



RK

# Tough Stuff Products, Inc.

## Lighting Kit for Hood-Rack

### **READ ALL OF THE INSTRUCTIONS BEFORE STARTING**

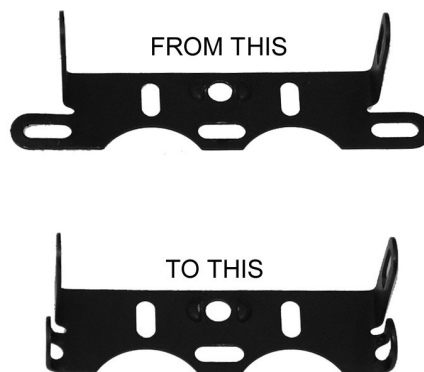
Check our website for any updated instructions! [www.toughstuffproducts.com](http://www.toughstuffproducts.com) >>  
Jeep® Accessories>>Lighting Kit for Hood Rack>>Installation Instructions

#### Tools Required

Crimping tool for electrical butt connectors  
Drill with 1/4" drill bit (for some applications)

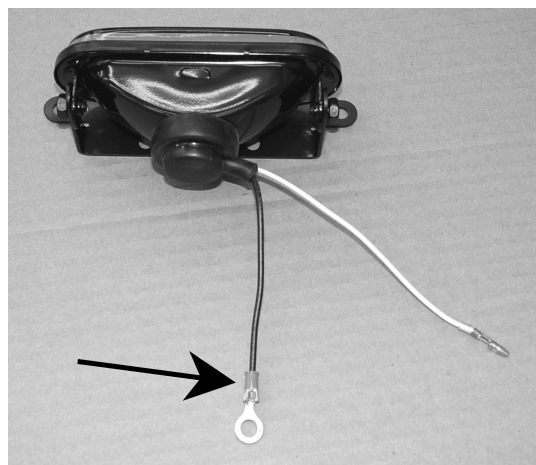
Basic Hand Tools

**Step 1: Prepare mounting brackets.** Remove mounting brackets from all 6 (six) lights. Set aside switches and wiring packet for later use. Use a pair of pliers and bend the rear tabs of the brackets up like the following picture.



Stick the double-sided foam mounting pads to the bottom of the mounting brackets.

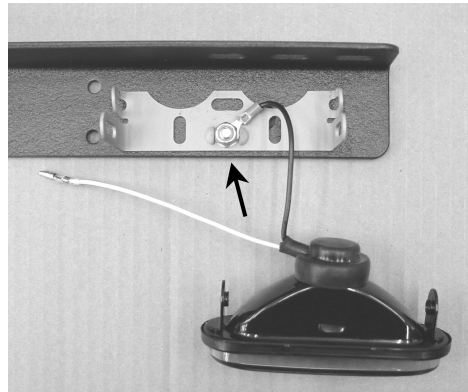
**Step 2: Prepare lights.** Cut the bullet style connector from the end of each ground (black) wire. Strip 1/4" of insulation from each black wire, and install a 1/4" ring terminal on each wire.



**Note: If you are going to install the Angle Bar reversed to carry a Hi-Lift® style jack or other heavy item, skip to next Step 3-Alternate.**

**Step 3: Install light brackets and ground wires.** Lay the long Angle Bar from the Hood Rack on a flat surface as illustrated below. Note that in this position the Light Bar is upside down (i.e. the silver Tough Stuff emblem will be on the TOP when installed). Peel the release paper from the foam mounting pads and align them as desired, if you want them all straight ahead, align the brackets to sit 1/8" back from the front edge of the Angle Bracket like the following photograph. Use the 1/4" Diameter X 5/8" long allen head bolts and 1/4" nyloc nuts (as illustrated) to secure the brackets in place. Place a toothed lock washer under the head of each of these bolts (i.e. on TOP of the Light Bar). This toothed washer assures an electrical ground connection through the powder coated finish.

