

RADIOFLYER'S "SLC V3" HEADLIGHT INSTALLATION INSTRUCTIONS

Congratulations on your purchase of the most unique set of Headlights ever developed for the C5 corvette. This guide will aid you in the installation of your custom headlights, wire them and properly aim them. Once installed, you'll benefit from the same quality Xenon-arc lighting and Bi-xenon feature on high end luxury vehicles and actually enjoy driving at night.

Your kit comes with all the necessary parts to install your lighting setup. Please take a moment to verify the checklist of parts and tools required on the next page for a quick and easy installation.

Warranty: If for any reason, your headlights fail to operate properly, please email or call me immediately before tampering with your lights. My goal is to provide you with the highest quality product and service. If for some reason your headlights cannot be properly diagnosed over email or phone, simply send back the faulty parts and I will repair or replace the faulty part(s). Our warranty covers defects for 1 year from time of purchase.

Thank you for your business,
- George "Radioflyer"

Parts list for Base kit. (options kits will be described below)

- Main Lenses
- SLC V3 Shrouds
- Aluminum Frames
- 55w HID kit with ballasts, bulbs
- Halogen High beam (for base kit)
- Hi-4 harness
- High beam connector harness
- (10) 2" 8-32 bolts
- (2) 2 1/2" 8-32 bolts
- (12) 8-32 nuts
- (12) 8-32 lock washers
- (24) 8-32 flange locking nuts
- (4) 6-32 1/2" bolts
- (2) 6-32 5/8" bolts
- (6) 6-32 nylon locking nuts
- (2) 1/4-20 1" bolts
- (2) 1/4" washers
- (2) 1/4-20 Extended U-nuts
- (2) Turnbuckles
- (2) 45" tubular weather strip
- (2) 3/4" wide thick weather strip
- (2) 1/4" wide thin weather strip

* Fog light option kits contain a second HID kit and custom harness

Halo kits contain pre-mounted halo rings and (2) dual output halo transformers

Hyper vision kits contain a second HID kit and custom harness

You will need the following tools:

- Phillips screwdriver
- Flathead screwdriver (standard length or longer)
- Torx 15 screwdriver
- Torx 20 screwdriver (if you have a bit and ratchet setup this is ideal)
- 8mm, 10mm, 1/2" wrench with open and box end
- Ratchet set with 1/2", 10mm, 11mm and 6" extension
- Drill with 3/8", 1/4" and 3/16" drill bits

Optional, but recommended:

- PB blaster or similar "loosening" agent
- Large Towel
- Needle nose pliers
- masking or painter's tape
- marker or pen

It doesn't hurt to have a parts tray.

The installation process consists of 3 stages:

- I. Removal of your existing headlamp housings
- II. Installing your projector mounts
- III. Installation of your new headlights.
- IV. Aiming of your new headlights
- V. Installation of the Shroud and Lens assembly.

Under ideal circumstances, the total installation should take roughly 2-3 hours to complete. Assuming you have all your tools lined up, let's get started. I suggest beginning the installation in the late afternoon so you can see the beam pattern to aim them.

Stage I: Removal of existing headlights.

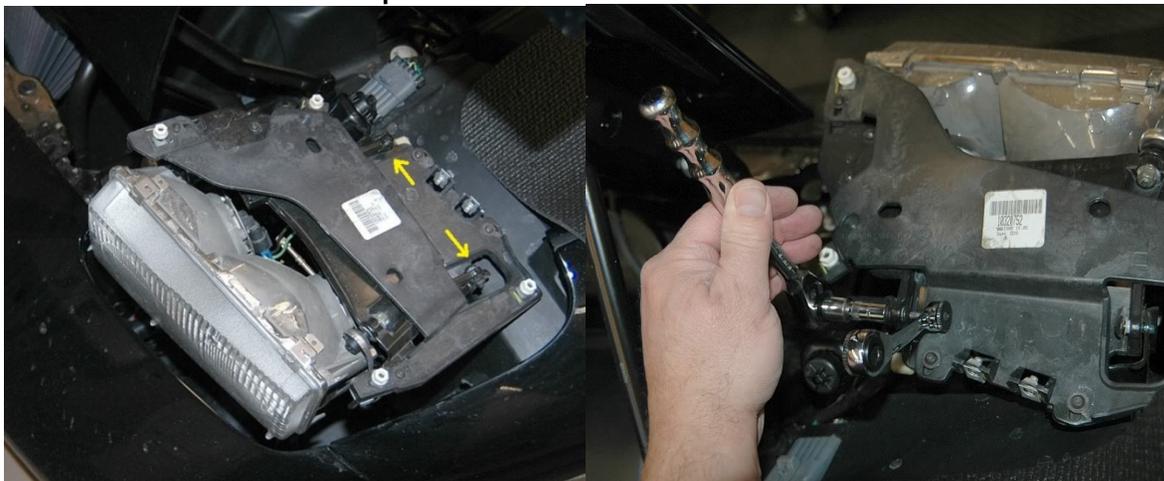
- 1) Raise your headlight using the manual crank. You'll see 3 Philips head screws that hold the plastic trim bezel in place. remove these screws and the bezel



