

GOBI TOYOTA FJ ROOF RACK OFF ROAD LIGHT INSTALLATION INSTRUCTIONS

PRIOR TO INSTALLATION READ ENTIRE INSTRUCTION MANUAL FULLY

Cautions to be aware of prior to installaltion

- Before connecting any wires, the positive (+) battery terminal should be disconnected.
- When connecting the wires on the harness, follow the wiring diagram and connect them as in the diagram.
- For proper lamp operation it is recommended that you connect the positive (+) and negative (-) power supply wires directly to the corresponding battery terminals. Do not take power directly from the alternator.
- Find a power source to connect the switch power wire to. For legal operation of driving lights in most regions of North America this power source must be one that is only powered (+) when the high beam of the headlamps is on. For fog lights this power source must be one that is only powered (+) when the low beam of the headlamps is on. To make this connection use the supplied connector with your off road light kit or any connector that is suitable for this application.
- Do not connect lights to turn signals or to lights that flash with an automotive alarm.
- When running the wires through the engine compartment be sure to keep them securely away from moving parts such as the fan and the throttle cable and away from hot parts such as the exhaust manifold.
- When the wiring is complete, test the system for operation. Do this by turning on the system. If the system works, securely fasten the relay boxes or tie it out of the way with wire ties. If the system does not come on, please contact your Off Road light Dealer.

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The following installation procedure will provide a pathway in which to install and conceal the roof rack wiring harness from the engine compartment to the roof top and exterior and interior switch wiring without drilling. Use factory supplied instructions for your specific off road auxiliary lights when connecting harness to vehicle power source.

Step 1 Disconnecting the Battery



Before connecting any wires, the positive (+) battery terminal should be disconnected. Use a 10mm box or socket wrench.

Step 2 Removing the inner "A" pillar cover



Remove both plastic handle bolts caps using a small screw driver



Continue by removing both handle bolts using a 10mm socket drive



Remove the interior "A" pillar cover by pulling out from the top of the plastic cover. Two clips hold the cover in place.

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Step 3 Removing the exterior "A" pillar cover



Using a 10mm deep socket remove the nut from the inside of the metal "A" pillar frame's post. You may need to use a magnet to slide the nut off the post. Take caution not to drop the nut into the frames interior.



Once the nut has been removed, using a plastic flat tool carefully pry off the outer "A" pillar metal cover. Remove from all sides other than the windshield side this could crack the windshield. From top to bottom remove the cover until completely off. There are 3 clips towards the driver side and 2 clips on the windshield side.

Step 4 Main wire harness install

Rubber molding Wire snake



Drivers side door



Plastic trimmed access hole

Fuse box

Wire snake

Keep the engine hood open at this time, using a wire snake push the snake between the rubber molding and the vehicle body just above the upper door hinge until you reach the interior motor compartment thru a plastic trimmed access hole.

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Step 5 Main wire harness install Continued



Wire snake

Wire is double
over and taped to
prevent removal
when pulling thru
vehicle

Wire leads remain inside
engine compartment



Begin with the drivers side of the roof rack at this time. If you are installing a PLAA light system you will need 3- 80" long lengths of white 16 gage wire these will be part of the main roof rack harness. If you are installing a DELTA light system the yellow harness wires supplied will be long enough to reach the roof top from the engine compartment on the drivers side only. Take masking tape and label 2 wires both ends to read the letter "F" indicating front and the other single wire both ends with the letter "R" indicating rear. Fold all 3 wires about 4 inches from the end and slip into the loop of the wire snake then electrical tape over to prevent the harness wire from sliding off as shown above.

Step 6 Main wire harness install Continued

Exterior "A" Pillar



Drivers side
door

Second Roof top off road light

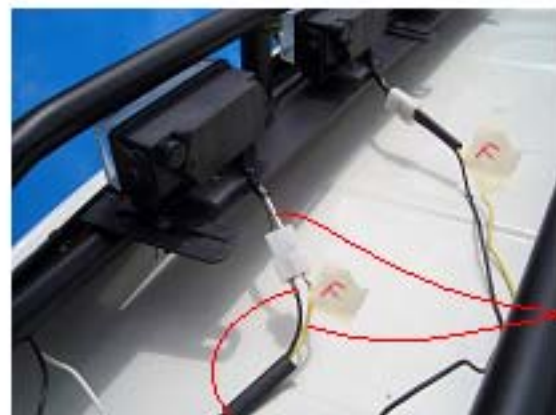
Exterior "A" Pillar



Pull the 3 wires marked "F" and "R" thru the door area then up onto the roof top via the exterior "A" pillar. Pull enough wire up onto the roof top to reach the second front off road light.