Note the position of the ground wire underneath the nut:



You can also angle the brackets to illuminate the sides of the trail like this:



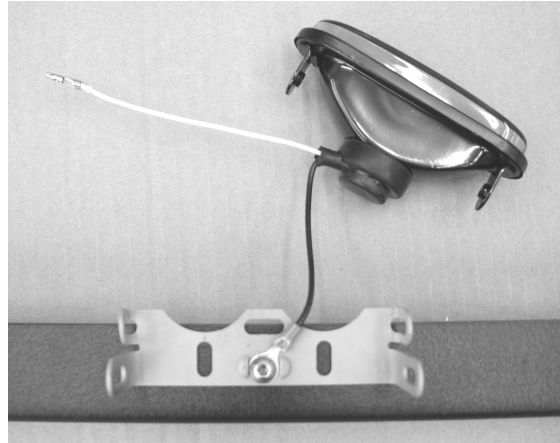
**Step 4: Install the lights.** Each light mounts to the brackets using two 10 mm head size bolts; one on each end. New Stainless Steel bolts are provided to replace the bolts supplied with the lights, which tend to rust easily. The bolt will slide in the groove in the bracket, which allows you to set the lights height and angle of direction. Note that there is a small vent on the bottom (top as you are installing) of the light for a condensation drain. You may find it easier to use a spacer between the light and Angle Bar or a long straightedge to set all the lights to the same height.



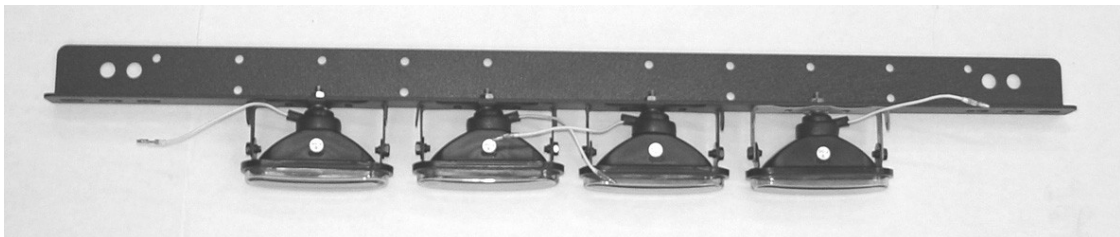
This picture is of the bottom as you see it while installing the lights. Skip to Step 5.

**Step 3-Alternate: Mounting light brackets for use while Angle Bar is reversed for heavy items.** Lay Angle Bar on a flat surface with the longer leg down as illustrated below. Peel the release paper from the foam mounting pads. Install 4 (four) brackets only, in the center 4 holes as illustrated. Note where the allen head of the bolt is located. Place a

toothed lock washer under the Nyloc nut (NOT the allen head) on each of these bolts. This toothed washer assures an electrical ground connection through the powder coated finish. The last 2 brackets will be installed later when you mount the Angle Bar on the Jeep®.

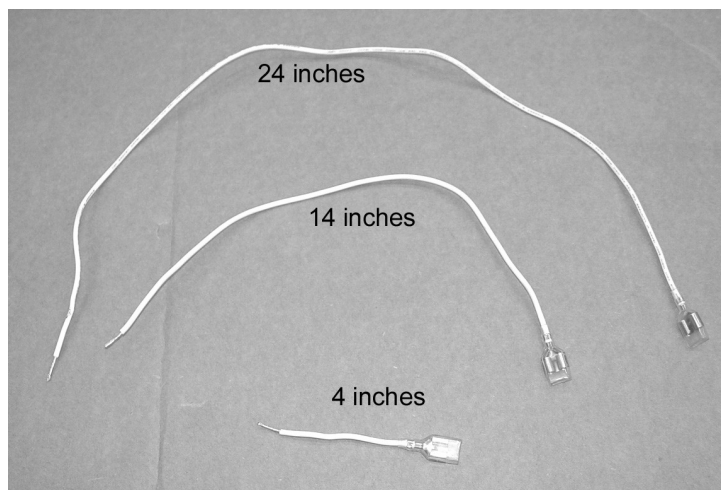


**Step 4-Alternate: Install the lights.** Each light mounts to the brackets using two 10 mm bolts; one on each end. New Stainless Steel bolts are provided to replace the bolts supplied with the lights, which tend to rust easily. The bolt will slide in the groove in the bracket, which allows you to set the lights height and angle of direction. Note that there is a small vent on the bottom (top as you are installing) of the light for a condensation drain. You may find it easier to use a spacer between the light and Angle Bar or a long straightedge to set all the lights to the same height.

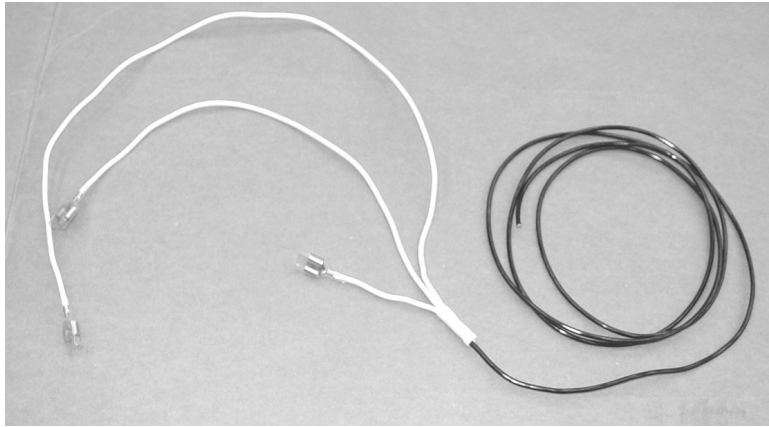


This picture is of the bottom as you see it while installing the lights for Alternate Angle Bar mounting.

**Step 5: Wiring the lights.** Remove the following white wires with double female ends from the hardware kit that comes with the lights and cut them to the specified length. Strip the insulation about 1/2" from the ends of the wire.



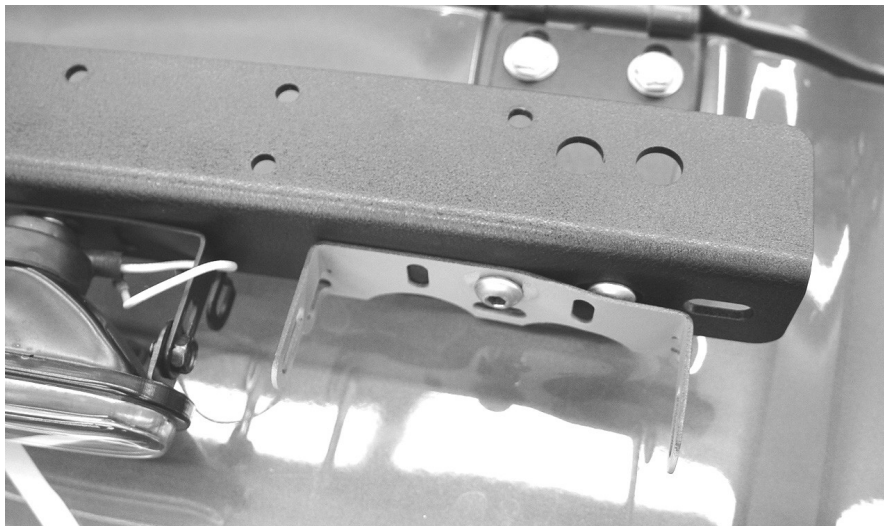
Twist the 3 wires together and install the yellow butt connector with a crimping tool, then attach the long, black 14 gauge wire to the other side of the yellow butt connector as pictured. Pull on each of the wires to check the connection tightness.