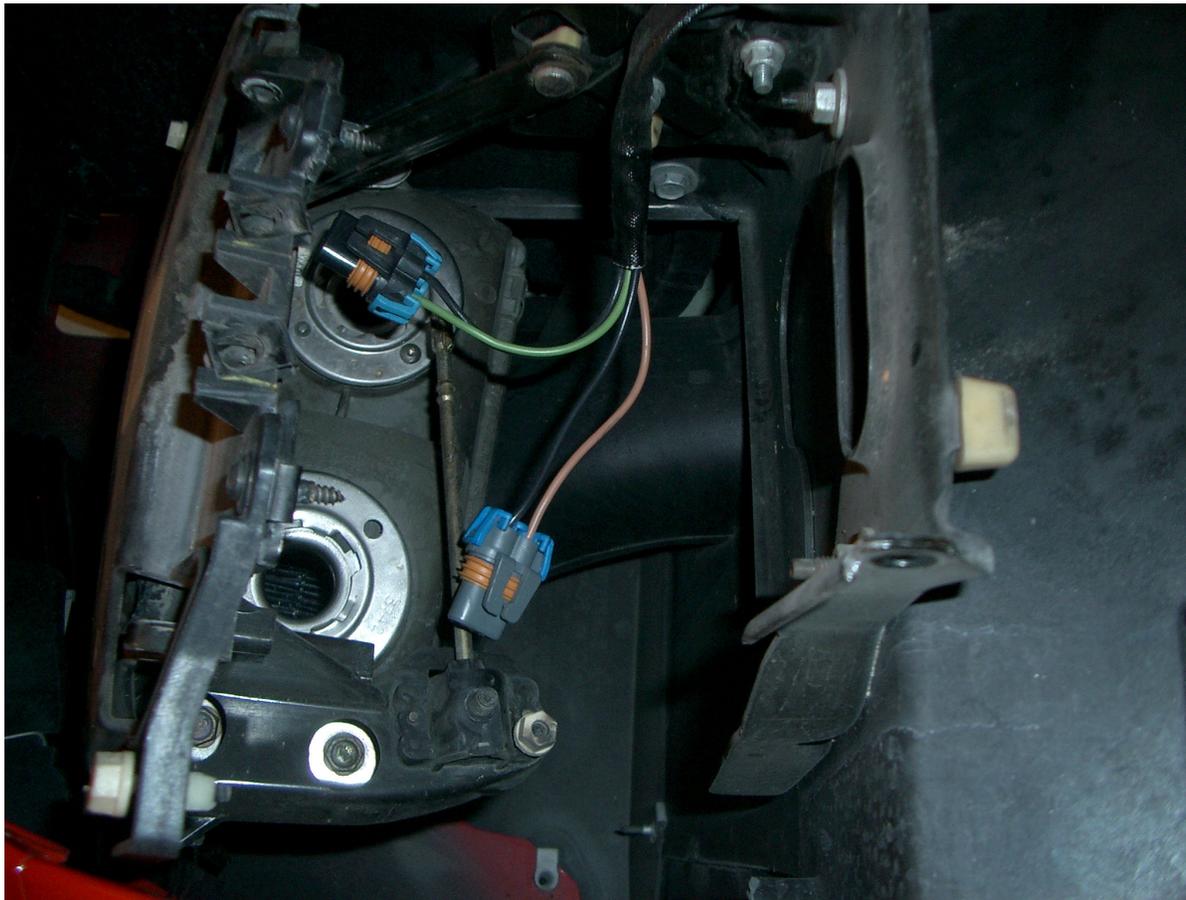
- 2) Remove the 3 Phillips head screws that hold the bucket trim piece in place, then remove the trim. 1 screw faces the outside, the other 2 face the inside.

- 3) Remove the 4 torx 15 screws that hold the headlight cover on. There is one screw on each side of the cover and 2 on the back. You'll need to lower the headlight to access the rear screws. Once the screws are removed, gently lift the headlight cover from the front inner corner and it should come off easily. Be sure not to drop any u-nuts.

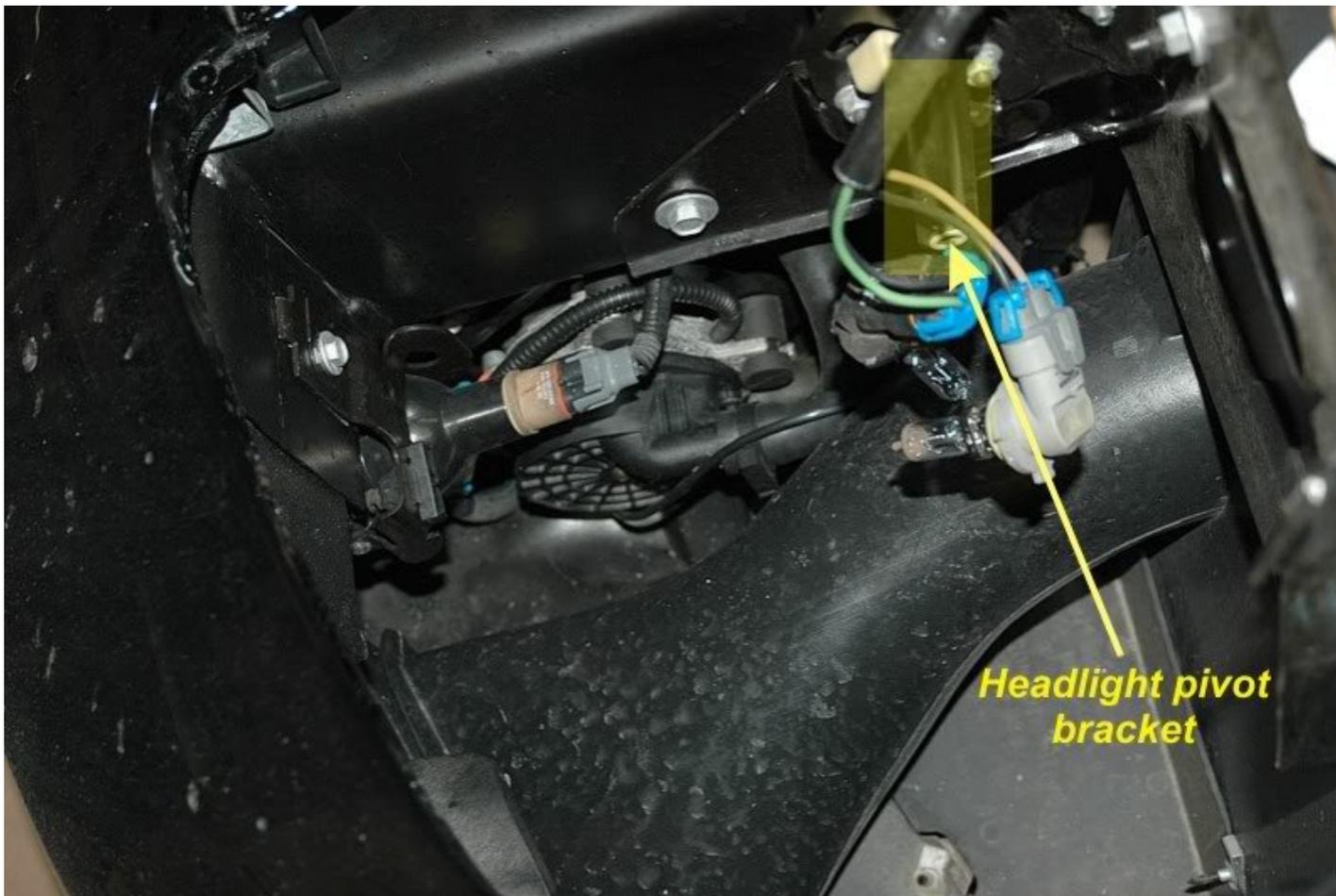
4) You'll see 2 bolts that serve as the hinge for the headlight frame. Remove these bolts with your Torx 20 screwdriver and 8mm wrench. If you've never taken these off before, you may need to use loosening agent and/or vice grips to hold the Torx 20 screwdriver in place.