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Step 7 Main wire harness install Continued



If you are installing a PIAA light kit refer to page 10 the red circled ①. Cut off the 2 harness connectors and leave at least 6 inches of wire lead still attached to each connector. Butt splice the white wire of the PIAA connector to the white or yellow wire of the roof top harness "F" one connector per "F" harness wire. You will also have a black ground wire extending from the PIAA connector leave this ground wire alone at this time. Plug both PIAA connectors into the lamp connectors. If you are installing a DELTA light kit and using the original harness plug the yellow harness wires "F" into each connector of the lamps on the white wire side. One harness wire per lamp.

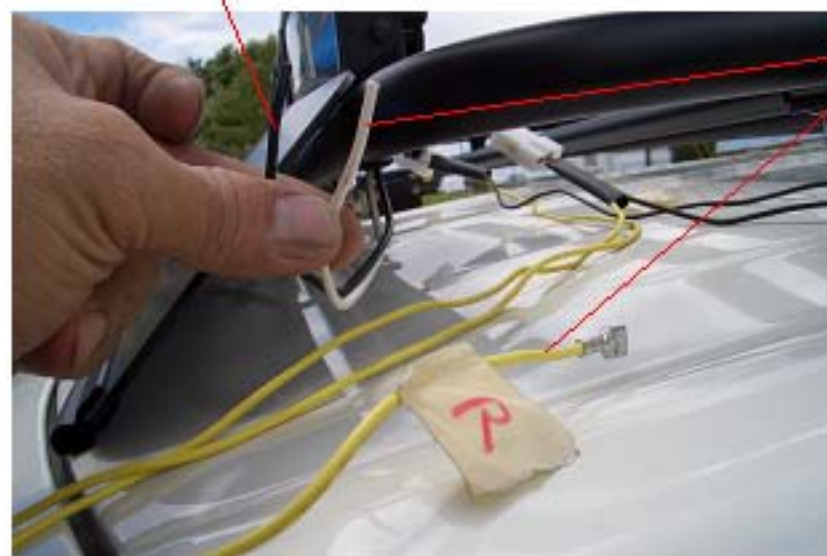
Black ground wire 30" long 1 per light assembly

White off road light wire
connected with white or yellow
lead wire "F"

Connect a 30" long 16 gage black ground wire to each light connector either butt splice to the existing PIAA connectors or plug in place using the DELTA supplied ground wires. If you are using DELTA plug in wires be sure to place heat shrink tubing supplied with the DELTA kit over each terminal to prevent shorting of the wires.

Step 8 Main wire harness install Continued

Black roof rack tube wire connected to
a 30" long 16 gage ground wire



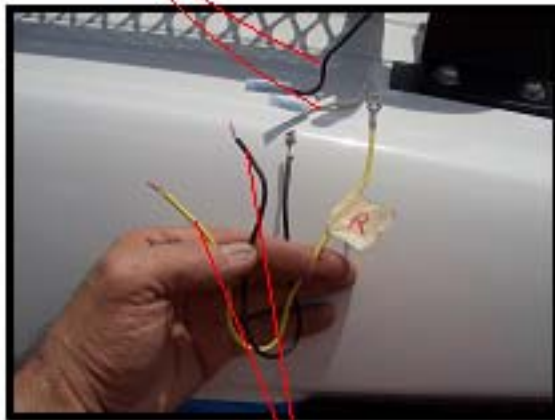
White roof rack tube wire connected
to lead wire marked "R"

If you are installing a DELTA light system cut off 8 inches back from the spade connector of the yellow harness wire marked "R" just pulled up onto the roof top and hold to be used for the rear light harness extension. Take the white wire coming out of the front roof rack tubing and butt connect to the remaining yellow harness wire "R" just cut. If you are installing a PIAA light system connect the white harness wire marked "R" to the white wire coming out of the front roof rack tubing. Butt splice a 30" long ground wire to the black wire coming out of the front roof rack tubing and let hang loose at this time.

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Step 9 Main wire harness install Continued

Black and White wire leads
from end of roof rack tubing



Cut 8" factory wire
harness connectors

Harness connectors pushed
onto Off road light connectors
then sealed with shrink wrap



8" cut harness wire butt
connected to tubing lead wires

Move to the rear of the roof rack drivers side and remove the plastic bag holding 2 butt connectors and the black and white wires coming out of the roof rack tubing. If you are installing a DELTA light system use the 8" long cut yellow harness wire and butt splice onto the white wire coming out of the rear of the roof rack tubing. Take a short black DELTA harness wire with a spade connector at one end and butt splice to the black ground wire coming out of the rear roof rack tubing. Connect the yellow wire to the white wire of the lamp and the black ground wire to the black wire of the lamp be sure to use the shrink wrap supplied to insulate each wire connection. If you are using a PIAA light system refer to page 10 red circled ① and cut off a single connector leaving at least 6 inches of wire still remaining off the lamp connector. Butt splice the connector to the wires coming out of the rear roof rack tubing white wire to white and black ground to black plug connector into lamp at this time.