**Step 6: Attach wiring harness to lights.** Place the long 14 gauge black wire on the left side of the Angle Bar (driver's side). Plug 2 lights into each connector. If using the alternate method above, only plug one light into the shortest and longest wire, the mid-length wire will plug into the 2 center lights. Route the wires around and behind the brackets so they will not be visible, use the supplied nylon ties to secure the wires.

**Step 7: Install Angle Bar as directed in the Hood Rack instructions, with two differences.** Place 2 each 5/16" toothed lock washers under both the allen head and the Nyloc nut on one of the 5/16" mounting bolts. Also place one under the head of one of the 3 mounting bolts on the Hinge Bracket that goes into the hood. These toothed washers assure an electrical ground connection through the powder coated finish.

**If using Alternate method:** Use the 2 innermost 5/16" allen head mounting bolts to mount the 2 light brackets. Tighten the bolts fully and then slightly bend the bracket around the other bolt head. See the following photograph. The slotted holes will allow adjustment to compensate for the bend. Install the last 2 lights and hook up wiring as explained above. Install toothed lock washers as explained in step 7.



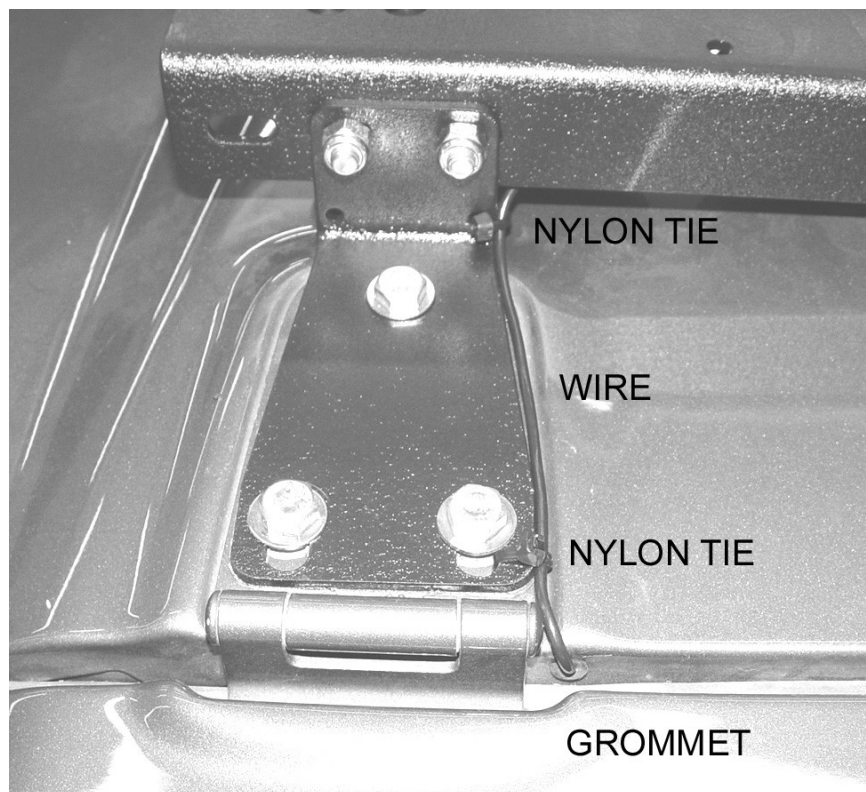
**Note that the light's ground wire is not shown for clarity.**

**Step 8: Route 14 gauge black wire into engine compartment.** Look for the easiest route to run the wire down beside the driver's side Hood Bracket and into the engine compartment without pinching the wire. A rubber grommet is supplied that may be placed in the rear

angle of the hood and the wire routed through it. Drill a 1/4" hole to install the grommet. Paint the edges of the hole for rust prevention. See the following photograph.