- 5) Once the hinge bolts have been removed, Gently lower the headlight housing into the headlight cove. Disconnect the headlight sockets from the bulbs. **Important:** Note the wire colors. The socket with the green and black wire is the high beam and the socket with the tan and black is the low beam. For both sockets, black is ground and the color wire is positive. **You will need to know this when you install the ballasts**

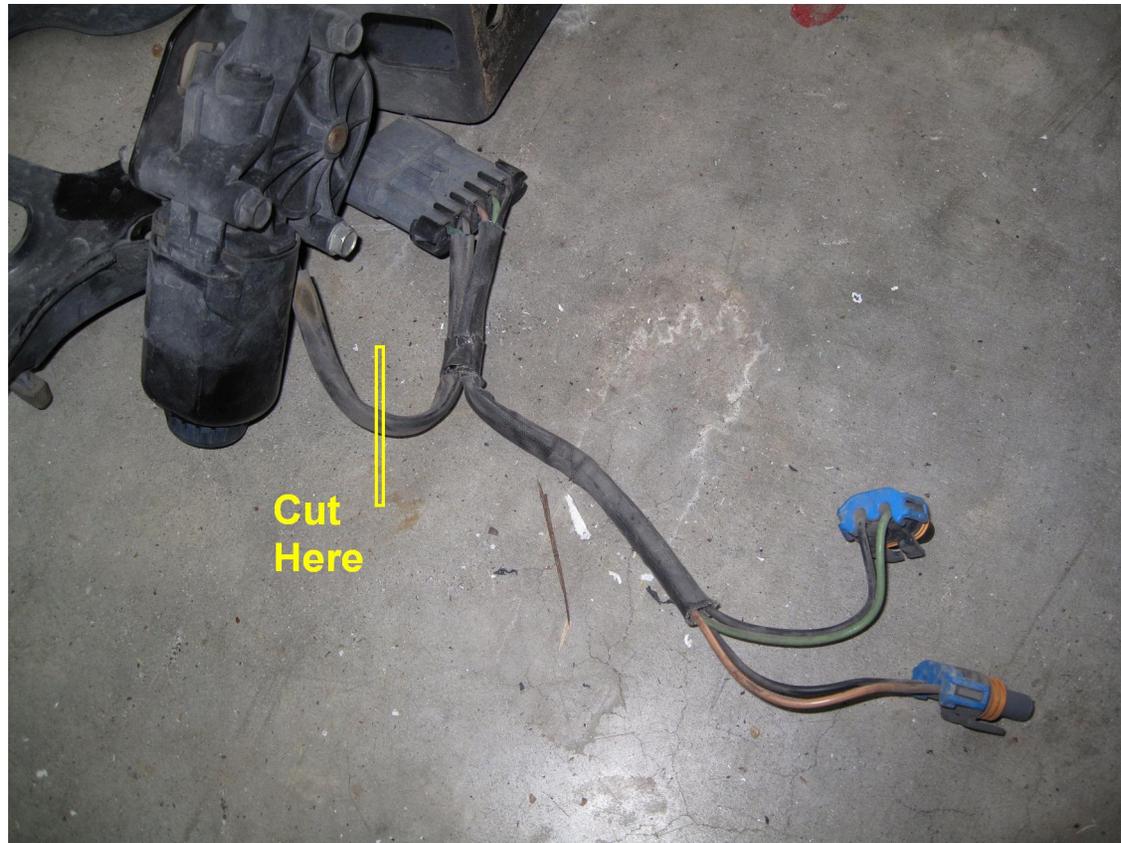


- 6) Remove the 10mm nut that holds the headlight lifting arm to the headlight lifting motor. You may need to use the flathead screwdriver to pry the arm away from the motor

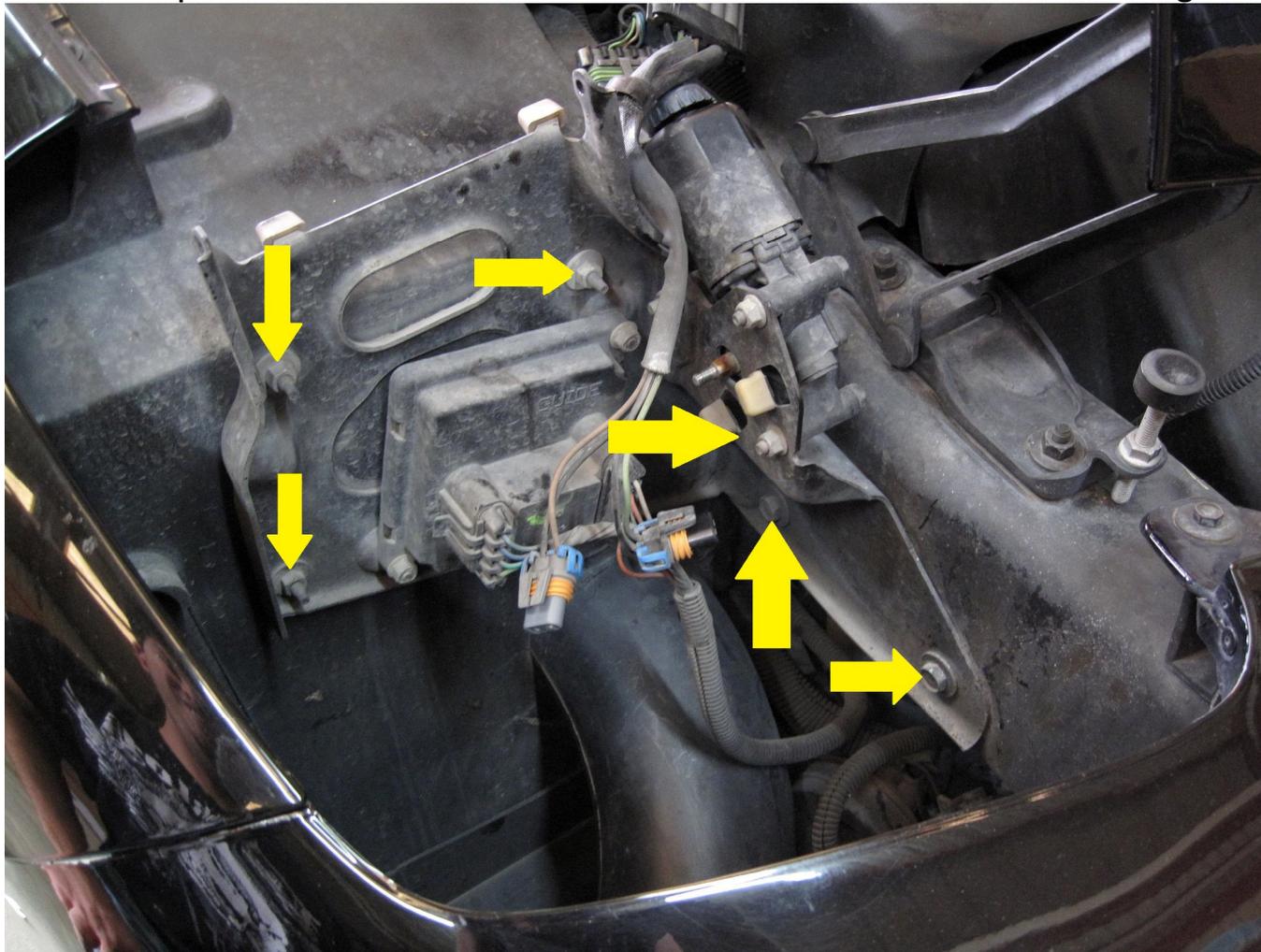


- 7) Remove the entire assembly from the vehicle.
- 8) Your headlight frame is all that should remain in the cove. You will need to cut the wires that go to the headlight motor (shown below)

(Alternatively, if you have a small screwdriver, you can remove the headlight motor pins from the on the grey connector for a cleaner look.