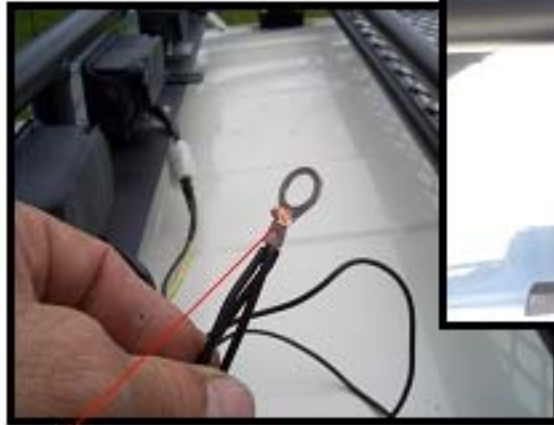
Step 10 Main wire harness install Continued



Using wire loom preferably or electrical tape cover the exposed wires completely from the roof rack tubing to the off road light then wire tie to the rack tubing as shown.

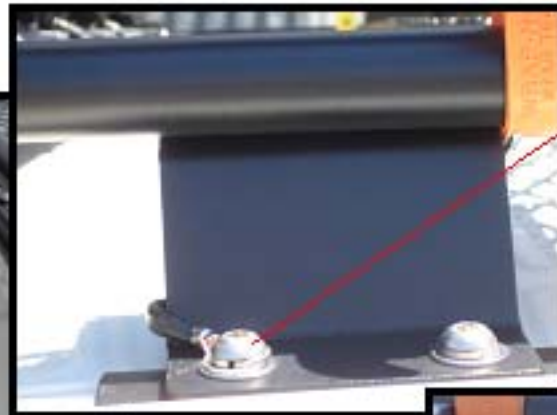
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Step 11 Main wire harness install Continued

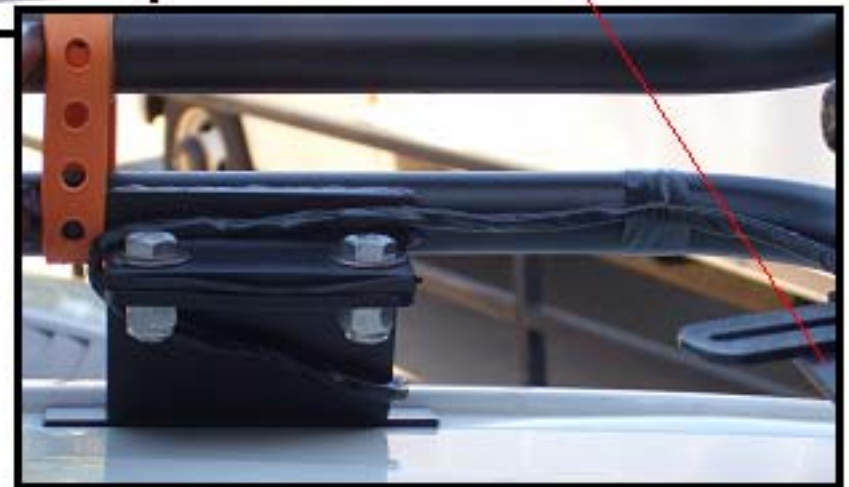


Connect 3 ground wires to a single 3/8" ring terminal then electrical tape together 20"

Moving back to the front of the roof rack take all 3 loose ground wires of the roof rack harness and connect them together to a single 3/8" non-insulated ring terminal. Using black electrical tape wrap the 3 ground wires together for about 20" of its length from the terminal back. Attach the 3/8" ring terminal to the forward roof rack mounting bolt as shown above.



Attach ground wires under support bracket bolt



Roof rack light bar

Wrap the 3 ground wires behind the roof rack front support bracket as shown above then with a small black wire tie or black electrical tape attach towards the inside of the tubing then continue to snake the ground wires towards the front off road light section under the roof rack light bar.

