Trail Rocker Installation

Instructions

4, 6, or 8 - Switch Customizable Trail Rocker Switch Panel
w/ Flanged Mount

For Installing Painless Part Number: 57103, 57106, & 57109

Manual #90636

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

Painless Performance Products

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TABLE OF CONTENTS

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 Trail Rocker Kit should contain the following:

- ▪ **4, 6, or 8-Switch Customizable Trail Rocker Switch Panel w/ Flanged Mount.**
- ▪ **Powder-coated Switch Panel Box**
- ▪ **Parts Kits**
- ▪ **Pre-Terminated Winch Wires.**
- ▪ **This manual: 90636**
- ▪ **4 & 6 Switch Kits ONLY: Additional switch wires**

SMALL PARTS

        Painless harnesses include parts kits that contain the terminals, fuses, screws, and nuts necessary for a professional installation. Many of the terminals are non-insulated and will require heat shrink to be applied after the terminal has been properly crimped. Waterproof heat shrink has been supplied. These non-insulated terminals allow you to make clean, weatherproof connections that look like a factory installed wiring system. When crimping these terminals, take special notice of the split in each terminal. Make sure the <u>smooth side of the jaw on the crimper goes towards this split.</u>


SPLIT   NO SPLIT

SPLIT

1

TOOLS NEEDED

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

1. $\frac{7}{16}$" combination wrench
2. $\frac{7}{16}$" socket and ratchet
3. Wire cutter / "dikes"
4. **Wire Crimping and Stripping Tools:**

This style of hand crimper can be purchased from just about any local auto parts store, home improvement store or can also be purchased online. You will need this style of crimper to crimp the heat shrinkable and non-heat shrinkable, insulated terminals included in the small parts kit.

INSULATED/NON-INSULATED CRIMP TOOL

Another style of crimpers are "Roll-Over Crimpers." These crimpers will crimp factory style, non-insulated terminals. Painless offers "Roll-Over Crimpers," such as those seen to the right, under Painless part #70900.

Roll-Over Crimpers
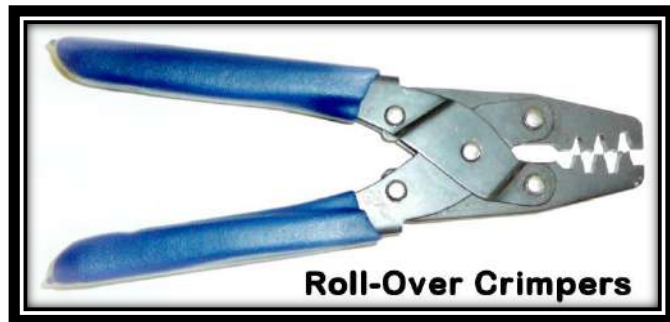
A good set of wire strippers are required to strip wire properly. This style of wire stripper is ideal for this harness install because of its ability to properly strip wire gauges 10 thru 20.These are available from just about any local auto part store, electrical supply shop, home improvement store or can be purchased online.

WIRE STRIPPERS

In addition to these basic hand tools, you will need, at least, the following:

5. <u>**Electric Drill & Drill Bits:**</u>
1. Electric Power Drill (suggest battery powered cordless for ease and maneuverability)
2. ¼" drill bit

6. <u>**Volt/Ohm Meter:**</u>
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: voltage measurement and continuity testing. Voltage measurement is the ability to read DC voltage. Continuity testing allows you to test

7. <u>**Heat Gun:**</u> Needed to shrink the heat-shrink found in the parts kit.

INSTALLING FACTORY STYLE TERMINALS
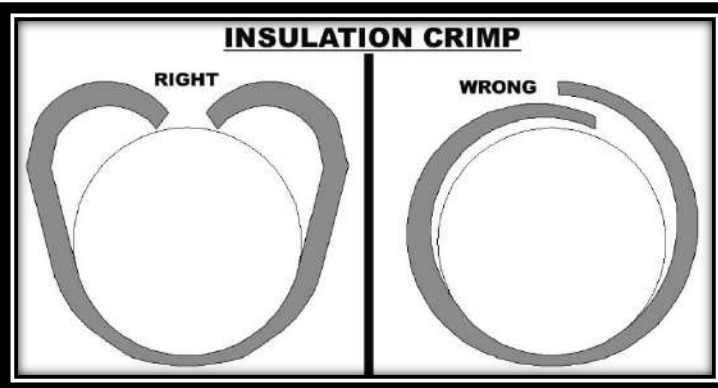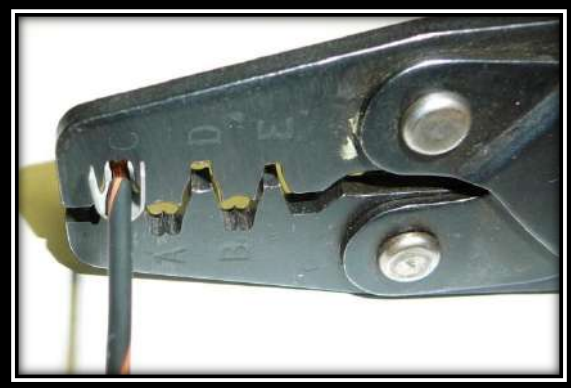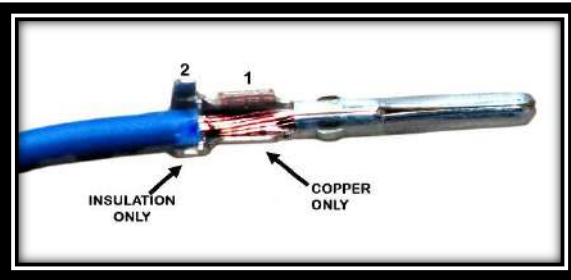
In the parts kit, you will see uninsulated male terminals. These terminals are for **12-pin connector shell** and require roll over crimpers.

- Strip about ¼" 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 stands 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 downward into the wire, and not overlapping itself. Refer to the drawing to the left. Overlapping could cause problems with the terminal fitting into the factory connector.

SWITCH PANEL INSTALLATION

Step 1: Locate where you'd like to mount your switch panel. Most people will want to mount it to the underside of the dash.


Step 2: To mount the switch panel you will need to drill **(2) ¼"** holes. Use a **¼" drill bit** to create **(2) ¼"** holes. The distance between the holes depends on the number of switches on your panel (see the images to the right and below for the proper distances).

4-SWITCH PANEL

1⁷/₈"

6-SWITCH PANEL

4¾"

8-SWITCH PANEL

6⁷/₈"
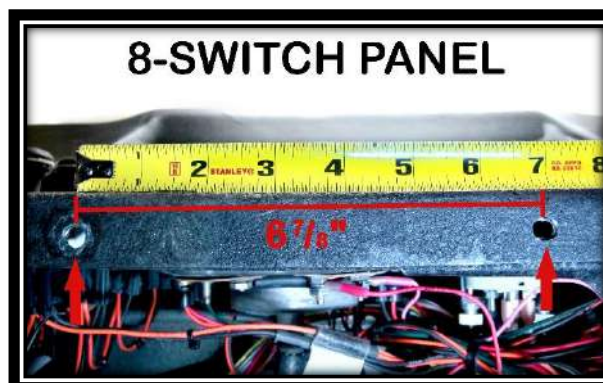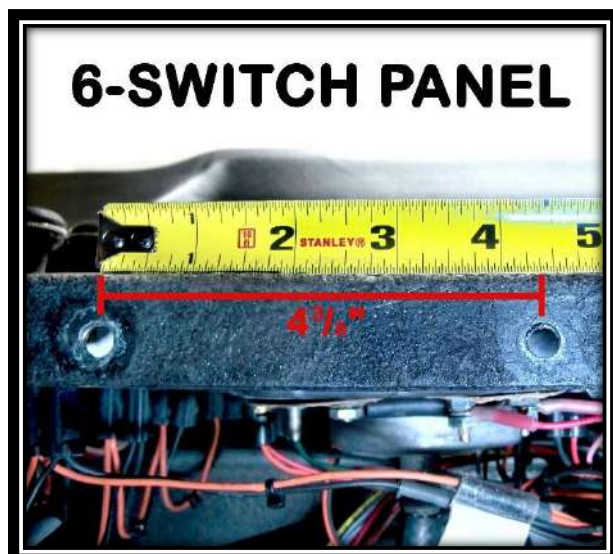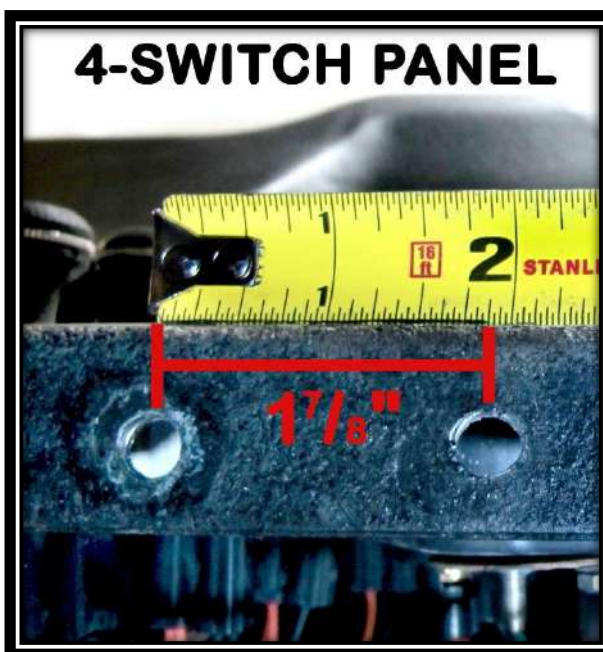
Step 3: Next, prepare the **Switch Panel** for mounting. Locate your **Switch Panel**, **Switch Panel Box,** and **(2) ¼" – 20 x ¾" hex head stainless bolts** included in your parts kit.
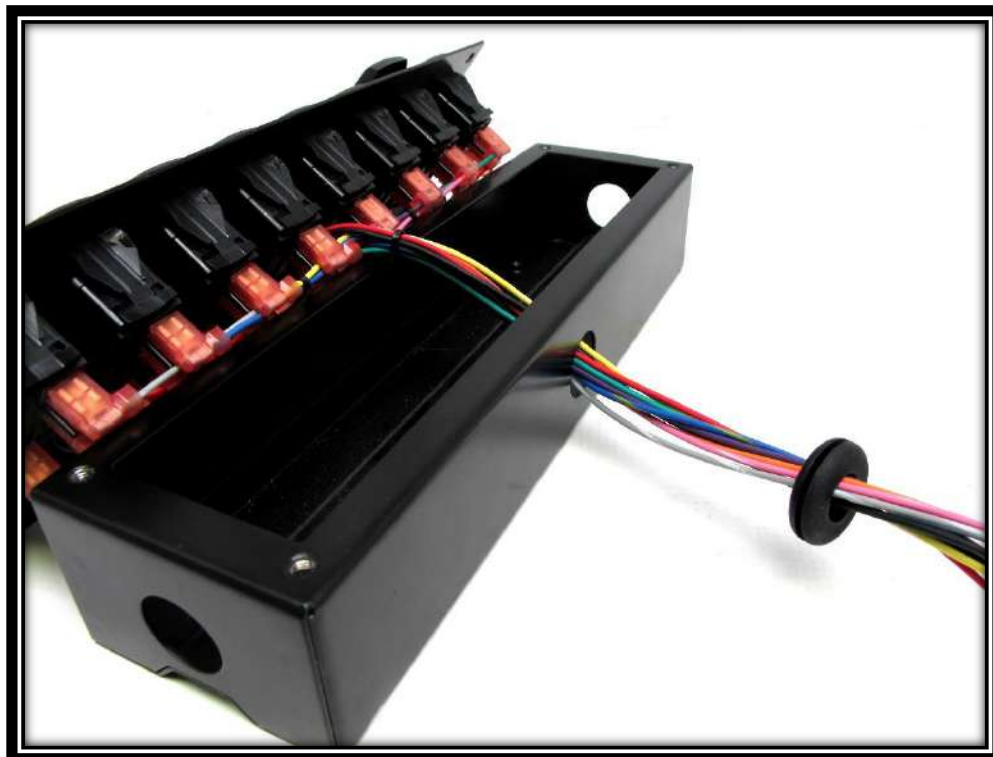