9) There are 6 mounting points that hold the frame in place (shown below) Three 10mm nuts on the wheel well and Three 1/2" bolts on the frame rail. Make sure to save these as they will be used to mount your new lights. Be Careful not to scratch your paint when removing the frame...the steel is not very forgiving. (note: the 4"x4" headlight control box shown here bolted to the headlight frame will be removed and the harness connectors taped off. The control box will not be reused with the new lights.



- 10) Once the Frame is removed your cove should look similar to this: (better photo of a customer's car)



Stage II: Installing your projector mounts.

Your projectors have a specially designed mounting setup that is extremely sturdy and locks once your adjustments are complete. This setup is so sturdy that it will hold the projectors aim even under the most extreme circumstances.

- 1) Each projector has 3 mounting bolts. Two on bottom and one on top (top bolt location depends on mounting location of the projector) The non-locking nut and locking washer hold the bolt to the projector while the locking nuts hold the bolt to the aluminum frame as seen in the picture.

Note: it's a good idea to install your HID bulbs now as there is the most amount of access available before the projector assembly is mounted to the car.

- 2) Once the bolts are mounted to the projector with the standard nuts and lock washers, install the first locking nut about 1 inch into the bolt.

IMPORTANT NOTE: DO NOT use a power drill to install the locking nuts. The nylon will heat up under the high speed of the drill and melt to the threads on the bolts fusing the nut to the bolt making both useless. Use a ratchet or wrench by hand to install the locking nuts.

3) You'll notice the frame has elongated mounting holes. These are designed to provide rotational adjustment of the projector to ensure a level cutoff. Insert all 3 mounting bolts into the mounting holes and secure them with the remaining locking nuts. Do not tighten them yet, you'll need to adjust them later. (note the high beam projector is mounted on the section that is more forward than the bi-xenon projector)

Projector mounted:



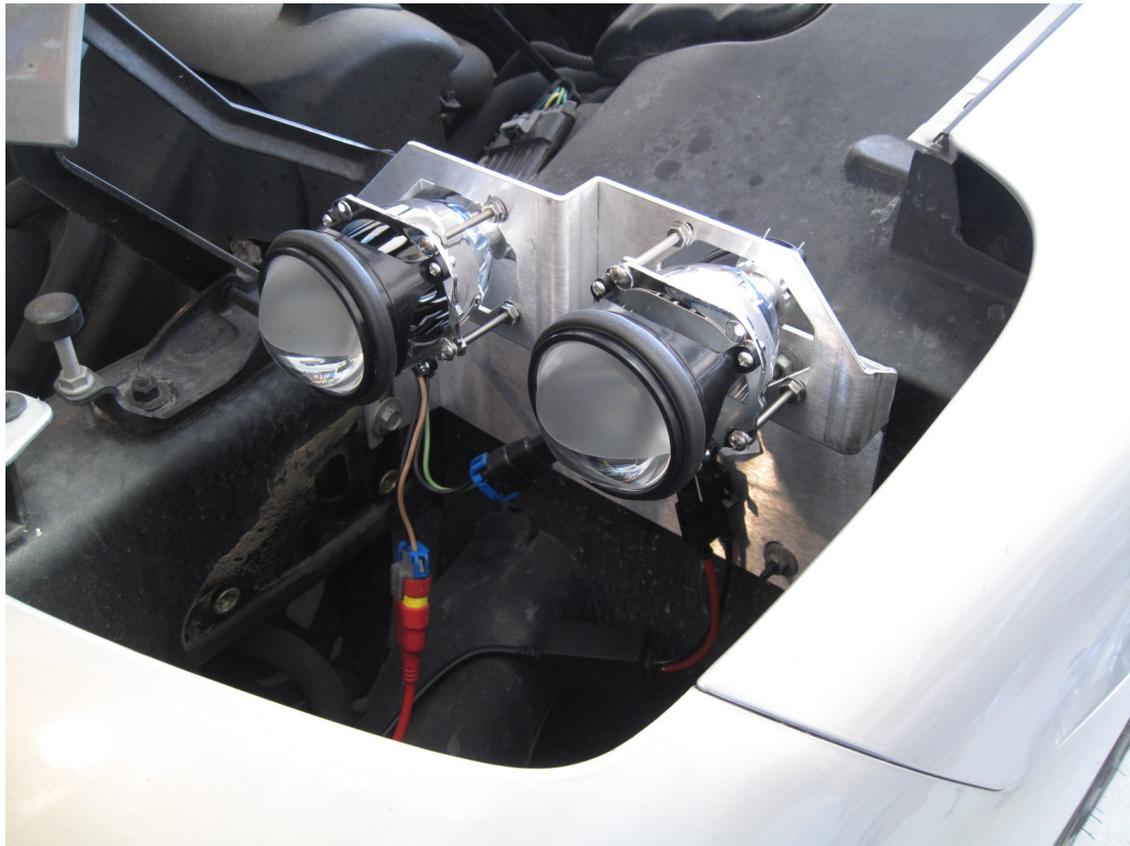
IMPORTANT NOTE:

You'll notice that two of your mounting bolts are 2.5 instead of 2 inches long. These bolts are user on the inner/lower location of the inner projector.

Stage III: Installation of your new headlights.

- 1) Install your new lights frame using your existing hardware. The mounting holes in the frame are deliberately drilled oversize to allow for adjustments.

For a starting point, I suggest mounting the frame as low as possible. First tighten the three 10mm nuts on the wheel well, then the 1/2" bolt on the frame rail 10mm nuts. This is what it should look like.



- 2) Next mount the HID

ballasts. Your kit comes with a cradle-style mount that can be installed on one of the bolts your on which your frame is mounted. Install your HID bulb in the low beam (outer) projector. Connect the bulb wires to the ballast output wires. Then connect your OEM low beam to the ballast input.