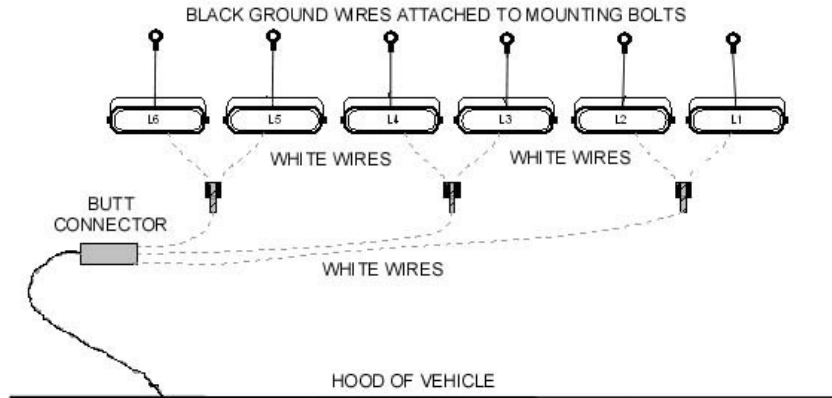


**Step 9: Secure wire to Hood Hinge Bracket.** Route wire as shown below and secure with black nylon ties. You may need to remove the Hood Bracket and trim a little of the gasket to install the nylon tie in the oval hole. You may need to hold the rubber grommet in with a small adjustable wrench while pushing the wire through.



**Step 10: Finish wiring.** Locate a place to mount the relay and switch/switches, and finish the wiring for your specific vehicle per the following diagram.

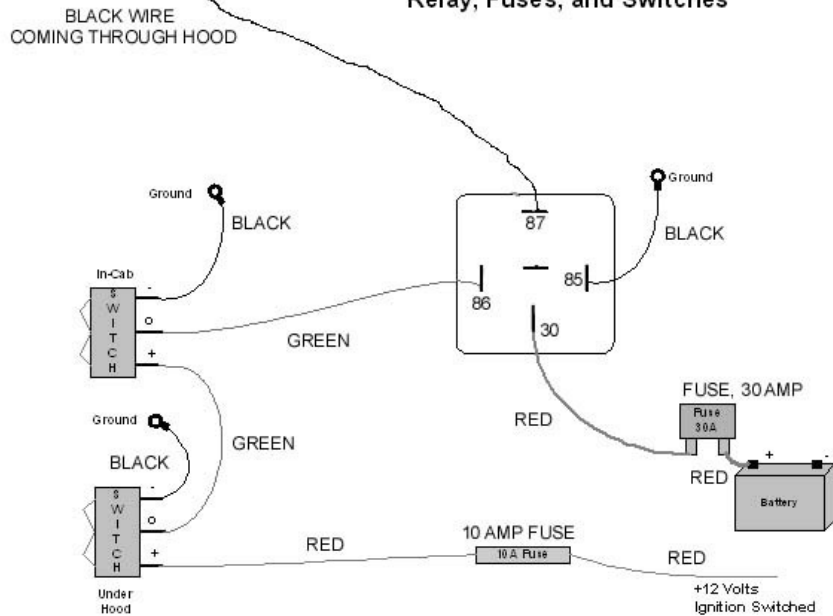
**Above Hood Wiring**



Some states require an under hood “lockout” switch for auxiliary lights. Two switches are shown in this diagram to assure compliance with local laws.

The switches contain a built-in pilot light that will illuminate when the switch is in the “ON” position. To disable the pilot light simply do not connect the Ground wire to the switch.

**Relay, Fuses, and Switches**



**NOTE:** If your lights do not work after installation, check the location of all toothed washers, they must be in the locations specified. Then re-tighten all bolts with toothed lock washers. The grounding circuit must be completed through these washers. They **MUST** bite through the powder coated finish and make contact with bare metal in every location specified. Also check the factory grounding strap to your hood for continuity.

Thank you for purchasing our product, we also manufacture many other body protection and accessory items for your vehicle, our complete product line can be viewed at [www.toughstuffproducts.com](http://www.toughstuffproducts.com).