Step 4: Insert the **(2) ¼" – 20 x ¾" hex head bolts** into the holes at the top of the **Switch Panel** from the back as shown.
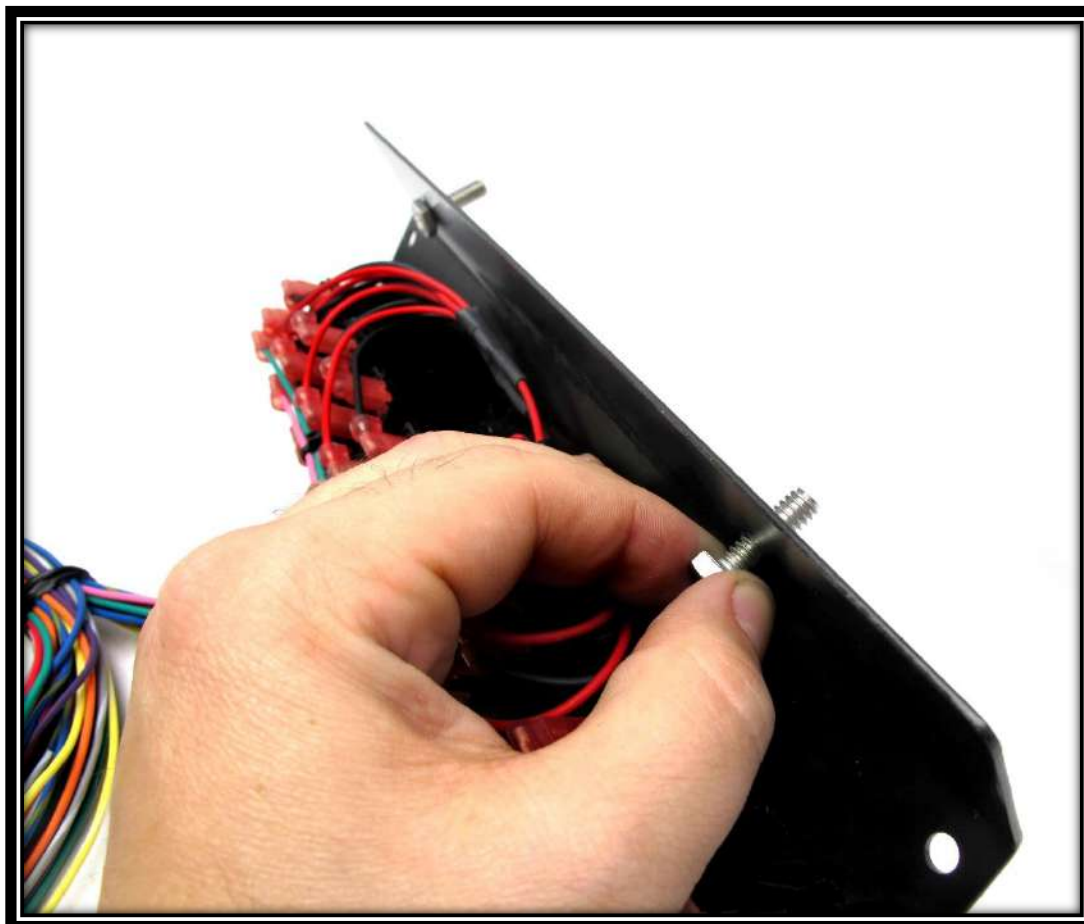
Step 5: Now, decide which direction you want to run the **Switch Panel Wires**. The **Switch Panel Box** has 3 holes through which to route the wires.


Step 6: Run the **Switch Panel Wires** through one of the 3 openings and then through the **(1) ½" rubber grommet** found in the parts kit.

Step 7: At this point you may choose to loom the **Switch Panel Wires**. Run the loom over the wire, through the grommet, and into the box. You can secure the end of the loom with a zip-tie. <mark>Note: It isn't necessary to loom the entire wiring harness as you will cut these wires to length later. Simply loom a few feet and make sure the end inside the base is secure.</mark>

Step 8: Place the rubber grommet into the opening. Then, use the **(2) plastic plugs** provided in the parts kit, to close up the remaining holes.
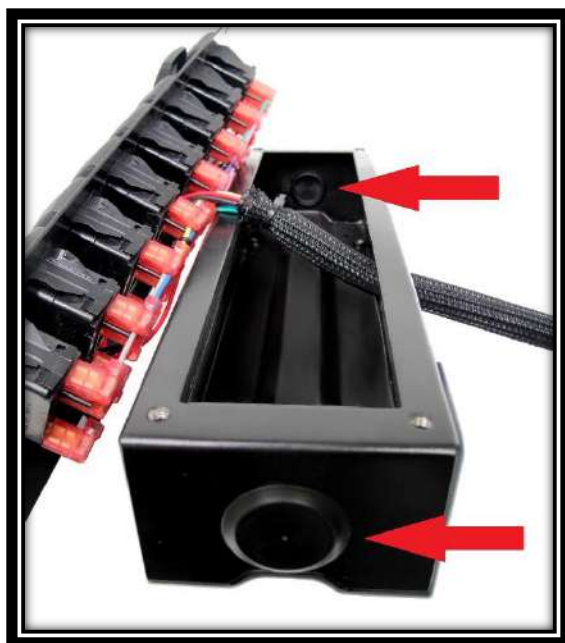
Step 9: Make sure the **Switch Panel Box** is properly covering the back of the **Switch Panel**, and use **(4) 10 – 32 x ⅜" button head screws** and the **small hex key** provided in the parts kit to secure the panel to the box.