Note: Your factory low beam has Tan and Black wires, and the factory high beam has green and black wires.

IMPORTANT NOTE: GM's wiring harness is opposite the polarity of the HID ballast. As a result, you will need to install the OEM socket backwards into the ballast so that the plastic locking tab will not engage.

Your HID bulbs WILL NOT turn on unless polarity is correct

Should you feel inclined, you can wrap the socket in the ballast with electrical tape, heat shrink or a zip tie to secure the two together....though this is not necessary for functional operation since the weather packing usually provides sufficient friction to prevent the connector from coming apart on its own.

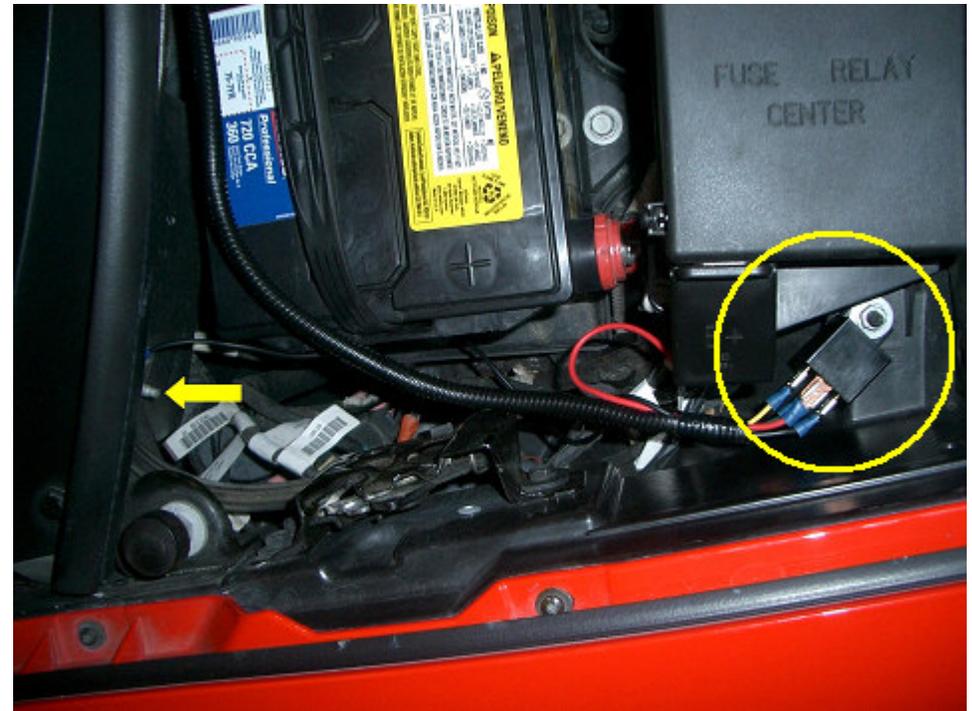
Test your low beams. If they do not light, disconnect your OEM connector from the ballast, reverse the wires it then re-connect.

3) Next, attach the OEM high beam connector to the High beam harness provided. (this harness is connected to your bi-xenon projector) Make sure the black wires line up on both sockets. You'll see a single red wire with a slide terminal on the end. This is connected to the high beam H1 bulb on the inner projector.

4) High-4 Relay installation:

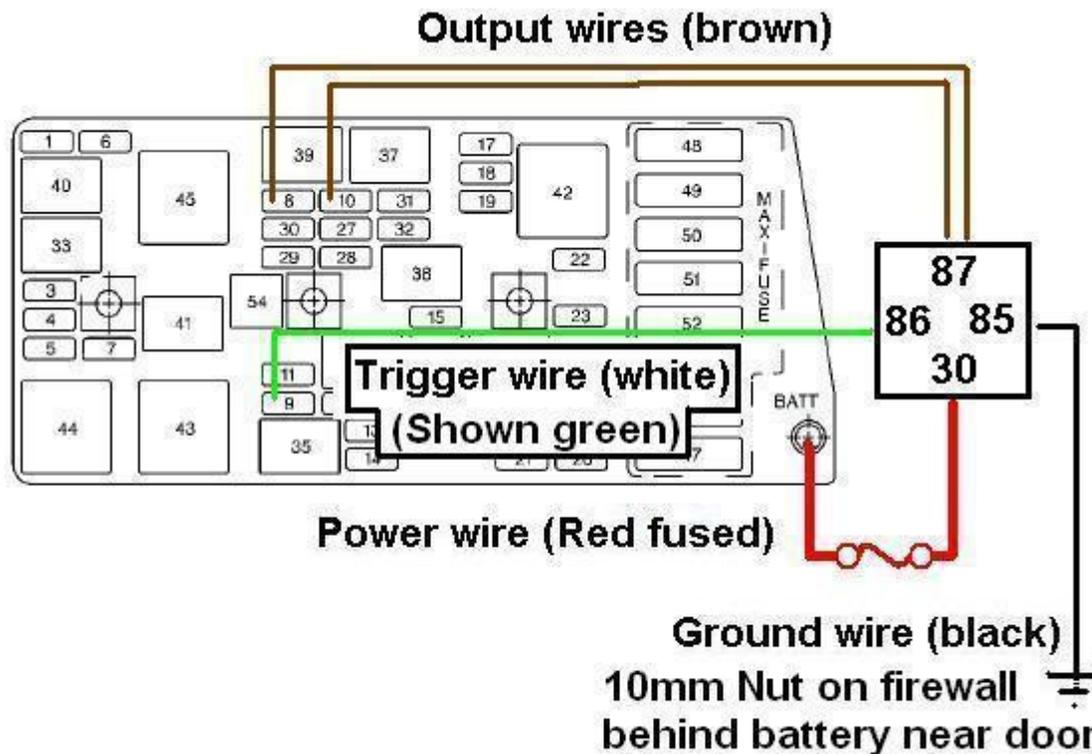
Install the relay in the location as shown (yellow circle)

- a) Attach the black ground wire to the grounding location shown by the yellow arrow. This is a 10mm nut.
- b) Remove the fuse box cover. Remove the fuse box main (B+) input terminal 1/2" nut. Attach the red wire's ring terminal to this and re-install the nut securely.
- c) With the fusebox cover off, remove one of the high beam headlight fuses and both low beam headlight fuses.



d) Install the fuse taps on the 3 fuses you removed as shown then re-insert the fuses with the taps on the side **furthest from the engine** (This is important as this allows the OEM fuse to protect the headlight circuit in Hi-4 mode)

Note, wire colors may differ



Stage III: Headlight Aiming:

Tools needed

- masking/painters tape
- measuring tape
- 10mm open end wrench
- Phillips head screwdriver (optional)

1) It's ideal to use a white or off white wall for aiming with level ground for at least 35 feet from the wall. First park your car 20-25 feet away from the wall so that the car is perpendicular to the wall itself.

