



Trail Rocker Installation Instructions

1997-2006 Jeep Wrangler TJ Dash Mounted Trail Rocker

For Installing Painless Part Number: 57040
Manual # 90590

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



Painless Performance Products, LLC

2501 Ludelle Street Fort Worth, TX 76105-1036

800-423-9696 phone – 817-244-4024 fax Web Site: www.painlessperformance.com E-Mail: painless@painlessperformance.com

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: 90590

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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 57040 should contain the following:

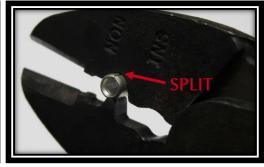
- Fuse/Relay Center w/ Powder Coated Bracket
- Dash-Mounted Switch Panel with 8 pre-installed switches
- Ignition Switch pigtail w/ weather-pack connector, (1) rubber grommet, and zip-ties.
- Winch Pigtail, ground wire, and winch installation kit
- Parts Kits: (14) pre-cut ¾₁₆" black heat-shrink, (12) 16-14 ga. non-insulated butt connectors, (3) ¼" piggyback terminals, (3) ¼" 20 x ¾" stainless bolts, (3) ¼" 20 nylon locking nuts, (8) insulated wire caps, (2) ³/₈" Adel clamps, (2) 1" Adel clamp, (4) 30 amp ATC fuses, (2) 18-20 ga. ¼" female terminals, (1) 200 amp MIDI fuse,
- (1) pre-cut ¼" black heat shrink, (4") pre-cut ½" red heat shrink, (1) 16-14 ga. non-insulated ring terminal, (1) 6 ga. ¼" ring terminal, (1) 6 ga. 5/16" ring terminal,
- This manual 90590



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.

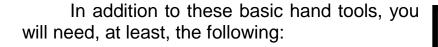




TOOLS NEEDED

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
- 3. Screwdrivers:
- a. (2) #2 Standard Length and Stubby Phillips Head
- b. #0 "Jewelers" Flat (slot) Head
- 4. Half-round Metal File
- 5. Inch/Pound Torque Wrench
- 6. Diagonal Pliers or "dikes"
- 7. Wire Cutter/ 18-10 ga. Stripper
- 8. Hand Crimpers
- 9. Cable Cutters
- 10. Cable Crimping Tool
- 11. Hammer



Electric Drill & Drill Bits:

You also need an Electric Power Drill (suggest battery powered cordless for ease and maneuverability) and a 1 1/4" Hole Saw with Arbor

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.

E 163.

Heat Gun:

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

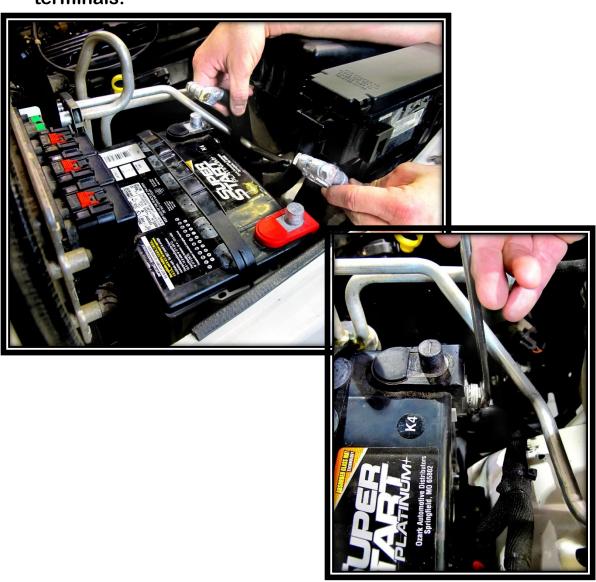


FUSE/RELAY CENTER INSTALLATION

The following steps MUST be followed as they are printed. Do not move onto other parts of the installation out of sequence.

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

Step 1: Remove the battery cables from the battery and tuck them away so that they won't accidentally make contact with the terminals.



Step 2: After removing the battery cables, locate the Fuse/Relay Center and bracket, (2) ³/₈" Adel clamps, (2) 1" Adel clamps, (3) ¹/₄"-20 stainless bolts, and (3) ¹/₄" nylon lock nuts.

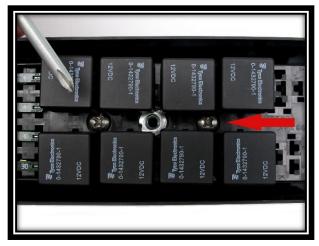




Step 3: First, remove the Fuse/Relay Center from the bracket. To do this remove the lid from the Fuse/Relay Center using a 7/16" wrench or socket.



Step 4: Once the cover is removed, notice the mounting bolts located below the relays. Use a #2 Stubby Philips-head screwdriver to hold the bolts in place while you remove the ¼" threaded, acorns nuts on the bottom of the unit with a ½" wrench or socket.

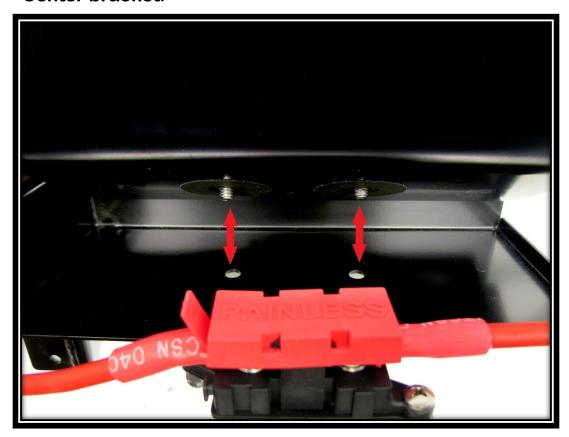




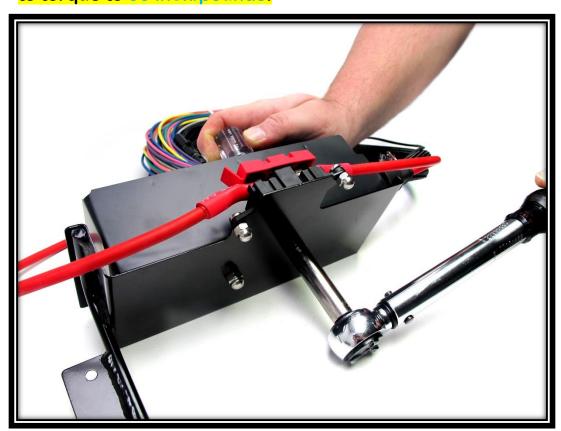
Step 5: With the bracket removed slide 2 of the ½"-20 stainless bolts into the holes on the back of the Fuse/Relay Center bracket.



Step 6: With the mounting bolts in place, reattach the Fuse/Relay Center bracket.



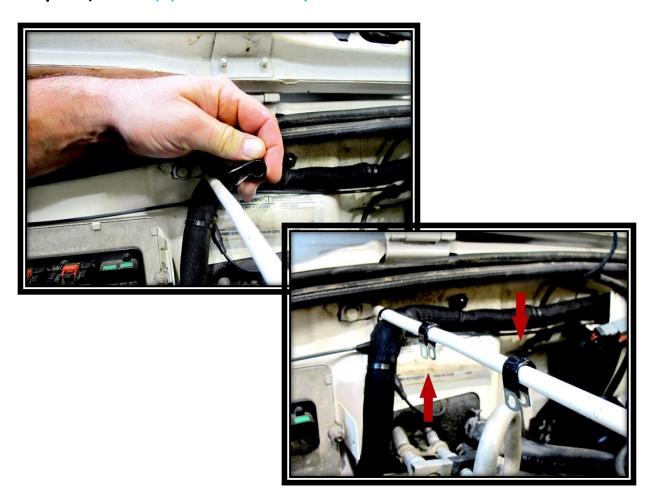
Step 7: Fasten the bracket to the Fuse/Relay Center using the 1/4" threaded, acorns nuts you removed in Step 4. Caution: Do not over-torque these fasteners! If necessary, use a torque wrench to torque to 36 inch/pounds.



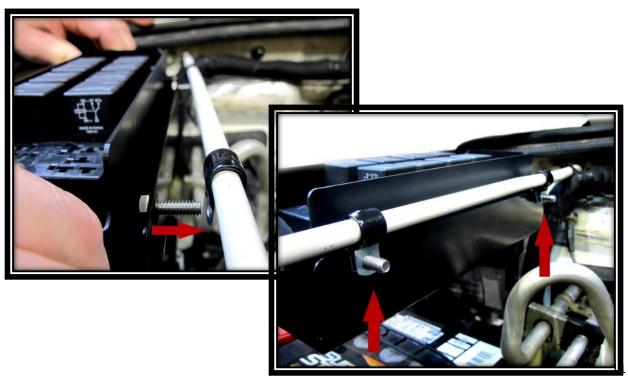
Step 8: In the engine compartment you will notice a **strut rod** and **mounting tab** on the firewall. The tab is just above the battery on the passenger side of the vehicle.



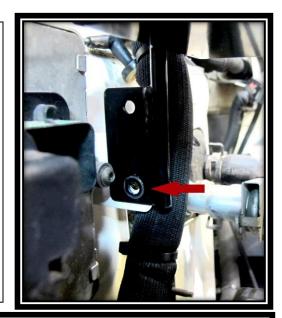
Step 9: places (2) 3/8" Adel clamps over the strut rod.



Step 10: Line up the ¼"-20 stainless bolts you placed in the Fuse/Relay Center bracket in Step 3 with the (2) ³/8" Adel clamps. DO NOT install and tighten the ¼" nylon lock nuts until Step 16.



Step 11: Line up the tab on the of the Fuse/Relay bottom Center with bracket the mounting tab on the firewall. Take (1) 1/4"-20 stainless bolt and (1) 1/4" nylon lock nut and, using a $\frac{7}{16}$ " wrench and socket, the tabs secure together.







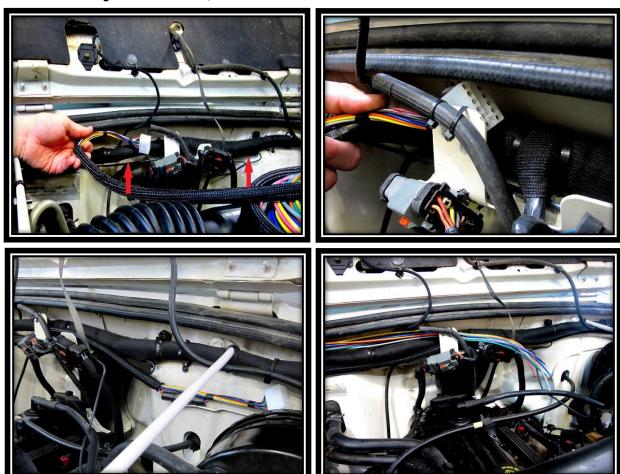
Step 12: Use a $\frac{7}{16}$ " socket to re-secure the lid to the unit. Caution: Do not over-torque this fastener! If necessary, use a torque wrench and torque to 11 inch/pounds.



Step 13: Locate the **Trail Rocker control wires.**



Step 14: Carefully route the **Trail Rocker control wires** along the factory wire loom, and under the **strut rod**.



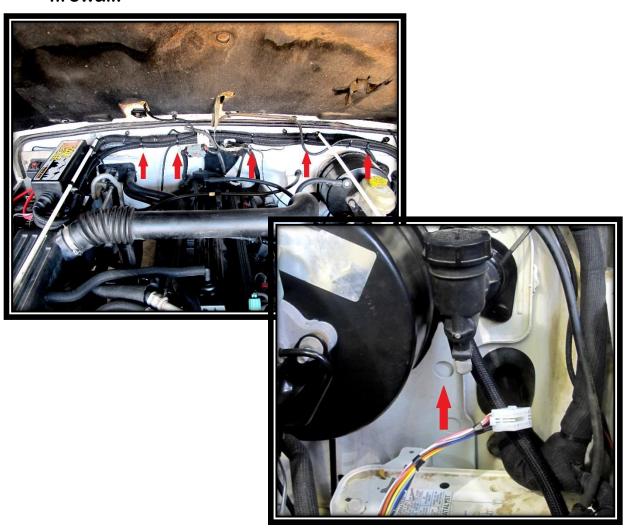
Step 15: Route the Trail Rocker control wires over the brake booster but under the clutch master cylinder, if your Jeep has a manual transmission.



Step 16: Next, secure the Trail Rocker control wires to the Fuse/Relay Center. To do this, place (2) 1" Adel clamps over the Trail Rocker control wires and secure them to the (2) 1/4"-20 stainless bolts on the Fuse/Relay Center bracket with (2) 1/4" nylon lock nuts.



Step 17: Zip-tie the Trail Rocker control wires to the factory wiring harness. Then, locate the small hole below the brake booster and master cylinder. This is where you will drill through the firewall.



Step 18: In the interior there is a cover behind the pedals that will need to be moved before you drill. Once the cover is moved out of the way, you can see from the interior where the hole will be made.

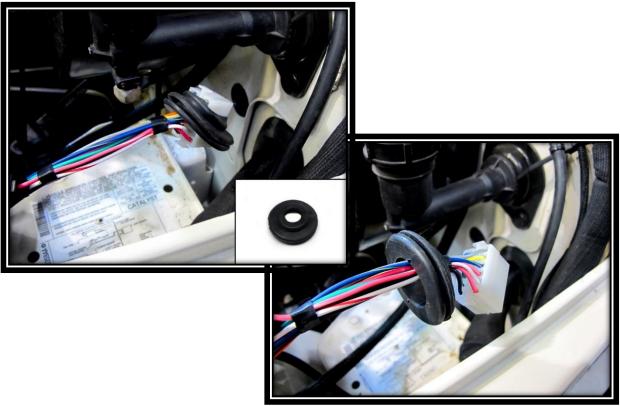




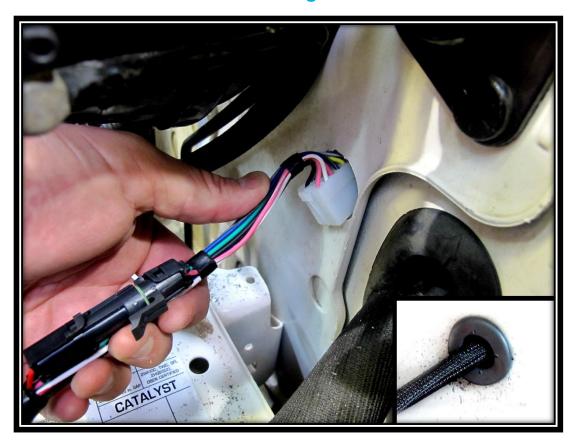
Step 19: Use a 1 ½" hole saw with arbor to drill a hole in the firewall. Then, use a metal file to remove any burrs.



Step 20: Locate the <u>rubber grommet</u> in the included parts kit and slide it over the <u>Switch Control wire</u> connector.



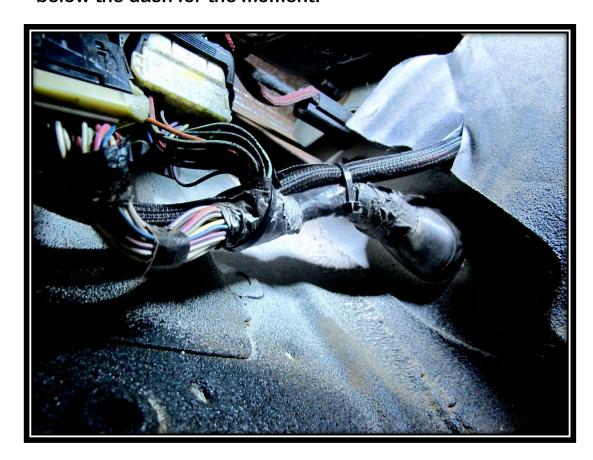
Step 21: Slightly bend the connector and pass it through the hole in the firewall. Secure the <u>rubber grommet</u> in the hole.

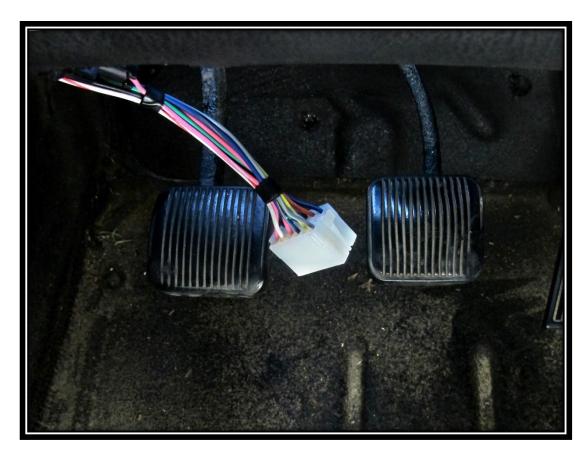


Step 22: In the interior, replace the cover you moved in Step 18. It may be necessary to cut a small hole in the cover to allow the Switch Control wires to pass neatly through.



Step 23: Zip-tie the **Switch Control wires** to the factory wires coming through the firewall, and allow the **Switch Control wires** to hang below the dash for the moment.





SWITCH PANEL INSTALLATION

Step 24: Remove the **access panel** below the steering column by removing its 2 screws with a **Philips-head screwdriver**.



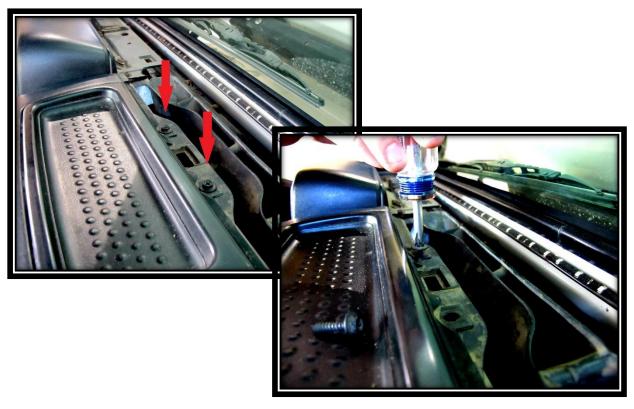
Step 25: Locate the **Defroster Duct Panel** on top of the dash. To remove the panel carefully pry up until the clips release.



Step 26: With the **Defroster Duct Panel** removed, carefully cut out the driver side corner of the **defroster vent**.



Step 27: Locate the **2 screws** at the top of the **Instrument Panel Bezel** and remove them with a **Philips-head screwdriver**.



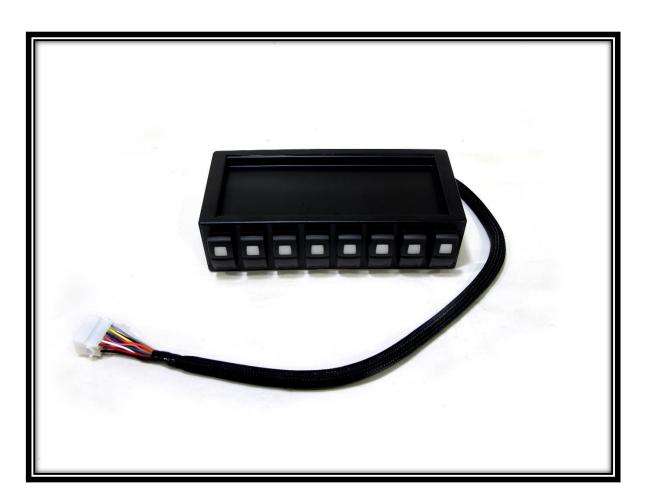
Step 28: With the **screws** out, remove the **bezel** by carefully pulling forward until the clips release.

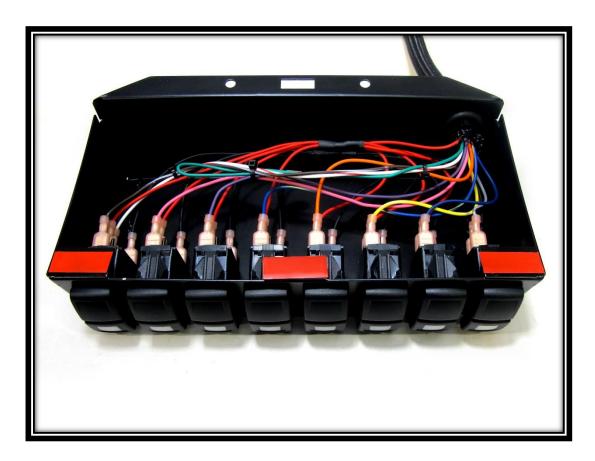


Step 29: Use rubbing alcohol and a towel to remove any detailing products that may be built up on the bezel. This will insure the strips of 3M emblem adhesive will stick to your bezel. Then, remove the insert from the top of the bezel.



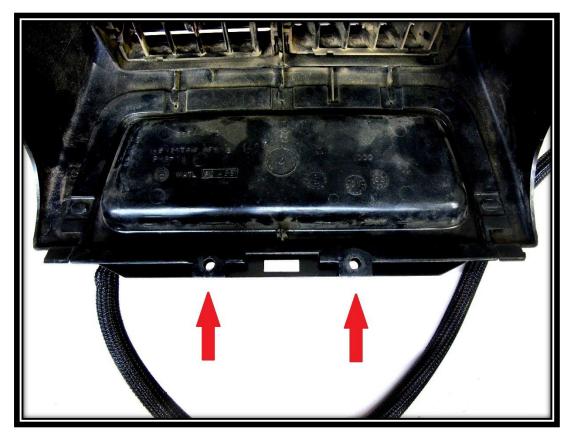
Step 30: Locate the **Switch Panel** and turn it over. Notice the 3 strips of **3M emblem adhesive** on the 3 tabs under the **Switch Panel**.





Step 31: With the Switch Panel still upside down line up the screw holes on the back of the Instrument Panel Bezel with those on the Switch Panel. If necessary, slightly bend the 3 tabs on the Switch Panel to insure direct contact with the bezel.





Step 32: Rock the **Instrument Panel Bezel** back and remove the backing from the double-sided adhesive.



Step 33: With the backing removed from the adhesive, keep the screw holes aligned, and rock the Instrument Panel Bezel forward. Press down with a bit of pressure to insure the adhesive sticks firmly to the bezel's surface. Again, it may be necessary, slightly bend the 3 tabs on the Switch Panel to insure direct contact with the bezel.





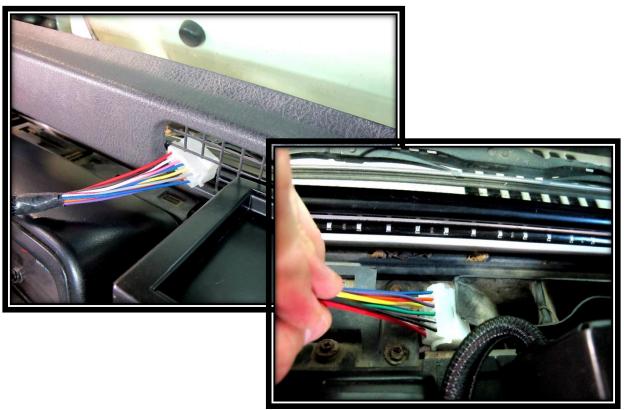
Step 34: Reinstall the **Instrument Panel Bezel** with the **Switch Panel** attached.



Step 35: Place the **Defroster Duct Panel** behind the **Switch Panel** to be reinstalled later.



Step 36: Pass the Switch Panel wire connector through the hole in the Defroster Duct Panel you made in Step 26. Then pass it down through the dash.





Step 37: At this point your Trail Rocker System should appear as it does below with the Switch Panel wires passing through the Defroster Duct Panel first then the dash.





Step 38: Secure the **Switch Panel** and **bezel** with the **screws** you removed in **Step 27**.

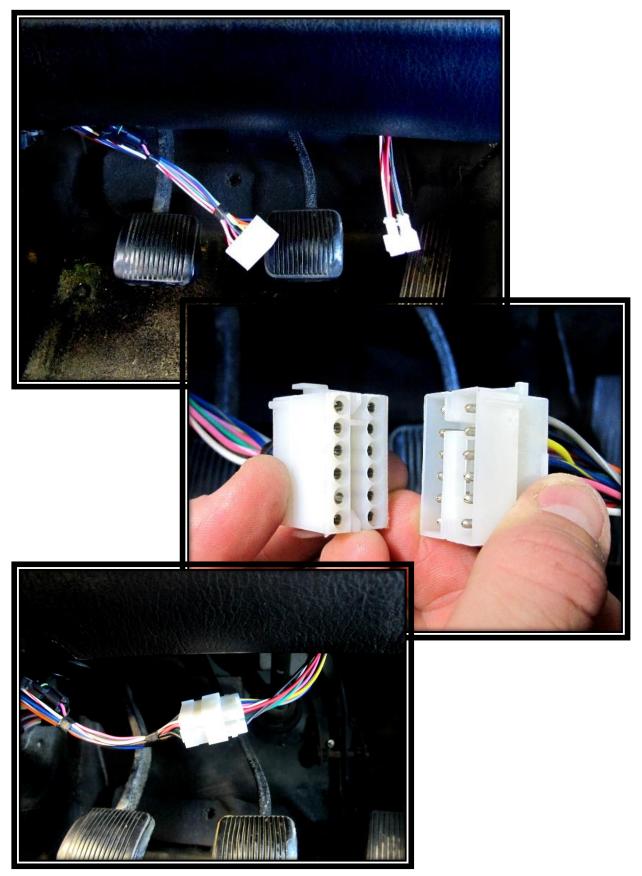


Step 39: Reinstall the **Defroster Duct Panel**.

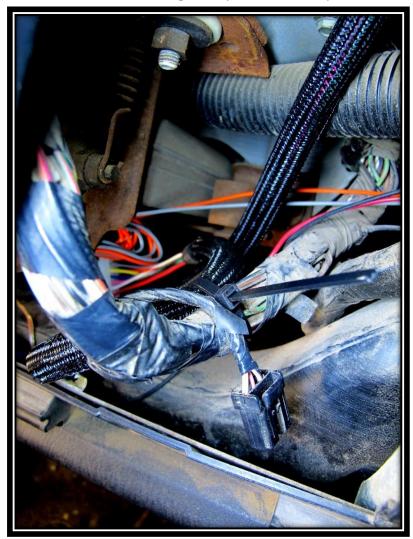




Step 40: Connect the Switch Control wires and the Switch Panel wires.



Step 41: Secure the wires using the provided zip-ties.



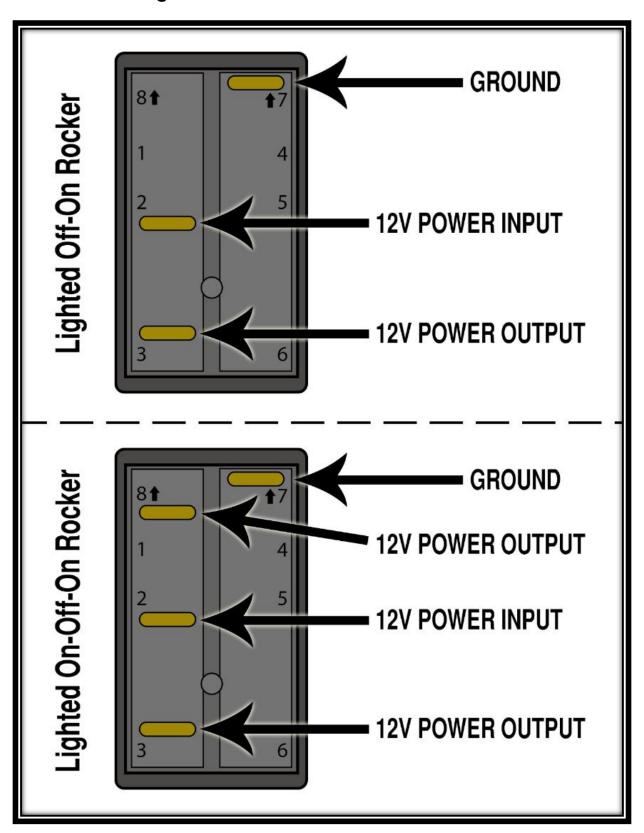


Step 42: Reinstall the access panel you removed in Step 24.



SWITCH WIRING

The lighted rocker switches included in your kit are wired as shown in the diagram below.

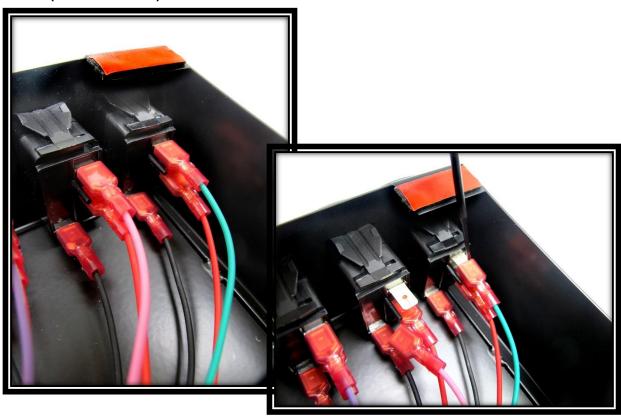


DOUBLING SWITCH CONTROL WIRES

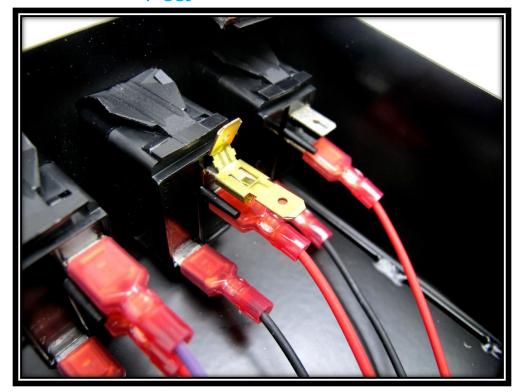
Steps 43-45 are optional and only for those who wish to control multiple functions for one switch. Provided in the kit are some piggyback terminals, similar to those shown below.



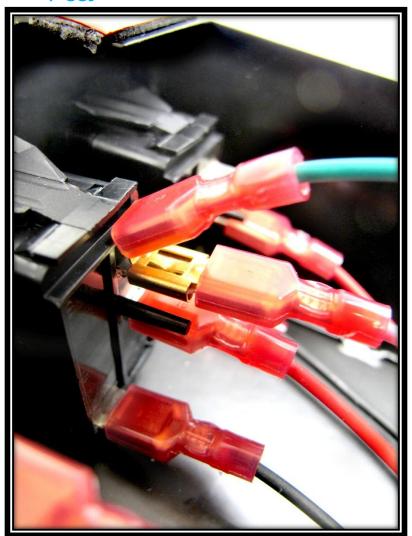
Step 43: Choose which switch you want to control multiple functions with, and which switch you want to disconnect. Remove the Switch Panel wire from the terminal on the bottom of each switch (terminal #3).



Step 44: Place on the piggyback terminal.



Step 45: Take the **Switch Panel wires** you just removed and connect them to the piggyback terminal.



IF YOU WANT TO OPERATE YOUR SWITCHES WITH A CONSTANT POWER (AS SHIPPED), SKIP STEPS 46-61. THESE STEPS ILLUSTRATE HOW TO HOOK UP YOUR TRAIL ROCKER TO IGNITION SWITCHED POWER AND ARE COMPLETELY OPTIONAL.

IGNITION SWITCH CONNECTOR INSTALLATION

Step 46: With the access panel still removed, release the **steering** column lock.



Step 47: Use a Philips-head screwdriver to remove the steering column cover.





Step 48: You will now locate the **ignition switch connector**.

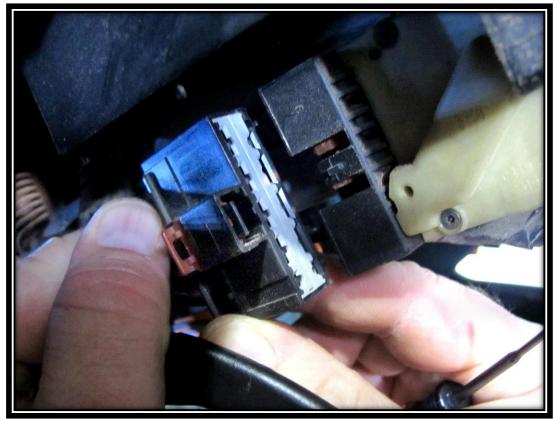


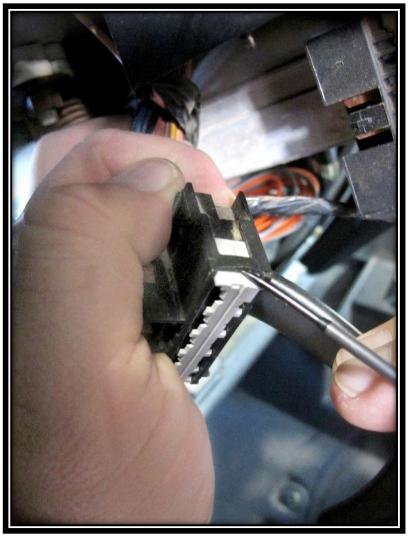
Step 49: Use a small flathead screwdriver to unlock the orange locking clip.



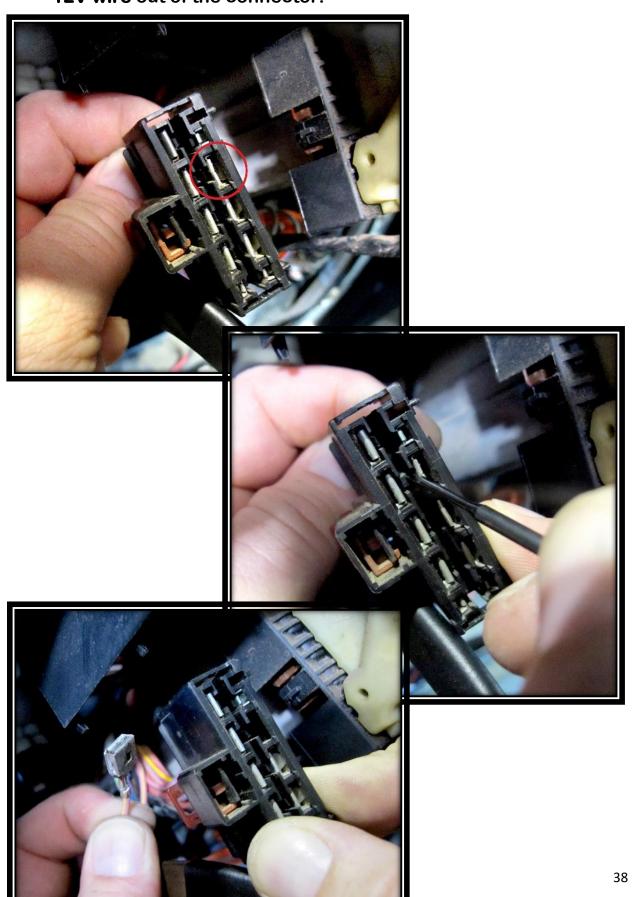


Step 50: Disconnect the ignition switch connector and use a small flathead screwdriver or a pick to remove the grey locking tab.

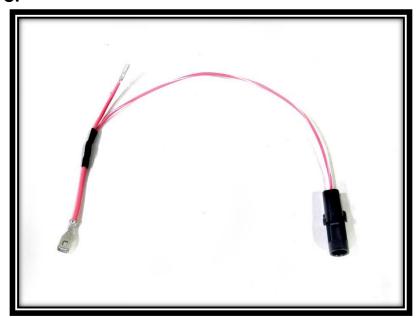




Step 51: With the grey lock removed, use a small screwdriver or pick to depress the lock underneath the second terminal on the right. With the terminal unlocked, pull the factory ignition switched 12V wire out of the connector.



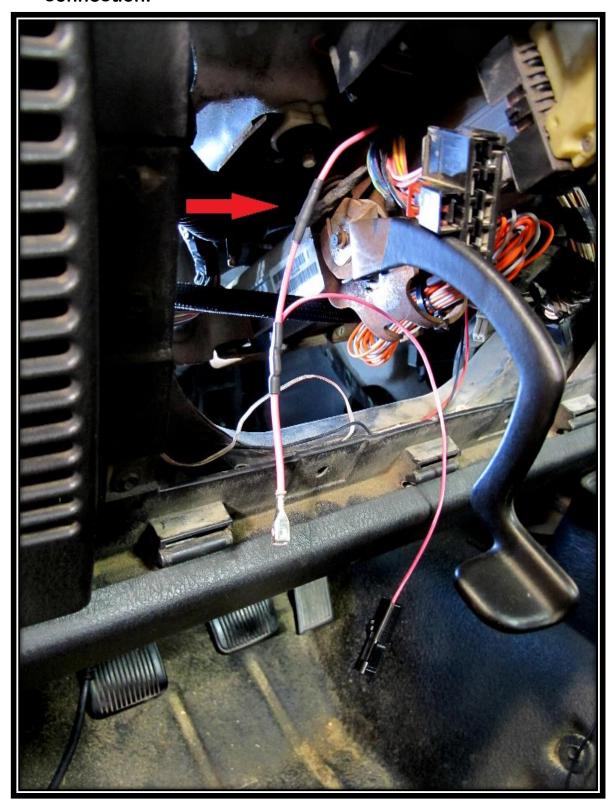
Step 52: Provided in your parts kit is a replacement ignition pigtail that will provide your Trail Rocker with ignition switched power while allowing you to terminate into the factory ignition switched 12V wire.



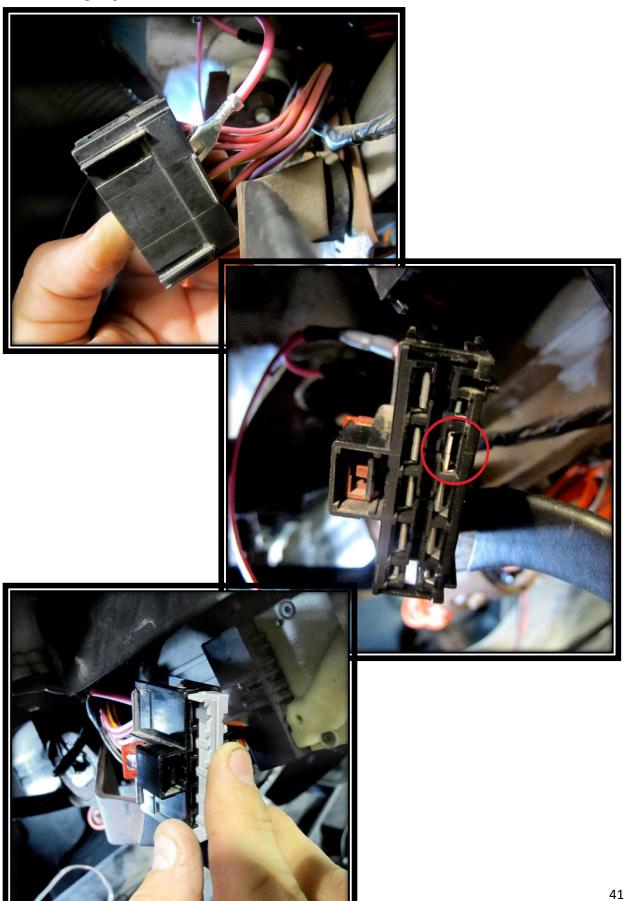
Step 53: Now, cut off the factory terminal and strip the factory ignition wire 1/4". Once stripped, slide a piece of heat shrink over the ignition pigtail. Place the stripped factory ignition wire into the open end of the butt connector on the ignition pigtail and crimp it.



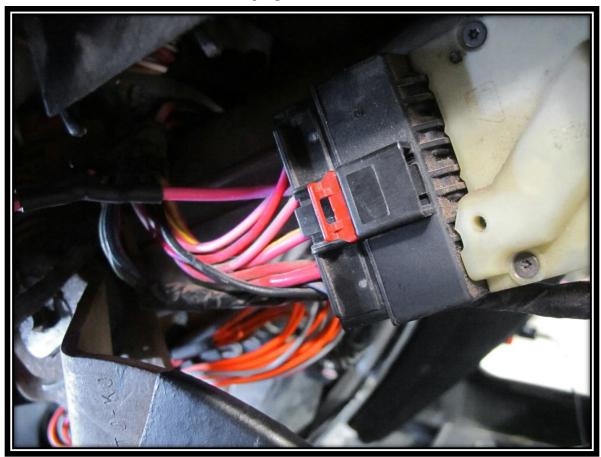
Step 54: After crimping, slide the heat shrink over the connection. Using a heat source, heat the heat shrink to seal and protect the connection.

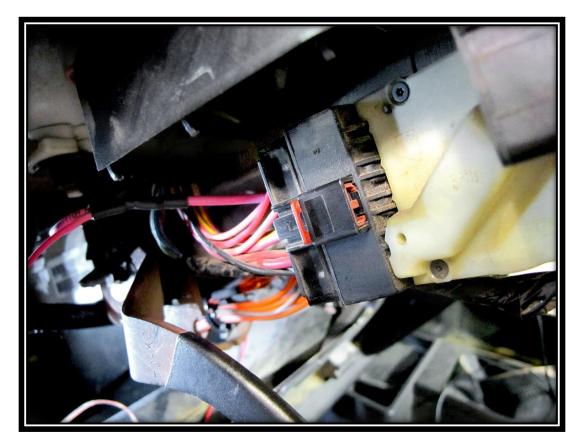


Step 55: Now, re-pin the factory ignition switch connector with the new ignition pigtail. With the ignition pigtail fastened, reinstall the grey terminal lock.

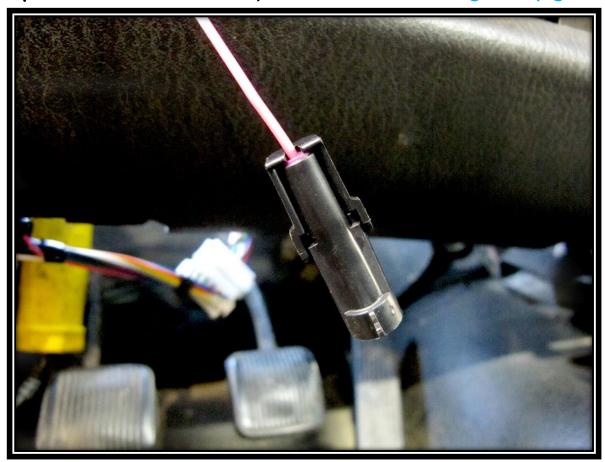


Step 56: Reinstall the factory ignition switch connector and lock it into place. You may wish to apply some dielectric grease before reconnecting the factory ignition switch connector.

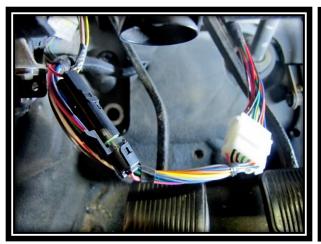


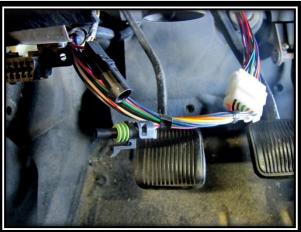


Step 57: Locate the weather pack connector on the ignition pigtail.



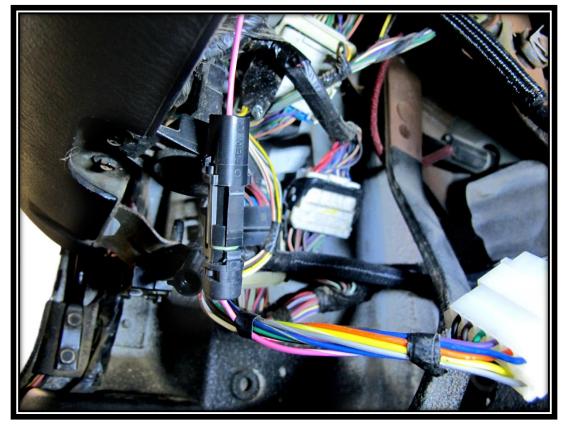
Step 58: Then locate and uncap the weather pack connector on the **Switch Control wires** coming from the **Fuse/Relay Center**.





Step 59: Now, connect the weather pack connector from the ignition pigtail to the weather pack connector on the Switch Control wires.





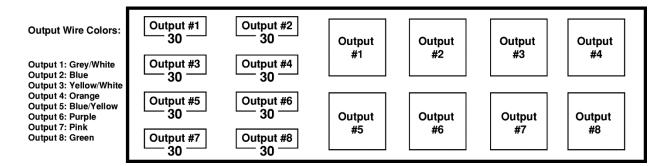
Step 60: Reinstall the **steering column cover**.



Step 61: Reinstall the access panel you removed in Step 24.



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 a short circuit. Make sure any accessories and/or components you install are properly grounded.

See **Steps 62-65** starting on page 47 for a common example on connecting the **Relay Output wires** to most accessories.

Relay Output Wire Color Diagram:

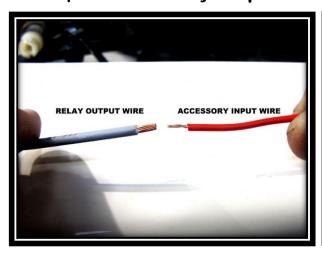
- Switch #1: Grey/White
- Switch #2: Blue
- Switch #3: Yellow/White
- Switch #4: Orange
- Switch #5: Blue/Yellow
- Switch #6: Purple
- Switch #7: Pink
- Switch #8: Green

Winch Control wires:

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

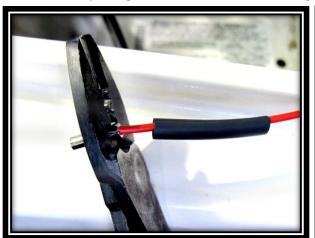
OPTIONAL: If you wish to double the **Switch Panel wires** on a single switch, thus allowing you to control two accessories with one switch, then see **pages 33-34** for a step-by-step tutorial on achieving this. For winch switch installation, see **page 49**.

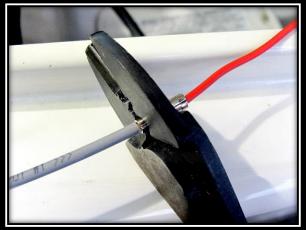
Step 62: Locate the Relay Output wire you wish to use. Then, locate the input wire on the accessory you are installing. We provide 12 ga. Relay Output wires. Therefore, it may be necessary to double up the accessory's input wire if it's too small.



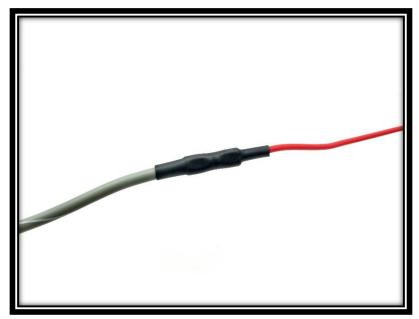


Step 63: Slide a piece of heat shrink from the included part kit over the accessory wire. Then, use an un-insulated butt connector to crimp together the accessory wire with the Relay Output wire.

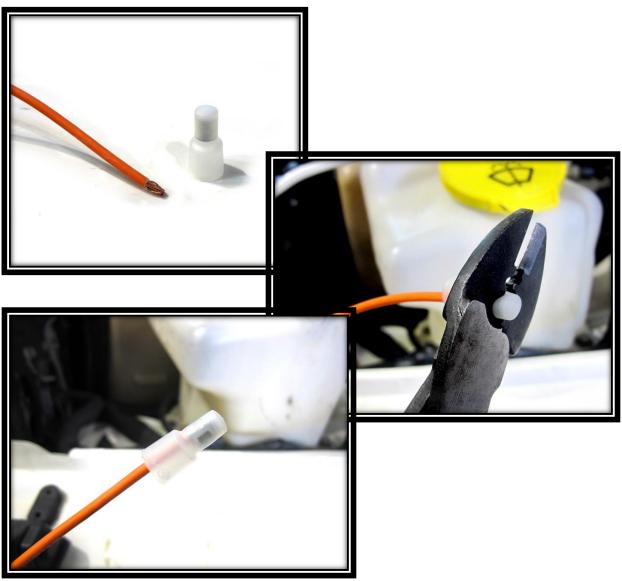




Step 64: Secure the heat shrink over the connection.



Step 65: Cap all unused **Relay Output wires** by crimping on the provided insulated wire caps. Then store the extra wires out of the way in the most convenient way possible.

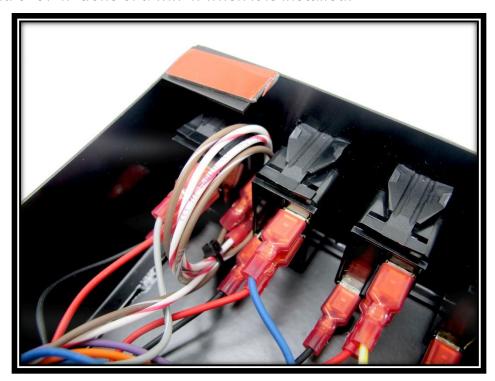




OPTIONAL: PAINLESS PART#: 57150 - WINCH

CONTROL ADD-ON KIT

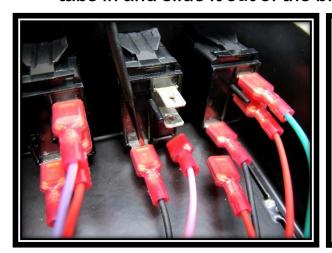
As part of your **Switch Panel wiring harness**, there are 2 optional winch control wires: a WHITE/RED (IN) and a BROWN/WHITE (OUT). These wires control the in and out functions of a winch when it is installed.

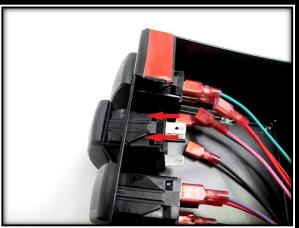


These control wires can be connected to a winch switch (not provided in the kit). If you do not have a winch switch, Painless offers a Winch Control Add-on Kit (Painless Part #: 57150, available online at www.painlessperformance.com). Steps 66-70 show you how to install a Winch Control Add-on Kit to your Trail Rocker Switch Panel and connect the control wires to the switch.



Step 66: Remove the switch panel, power, and ground wires from the switch you are replacing with the Winch Control Add-on Kit. Then, locate the tabs at the top and bottom of the switch. These tabs lock the switch in place. To remove the switch, squeeze the tabs in and slide it out of the bracket.





Step 67: The tabs on the top of the switch may be difficult to get to. First, push in the tabs on the bottom of the switch and push the switch out of the panel as far as it will go. Then, use a small screwdriver to depress the tabs on top of the switch enough to create a gap between the panel and the switch. Turn the Switch Panel back over and use the small screwdriver to depress the tabs on the switch and remove it from the panel completely.



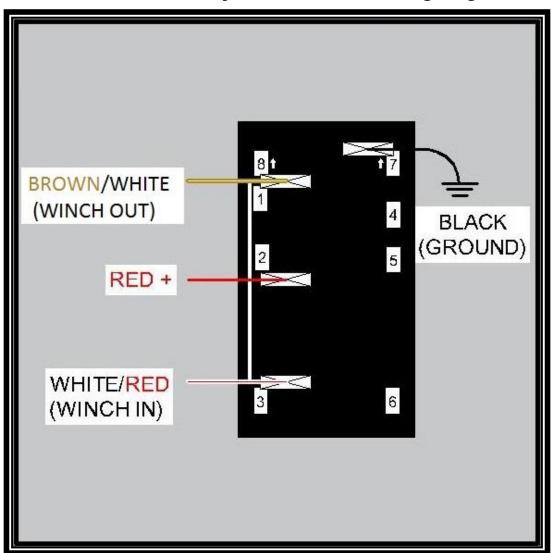


Step 68: Insert the **Winch Control Add-on Kit** into the empty socket of the bracket.

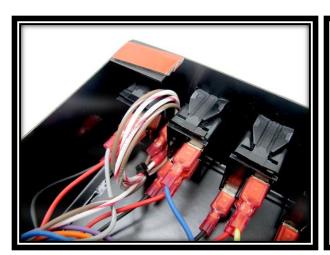


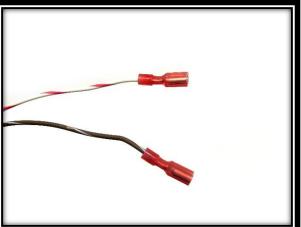


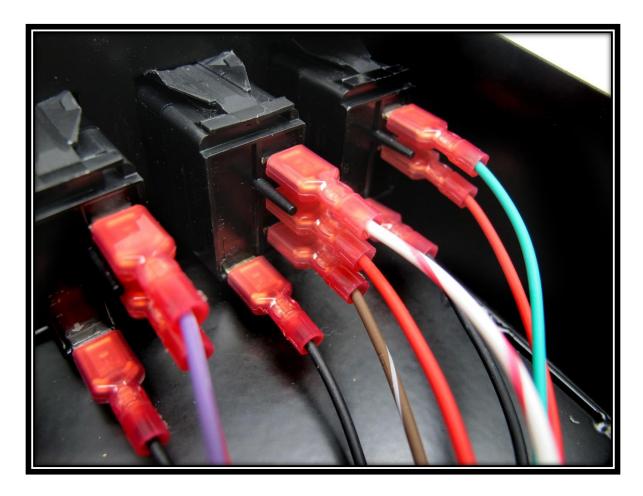
Step 69: Before connecting the wires to the **Winch Control Add-on Kit**, take time to familiarize yourself with the wiring diagram below.



Step 70: Locate the Winch Control wires coiled up in the Switch Panel.
Uncoil them and econnect the power, ground, and Winch Control wires to the Winch Control Add-on Kit as seen below.



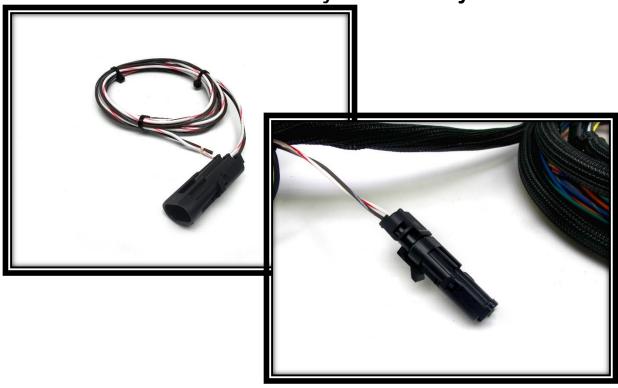




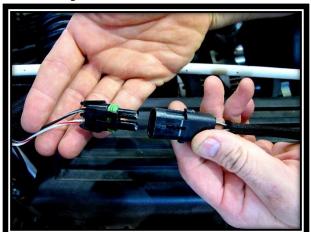
OPTIONAL: WINCH PIGTAIL

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

Step 71: Locate the winch pigtail included in your parts kit. Then locate the winch connector on your Fuse/Relay Center.



Step 72: 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.

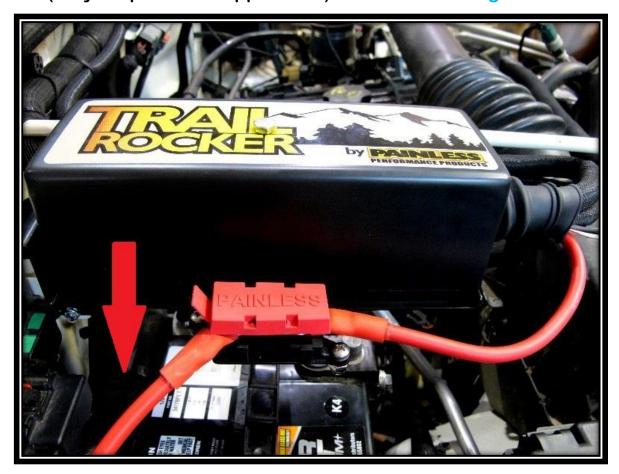


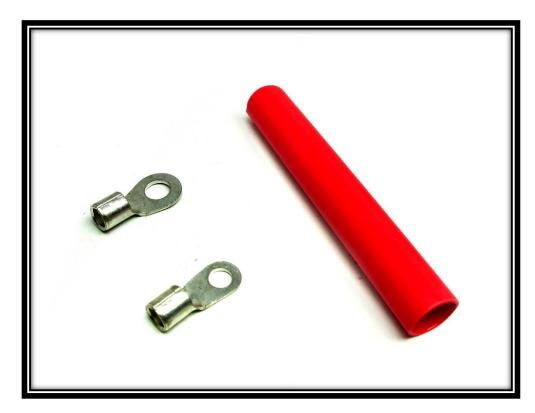


Terminals for installing the winch pigtail can be found in the Winch Installation Kit. Wiring diagrams for specific winch set-ups can be found at http://www.painlessperformance.com/schematics under the Trail Rocker section.

FINAL STEPS

Step 73: Locate the 6-gauge, unterminated, red cable coming from the Fuse/Relay Center, heat shrink, and the appropriate sized (for your particular application) non-insulated ring terminal.



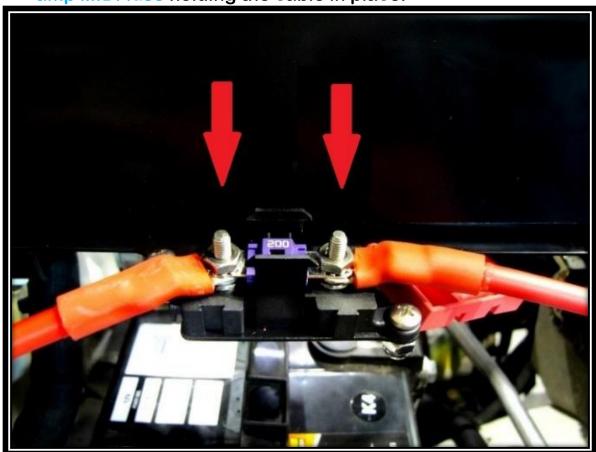


Step 75: Notice that the 6-gauge red cable does not have an eyelet on one end. This is so you can cut the cable to the length you need for your specific application. Mark the length you need to route the cable to the positive terminal. Cut and strip the wire about 1/2".





Step 76: Once the cable is stripped, remove it from the Fuse/Relay Center in order to crimp on the included 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 77: 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 78: Next, re-install the cable and 200-amp MIDI fuse to the Fuse/Relay Center and connect it to the positive battery terminal. Then, rout the ground wire coming from the Fuse/Relay Center to the negative battery terminal





Step 79: Locate (1) 1/4" black heat shrink and (1) 16-14 ga. non-insulated ring terminal. Strip the wire about 1/4" and slide the heat shrink over it.



Step 80: Crimp on the ring terminal and secure it with the heat shrink.



Step 81: Hook the terminals back up to your battery. Connect the red cable to the positive terminal and the ground wire to the negative terminal.

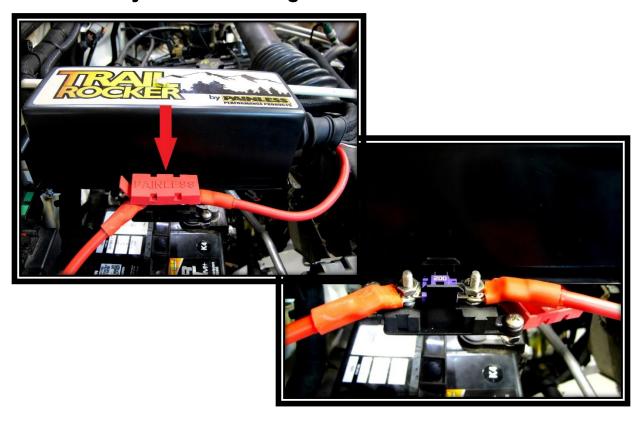




With the battery connected, you can now test out and enjoy your new Trail Rocker!

FUSE PLACEMENT

The 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 can be accessed by removing the lid from the Fuse/Relay Center.



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.

Painless Performance Products LLC 2501 Ludelle Street Fort Worth, TX 76105 Phone (817) 244-6212