Step 12 Main wire harness install Continued



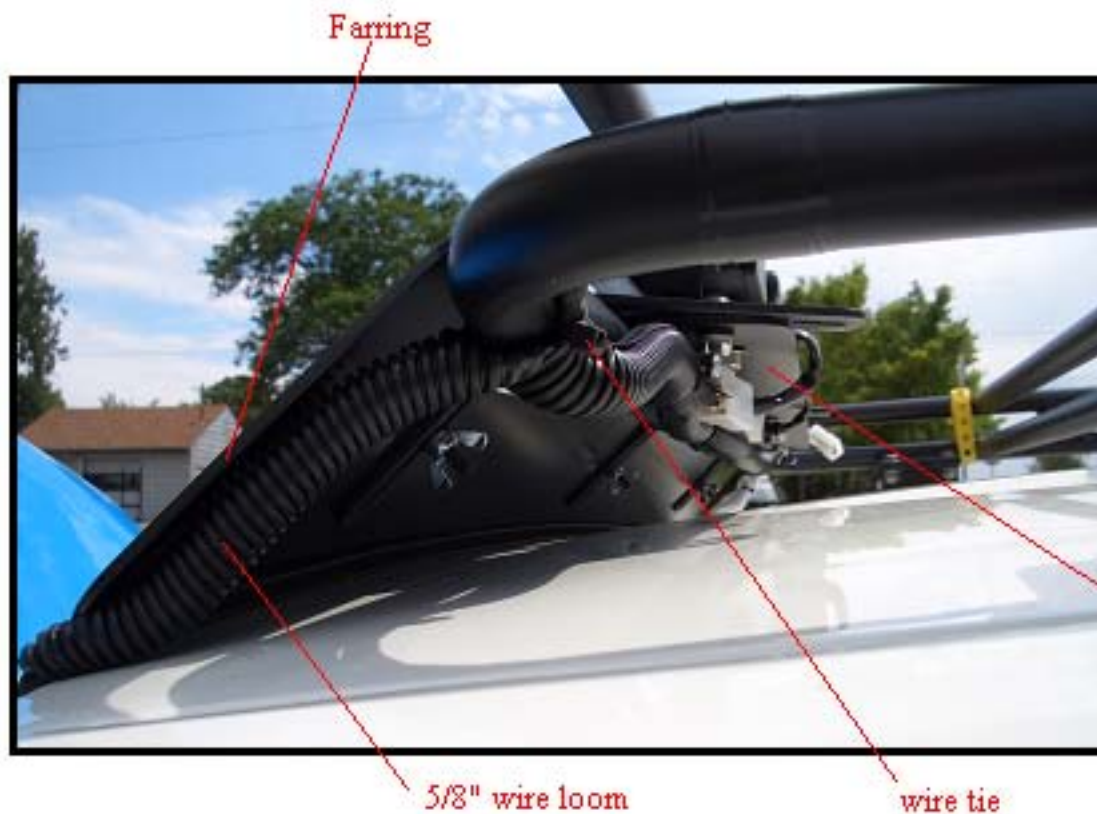
Farring

Electrical tape main harness together within this boundary

Attach the 3 main lead wires of the harness together using black electrical tape from 3 inches above the farring to approximately the end of the white paint of the exterior "A" pillar. Try to keep the wires as flat as possible when taping.

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Step 13 Main wire harness install Continued



Bundle all main lead and ground wires together with plastic wire loom or black electrical tape then tuck under the roof rack light bar and attach to rack tubing using black wire ties. Run the wire loom to the end of the farring and tuck under using the farring to hold the wire loom in place.

Step 14 Main wire harness install Continued



Push main harness into windshield molding then continue to "A" pillar

Tape main harness to exterior "A" pillar

Continue to pull main harness down exterior "A" pillar, remove all slack and electrical tape in place. Then wrap electrical tape around the main harness wires between the lower section of the exterior "A" pillar and just past the rubber molding of the door hinge approximately 3" into the front fender.

Continue pushing the main wire harness down into the upper windshield molding then down onto the surface of the exterior "A" pillar as shown above.

Wrap electrical tape around main harness between the bottom of the exterior "A" pillar and the interior of the front fender

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Step 15 Main wiring harness exterior concealment



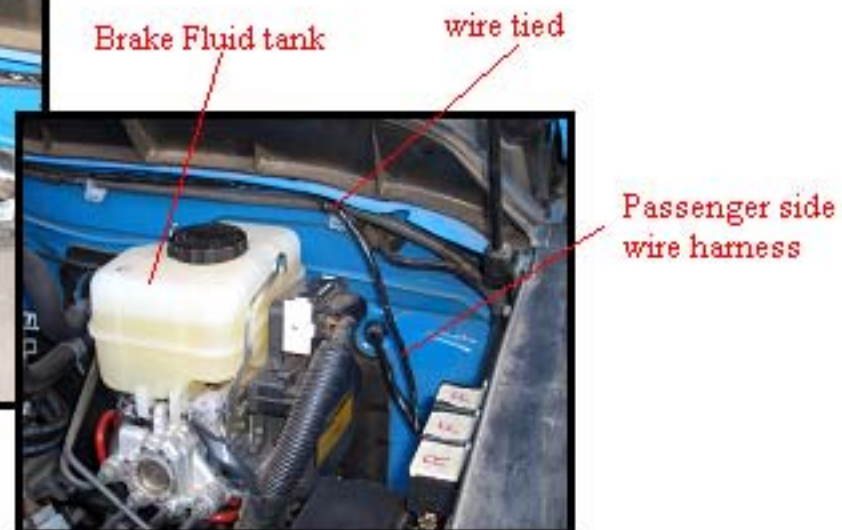
Re-assemble the main exterior "A" pillar then the interior "A" pillar to conceal the main wiring harness. Wrap electrical tape around the remaining harness within the engine compartment from the interior fender wall to approximately 8 inches from the end of the harness and set aside at this time.

At this stage you should have completed the drivers side exterior wiring and have approximately 30 plus inches of main wire harness within the engine compartment. Continue the same install process to the passenger side however extend the main wiring harness to approximately 120" this will provide ample length to cross over the engine compartment from the passenger inner fender wall across the back fire wall over to the drivers side engine compartment. Once you have completed the passenger side wiring, electrical tape the entire passenger harness in the engine compartment to within 8 inches from its end then continue on to Step 16.

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Step 16 Main wiring harness connection

Passenger side wire harness



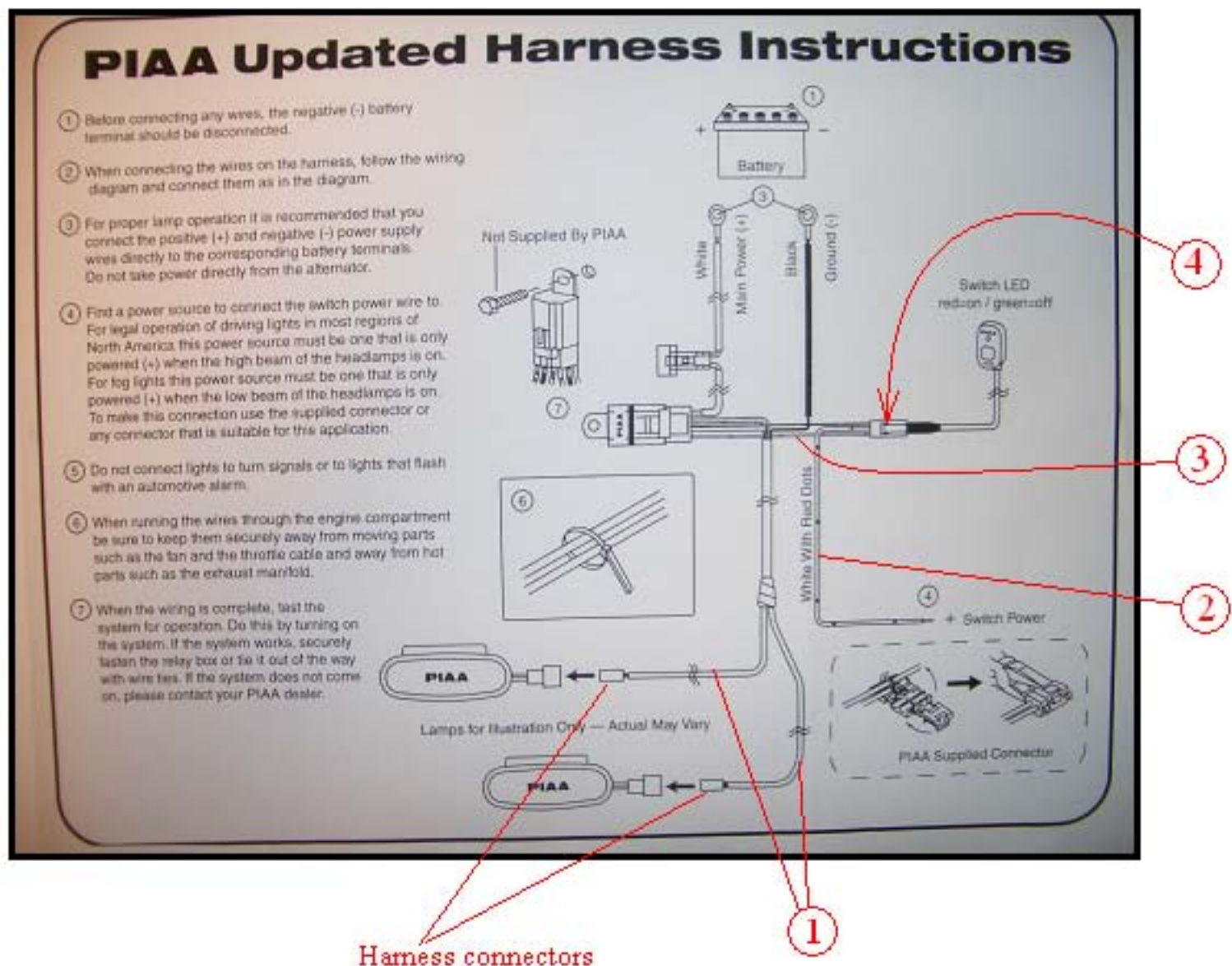
Take the passenger side wire harness in the engine compartment once fully taped and wire tie along the back fire wall of the engine compartment past the plastic Brake fluid tank and set aside at this time.



Refer to page 10 and 11 for the wiring diagram which reflects your specific off road light manufacturer. You should have 3 relays and wiring harness at this time, separate the 3 and take 2 relays along with its wiring and mark with the letter "F" using masking tape. Take the 3rd relay and wiring and mark with the letter "R". Locate the red circled ① on your specific wiring diagram indicating the 2 lamp leads, butt splice these 2 lamps leads to the passenger side harness in the engine compartment, 1 white or yellow wire lead of the engine compartment harness to each white or yellow lamp lead of the relay "F". Connect in the same manner the second "F" relay lamp leads to the drivers side wire harness. Leave the black ground leads of the relays hanging free at this time. Take the 3rd relay marked "R" and start with the passenger side engine compartment harness also marked with the letter "R". Butt splice the white or yellow wire leads of the engine compartment harness to the white or yellow relay lamp leads marked "R". Connect in the same manner the drivers side engine compartment wire harness to the second relay lamp lead of the relay marked "R".
Note: DELTA relays are not hard wired as PLAA and will only require the lamp leads to be plugged into their specific numbered locations on the relay.

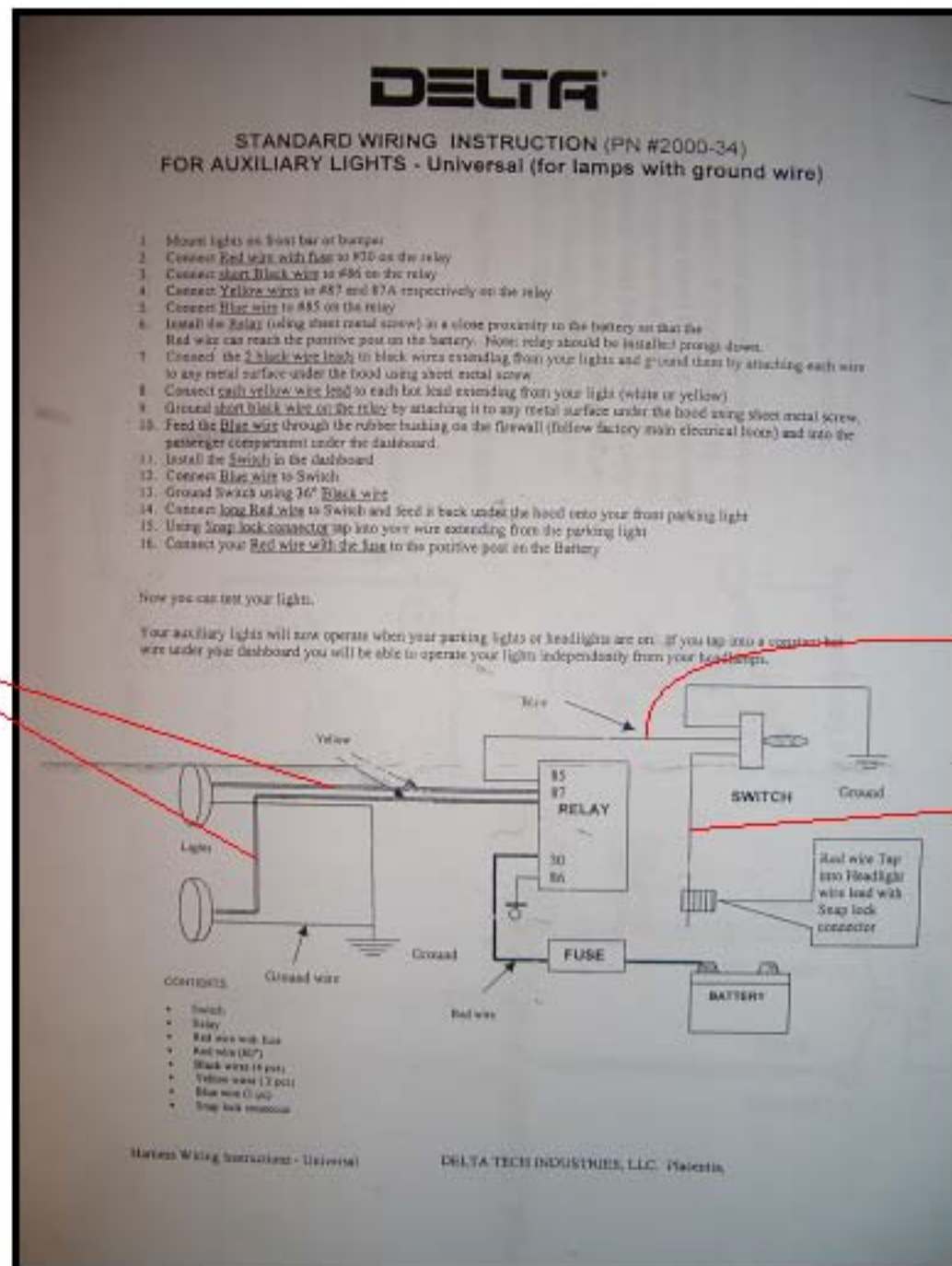
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PIAA OFF ROAD LIGHT WIRING DIAGRAM



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DELTA OFF ROAD LIGHT WIRING DIAGRAM



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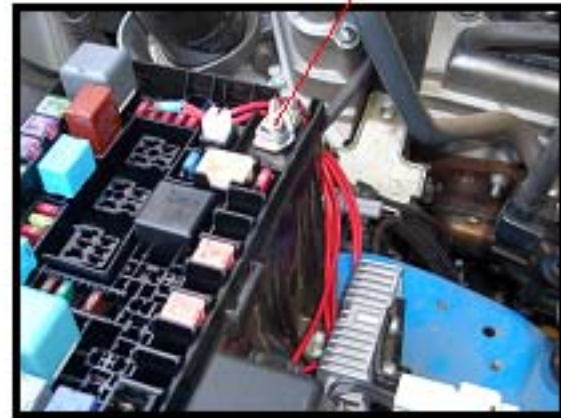
Step 17 Main wiring harness connection continued

Ground connection



Bundle all ground wires from the relay harnesses within the engine compartment and connect them to the vehicle body ground as shown above.

Fuse box terminal



If DELTA brand lights are used bundle all the Red fused positive leads from the relays and connect them to the fuse box terminal shown above. If PIAA brand lights are used bundle all the white fused positive leads from the relays and connect them to the fuse box terminal shown above.

Step 18 Installing the switches

Engine compartment switch wiring access plug



Push wire snake thru inner wall padding and out thru plug

Opposite side of firewall plug

Brake pedal support frame



Switch ground connection

Underside of dash below steering wheel

Remove the rubber plug located on the fire wall just to the right and below the Brake fluid tank. Make a hole in the interior felt padding in line with the access hole. Push a wire snake from the interior compartment thru the felt lining hole and into the engine compartment.

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Step 18 Installing the switches continued

Refer again to the specific wiring diagram of your off road light manufacturer, locate the switch illustration on the diagram. Take the 2 relays in the engine compartment marked with the letter "F" and locate the switch wires marked ② on the wiring diagram these are the hot or positive leads, cut the leads off both relays marked "F" approximately 8 inches from the base of the relay. Butt splice the 2 relay positive wires together then add the long positive wire to the other end of the butt splice connector this will provide a single positive wire to power 2 relays. Refer again to your wiring diagram locate wire ③ cut these wires 8 inches from the relay base and butt splice together join to the opposite end of the butt connector the single long drive wire ③ this will provide a single drive wire to power 2 relays for activating the 4 front off road lights using a single switch. If a black ground wire remains on the relay cut the ground wire 8 inches from the base of the relay and butt splice together then add to the opposite end of the butt connector a single long ground wire to ground both relays at the same time.

Note: When splicing 2 relays together to work in tandem;

If you are installing a PLAA switch system you will now have 3 wires from 2 relays entering into the vehicle driving compartment 1-black ground wire, 1-white positive wire with red dots and 1- white drive wire with a terminal connector at their end as illustrated on your wiring diagram ④.

If you are installing a DELTA switch system you will have 2 wires from 2 relays entering into the vehicle driving compartment 1-blue drive wire and 1- red positive wire the ground wire will be connected from inside the driving compartment.

The 3rd and final relay marked "R" in the engine compartment will be used with out alteration for powering the rear light system. If a PLAA system is used push both the relays "F" and "R" switch wires with their end connectors thru the switch hole in the fire wall of the vehicle then into the driver side compartment leave the positive wire ② sitting loose in the engine compartment at this time. If a DELTA system is used connect the blue drive wire ③ and the red positive wire ② to the relay marked "R" in the engine compartment. Bundle the red ② and blue ③ switch wires of the relay marked "R" together and the red ② and blue ③ switch wires of relay marked "F" separate from "R" when pushing the 4 wires thru the switch hole in the fire wall of the vehicle.

After the switch wires have been fully pulled into the drivers side compartment refit the rubber plug back into the fire wall around the switch wires and in necessary seal with clear silicone adhesive sealant.

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Step 19 Installing the switches continued

If you are installing a PIAA switch system follow the procedure below:



Remove dummy plugs using a small screwdriver



Feed in the switch wire and pull out from the back of the panel



Pull thru all remaining switch wire and connect to the relay switch wire connectors pulled in from the engine compartment



Press the PIAA switches into the switch sockets bottom first and align in place



Finished switch display

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Step 20 Installing the switches continued

If you are installing a DELTA switch system follow the procedure below:

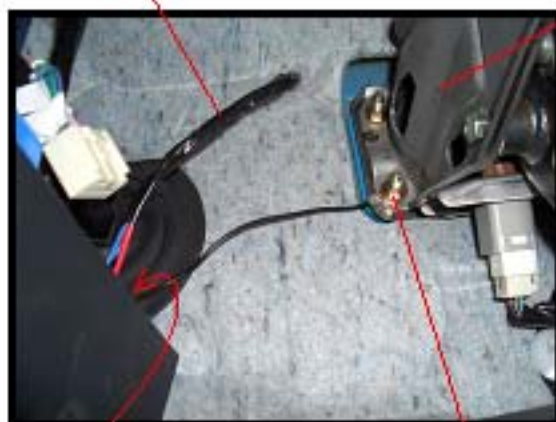


If you plan to use the switches included with your Delta light kit you will have to find an area in your dash with out obstructions behind to impede switch and wire connector depth. You will have to drill a 21.5mm (.840") hole.

Recomended areas for Delta switch install are highlighted in red.

Incoming switch wire harness

Brake pedal frame



After you have mounted the Delta switches connect the incoming switch wires from the engine compartment to each switch as displayed on the side of each switch. For example the (+) mark on the switch will be used for the red positive wire and the (A) mark will be used for the blue drive wire and the (⊖) mark indicates ground and this will be for the black wire which will then be attached to the nut on the brake pedal frame.

Hide remaining excess wire behind plastic kick panel

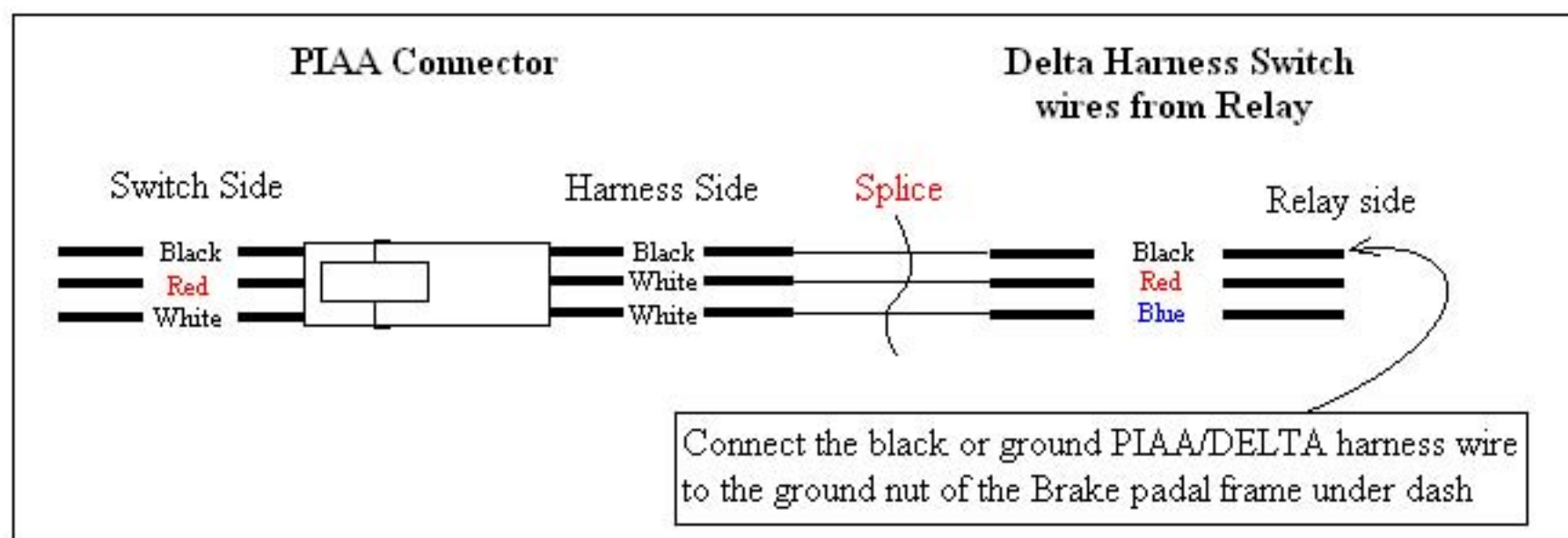
Ground nut

Refer to the next page if you plan on using both PIAA and DELTA light kits together.

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Step 21 Installing the switches continued

If you plan on using PIAA front lights and DELTA rear lights mixing the switch wires will be possible. After bringing the switch wires into the drivers compartment from both the PIAA and DELTA relays take the incoming DELTA wire harness and splice into the PIAA switch harness. Use the following color codes between PIAA and DELTA to establish the correct connection:



Step 22 Connecting to switch power Source

When connecting to a switch power source refer to your wiring harness diagram or pages 10 and 11. Suggested power source will be headlamp red positive wire use the supplied snap connectors to attach.

Step 23

Relays screwed in place



After you have connected the switch power source it is time to test your off road lights. Make certain all items left in the engine compartment are removed then replace the positive battery terminal back onto the battery. Start your vehicle and turn on your switches, make sure all lamps are illuminated once all is found to be working turn off your vehicle and begin to tie up all loose harness wires and attach the 3 relays to the fender wall or wire tie together and place into a area in the engine compartment away from moving parts and extreme heat sources such as the manifold. Installation is complete.