Note: I would advise using a battery tender or having the car running when the lights are being aimed to as not to drain your battery.

2) Measure from the ground 24 inches. Mark this height on the wall with your masking/painters tape.

3) Turn your low beam headlights on. Your new headlights have a DOT stepped cutoff pattern that looks like this: The Left portion of each beam is deliberately lower to prevent glare to oncoming traffic while the right side is higher to allow view of obstacles on the side of the road. The “step” is where the brightest part of the pattern is which allows for long distance vision.



4) The light pattern on the wall should look like this with both lights on.



In high beam mode, your outer projectors will have a much taller pattern that looks like this: (use this as a reference for aiming your inner projector high beams.)



5) Adjustments:

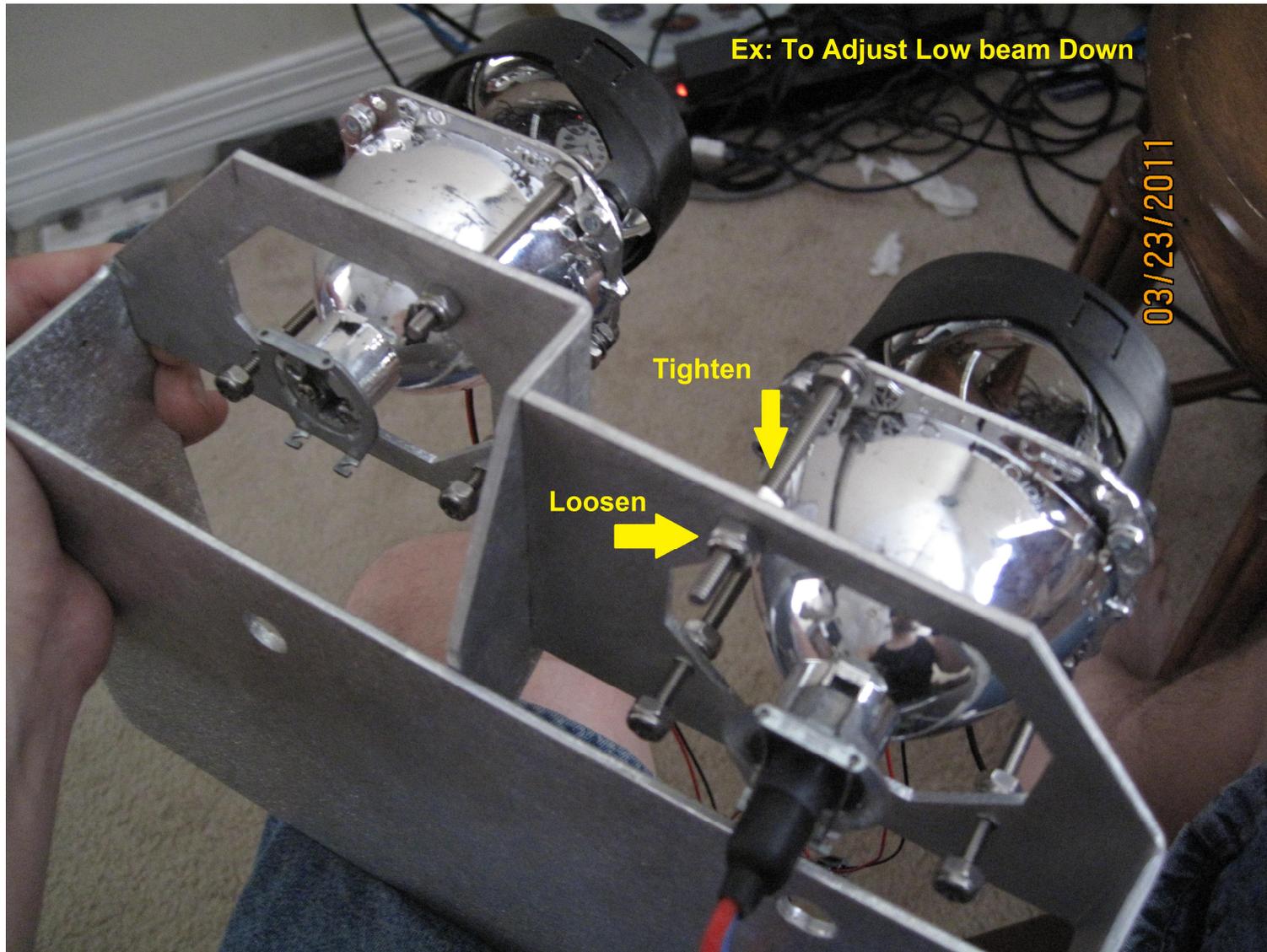
Your low beam headlights have 3 built-in adjustments to fine-tune your beam pattern: Vertical, Horizontal and rotational. All three are accomplished by adjusting the nuts on the mounting bolts of each projector. To adjust first loosen the nut on one side, then tighten on the other side.

Vertical adjustment is accomplished by adjusting the nuts on the top bolt forward or backward. When correctly adjusted, the left side of your beam should be 24" from the ground

Horizontal adjustment is accomplished by adjusting the nuts on the lower-outermost bolt. When correctly adjusted, the step should fire directly ahead. To verify this, stand behind the outer tail light. The center of the step should form an imaginary straight line down to the low beam projector.

Rotational adjustment is accomplished by loosening the bolts on the diagonal and gently twisting the projector to achieve the desired rotation. Additional rotation adjustment can be accomplished by re-mounting the entire frame. When correctly adjusted both left and right sides of the beam should be level.

Adjusting Example:



For base kits, the high beam projector simply has the cutoff shield removed. The pattern is wide and tall with a central hot spot similar to the outer projector in high beam mode. I suggest aiming the hot spot of the high beam just above the center of the low beam step: This is what the beams look like overlapped (before aiming) Rotational adjustment is not required here since the pattern is not as sensitive to proper rotational position. Adjustment is accomplished in the same manner as the low beam. (SLC V1 pattern is shown but the idea is the same



Stage IV: Shroud/Lens installation

The Lens bolts to the shroud through 3 points shown in the following picture. You will need to drill these holes with a 3/16" drill bit and use the provided #6 screws and locking nuts. This should be performed with the shroud and lens on the car to ensure the shroud and lens line up correctly when installed. Bolt the lens to the shroud vertically.

