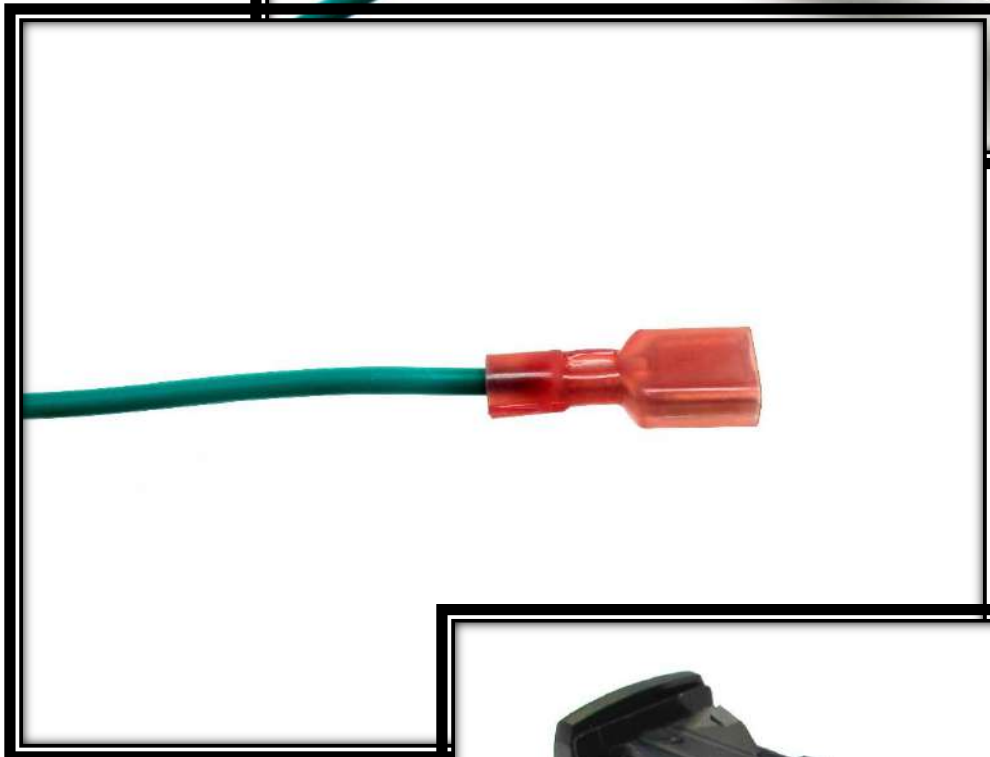
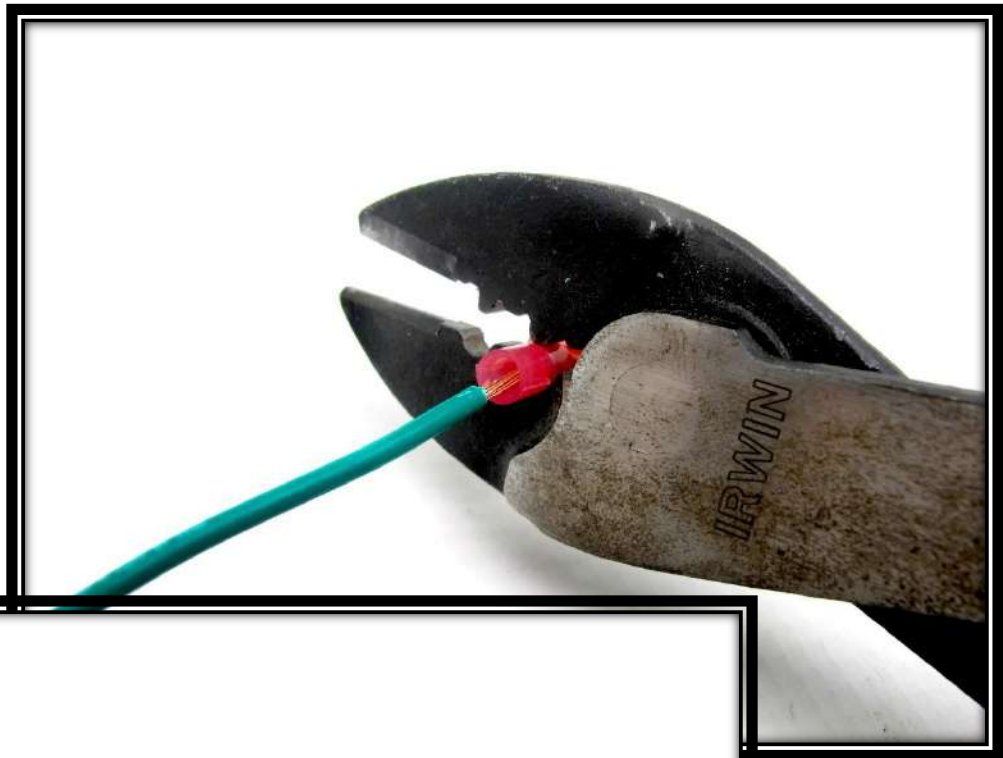
The ground-activated Carling rocker switches, like those sold by Painless, are wired as shown in the diagram below.



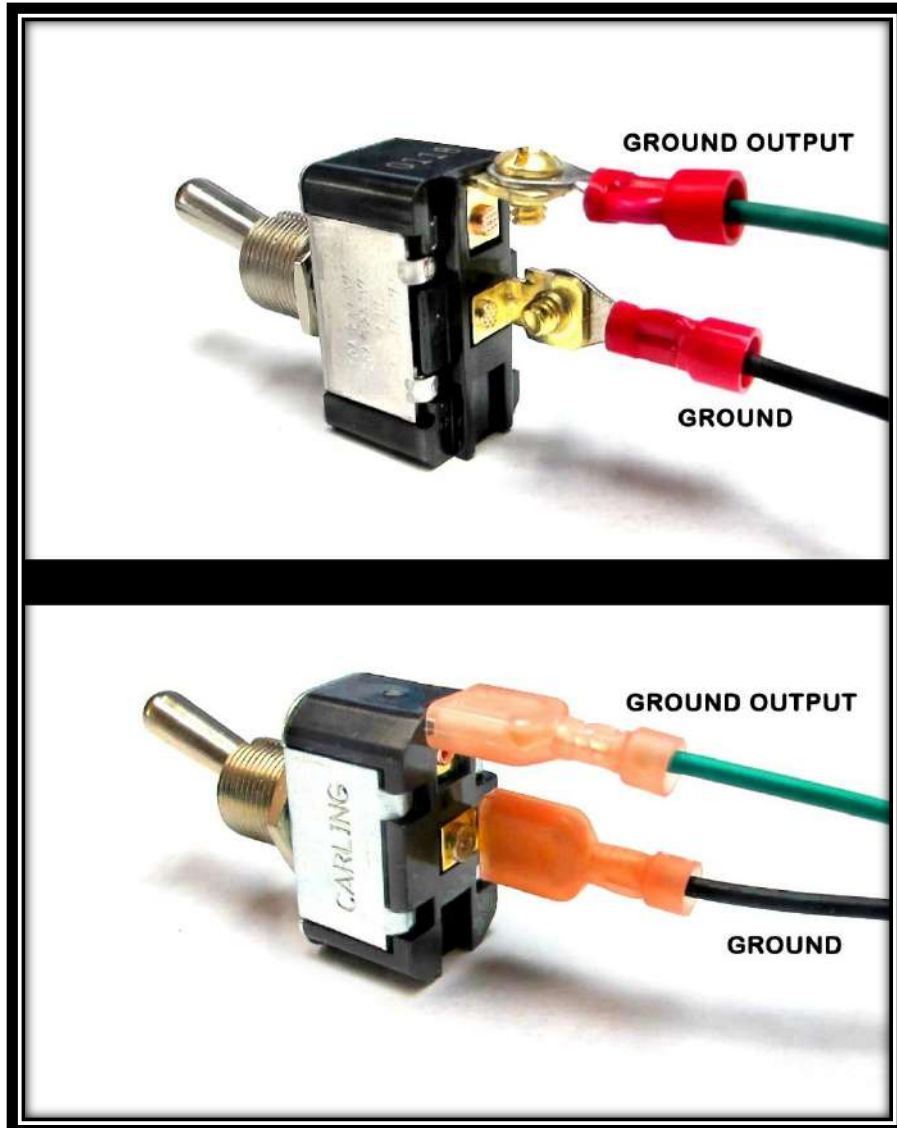
**Step 22:** Locate the wire on the **Switch Control** pigtail you wish to connect to a switch and strip it about  $\frac{1}{4}$ ".



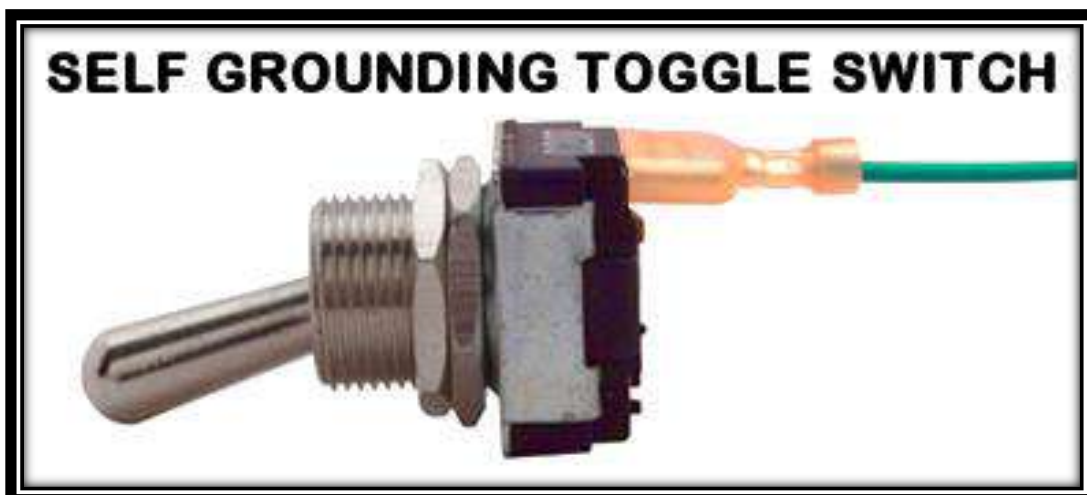
**Step 23:** Crimp on a **20-18 ga. ¼" spade terminal** found in the included parts kit. Then, connect the wire to the switch.



**Step 24:** The 12v power wire is only necessary if you are using a lighted switch. A standard, non-lighted, 2-wire switch only requires a **ground wire** and a **ground output**. The RED Power wire is only for lighted switches. **DO NOT USE IT FOR ANYTHING BUT THE LIGHT ITSELF.**



**Step 25:** Or, if you are using a self-grounding switch, only the ground output wire will be necessary.

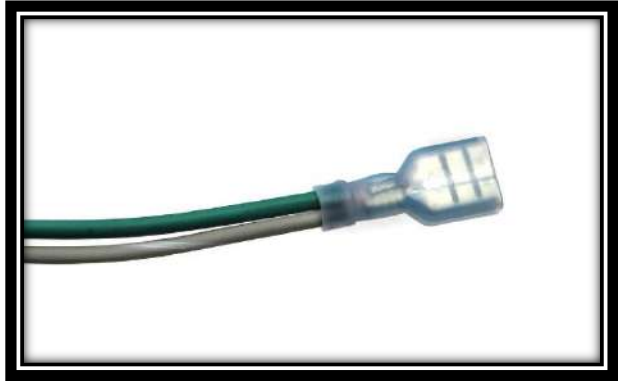


## DOUBLING SWITCH CONTROL WIRES

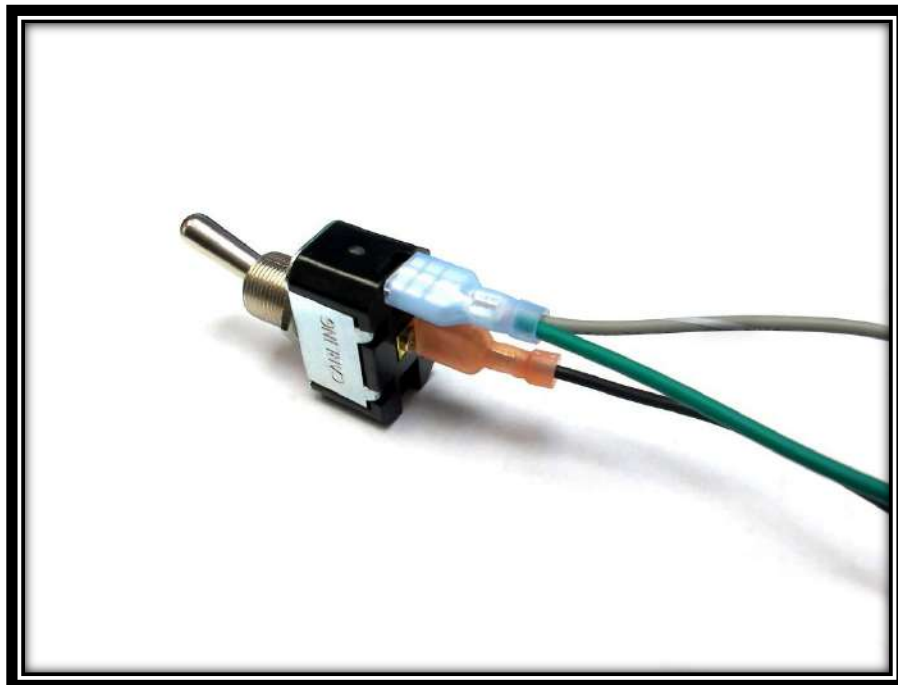
The Trail Rocker Fuse/Relay Center is capable of supporting 8 different accessories. Some applications may require a single switch to control multiple accessories. Steps 26 & 27 are optional and only for those who wish to control multiple functions for one switch. Provided in the kit are several 16ga. - 14ga. terminals, like those shown to the right.



**Step 26:** Select two control wires from the Switch Control Pigtail and strip them 1/4". Then, slide them together into a 16-14 ga. terminal provided in the parts kit.



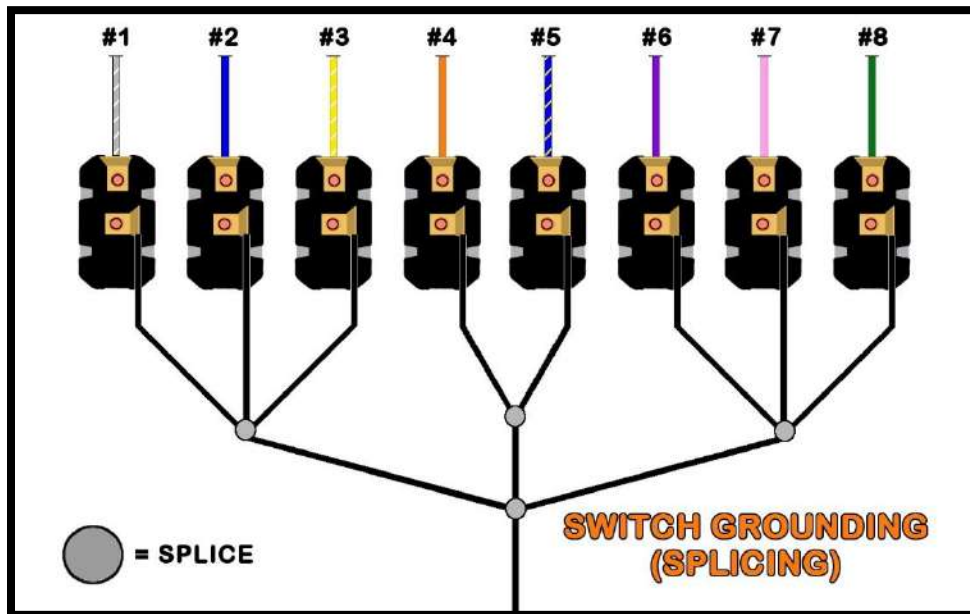
**Step 27:** With both wires inside, crimp the terminal, and connect the doubled Switch Control wires to the switch.



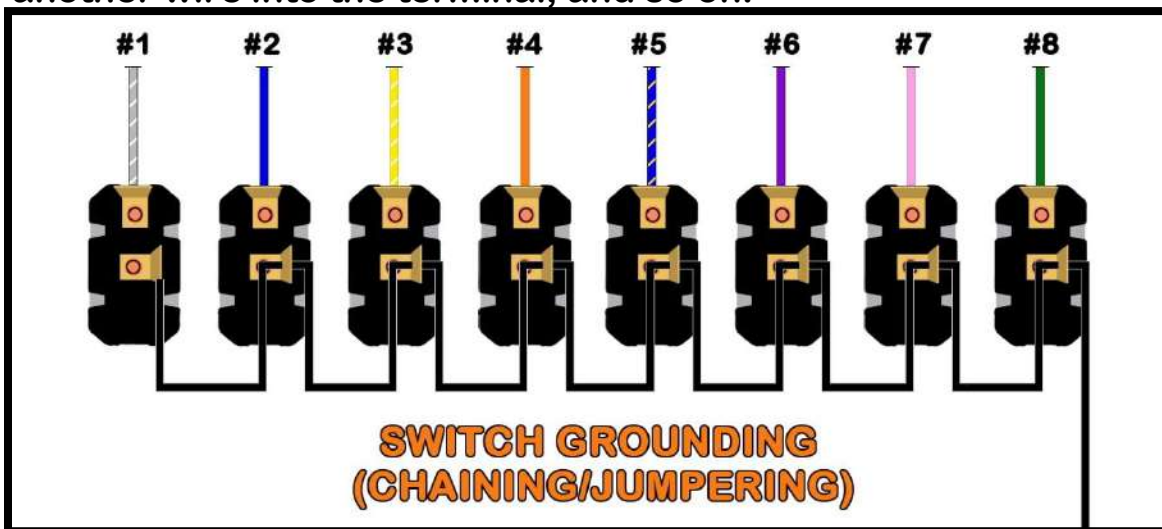
## HARDWIRING:

The Switch Control Pigtail comes with a single power wire and a single ground wire. In order to use multiple switches with these power and ground wires, some modifications will need to be made by either chaining/jumpering the wires from switch to switch or by making a series of splices.

#1) **Splicing:** This is when you connect multiple wires to a single wire to distribute power/ground to multiple components.



#2) **Chaining or Jumpering-** Run the ground wire to a ground post. **Before terminating the wire** with the proper terminal, insert another wire into the terminal and crimp. You now have 2 wires in 1 terminal. This additional wire then routes to the next gauge's power post. Before terminating that wire with the proper terminal, insert another wire into the terminal; and so on.



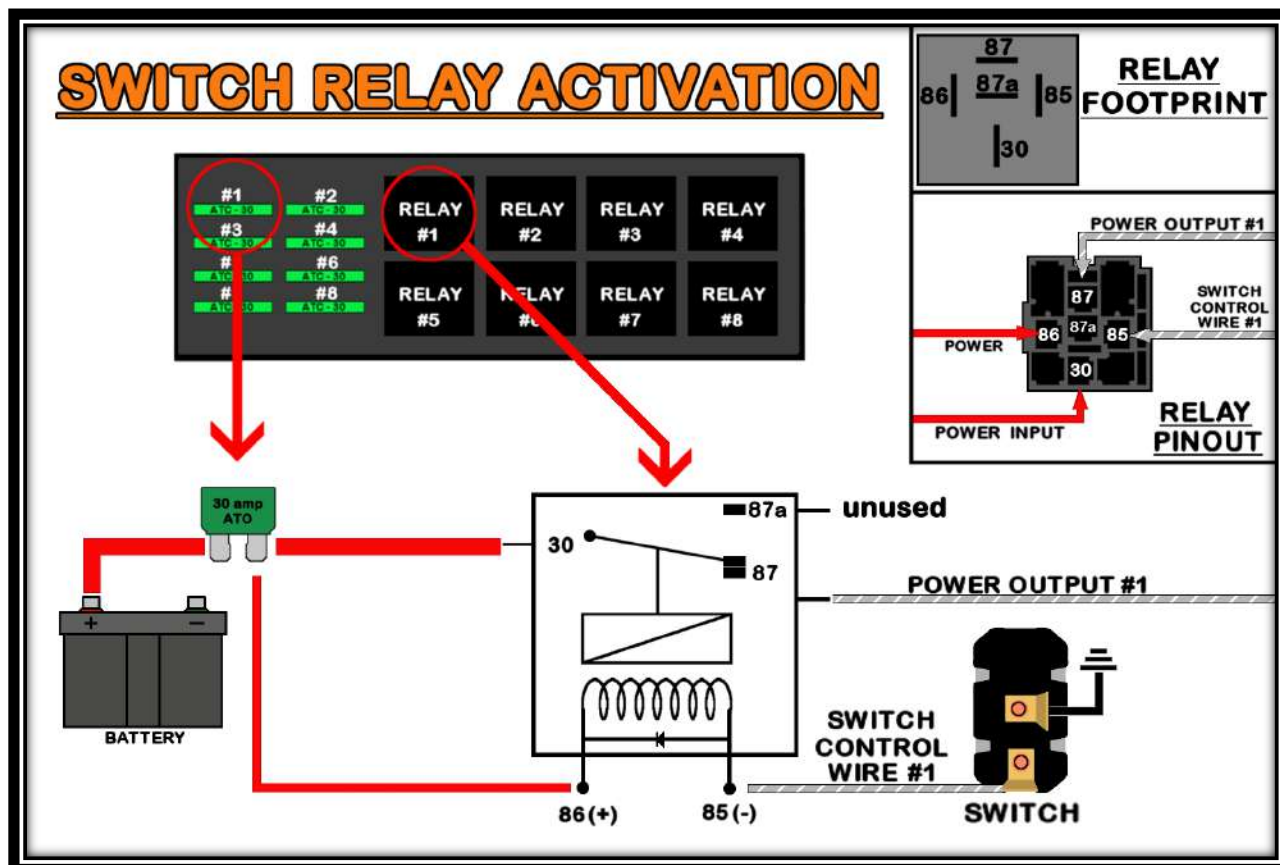


## ECM CONNECTION

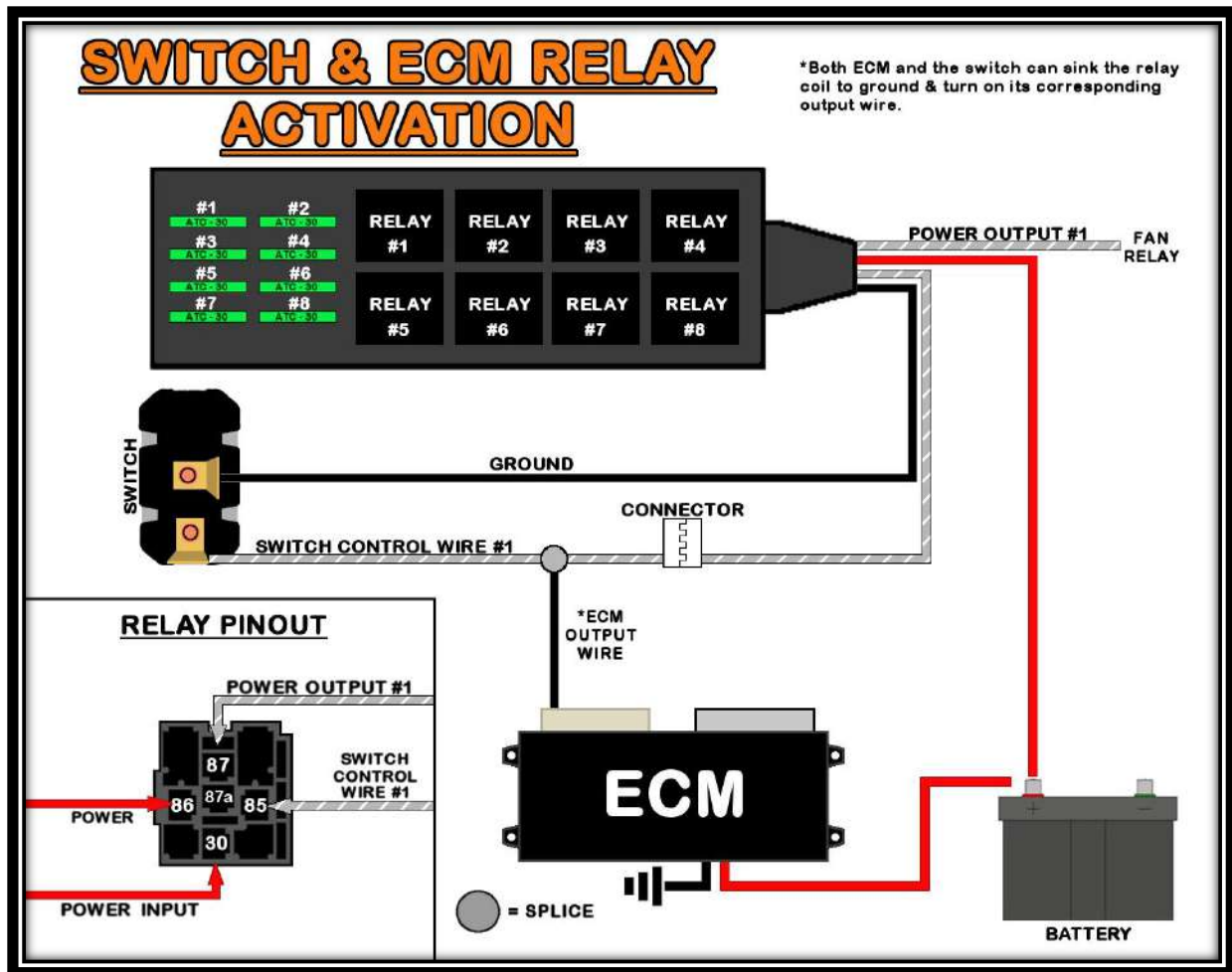
In some race applications, you may want to have components controlled both with a toggle or rocker switch AND an aftermarket ECM (Engine Control Module). If this is the case, the **Track Rocker** is designed to allow **BOTH** a grounding switch and an aftermarket ECM to ground the 85(-) terminal on the coil inside of the relay. This is commonly referred to as “sinking the relay to ground.” All the relays in the **Track Rocker** are ‘diode suppressed,’ therefore; it is **CRITICAL** the 85(-) terminal is **ONLY** used as ground control.

This redundancy allows you to manually operate components, like the cooling fans, while still allowing them to function automatically as programmed into a microcontroller. Most aftermarket ECM’s can be tied into the **Track Rocker Relay Center**. To do so simply splice the appropriate output wire(s) from the ECM into the **Switch Control Pigtail wires**.

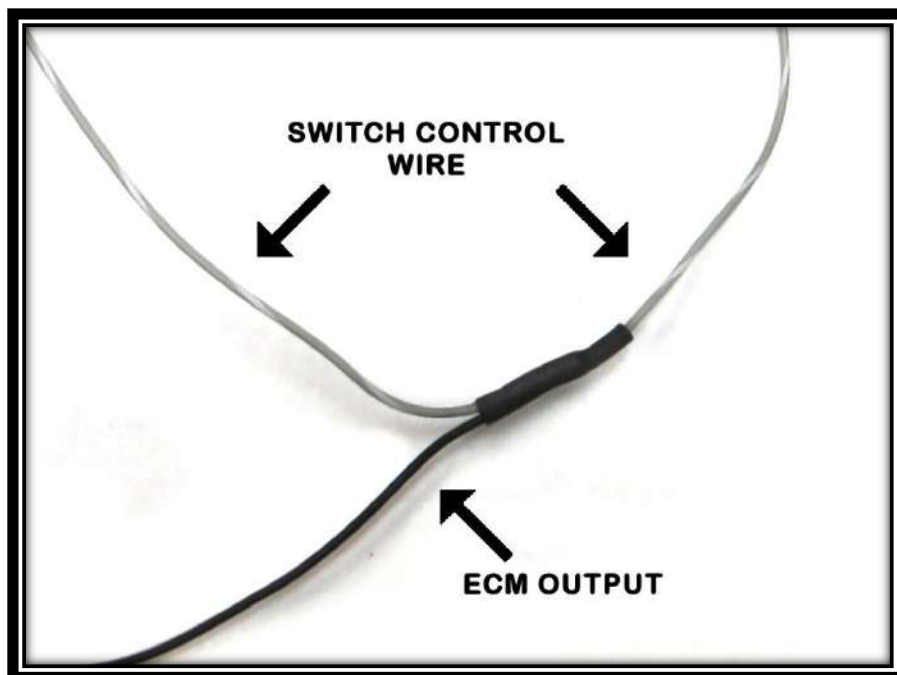
Doing this allows either the switch or the ECM to complete the circuit within the relay and activate the relay’s output wire. This will also illuminate the lighted switches to illuminate whether the component was activated manually by the switch or automatically by the computer, thus signaling the driver anytime the component is active.



**Step 28:** Refer to your ECM's wiring diagram and locate the appropriate output for the component you wish to tie into the Track Rocker System.



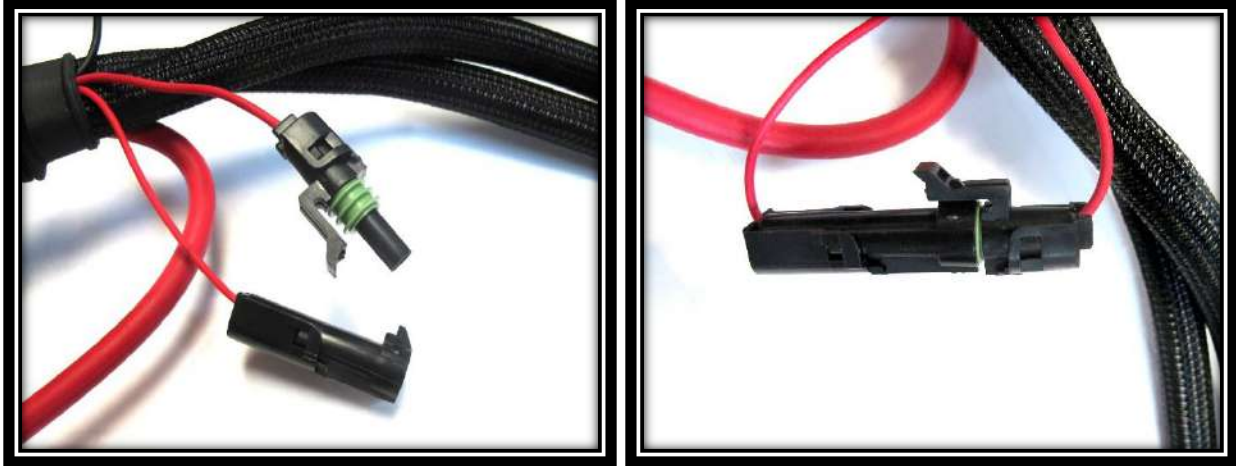
**Step 29:** Then, splice the ECM Output wire into the Switch Control Pigtail wire of the switch you wish to use. See [page 14](#) for the wire color chart.



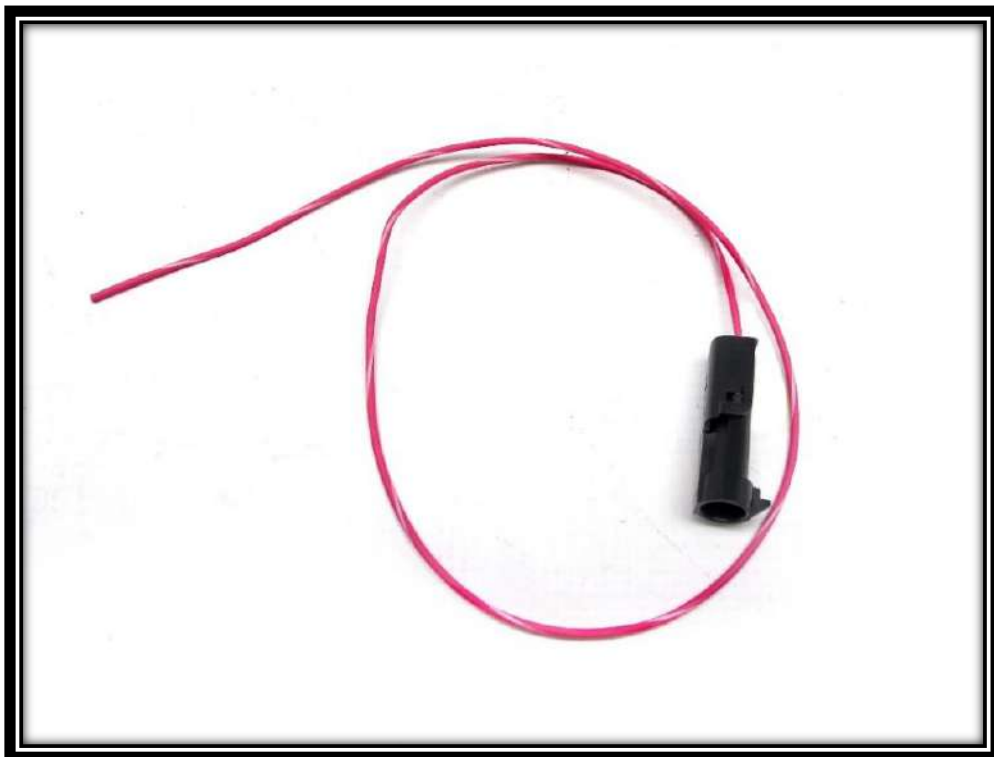
## **CONSTANT OR IGNITION SWITCHED POWER**

The Track Rocker System can be run with constant or ignition switched power. This determines whether the relays can be activated at any time or only when the ignition is powered.

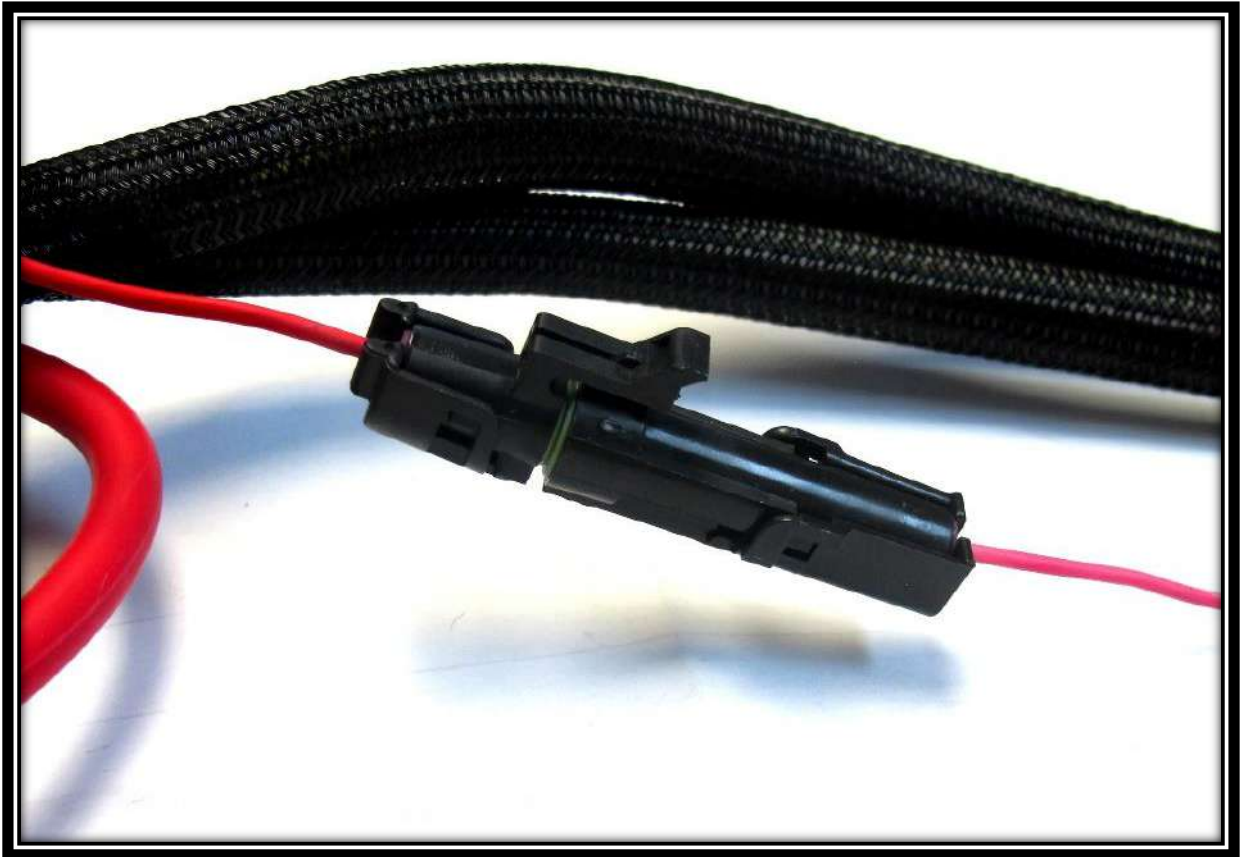
**Step 30:** In order to run the Track Rocker System with constant power, simply connect the 2 single-wire connectors found on the Track Rocker Fuse/Relay Center.



**Step 31:** If you'd prefer ignition switched power, locate the **Ignition Pigtail**. This pigtail connects to an existing ignition power, usually an ignition switch, and gives the Track 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 an existing ignition power source.



**Step 32:** First, connect the pigtail to the male connector on the **Track Rocker Fuse/Relay Center**. Then, route the wire to your ignition source. Be sure to avoid sharp edges or moving parts and use a grommet if passing through the firewall or other metal surfaces.



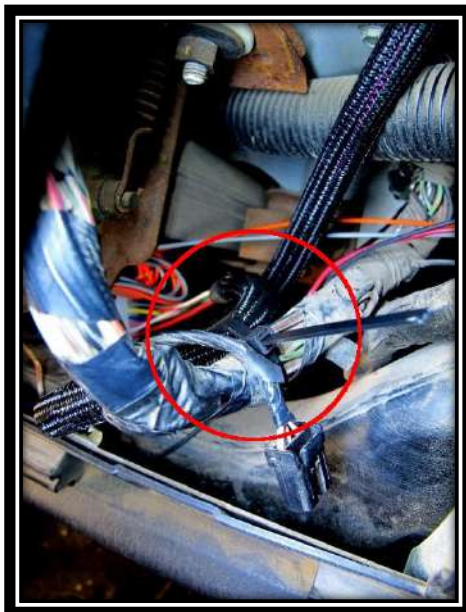
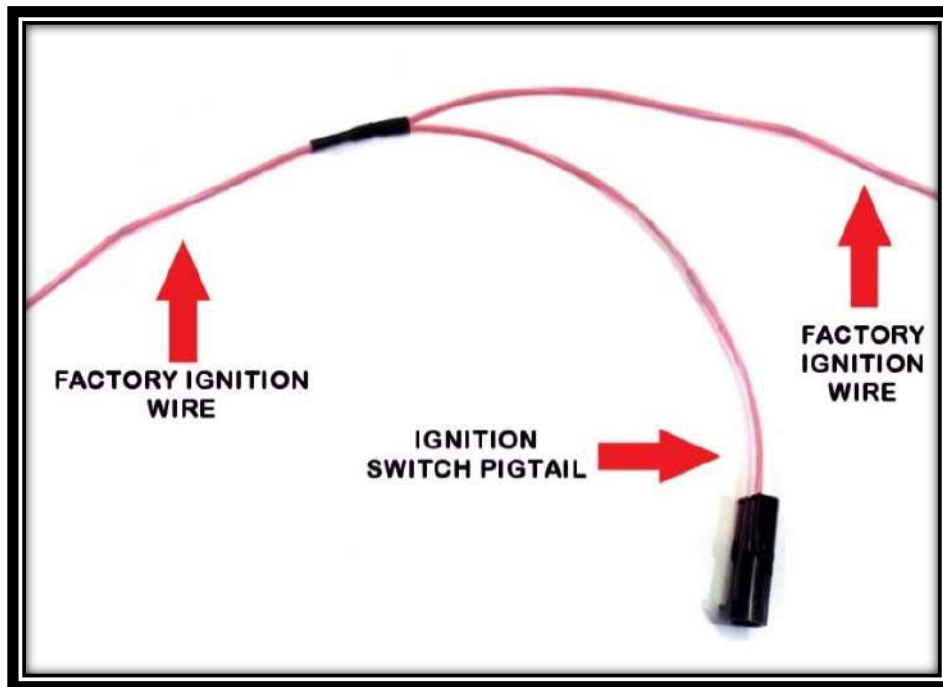
**Step 33:** Locate a switched 12v ignition source. This can be found at the ignition switch or any other switched 12v wire providing power to a component.

**Step 34:** Once a source has been found, the **Ignition Pigtail** will need to be spliced into the 12v ignition wire or doubled up with it at its source.

## Splicing:

**Step 35:** Cut the 12v ignition wire, strip both ends  $\frac{1}{4}$ " and strip the **ignition pigtail  $\frac{1}{4}$  inch**.

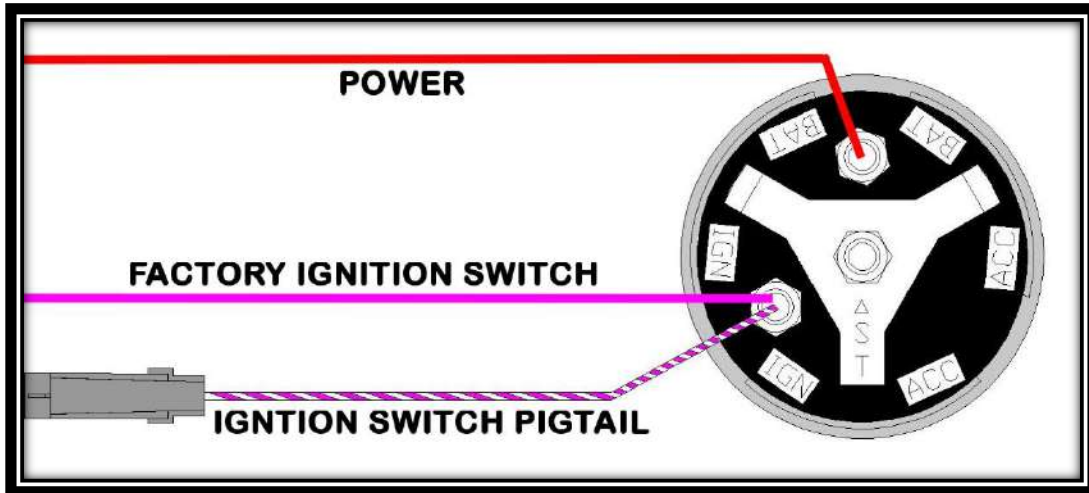
**Step 36:** Now, connect the pigtail to the cut 12v ignition wires using the **uninsulated butt connectors** from the parts kit. **(NOTE: make sure to slide the **heat shrink** over the wire before crimping)**.



**Step 37:** After crimping, slide the **heat shrink** over the connection. Using a heat source, heat the **heat shrink** ensuring a tight wrap around the connector. Secure the wires using the provided **zip-ties**, and replace any panels you may have removed.

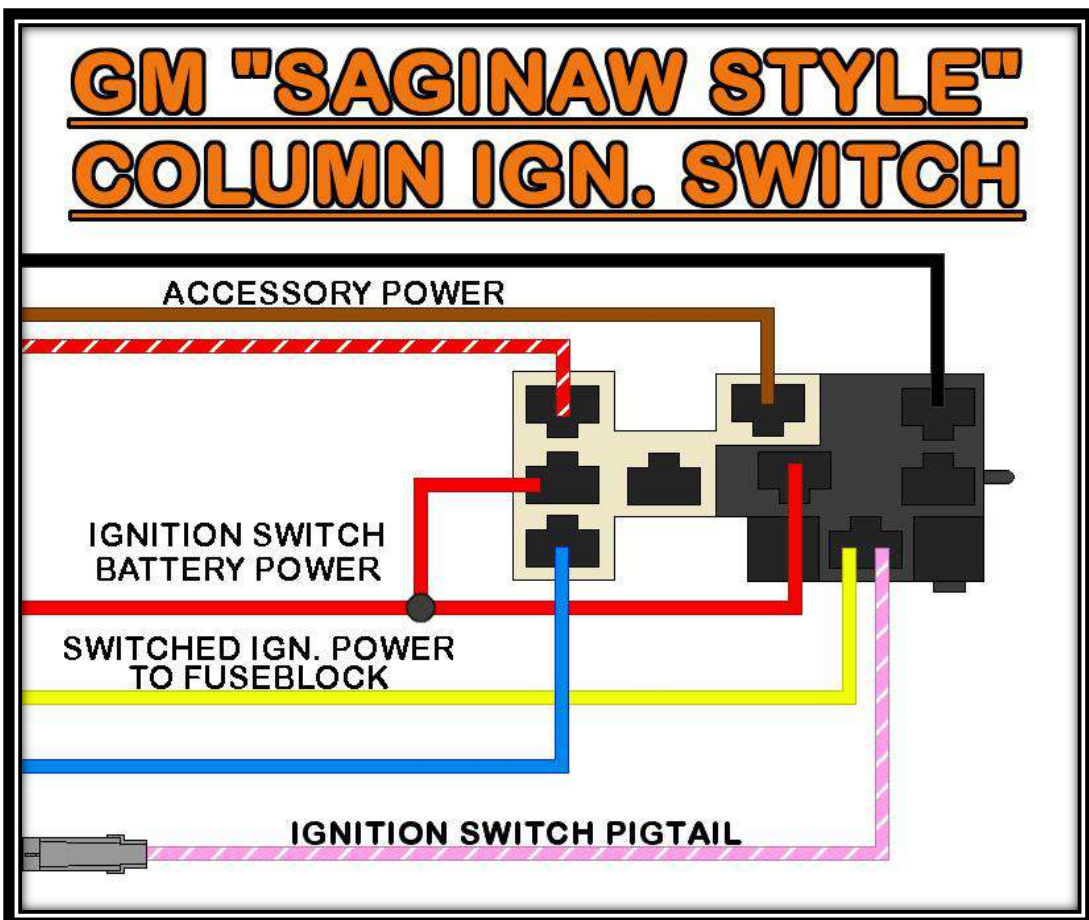
## Universal Ign. Switch:

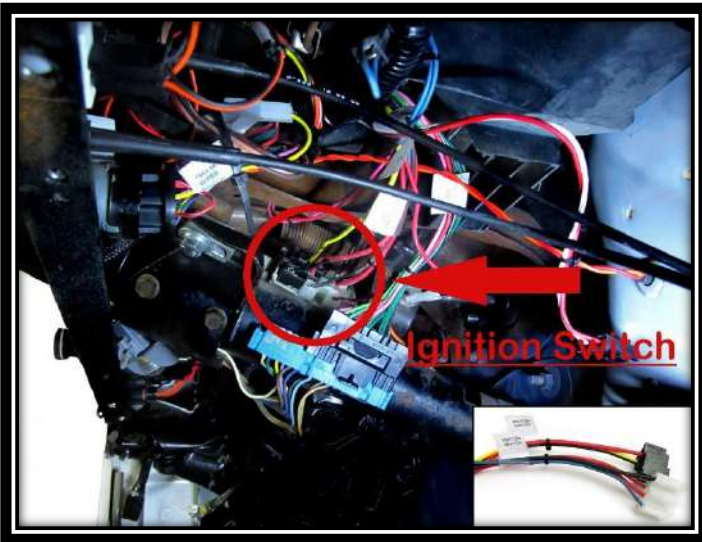
**Step 38:** If you are using a universal ignition switch with threaded posts, like [Painless Part# 80153](#), the pigtail can be connected directly to the ignition post using one of the included 20 – 18 ga, #10 Red ring terminals.



## GM Saginaw Column: Steps 39 – 41

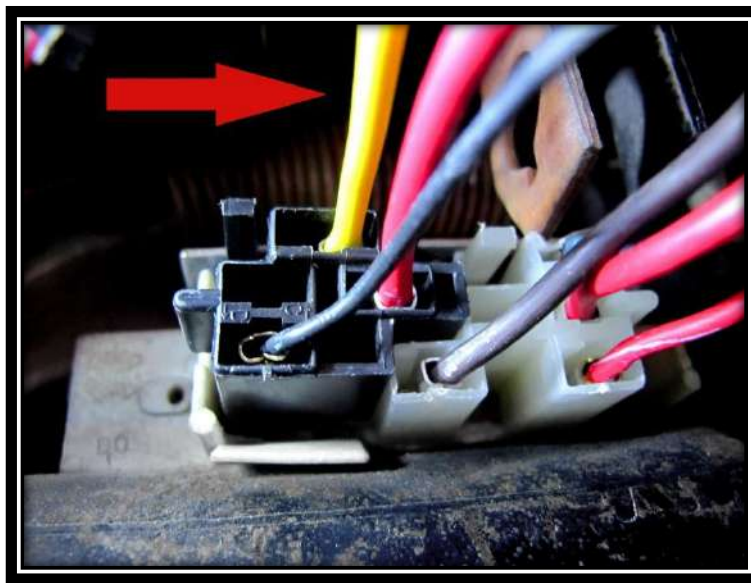
**Step 39:** It will help to familiarize yourself with the [Ignition Switch Schematic](#) below.



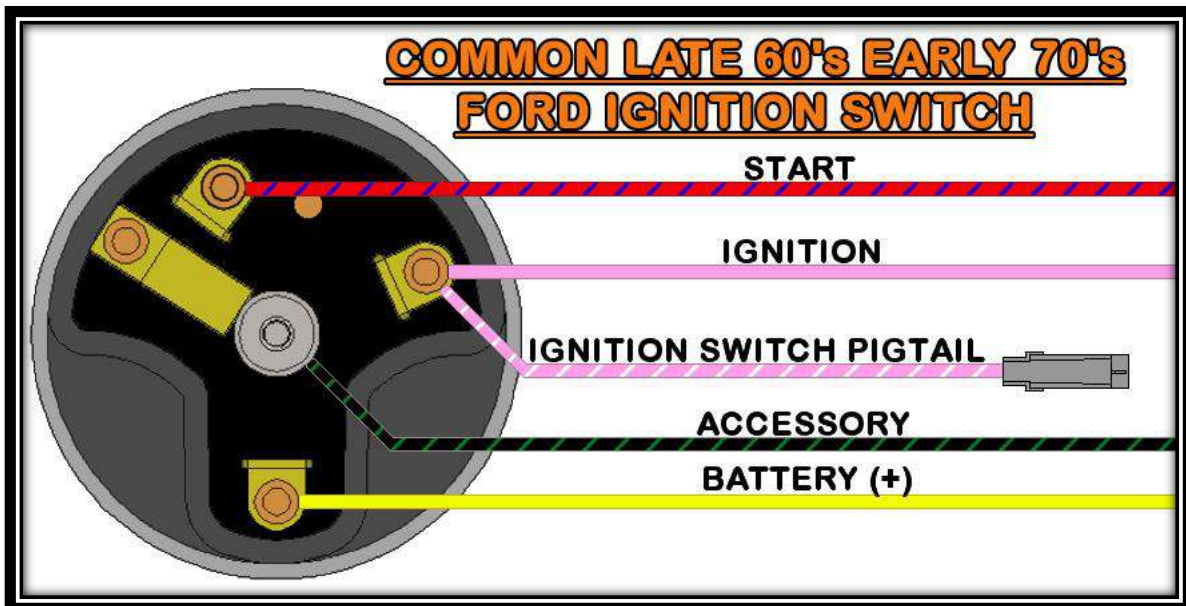


**Step 40:** Locate the vehicle's ignition switch on the steering column and the switched, 12v ignition wire.

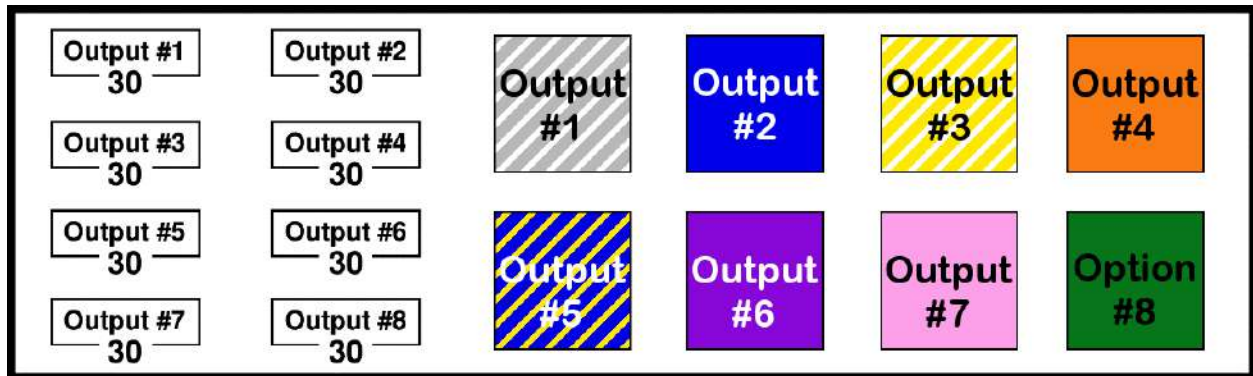
**Step 41:** Then either splice into the 12v ignition wire or double the wires at the connector. In this example, the 12v ignition wire is **YELLOW** and is plugged into the **BLACK** connector. These wires and connectors may vary between vehicles.



**Ford Ign. Switch:**



## 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.

**Steps 42 - 51** show how to install a terminal block and are completely optional. If you are not using the terminal blocks you may skip to **Step 35** for a common example on connecting the relay output wires to most accessories.

### **Relay Output Wire Color Diagram:**

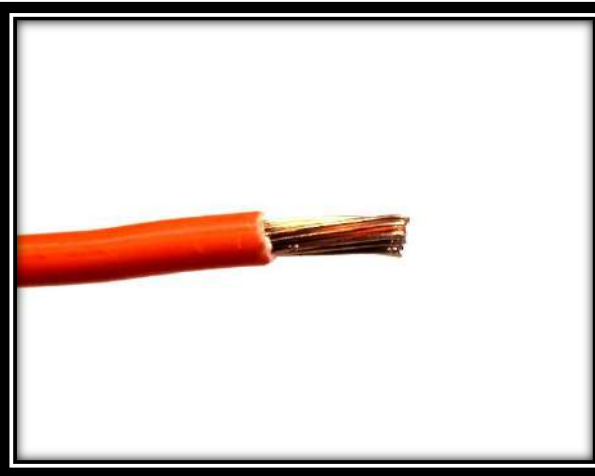
- Wire #1: Grey/White
- Wire #2: Blue
- Wire #3: Yellow/White
- Wire #4: Orange
- Wire #5: Blue/Yellow
- Wire #6: Purple
- Wire #7: Pink
- Wire #8: Green



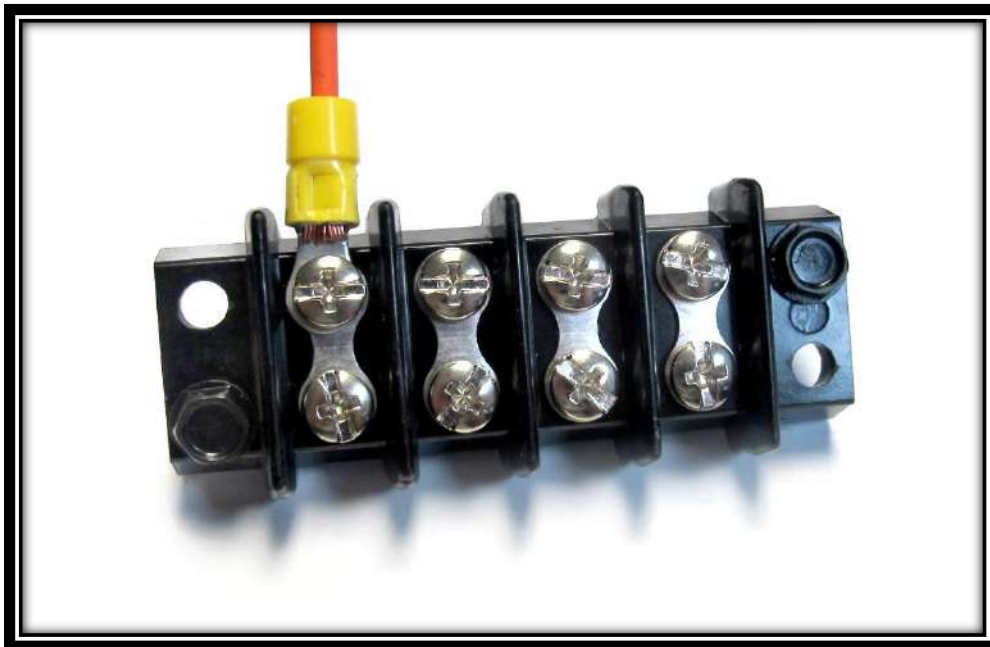
**Step 42:** **2 Terminal Blocks** have been provided in order to help clean up the install and make swapping components easier. Each block can handle **4 output wires** and can be attached to the vehicle using **2** of the included **self-tapping screws**. The blocks are completely optional and you can connect directly to the accessory input wire if you prefer.



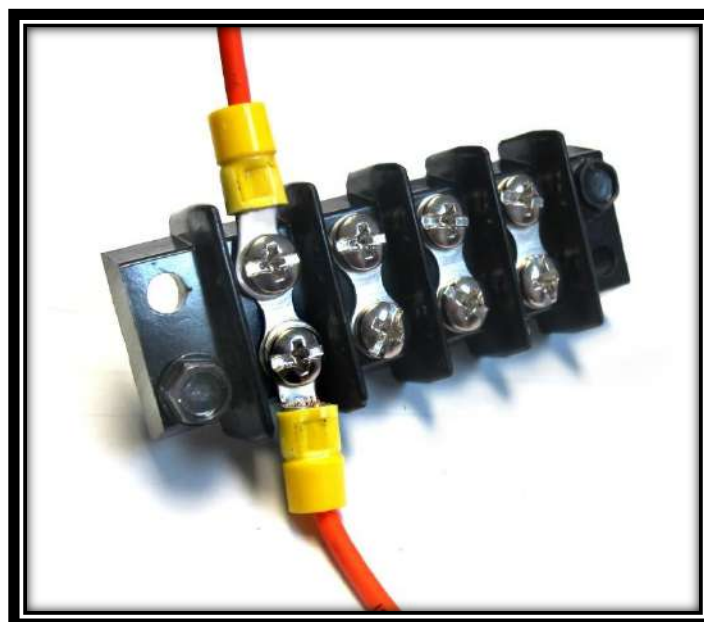
**Step 43:** Route the Relay Output Wires to the **Terminal Block** and cut-to-length. Strip about  $\frac{3}{16}$ " of insulation from the wire and attach an insulated **#10 ring terminal**, included in the parts kit.



**Step 44:** Attach the Relay Output wire to the **Terminal Block**.



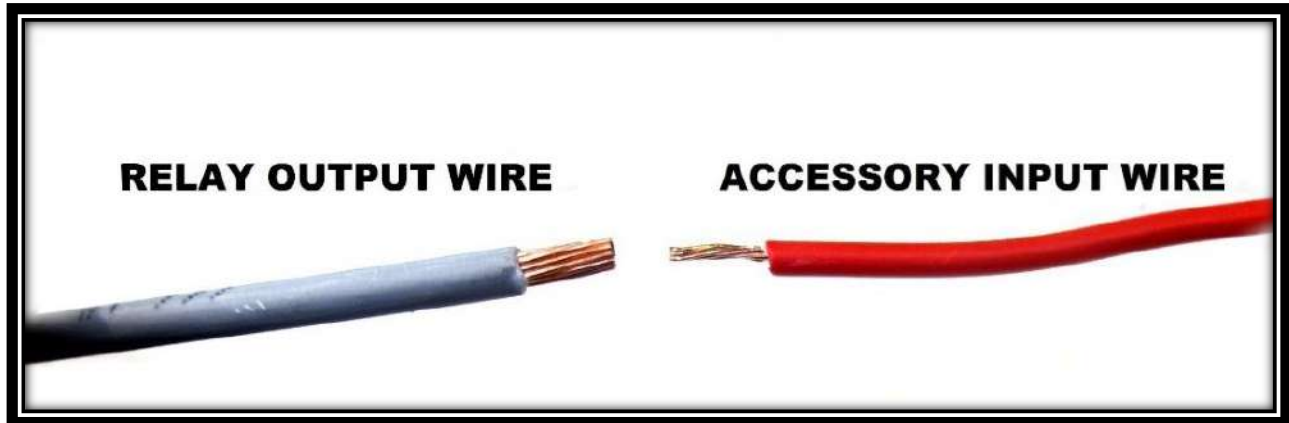
**Step 45:** Take the excess wire you cut off in step 26 and crimp on a **#10 ring terminal**, then attach the wire to the opposite side of the **Terminal Block**.



**Step 46:** Spade Terminals have been included in order to allow you to connect directly to your components.



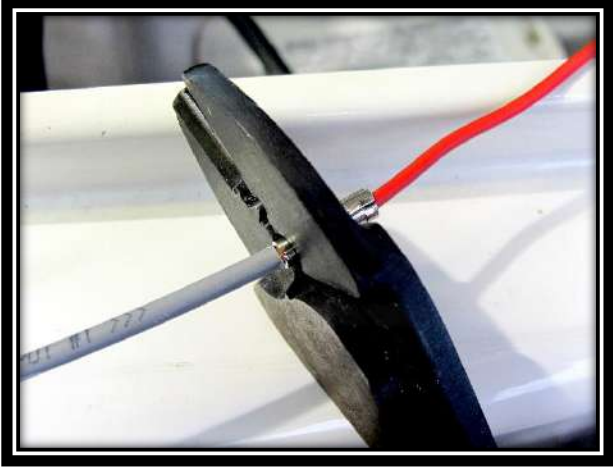
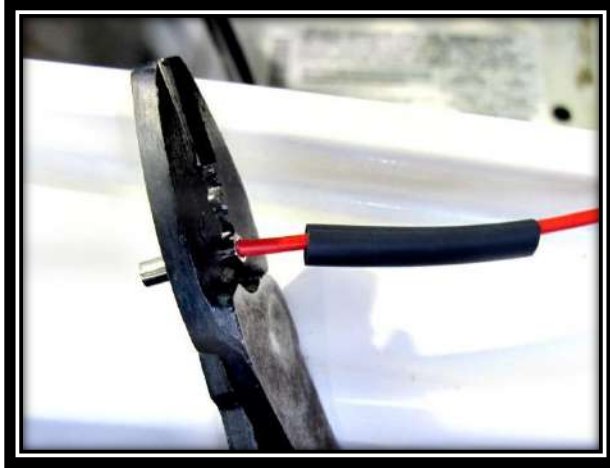
**Step 47:** If the component has a pigtail, follow these steps. Locate the **relay output wire** from the **Fuse/Relay Center** or **Terminal Block** you wish to use. Then, locate the **input wire** on the accessory you are installing.



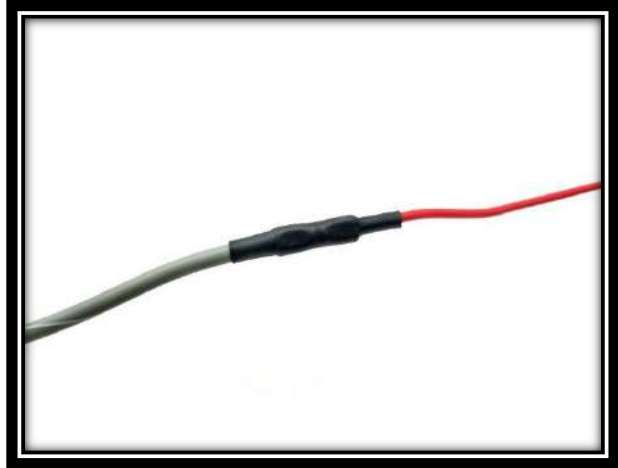
**Step 48:** The relay output wires and included butt connectors are **10 – 12 gauge**. You may need to double up the accessory's input wire if it is smaller than **12 gauge**, seen below.



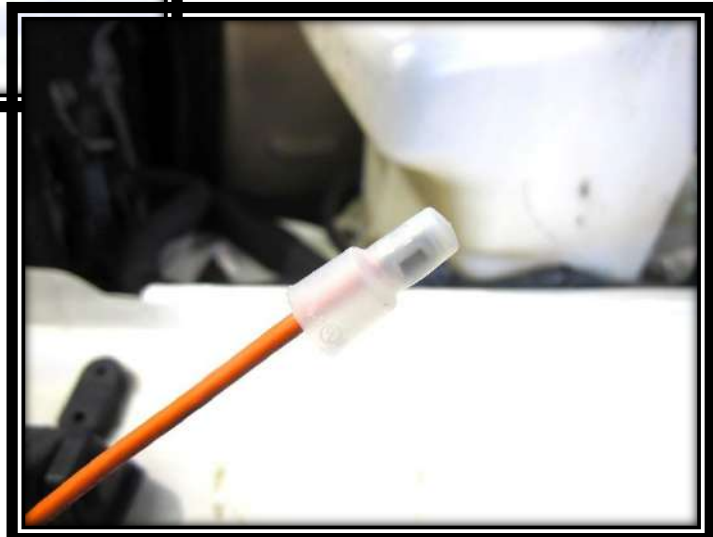
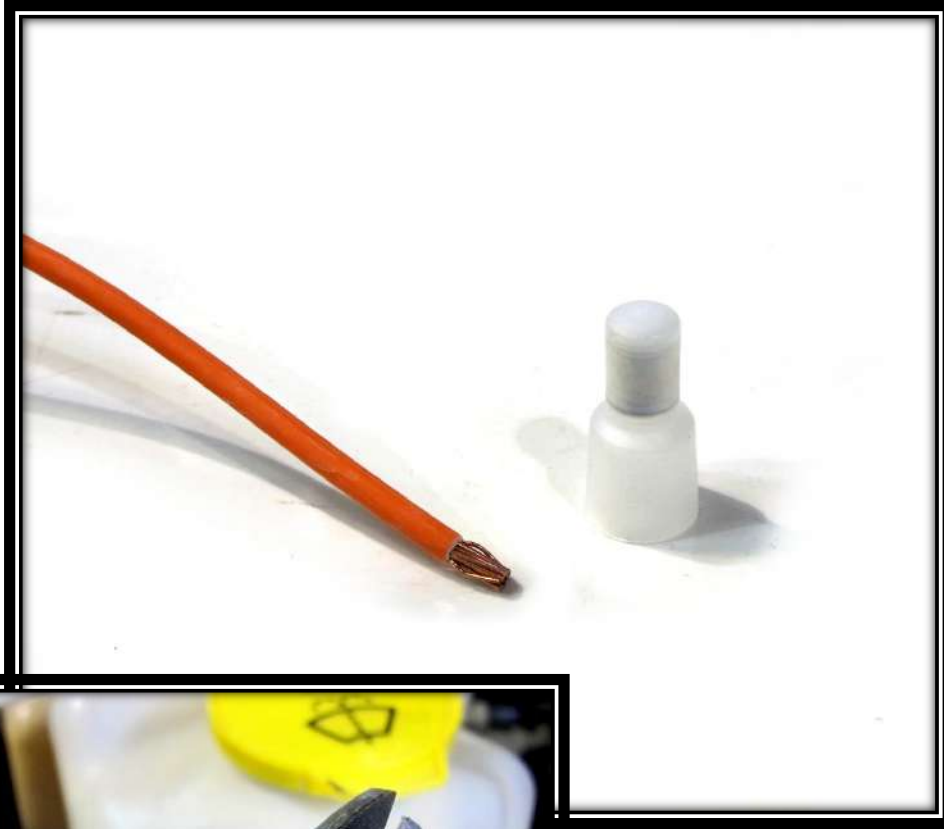
**Step 49:** Slide a piece of heat shrink from the included parts kit over the accessory wire. Then, use an un-insulated butt connector to crimp together the accessory wire with the relay output wire.



**Step 50:** Use a heat gun to apply heat to the heat-shrink and secure the connection.



**Step 51:** 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.



## FINAL STEPS

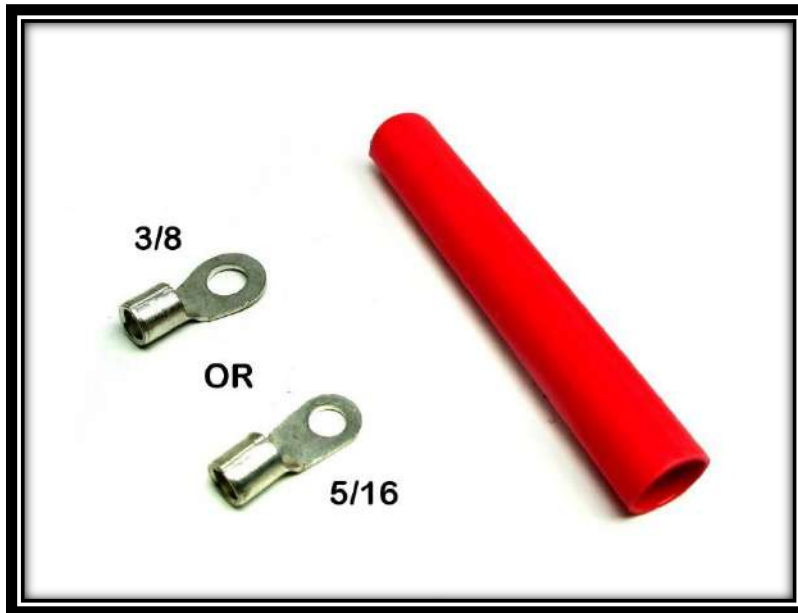
**Step 52:** After completing the previous installation steps, you may now reconnect your battery terminals. Locate the **6-gauge, unterminated, red cable, heat shrink**, and the appropriate sized (for your particular application) **non-insulated ring terminal** in your kit.



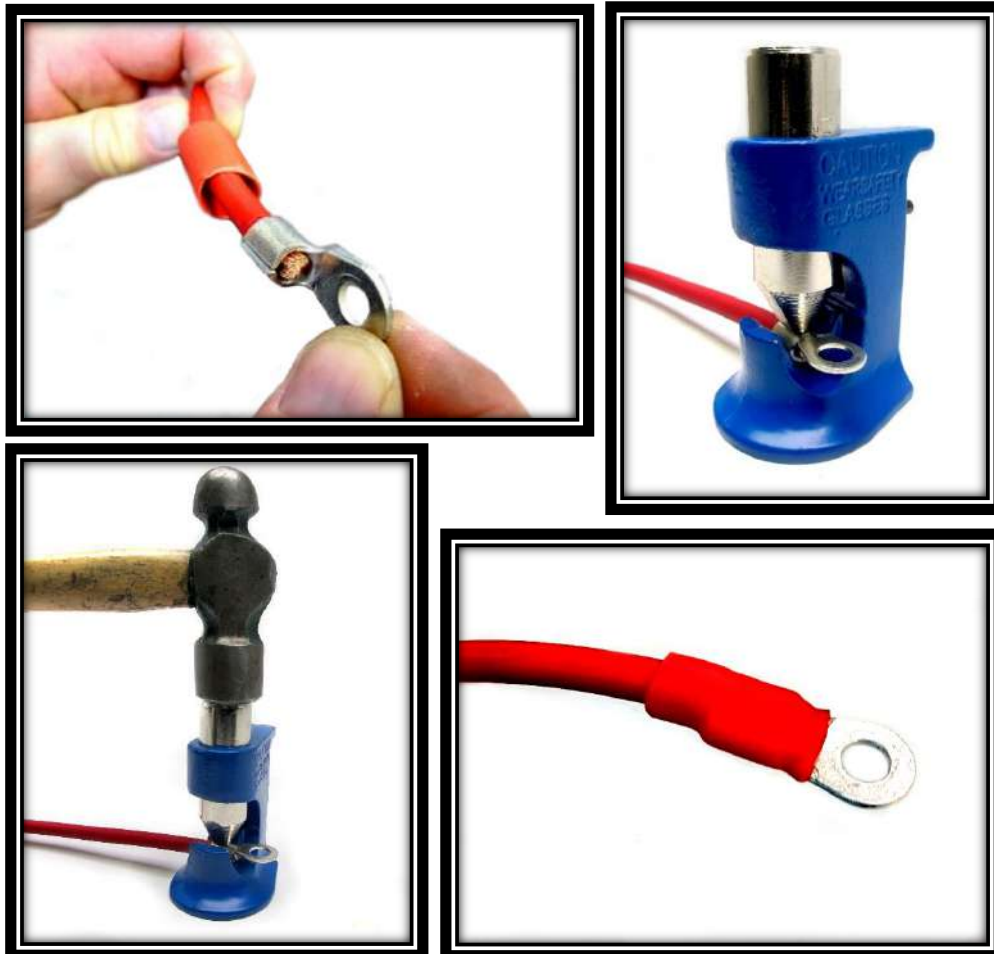
**Step 53:** Notice that the **6-gauge red cable** does not have a ring terminal on one end. This is so you can cut the cable to the length you need for your specific application. Loosely install the terminated end of the red cable onto the stud of the MIDI fuse holder and route the uninsulated end to the battery. Mark the length then cut and strip the wire about  $\frac{1}{2}$ ".



**Step 54:** Once the cable is stripped, remove it from the **Fuse/Relay Center MIDI fuse** in order to crimp on one of the included  $\frac{5}{16}$ " or  $\frac{3}{8}$ " **ring terminal** from your parts kit.



**Step 55:** 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 **1.5"** of **heat shrink**. If you do not, have a crimping tool at hand, you can use a vice, hammer, and chisel.



**Step 56:** Next, install the cable under the **200-amp MIDI fuse** to the **Fuse/Relay Center** and connect it to the positive battery terminal.

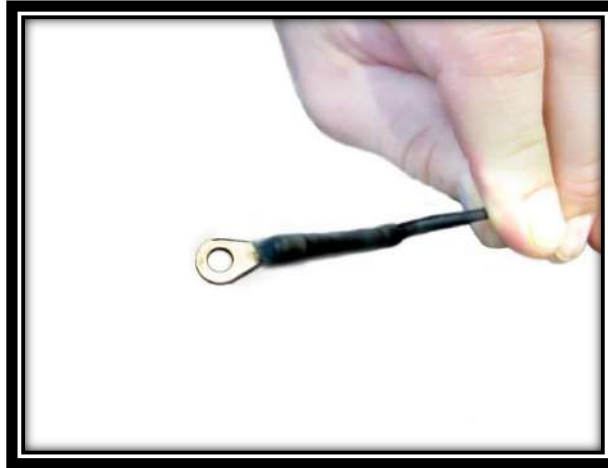


**Step 57:** Then, route the ground wire coming from the **Fuse/Relay Center** to the negative battery terminal (preferred) or to the frame and attach using **(1) ¼" black heat shrink** and **(1) 16-14 ga. non-insulated ring terminal**, and **(1) self-tapping screw**. You may wish to use a star-washer (not included) for better contact.





**Step 58:** Strip the wire about  $\frac{3}{16}$ " and slide the **heat shrink** over it. Then, crimp on the **ring terminal** and secure it with the **heat shrink**.



**Step 59:** Reconnect your battery cables along with the Track Rocker power cable and ground wire.



**Step 60 : With the battery connected, you can now test out and enjoy your new Track Rocker!**



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