Step 10: Line up the bolts you inserted into the **Switch Panel's** mounting bracket in **Step 4** with the holes you drilled out in **Step 2**. Attach the **Switch Panel** using **(2) ¼" lock nuts** found in the included parts kit.
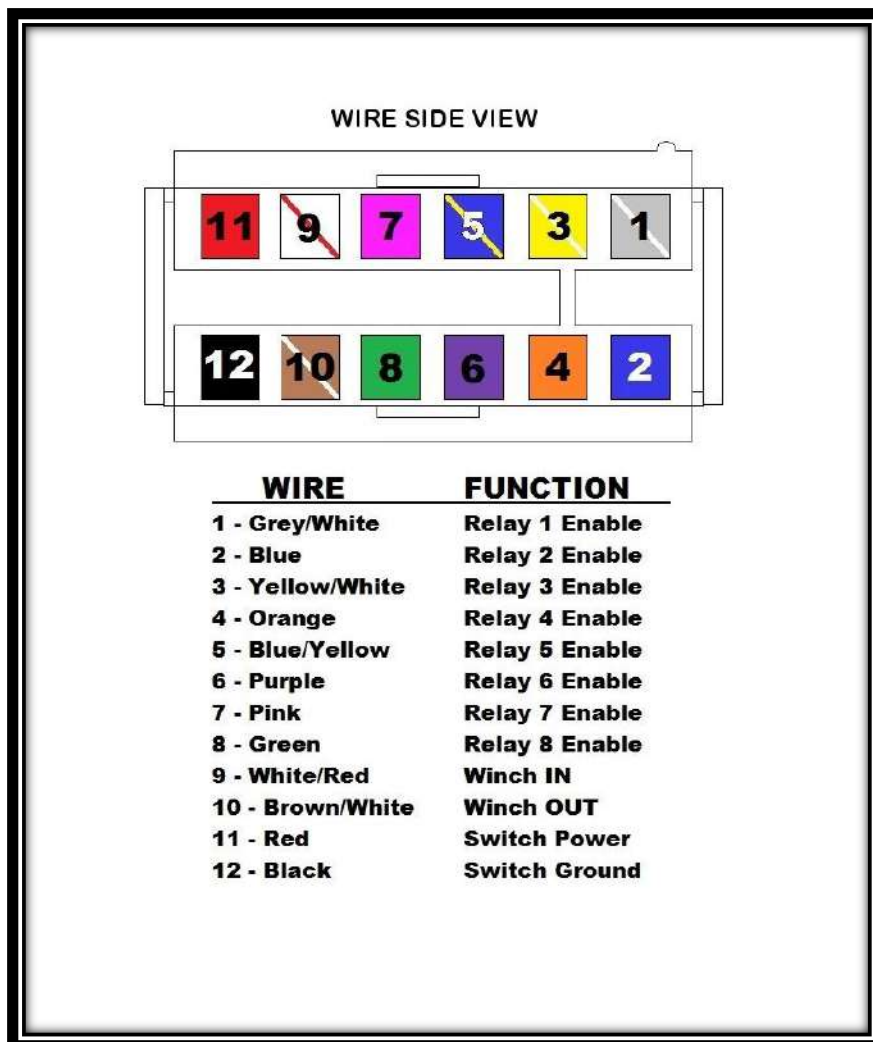
Step 11: Route the **Switch Panel Wires** to the **Switch Control Wires** coming from your **Trail Rocker Fuse/Relay Center***. A **12-pin connector housing and terminals** are provided in the parts kit in order to connect to these wires.

Fuse/Relay Center ground wire   Switch Control wires
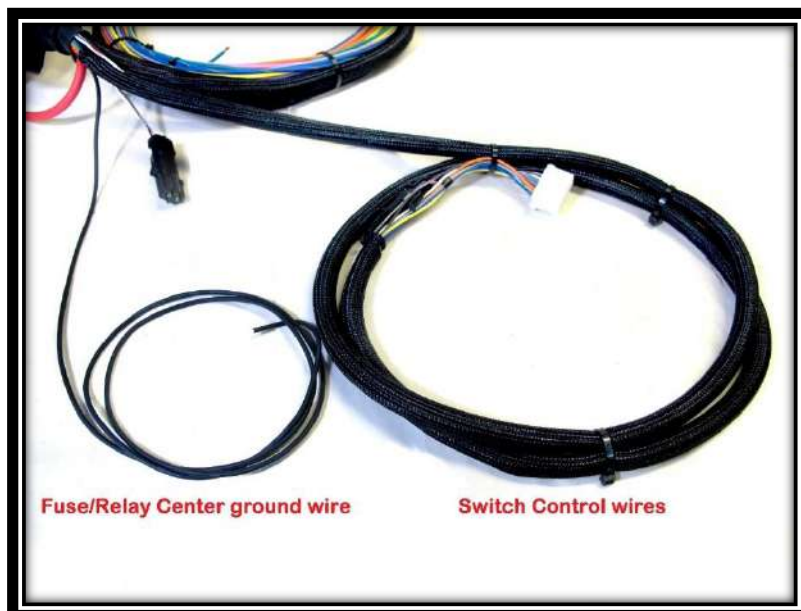
*Trail Rocker Fuse/Relay Center Part Numbers:

1. Universal – 57100
2. Jeep CJ – 57024
3. Jeep TJ – 57042
4. Jeep JK – 57005

Step 12: It may help to familiarize yourself with the wiring diagram below before connecting the wires from the **Switch Panel** to the **12-pin connector housing** in **Step 16**.

WIRE SIDE VIEW

| WIRE	FUNCTION
1 - Grey/White	Relay 1 Enable
2 - Blue	Relay 2 Enable
3 - Yellow/White	Relay 3 Enable
4 - Orange	Relay 4 Enable
5 - Blue/Yellow	Relay 5 Enable
6 - Purple	Relay 6 Enable
7 - Pink	Relay 7 Enable
8 - Green	Relay 8 Enable
9 - White/Red	Winch IN
10 - Brown/White	Winch OUT
11 - Red	Switch Power
12 - Black	Switch Ground

Step 13: After routing the **Switch Panel Wires** to the **Fuse/Relay Center's Switch Control Wires,** cut the **Switch Panel Wires** and loom to length. Secure the end of the loom with a zip-tie (provided) or a large piece of heat-shrink (not provided).
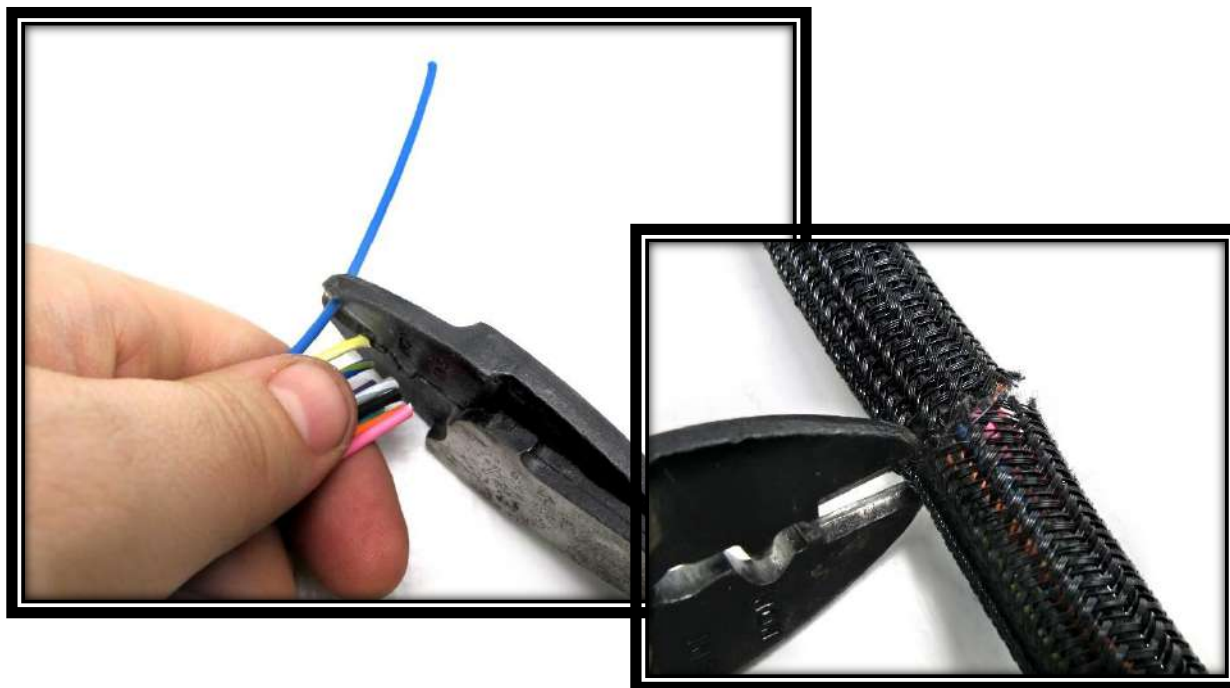

Step 14: Strip each of the **Switch Panel Wires** ³⁄₁₆", and install a male pin terminal from the parts kit onto the end of each wire. See page 4 for detailed instructions of how to properly crimp these terminals. We recommend Painless #70900 Roll-Over Crimpers.

Step 15: Locate the **12-pin connector housing** included in the parts kit. Note the locating tab for orientation.
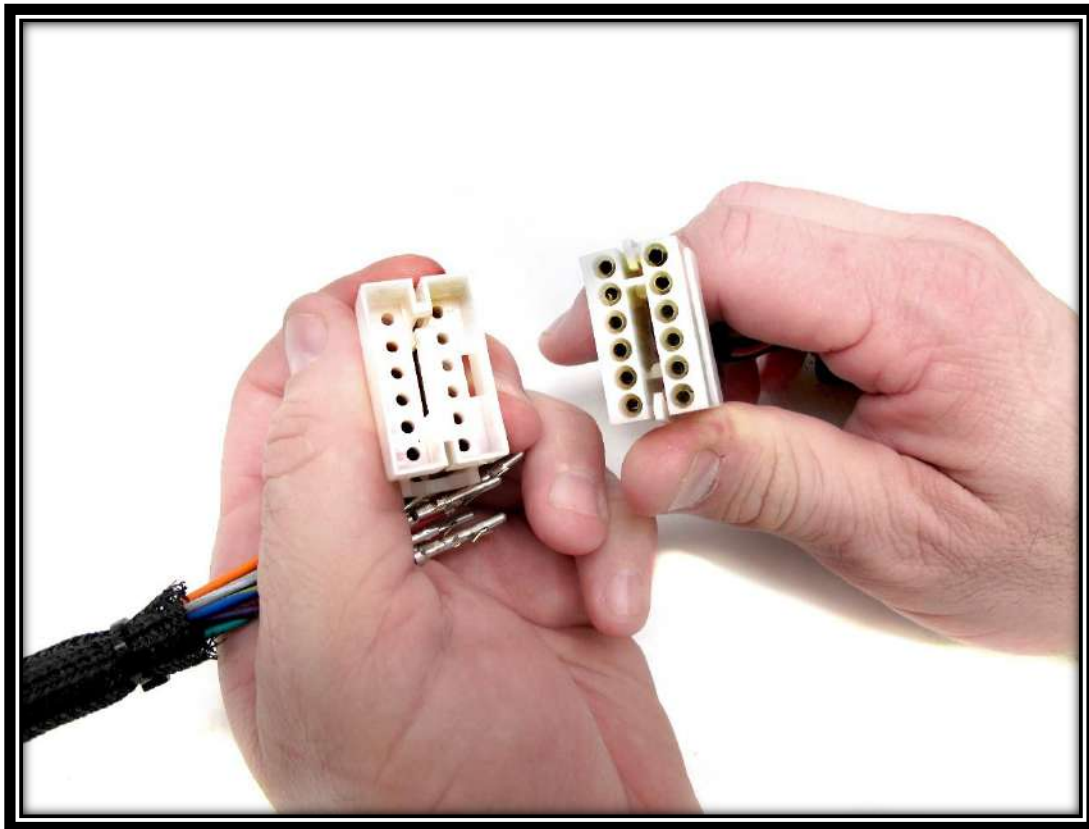
Step 16: Insert the newly pinned wires into the **12-pin connector housing**. <mark>Make sure, while inserting the pins, that once connected the wire matches the one across from it</mark>. The diagram on **page 10** illustrates the pinout of the **12-pin connector housing** from the wire side.
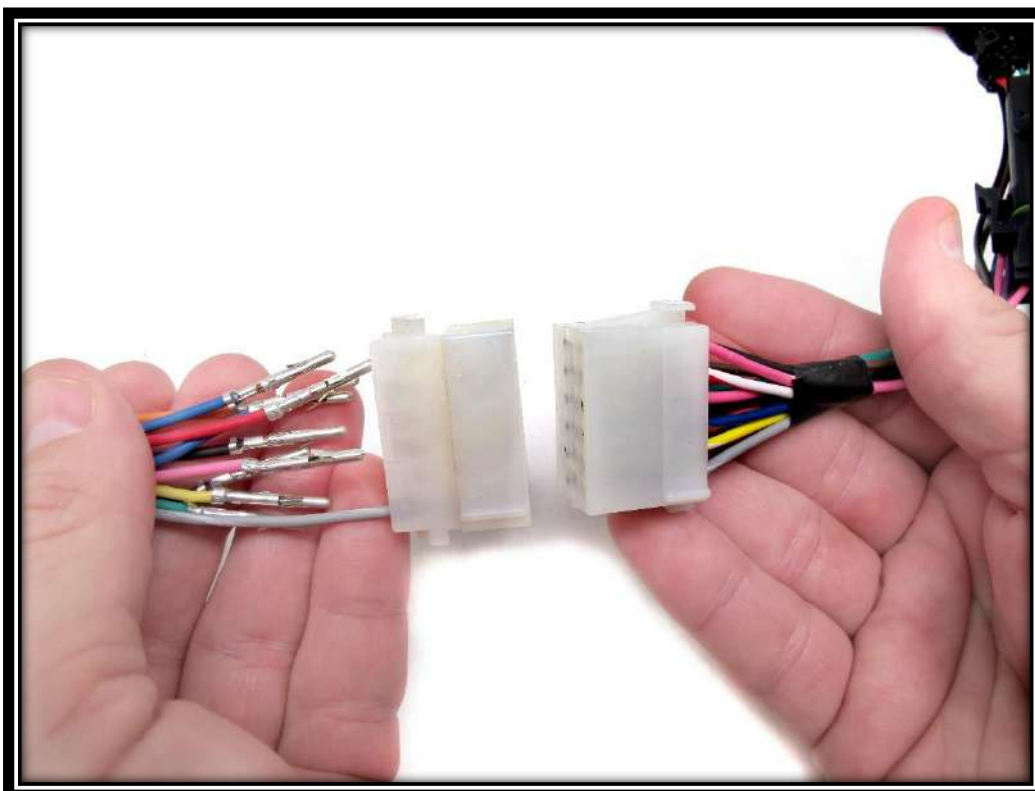
Step 17: Once completed, the connector should appear as it does below. The 2 empty cavities are for optional wench wires (see page 18).
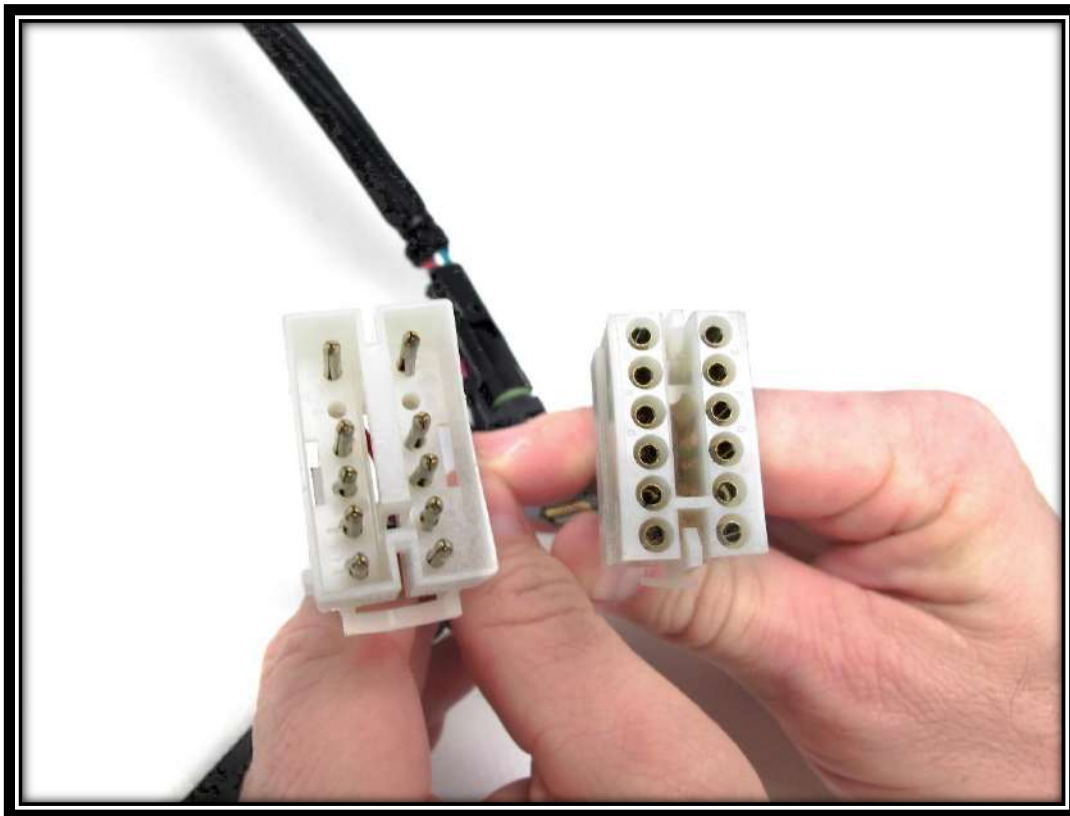
Step 18: Link the two connectors and join the wiring harness from the **Fuse/Relay Center** to the **Switch Panel**. Use zip-ties to secure the wires up under the dash and out of the way.
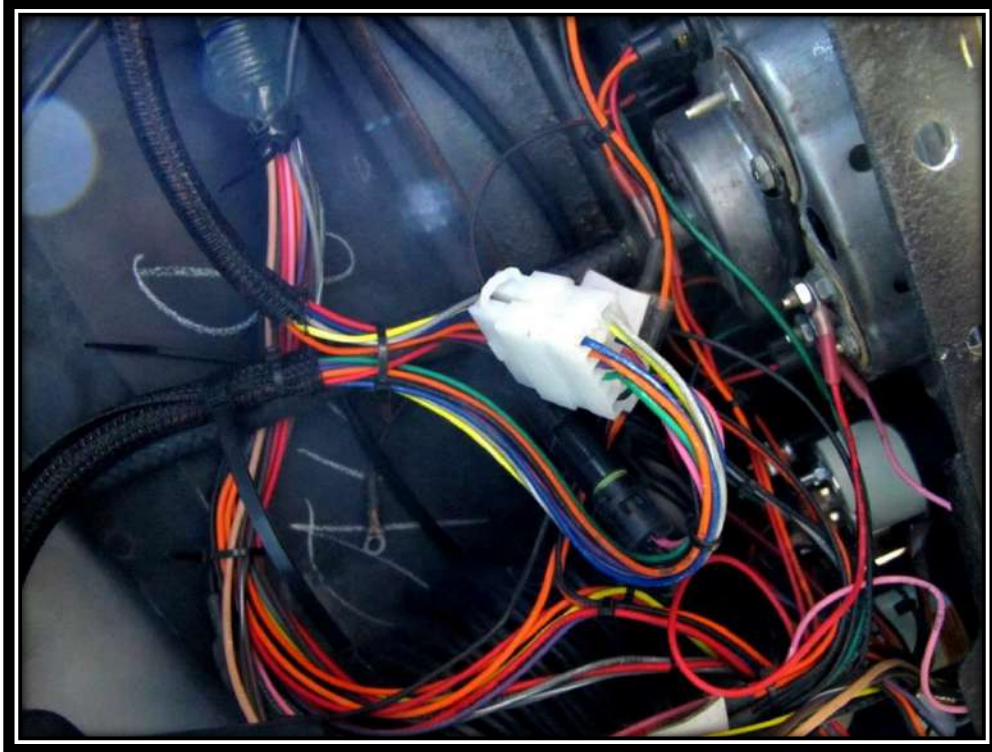
SWITCH WIRING

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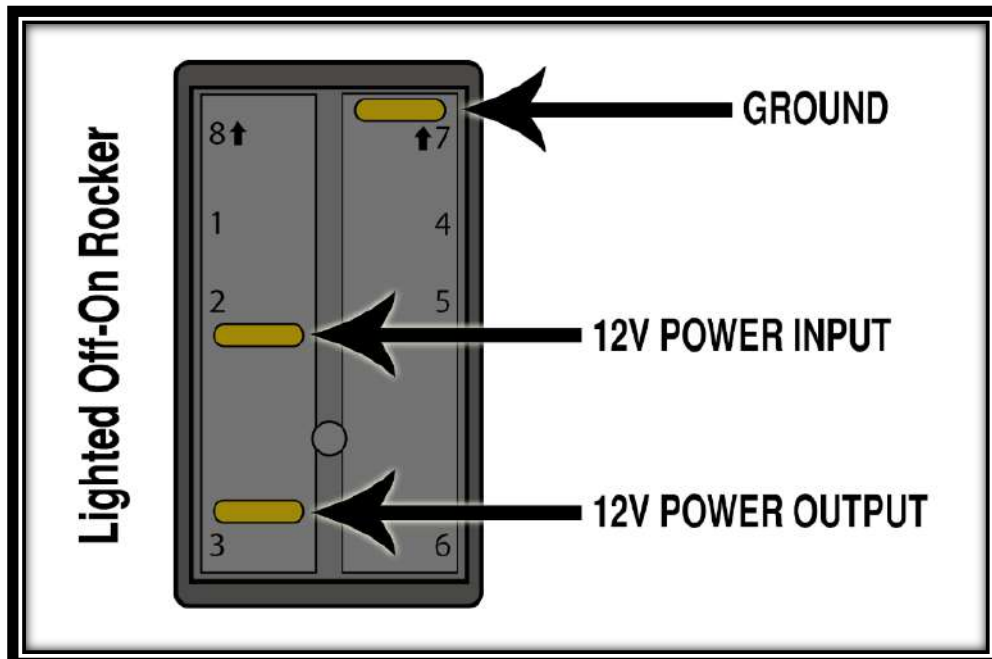
DOUBLING SWITCH CONTROL WIRES

Provided in the kit are extra Switch Panel wires and some 16ga. – 14ga. terminals, similar to those shown below.


Step 19: Choose which switch you want to control multiple functions with, and disconnect the existing **Switch Panel wire** from the terminal on the bottom of the switch (terminal #3).
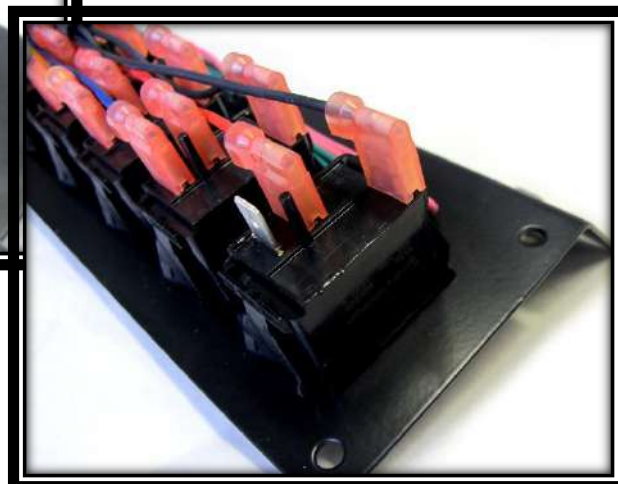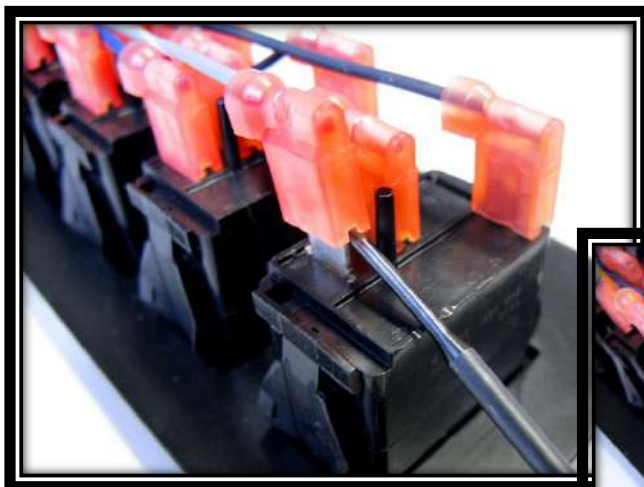
Step 20: With the **Switch Panel wire** removed from the switch, cut off the terminal, and strip the wire ¼".
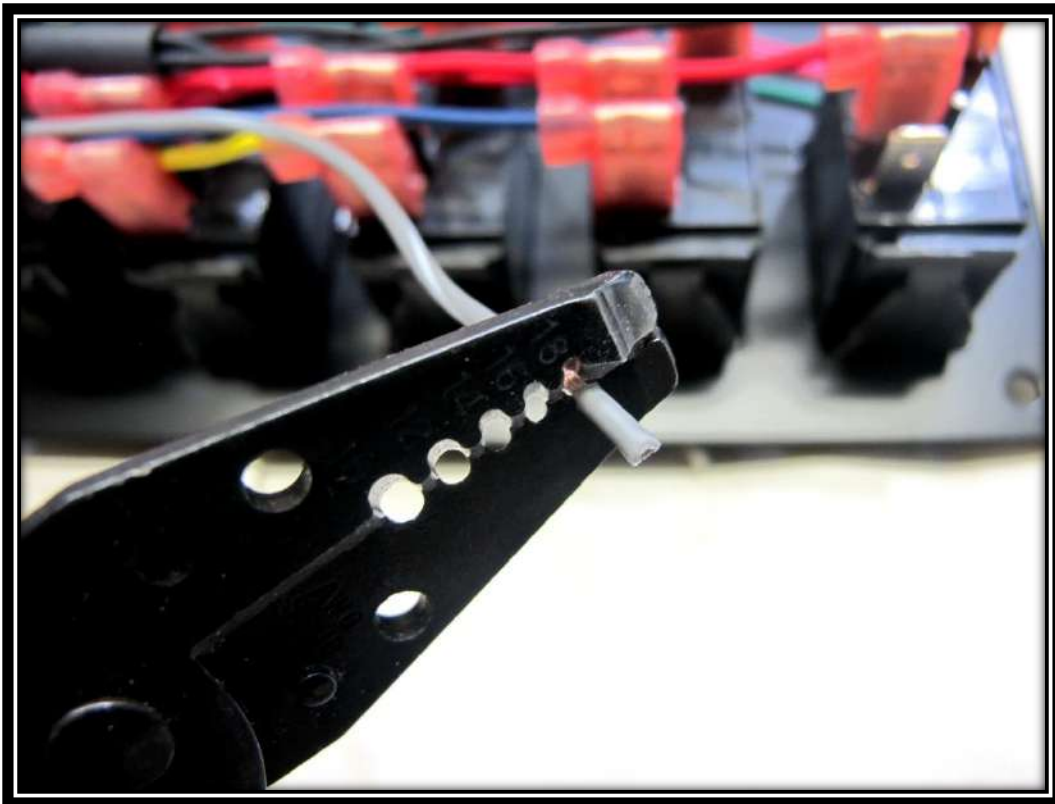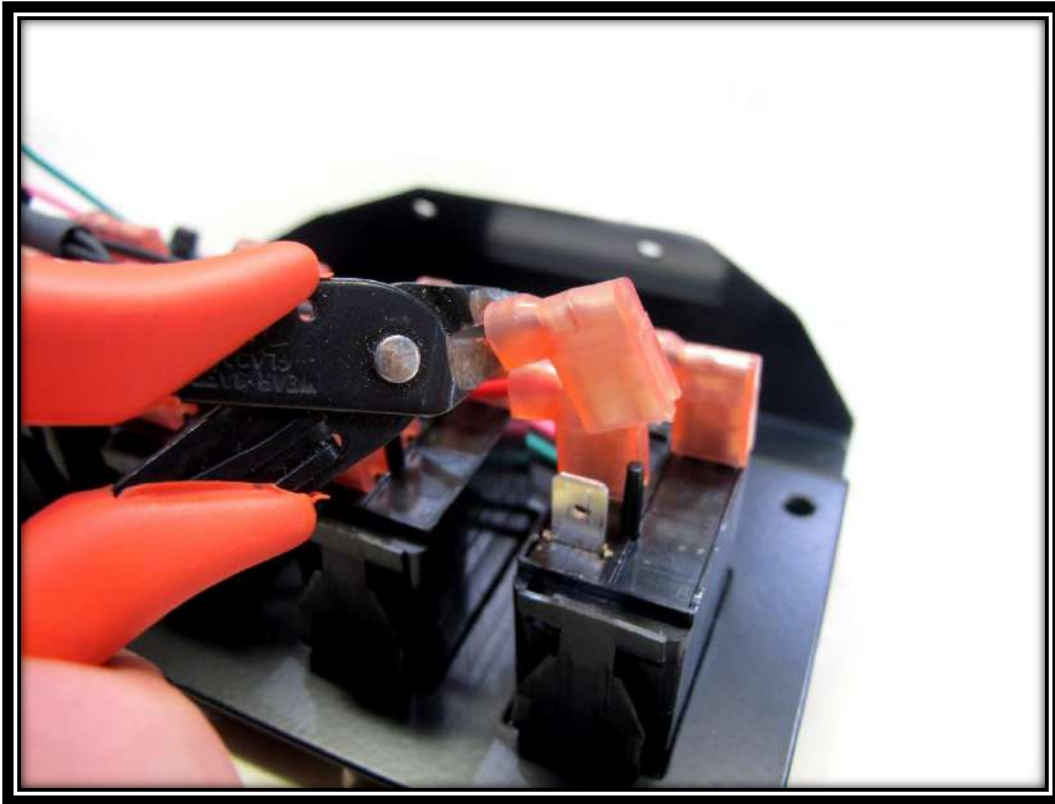
Step 21: Take the **Switch Panel wire** you just stripped and one of the additional **Switch Panel wires**; then slide them together into a 16-14 ga. terminal provided in the included parts kit.
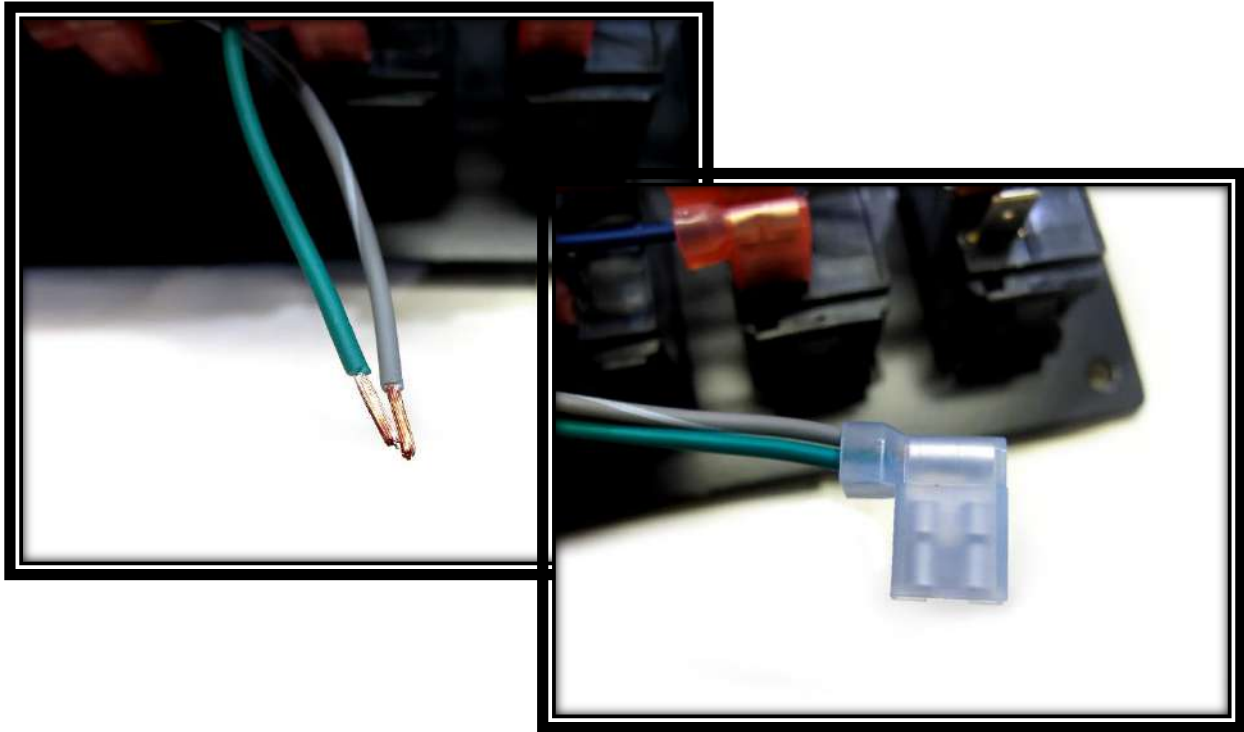
Step 22: With both wires inside, crimp the terminal, and reconnect the doubled **Switch Panel wires** to the switch.
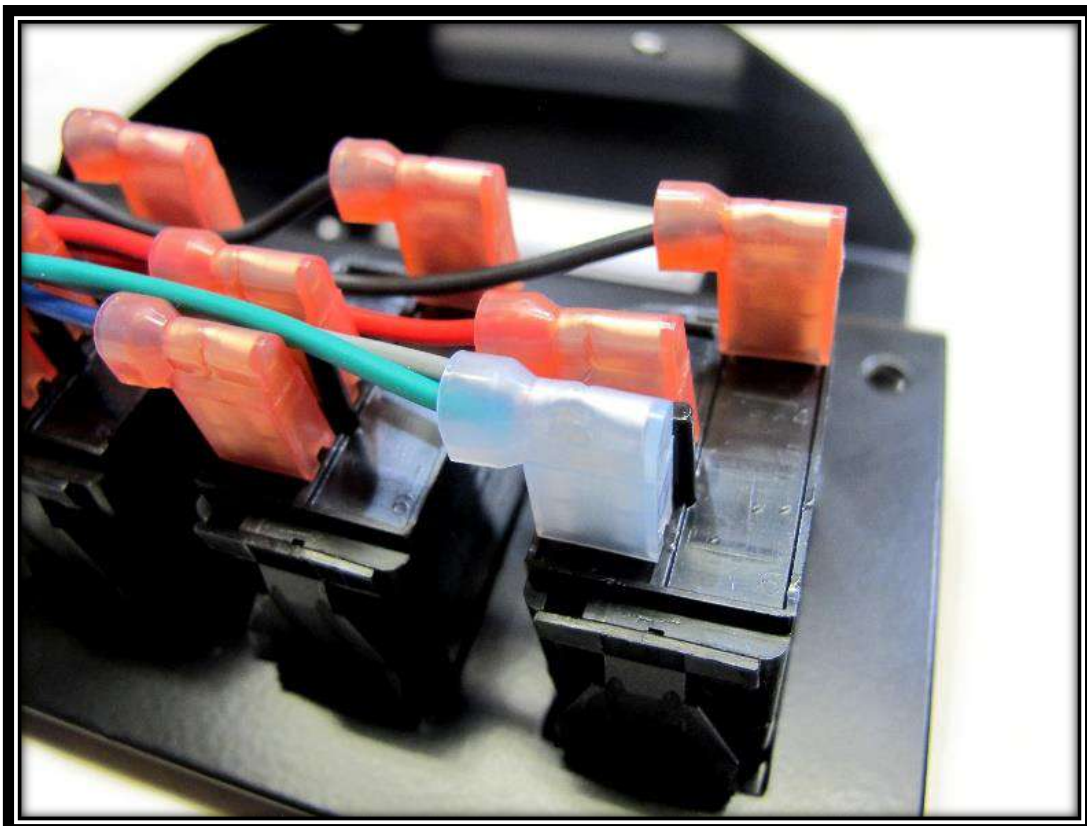
OPTIONAL: PAINLESS PART#: 57150 –
WINCH CONTROL ADD-ON KIT

Separate from 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 they are installed.


These control wires can be connected to a on-off-on, momentary contact, SPDT switch or a winch switch (not provided in the kit). **Steps 23 - 28** 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. The SPDT Wiring diagram on page 20 will show how to connect to a standard SPDT switch.

PAINLESS #57150

IN

OUT

SPDT SWITCH

Step 23: Remove the **switch panel faceplate, power,** and **ground wires** from the switch you are replacing with the **Winch Control Add-on Switch.** Then, locate the tabs located at the top and bottom of the switch.
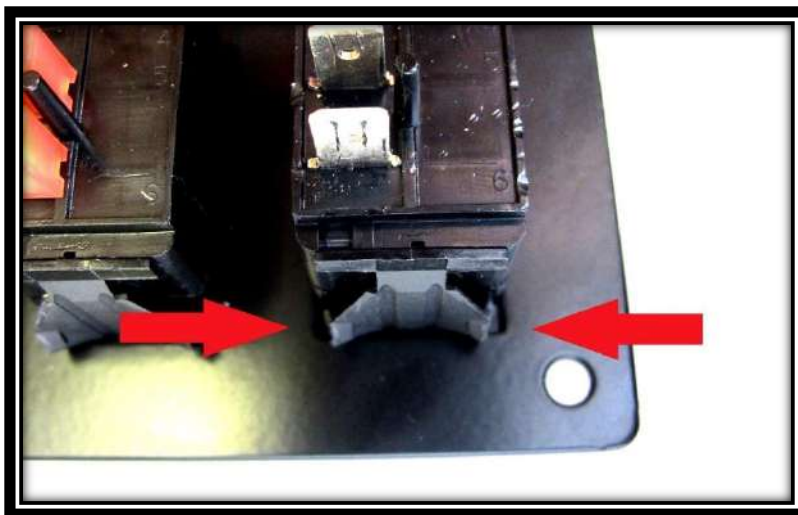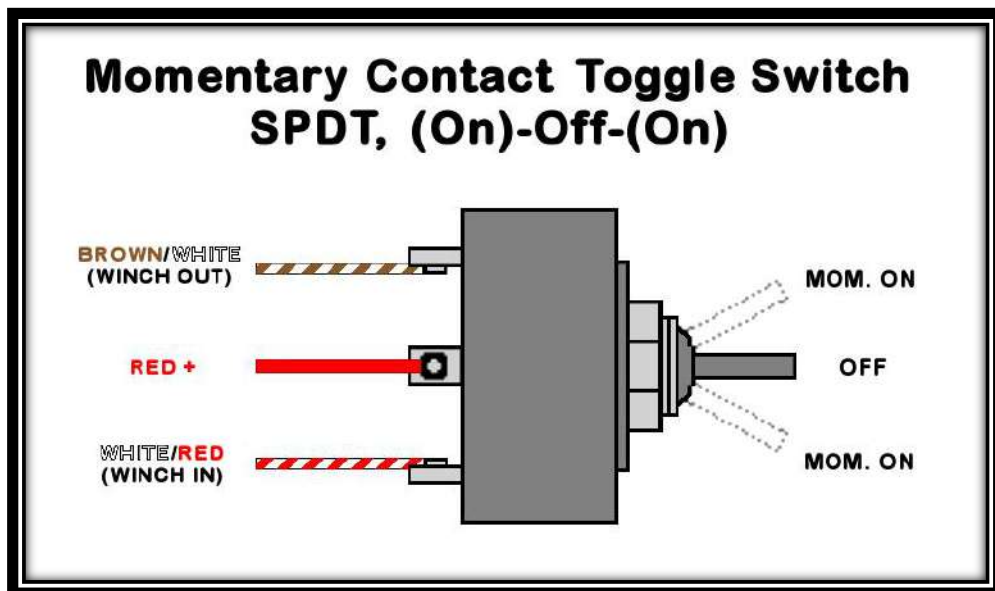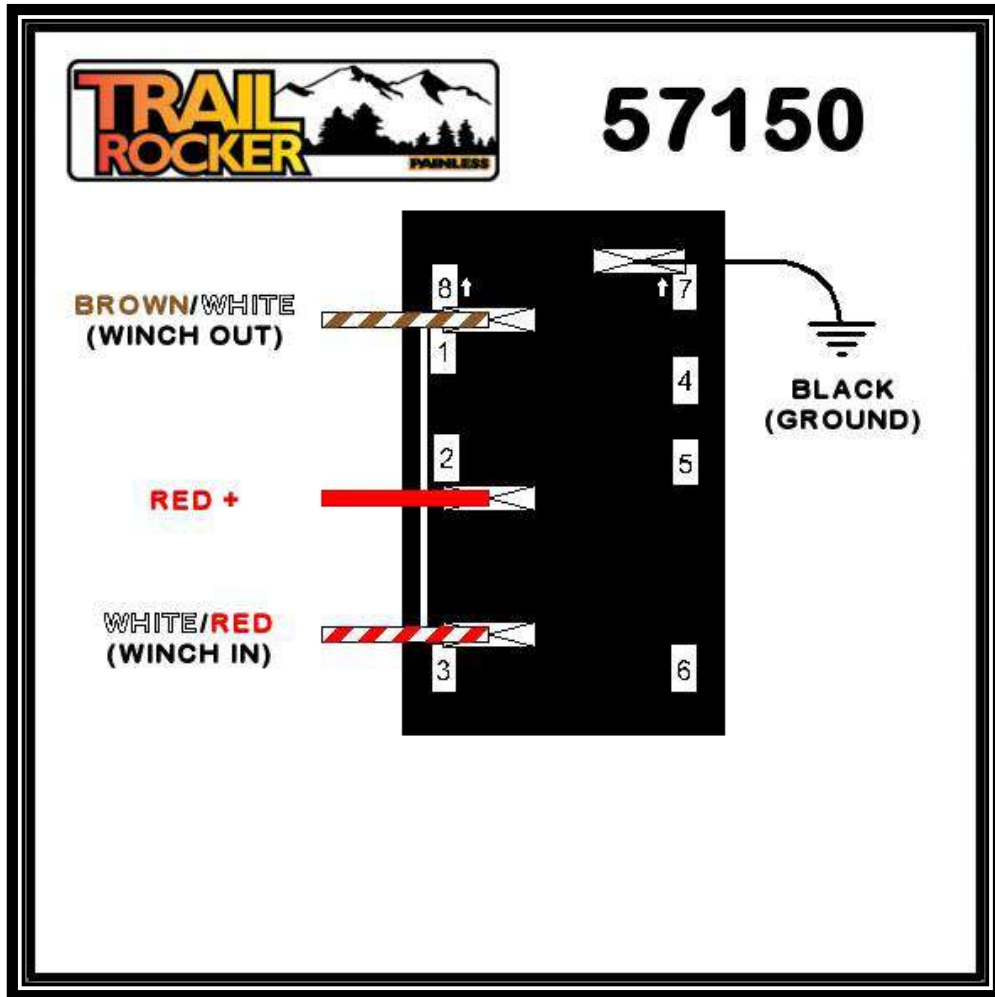

Step 24: These tabs lock the switch in place. To remove the switch, squeeze the tabs in and slide it out of the bracket.
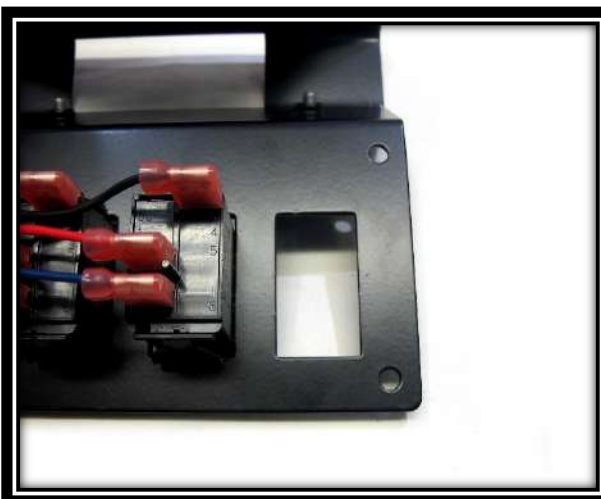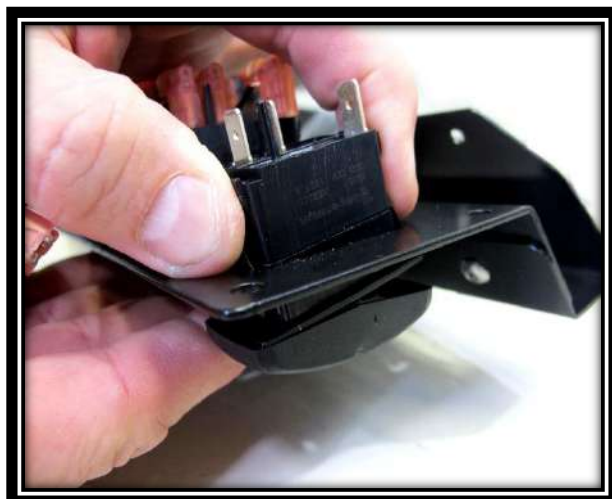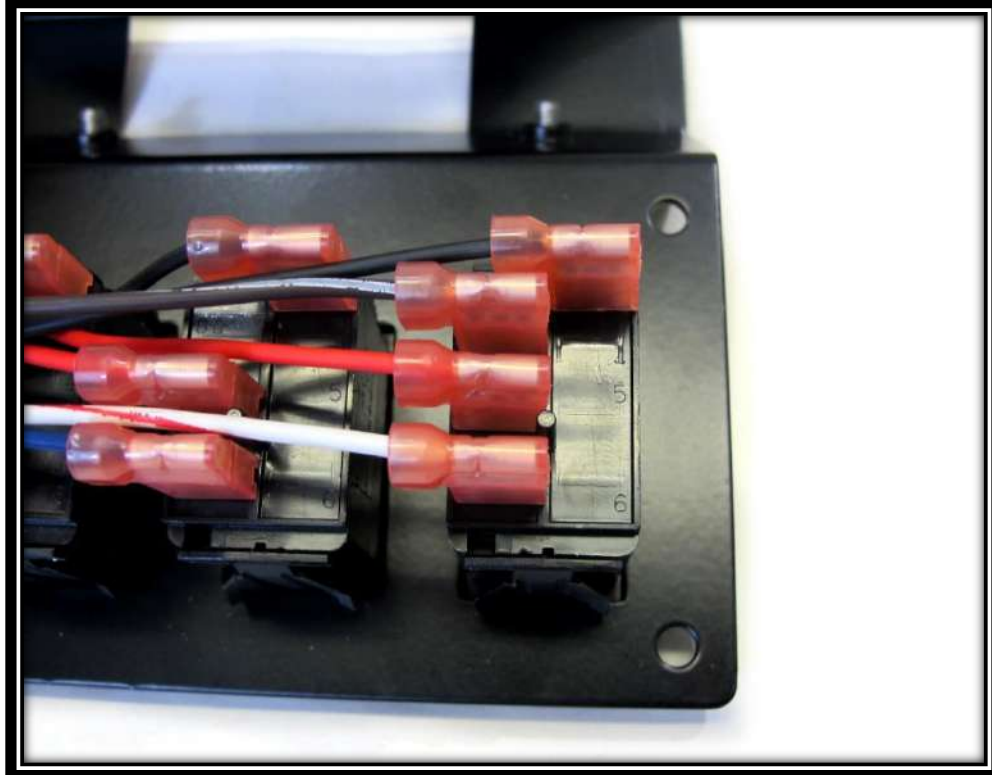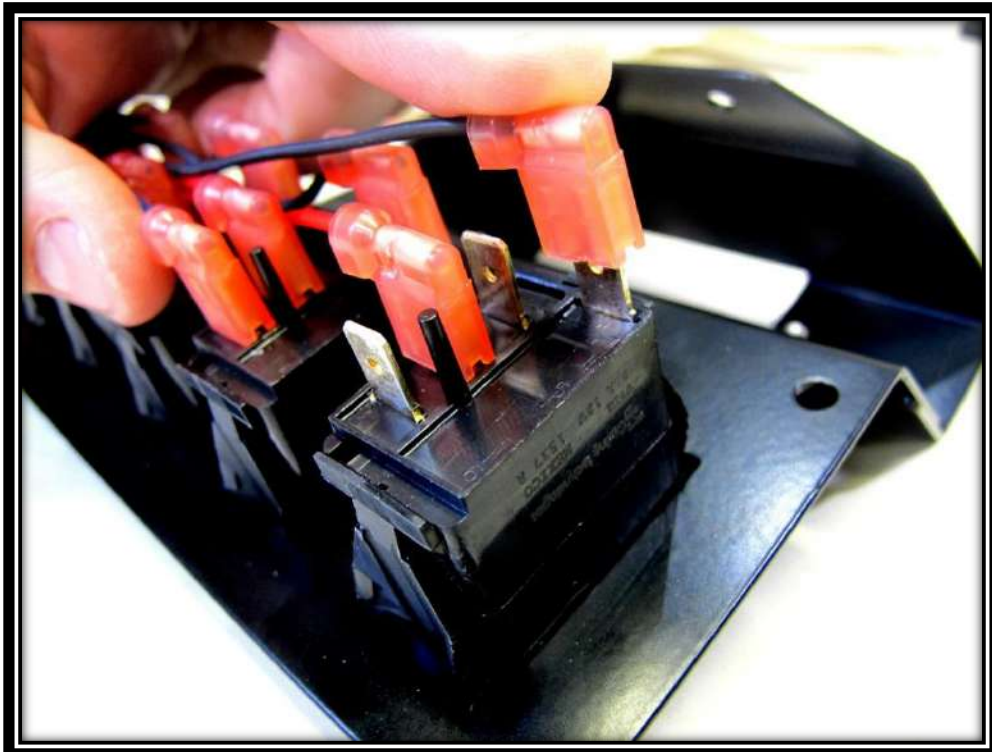

Step 25: Insert the **Winch Control Add-on Switch** into the empty socket of the bracket.
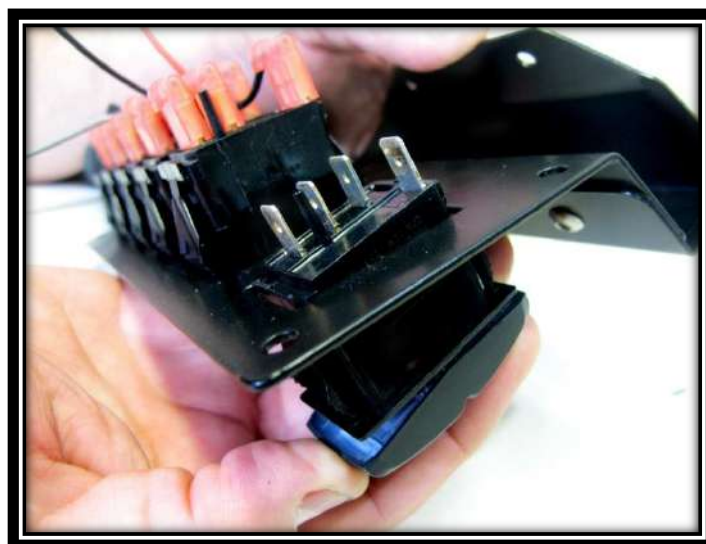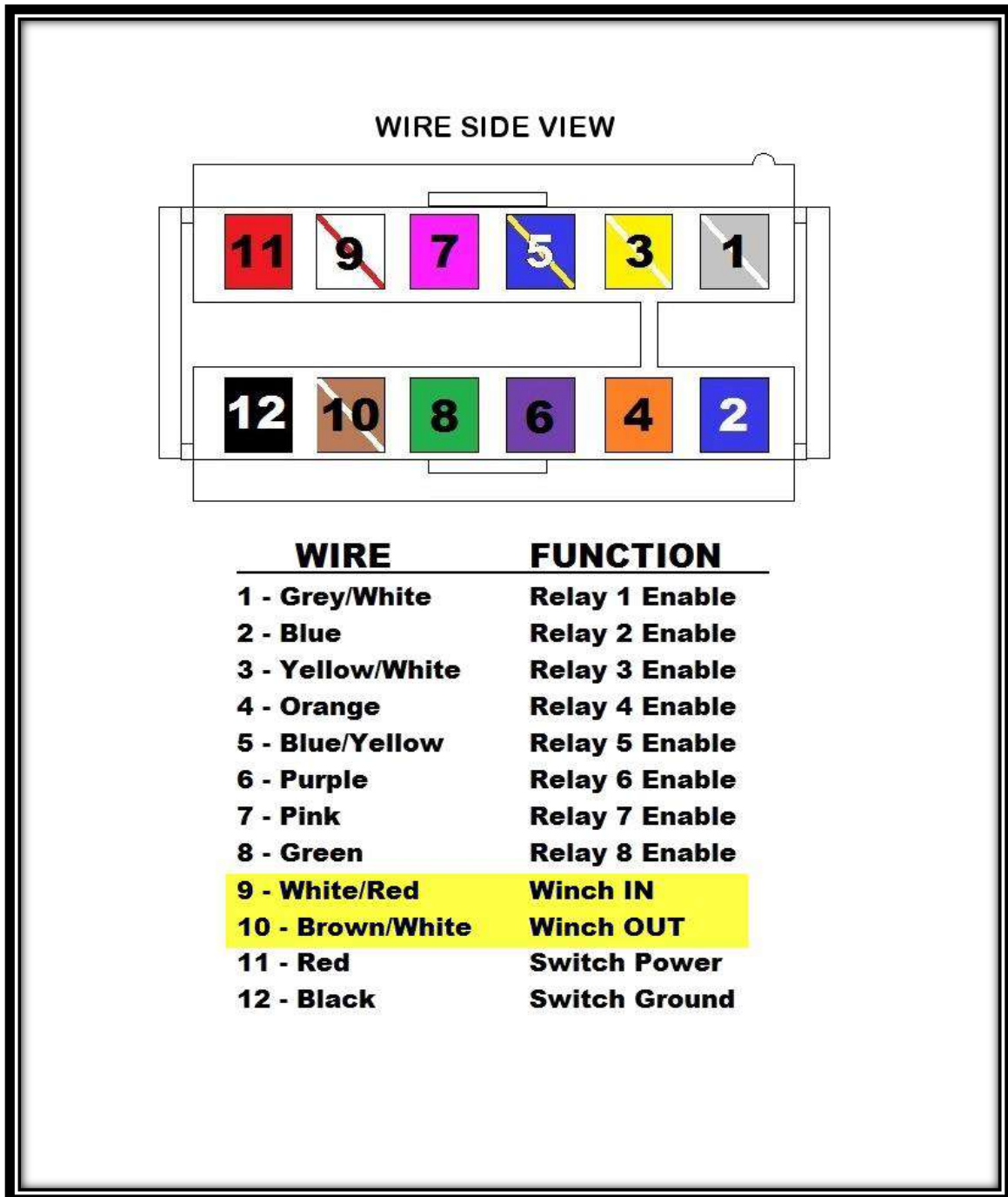
Step 26: Before connecting the wires to the **Winch Control Add-on Switch**, take time to familiarize yourself with the wiring diagram below.

Step 27: Reconnect the **power, ground,** and **Switch Panel wires** to the **Winch Control Add-on Switch** as seen below.

Step 28: Strip and terminate the other ends of the wire as you did in Steps 14 – 16. And insert the **WHITE/RED** into slot **#9** of the **12-pin connector** **shell** and the **BROWN/WHITE** into slot **#10**.

WIRE SIDE VIEW

11	9	7	5	3	1
12	10	8	6	4	2

WIRE	FUNCTION
1 - Grey/White	Relay 1 Enable
2 - Blue	Relay 2 Enable
3 - Yellow/White	Relay 3 Enable
4 - Orange	Relay 4 Enable
5 - Blue/Yellow	Relay 5 Enable
6 - Purple	Relay 6 Enable
7 - Pink	Relay 7 Enable
8 - Green	Relay 8 Enable
9 - White/Red	Winch IN
10 - Brown/White	Winch OUT
11 - Red	Switch Power
12 - Black	Switch Ground

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