(Shroud/Lens assembly shown without fender and front bumper)



Lining up of the shroud and lens can be seen in the video in the link below

<http://www.youtube.com/watch?v=pLCy8AwwRGA>

Weather strip:

There are 4 weather strip locations on your headlights:

- 1) Around each projector (already installed with your kit)
- 2) Around the main lens
- 3) Around the back/inner side of the shroud
- 4) Around the outer edge of the shroud

The shroud and lens assembly is completely separate from the headlights themselves providing the most rigid headlight setup possible. The 1/4" thin strip will adhere to the edge of the shroud wrapping all the way around the near-vertical edges. The 3/4" strip adheres to the rear/inner tab of the shroud where the lens bolts to the shroud.



Once your lens/shroud hole have been drilled the Shroud is installed first:

- 1) Slide the shroud onto the lights from the front until it sits in place

The Shroud is held in place with your existing fender bolt and a supplied 1/4"-20 bolt and U nut. You'll need to remove your push-pin or existing bolt/nut. Since each car's body panels line up in a unique way, you will need to drill your own mounting holes in the shroud's mounting tabs. Note the position of where the bolt and screw will be on the mounting tabs using the masking/painter's tape and pen as necessary.

- 2) Remove the shroud. For the fender mount, drill a 1/4" hole and for the front bumper mount, drill a 3/8" hole. Once the holes are drilled, re-insert the shroud. **DO NOT bolt the shroud in yet.**

3) The Lens is designed with strategic mounting “tabs” that slip under the body panels to keep the lens correctly aligned.



Install the bulb-type long weather strip along the lens like so:



Slide the lens in from the rear so the front tab goes under lip of the bumper. The shroud is semi-flexible making the installation a little easier.

- 4) Once the front tab is under the bumper lip, slide the side tab under the lip of the fender. This is probably the most challenging part of the entire installation but also make the lens assembly VERY sturdy when the hood is closed.

- 5) Once the lens is secured in place. Use the supplied #6 stainless bolts and nuts to secure the lens to the shroud in the pre-drilled holes. The bolt and washer go through the top of the lens, and the shroud with the nut on the bottom under the shroud lip. (**IMPORTANT NOTE:** DO NOT over tighten the lens mounting bolts, this will cause the lens to crack and void the warranty.) Locking Needle-nose pliers may help with the front mounting bolt.

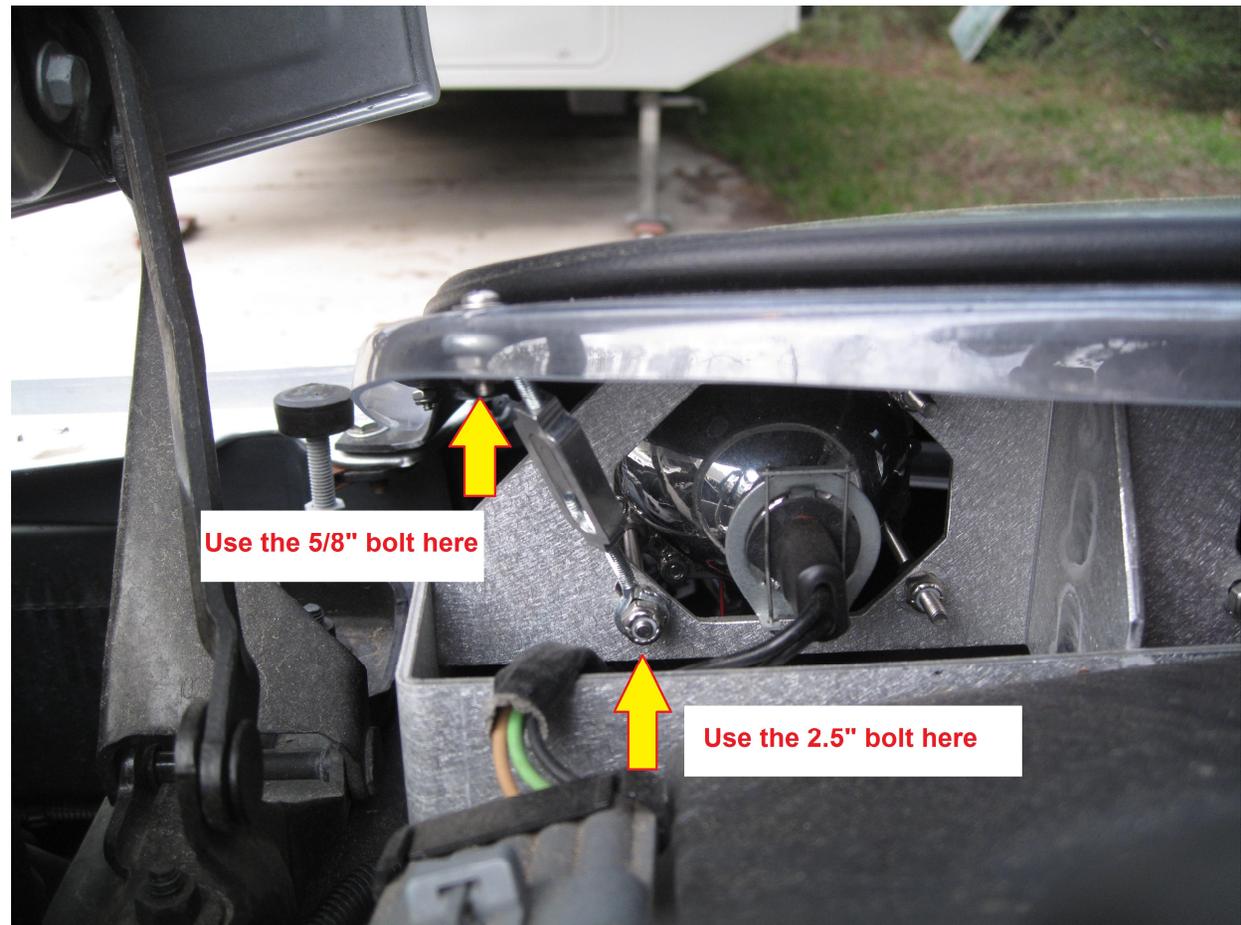
- 6) Once the lens is secured to the shroud, mount the tab to the fender first, then the other tab to the bumper.

NOTE: The tab the bolts to the fender can be mounted on top of or underneath the fender depending on which best keeps with the lines of your car.

7) Quickly check that the projectors are sitting centered in the shroud holes. If not, remove the shroud and lens then adjust the frame's mounting points until you're satisfied with the fit. (you may need to check aiming if you change the frame's mounting points)

8) Use the supplied turnbuckle to secure the middle mounting bolt on the lens/frame assembly to one of the mounting bolts on the inner projector for added strength and additional adjustment capabilities. You can use the existing nuts on the shroud/lens mounting bolt and the projector mounting bolt to hold the turnbuckle in position. Twist the center section to raise or lower the inner edge of the headlight to align with the hood.

NOTE: when checking hood clearance GENTLY close the hood in case your light is adjusted too high. **Failure to do so could result in hood damage**



9) Once satisfied with the fit, Check for all your tools then shut the hood. The end product should look like this:



OPTIONS PACKAGES:

Fog light package A: use the supplied harness to plug into your factory fog light socket. Be sure the black wires line up on both of them. Plug this into your ballast and your ballast into the back of your inner projector.

Fog light package ZO6:

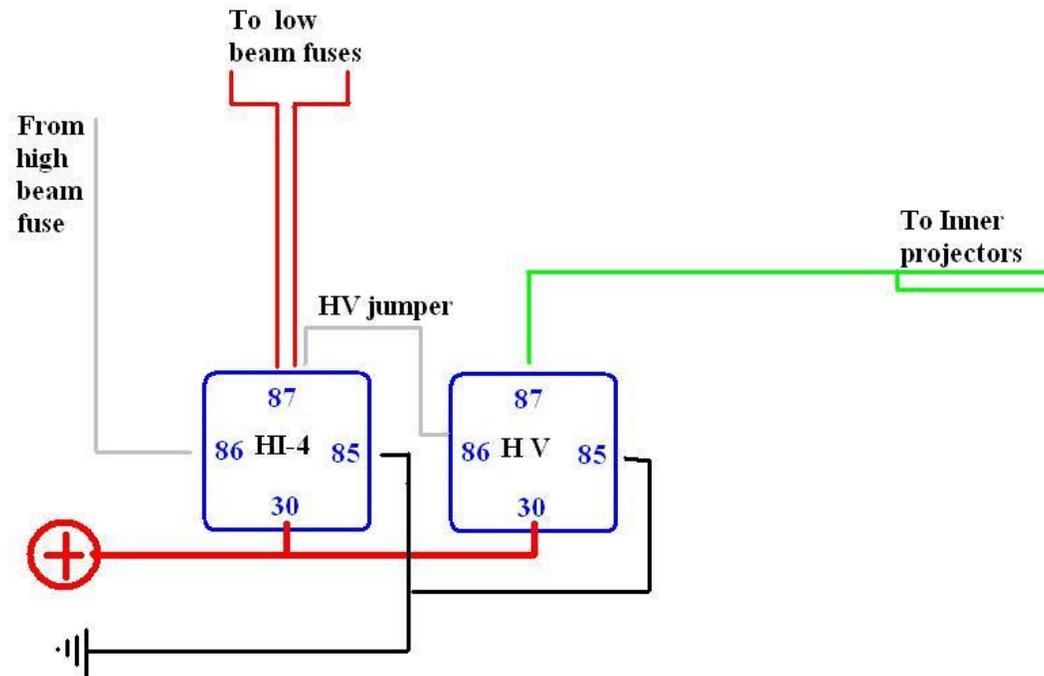
- 1) Using the supplied relay harness run the wiring along the passenger side frame rail to the passenger side headlight area, then in front of the intake to the drivers side. There is a small white wire that comes out of the fog light relay. This taps into your #6 under hood fuse which will function normally when your GM fog light switch is installed.
- 2) From this point connect the harness to the fog light ballasts in each headlight cove and connect to inner projector HID bulbs.

NOTE: Fog light projectors have been modified to have a flat cutoff pattern. They should be aimed about 2-4 inches lower than the low side of the main beam headlights.

“Hyper-vision” package:

Installation of hyper-vision harness:

- 1) install your Hi-4 harness as shown in the base kit.
- 2) Run the extended harness the same way that the ZO6 fog light harness (as described above) connect this to the ballasts that will power the inner projector HID bulbs.



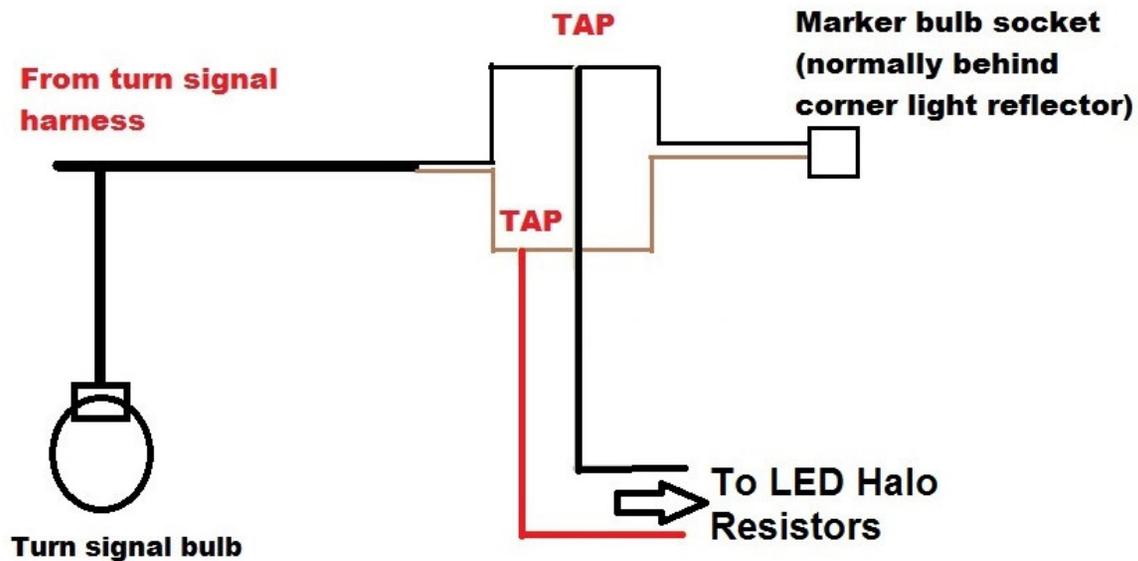
3) The high beam functions of both projectors are linked together with small gauge red/black wires that come to a connector. This connector plugs into your factory high beam socket

NOTE: Hyper-vision projectors have been modified to have a flat cutoff instead of the traditional stepped pattern. Transverse aiming is based on the location of the “hot spot” instead of the “step”. Both The projectors on one side should line up exactly overlapping each other’s beam.

Angel Eyes/Demon eyes: (minor soldering/splicing required)

1) The halos have a pigtail that comes off of them. These go to the outputs on each of the 2 transformers. The transformers have a red and black wire. The red is power and the black is ground. For DRL function, you can tap them into the turn signal high power wire. For Parking light function, tap into the 194 bulb in the corner lights.

Angel eyes/Demon eyes Installation



LED DRL strip (switchback function) Use the supplied quick splices to make the following connections:

DRL LED strip wiring:

