STARR
HID USA

XGL Headlamps
True HID Lighting

HID UPGRADE KIT
INSTRUCTION MANUAL
AND INFORMATION PACKAGE

WWW.STARRHIDUSA.COM

Limited Product Warranty

Starr HID warrants that all HGL headlamps shall be free of defects in material and/or workmanship for a period of three (3) years from the date of purchase. Any HGL headlamp that has been determined by ACA to have failed due to defective material and/or workmanship during the stated warranty period will be repaired or replaced, at ACA's option, through the servicing dealer. At the time of purchase, complete and mail the "Warranty Registration Card" on the back of this manual. Proof of purchase must accompany all warranty claims.
The following are excluded from this warranty:

- Failure due to improper installation or maintenance, modification, misuse, abuse or unauthorized repairs
- Damage to the product due to vehicle collision
- Automotive lamp bulbs which are subject to varying degrees of normal wear and tear
- Labor costs, shipping, towing or transportation charges
- Costs incurred due to loss of use of vehicle
- Incidental damage to other components

ACA Performance Inc. will not be liable for any loss, damage, incidental, consequential, or otherwise arising from the installation or use of this product. ACA Performance Inc.'s maximum liability shall not in any case exceed the purchase price of your HID Upgrade Kit. This limited warranty gives you specific legal rights. You may also have other rights that may vary from state to state.

General Warnings and Cautions

WARNING!

When installed and operational, cabling and electronic components of this kit may conduct high voltages. User must respect all high voltage warning labels and must completely disconnect the system from the battery before servicing the system.

HID lighting systems produce a large amount of intense white light. Avoid looking directly into light beam when operating.

Failure to follow these warnings may result in severe injury or death.

CAUTION!

HID lamps will become hot during operation. Allow the lamp assemblies to cool for 15 minutes before attempting to service them. Failure to do so may result in burns.

Lenses for the lamp assemblies should be kept clean and free from major light-blocking coverings. Failure to keep light path clear may cause overheating, which could cause damage to the lamp assembly. Such damage is not covered under this warranty. In addition, materials accumulated on the lens may cause excess glare.

To avoid causing excessive glare that may endanger other drivers, be sure lamps are mounted in the proper orientation as marked on the housing and lens.

Significant changes in passenger vehicle or pickup truck load may change the aim of forward lighting. If hauling heavy loads, check and re-aim the HID Upgrade Kit lamps as necessary to avoid causing excessive glare.

Use caution if installing wiring or ballasts on the front bumper as some vehicles have airbag sensors located in this area. Check vehicle owner's manual for information regarding location of sensors.

Failure to locate all HID Upgrade kit components and wiring away from moving vehicle parts may cause the HGL Headlamp kit or vehicle to fail to operate properly.

Damage caused by improper installation is not covered under this warranty.

Product Description

This HID Upgrade Kit contains the latest in forward lighting technology. Every aspect of the design has been engineered to help increase nighttime driving safety and enjoyment.

What is HID?

High Intensity Discharge (HID) lamps generate light via an electrical discharge between two electrodes. There are no filaments of the type found in standard lighting products, so HID lamps produce more light with less power and last far longer than halogen headlamps.

What makes HID Upgrade Kits special?

All HGL Headlamps provide many significant benefits such as:

- Higher color temperature (whiter) lighting. Enhancing the contrast of road debris, signs, and markers and providing better peripheral vision.
- Clean styling complements all vehicle types from sports cars to heavy-duty trucks.
- Designed to last nearly ten times longer than standard halogen products.
- Lower power consumption, which reduces the load on electrical system components.
- All HGL Headlamps meet US and Canadian legal requirements (FMVSS.108 and CMVSS.108). The HID Upgrade Kits are street-legal in all states and provinces.
- Sophisticated optical design puts more light on the road and reduces glare to oncoming drivers.

General Information

HGL Headlamp Kits are complete headlamp systems. Unlike 'retrofit' or 'adapter' packages that replace some elements of an existing headlamp system, the HID Upgrade Kits include all components except for headlamp mounting brackets that you will have on your vehicle.

DOT compliance information

All HGL Headlamp Kits are certified as complying with all applicable performance, construction and durability requirements under US Federal Motor Vehicle Safety Standard 108 and under Canadian Motor Vehicle Safety Standard 108 for a headlamp system for use in on-road vehicles in the US and Canada. Examine the lenses of the headlamps contained in your headlamp package. Note the "DOT" lens marking. This is your assurance that these headlamps, when properly installed and correctly aimed, are legal for on-road use in cars and trucks in all states, provinces and territories in the US and Canada.

IMPORTANT: In order for your vehicle to remain compliant with state, provincial and/or federal lighting laws, you must install ALL components of the HID Upgrade Kits. Do not attempt to mix components of this package with parts from any other headlamp system. Doing so may create a non-compliance with applicable regulations and requirements, and will reduce your roadway safety after dark. If replacement parts are required, use only genuine ACA components that were specifically design for this purpose.

Beam pattern information

A headlamp beam is not simple. It is not a floodlight that sprays light in all directions, nor is it merely a spot beam that concentrates light in one direction only. Headlamp beams are specifically designed to place light where it needs to go so that you can safely see at night in good and bad weather, while at the same time not blinding other road users. Proper beam pattern design is very important not only to maintain and improve your roadway safety and to protect others' roadway safety, but also to comply with state, provincial and federal forward lighting regulations. All HGL Headlamps produce a good, safe, high-performance and legally compliant beam pattern.

Unpacking and assembly information

Unpack your HGL Headlamp Kit. Follow your vehicle's owner manual to change the headlamp unit. Follow the wire diagram below, to make the appropriate connections to your existing wire harness.

HGL Headlamp Kit Types:

Type "a": HID Low and HID High beam on the same headlamp assembly (2 Headlamps per kit)
Type "b": HID Low beam and Halogen high beam on a different headlamp assembly (4 headlamps per kit) **Type "c":** HID Low beam and Halogen high beam on the same headlamp assembly (2 headlamps per kit)

Layout all of the parts so that you can have ready access to them as you assemble your headlamp package and install it in the vehicle.

2	Headlamps (For Type "a" kit)	2	Complete Wire Harnesses
4	Headlamps (For Type "b" kits)	2	Halogen bulbs (installed on Types "b" & "c")
2	Headlamps (For Type "c" kits)	2	Extra bulb-to-bulb adapter (some models)
2	HID Ballast	1	Hardware Bag
2	D1R HID Bulbs (installed)	1	Instruction Manual
2	Ballast-to-HID-Bulb cable connector	1	Notice of Equipment Compliance

Installation of the HGL Headlamps will require both mechanical placement of components, and electrical wiring of components. All components must be secured to the vehicle as directed and all wiring and splicing must be done in a good and durable manner. Use quality terminals and supplies, work carefully and ensure that none of the wiring work done in the process of installing the headlamp system will interfere with other vehicle systems or deteriorate due to vibration, corrosion, heat, or exposure to moisture or dirt, or Present a hazard to service personnel

To install the HGL Headlamps on a vehicle:

NOTE: It is recommended that a qualified service technician do the installation. Also note that some models have the HID ballast already pre-assembled into the headlamps housing. If this is the case, skip any step associated with installing the ballast and ballast-to-HID-bulb cables.

a) Take time to examine the headlamp holders and headlamp compartment on your specific vehicle to determine the best way to gain or create access and room for the wiring. It might be necessary to find or create a hole, which the Ballast-to-HID-Bulb cable connector and wiring will pass through to the rear exterior of the headlamp compartment. It is usually best to use the hole through which the old headlamp wiring passes, though you may need to enlarge it. In all cases, make sure sharp metal edges will not rub or chafe the arc capsule cable.

b) Attach each pre-assembled wiring harness to the Arc Discharge ballast. All components are plug-and-play. If you find that your OEM connectors and HGL connectors do not Plug-and-Play, call our 1-800 to find a solution for your problem. The wiring harness uses colour-coded keyed plugs and sockets for easy assembly and to ensure it can only be assembled correctly. Take a moment to examine the wiring harness. You will see a black plastic plug. There is a matching oval shape socket on the Arc Discharge ballast. Gently but firmly insert the black plug into oval shape socket until the black socket locks into place. You will also see a Ballast-to-HID-Bulb cable connector, with a black plug on one end. There is a matching rectangular shape socket on the Arc Discharge ballast. Gently but firmly insert the black plug in the end of the Ballast-to-HIDBulb cable connector into the rectangular shape until the black socket lucks into place.

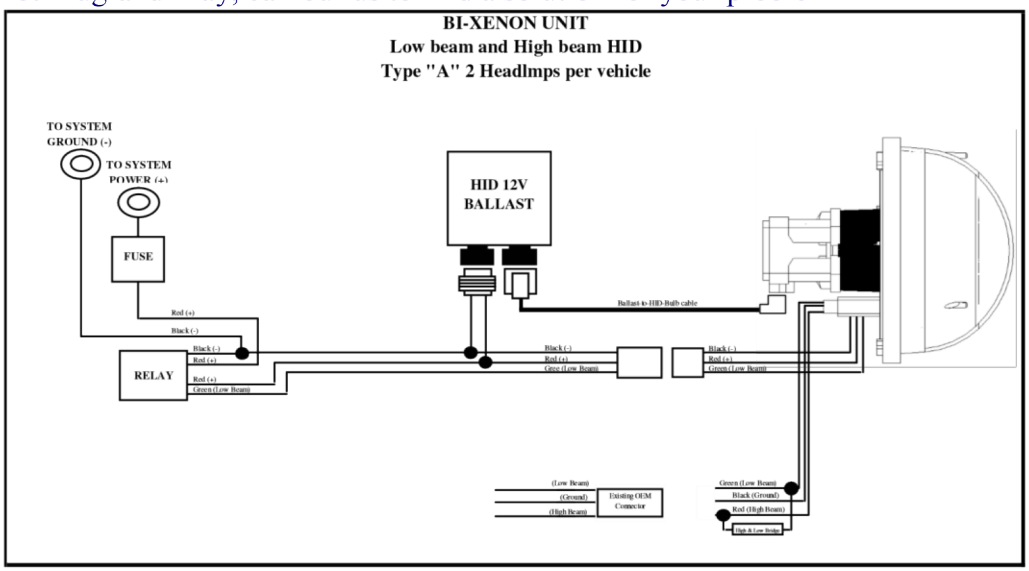
c) To connect the Arc Discharge ballast to the low beam headlamp D1S bulb, use the other end of the BallastHID-Bulb cable connector that has the black socket connected to the Arc Discharge ballast. Behind the low beam headlamp, you will find a black cube-shape cover. On the lower side of this black cube-shape cover, you will find a rectangular socket inside the cover. Insert the other end of the Ballast-to-HID-Bulb cable connector into the rectangular shape until it clicks and it's firmly connected. Make sure the black rubber gasket fits tight around the black cover.

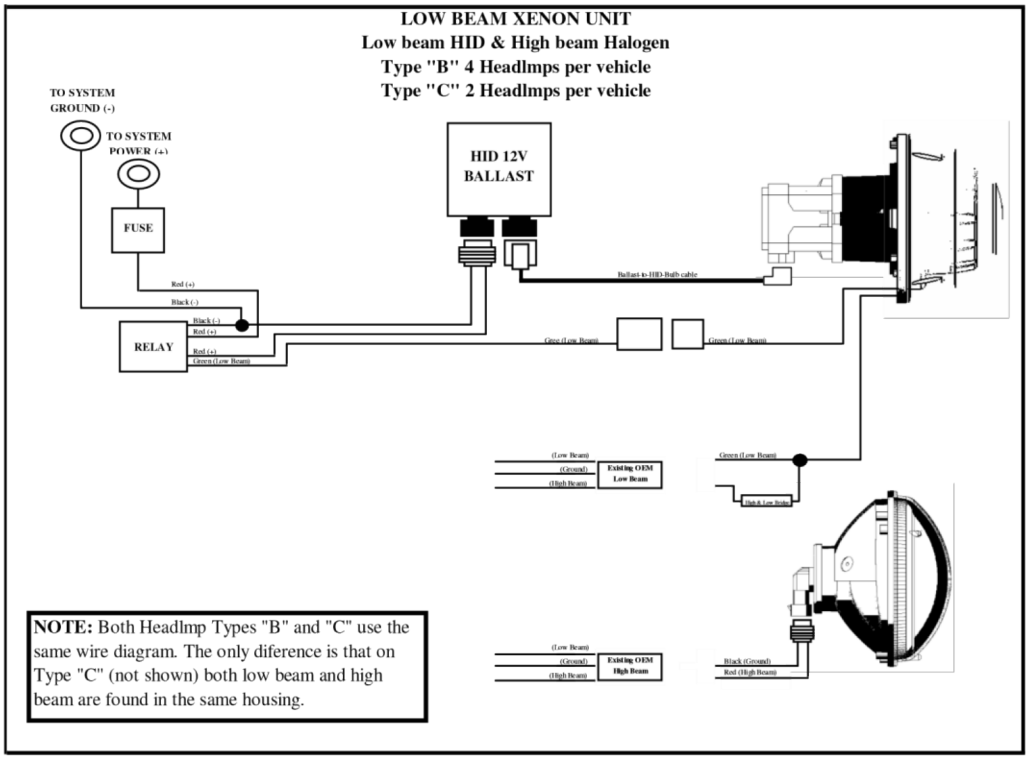
d) Install the low beam and high beam lens-reflector units in the headlamp brackets following your owner's manual. Make sure all brackets and retainer rings are in good condition. When installing Type "b" headlamps, on each side of the vehicle, the low beam must be installed in the **outer** or **upper** headlamp holder and the high beam must be installed in the **inner** or **lower** headlamp holder. Install and secure the retaining rings so that the headlamp lens-reflector units are held securely and evenly in the headlamp holders.

Connecting the HID Low beam:

1) Following the wire diagrams enclosed and using the plug-and-play bulb connector, locate the Low beam bulb connector and gently but firmly insert it into the existing OEM low beam connector. For Type “a” kits there will only be one OEM connector. For Types “b” and “c” there will be a low beam and a high beam connector.

2) All components are plug-and-play. If you find that your OEM connectors and HGL connectors do not Plug-and-Play, call our us to find a solution for your problem





To mount the Arc Discharge headlamp ballast:

a) Select a location that will be protected from road splash, excessive heat or excessive vibration, and is within reach of the headlamps, determined by the length of the Ballast/HID-Bulb cable connector and wire harness. The inner fender well or the radiator support is often a suitable location. **DO NOT** attempt to increase the length of any portion of the cable connected to the ballast or D1R HID Bulb! Secure the ARC Discharge ballast using the mounting tabs.

b) If you are installing any HGL Headlamps on an application that will involve severe vibration, utilize appropriate anti-shock mounting hardware to reduce vibrations reaching the ballast.

c) Examine the wiring harness that is connected to the ballast. Utilizing the tab on the relay, mount this relay and plug to a location convenient to a constant (non-ignition-controlled, non-switched) 12V source, such as the battery terminals or the charging terminals and a suitable ground.

d) The red wire with the ring terminal must get connected to an unswitched, non-ignition-controlled +12V feed, such as the +Positive battery terminal or the +Positive-charging terminal. The black wire with the ring terminal must be connected to an unswitched, non-ignition-controlled ground, such as the negative battery terminal, the negative charging terminal, or the alternator housing.

GREEN TRIGGER WIRE:

The single green wire switches the HGL Headlamps on or off. It must be wired in one of several ways to operate correctly.

1.- VEHICLES WITHOUT DAYLIGHT RUNNING LIGHTS and
VEHICLES WITH DAYLIGHT RUNNING LIGHTS THAT OPERATE THE TURN SIGNAL BULBS FULL-TIME:

Connect the plug-and-play harness connector to the mating connector on the headlamps. This is wire to the lowbeam feed wire on each side of the vehicle. This is the wire that receives 12V power when the low beam headlamps are switched on.

2.-VEHICLES WITH DAYLIGHT RUNNING LIGHTS THAT OPERATE THE HEADLAMPS FULLTIME:

Vehicles on which the headlamps also serve as Daylight Running Lights (DRLs) require special wiring to permit proper operation of the HGL Headlamps while maintaining a safe and legally-compliant DRL function. First, determine what type of DRL operation is used on your vehicle. With no headlamps installed on your vehicle, perform the following sequence of tests to determine what kind of DRL system your vehicle uses, and how to wire the HID headlamp system appropriately.

1) Find the vehicle low beam feed wire on one side of the vehicle. This is the wire that receives 12V power when the low beam headlamps are switched on.

2) Place a voltmeter between the low-beam headlamp feed and ground. Switch-on the low beam headlamps. Measure and record the voltage. Switch off the low beam headlamps.

3) With the voltmeter still between the low-beam headlamp feed and ground, and the low beam headlamps switched off, activate the DRLs. Depending upon the type of DRL system, this may involve starting the vehicle, releasing the parking brake, and/or placing the vehicle in a forward gear range. **USE CAUTION when performing a voltage check on a running vehicle!** Measure and record the voltage. Switch off the low beam headlamps.

4) Compare the voltage reading obtained in step 2 with the voltage reading obtained in step 3.

If the voltage obtained in step 2 matches the voltage obtained in step 3: Your vehicle is equipped with fullvoltage low-beam DRLs. Use the plug-and-play wire harness connector and connected to the maitin connector on the headlamps to connect the green wire to the low-beam feed wire on each side of the vehicle.

If the voltage obtained in step 2 is higher than the voltage obtained in step 3: Your vehicle is equipped with reduced-voltage low-beam DRLs. Connect the green wire to an ignition-switched source of +12V.

HOW TO SELECT an ignition-switched source of +12V

The ignition switch in your vehicle controls many circuits. An ignition-switched source is a circuit that receives +12V when the ignition is in the "RUN" position, but not in the "ACCESSORY" or "OFF" position of the ignition switch. It may be helpful to consult the vehicle wiring diagram to locate and select such a circuit.

If the voltage obtained in step 3 is zero volts: Your DRL system does not use low beam headlamps. Proceed to the next test:

1) Locate the vehicle's high-beam feed wire (the wire that receives 12V power when the high beam headlamps are switched on).

2) Place a voltmeter between the high-beam headlamp feed and ground. Switch-on the high beam headlamps. Measure and record the voltage. Switch off the high beam headlamps.

3) With the voltmeter still between the high-beam headlamp feed and ground, and the high beam headlamps switched off, activate the DRLs. Depending upon the type of DRL system, this may involve starting the vehicle, releasing the parking brake, and/or placing the vehicle in a forward gear range. **USE CAUTION when performing a voltage check on a running vehicle!** Measure and record the voltage. Switch off the high beam headlamps.

4) Compare the voltage reading obtained in step 2 with the voltage reading obtained in step 3.

If the voltage obtained in step 2 matches the voltage obtained in step 3: You performed the test improperly, or there is a vehicle-wiring fault. High beam headlamps are never run at full voltage as DRLs.

If the voltage obtained in step 2 is higher than the voltage obtained in step 3: Your vehicle is equipped with reduced-voltage high-beam DRLs. This DRL type is not compatible with the HID headlamp system, so DRL operation must be moved to the low beam headlamps. Connect the green wire to an ignition-switched source of +12V. **You will need to disable the high-beam DRL circuitry of the vehicle by disconnecting, removing or deactivating the vehicle's DRL module. Consult the vehicle service manual and wiring diagrams.**

If the voltage obtained in step 3 is zero volts: Your DRL system does not use high beam headlamps, or your vehicle does not have DRLs. Refer to vehicle service manual for a description of the DRL system on your vehicle, if applicable.

UNDER NO CIRCUMSTANCE should you hook the HID headlamp system to anything but a full-voltage source. Connecting to a reduced-voltage source will not reduce the intensity of the headlamps and will damage system components.

Connecting the halogen high-beam (for headlamps types "b" and "c" only)

1) Following the wire diagrams enclosed and using the plug-and-play bulb connector, locate the High beam bulb connector and gently but firmly insert it into the existing OEM High beam connector. For Type "a" kits the high beam will be already install on the low beam connector. For Types "b" and "c" there will be a low beam and a high beam connector.

2) All components are plug-and-play. If you find that your OEM connectors and HGL connectors do not Plug-and-Play, call our 1-800 to find a solution for your problem

High-beam bridge

All HGL Headlamp Kits are designed for the low beam headlamps to remain on when the high beams are selected. The high-beam lamps provide long-distance, down-the-road throw needed for driving on dark, empty roads at night, while the low beam lamps provide the near and midrange illumination. The high-beam bridge is pre-installed on the headlamp connectors to allow the lamps to function in this manner.

Aim information

ATTENTION: ALL HEADLAMPS are **DANGEROUS** and **INEFFECTIVE** if they are not aimed properly. Improper aim robs your headlamps of their ability to shine light where you need it in order to see your way through the night, and, especially with high-performance headlamps such as these, also creates blinding glare for other road users. Improper aim can also be cause for a police officer to issue you a citation. It is **very important** and **very worthwhile** for you to have your headlamps aimed properly. In order to aim your HGL Headlamps correctly, you must be sure to do it properly. We strongly recommend taking your vehicle to a professional that have the

proper tools. Follow the instructions supplied by the headlamp aimer manufacturer regarding vehicle condition (fuel load, tire inflation, vehicle load, etc.) and correct operation of the aimer.

Aiming the Headlamps

Our DOT compliant headlamps will be effective only if they are aimed properly. Aiming is as important as having properly design DOT compliant headlamps. Improperly aimed headlamps are dangerous and illegal.

Following the OEM headlamp design it upgrades, each one of our Headlamp models uses a different aiming procedure, (either Visual Optical Aim or Mechanical Aim). We strongly recommend that you use a professional shop that can certify that your headlamps are aimed properly. When the following instructions are performed properly, they offer a safe way to aim your headlamps for maximum performance and no glare to oncoming traffic.

Please note that the instructions below can NOT be used on any other mechanically aimed headlamps that are not manufactured by HGL. Our Mechanical Aim headlamps can be aimed visually only because we use our HID low beam projector that has the correct cut-off needed to allow Visual Optical Aiming. Other headlamps were designed to be aimed with mechanical aim only and can NOT be aimed visually.

Be sure to properly identify which headlamp system you are aiming:

Type A: 2 Headlamps per vehicle were the High beam is fixed on the Low beam sharing the same housing
Type B: 4 Headlamps per vehicle were the High beam is separated from the Low beam on different housings
Type C: 2 Headlamps per vehicle were the High beam is separated from the Low beam sharing the same housing

1. Your vehicle must have an average travelling load. This means to have the average travelling weight on the trunk, passengers and fuel.

2. Tires should have the correct pressure.

3. Make sure the suspension is on a standard mode.

4. Find a level location were you have a straight vertical wall. Make sure you have enough level space to drive your car backward up to 25 feet. This wall would be your aiming screen.

5. Drive your car up to the wall.

6. Using a marker, mark on your screen the center of each headlamp. All our headlamps have a small circle on the lens to show were the center is. Mark with the letter “L” the center for each low beam and mark with the letter “H’ the center for each high beam. Be sure the centers are marked clearly and as accurately as possible. If you have a Type A headlamp, you will have 2 marks only (Low/High beam together) and if you have a Type B or C headlamp, you will have 4 marks (Low and High beam separately).

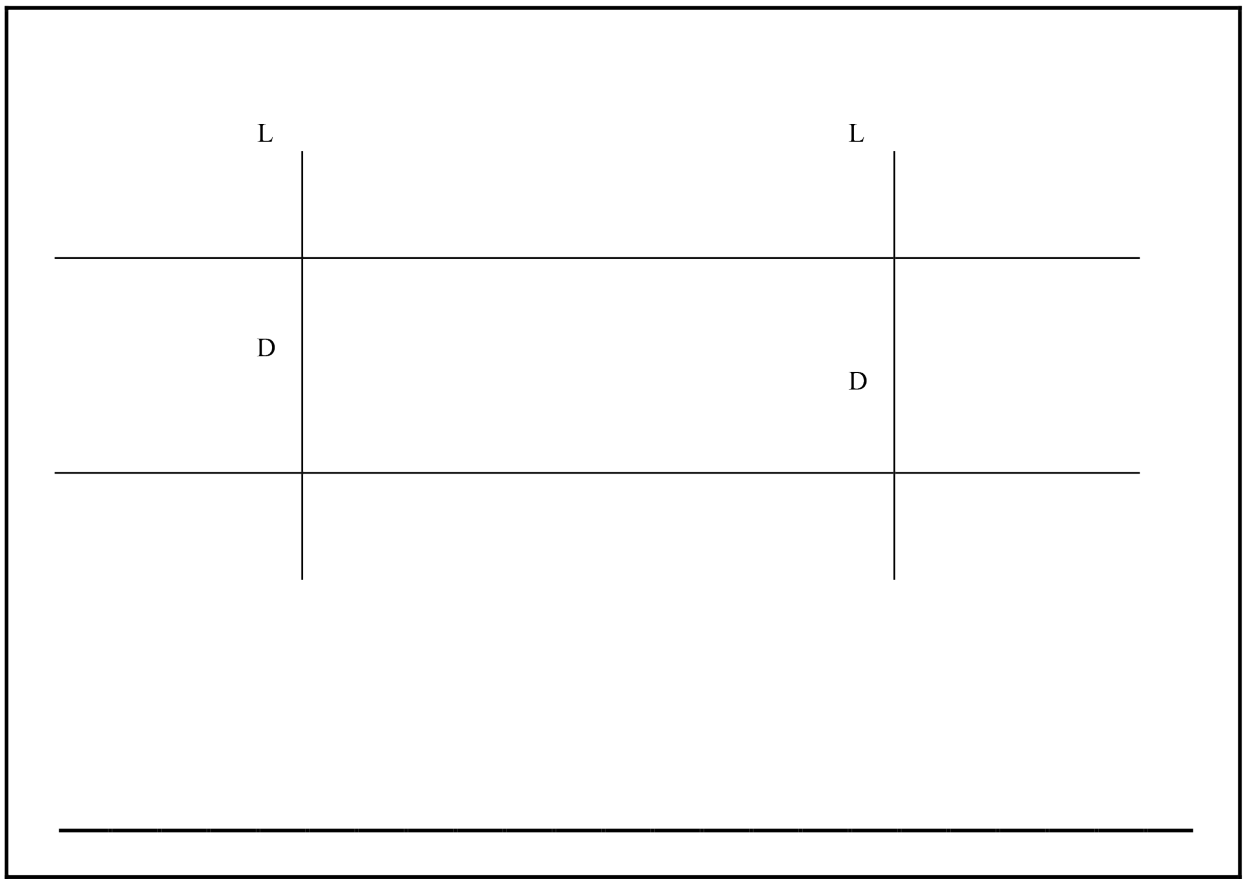
7. Drive your car straight backward to exactly 25 feet. Use a measuring tape and measure the distance on each side (left and right) of the car to be sure that the car is straight backwards from the wall.

8. Using the marker, draw a Vertical line downward on each one of the 2 “L” center marks, to exactly 2.5” long. We will call this mark “D” on each side.

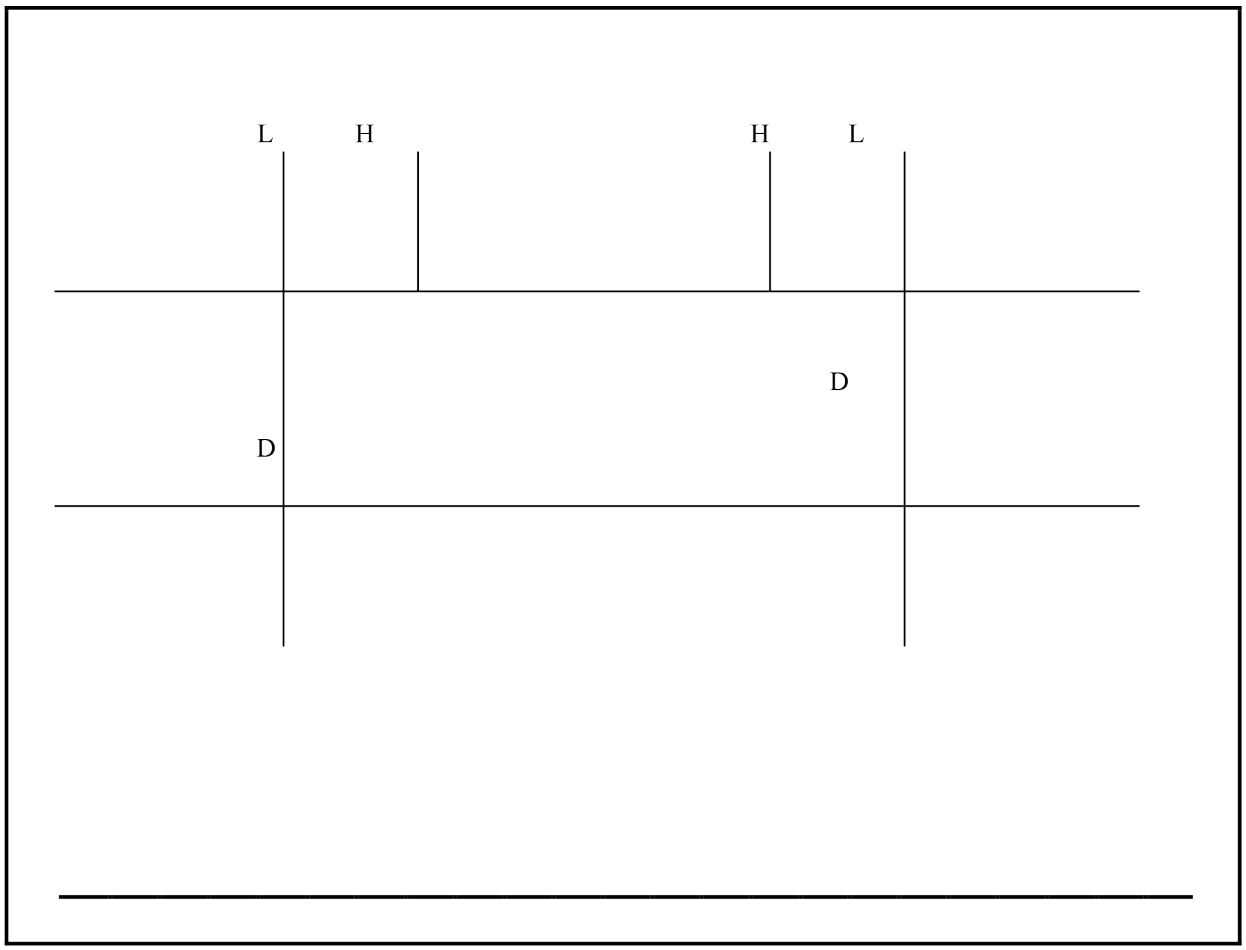
9. Using the marker, draw a horizontal line between the 2 “L” center marks. We will call this line “L-L”.

10. Using the marker, draw a horizontal line between the 2 “D” marks. We will call this line “D-D”.

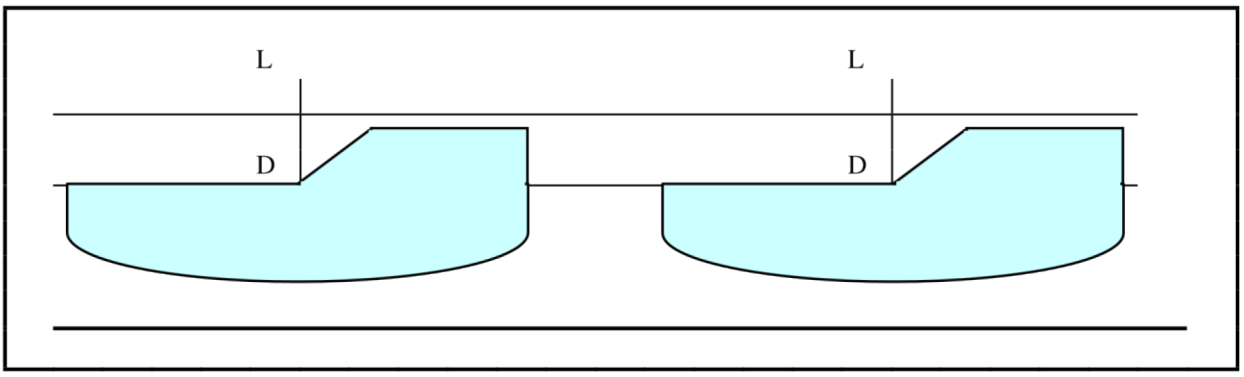
11. Extend each vertical and horizontal line on each point at least 6” from each mark to allow better reference when aiming. For Type A headlamps your screen should look like this:



12. If you have a Type B or C headlamp system, Using your marker, draw a vertical line on each “H” line at least 4” long (2 over and 2 under the “L-L” line) For a Type B or C headlamps your screen should look like this:

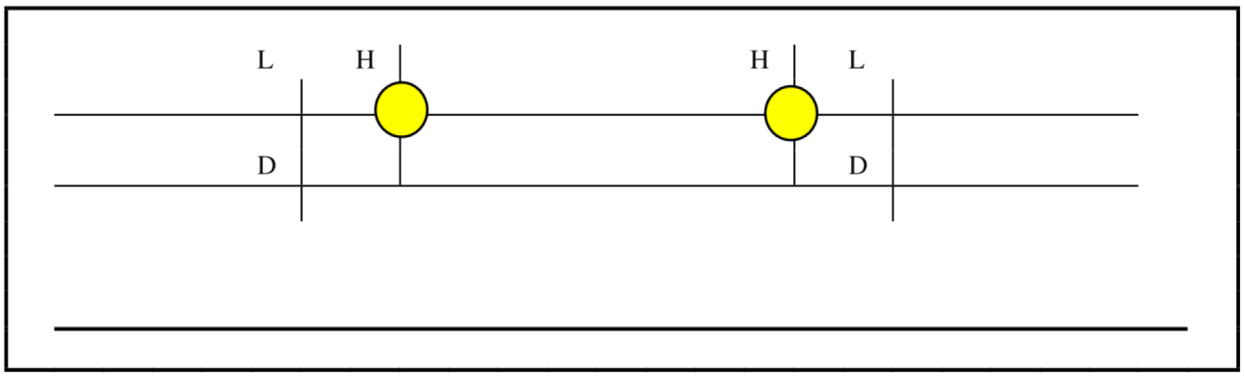


13. Using the aiming mechanism on each headlamp, move the beam pattern cut off of the headlamp vertically on line "D-D" and to the center of point "D" right in front of each headlamp. The cut off is the distinctive line were the light starts to go up rightwards. This is how the beam pattern should look on your screen.



14. If you are aiming a Type A headlamp (low/high beam), do NOT aim the high beam because the headlamp type was designed to have the High beam aimed correctly once the Low beam is aimed.

15. If you are aiming a Type B or C headlamp. Using the aiming mechanism on each high beam headlamp, move the hot spot on the beam pattern to the center of point "B" right in front of each headlamp. The hot spot of the beam pattern is the distinctive bright area in the center of the light. This is how the beam pattern should look on your screen.



NOTES:
Be sure the wall is vertical in reference to the ground.
Make sure the ground is level.
Make sure the car is straight backwards in reference to the wall.
Make sure all your measurements are clear and centered..
Work on one headlamp at a time. Unplug the light that is not being aligned to achieve accuracy.

Maintenance

Headlamp aim should be checked and, if necessary, corrected on a regular schedule, especially in high-vibration or high-mileage applications. Remember that headlamp aim is normally checked upon replacing a burnt-out headlamp. However, your HGL Headlamps will last many times longer than conventional headlamps, so it is important to remember to check the aim frequently.

No routine maintenance is required. Headlamp lenses should be cleaned with plenty of clean water and soap. The polycarbonate lenses on your HGL headlamps are designed to withstand most standard cleaning chemicals.

It is strongly recommended that copies of these instructions be kept with the vehicle service manual, should the headlamp system require service at a future date. It is also recommended that copies of these instructions be kept in the vehicle at all times, should the headlamp system require service in a location other than that where it was originally installed.

HeadlightRevolution
Minnesota USA
sales@HeadlightRevolution.com

WARRANTY REGISTRATION CARD

Please complete the following information and mail this card to the above address to activate your HID Upgrade Kit warranty.

Name: _____ email: _____

Address _____ Age: _____under 21 _____21-35 _____36-45

_____ _____ 46-55 _____51-65 _____60+

City _____ Prov/State _____ Why did you buy this product? (check primary reason)

Postal/Zip Code _____ Country _____ _____Enhance night time safety _____Enhance vehicle look

HID Upgrade kit P/N _____ _____HID Light Color _____ Price ____ Friend's Advice

Date of Purchase _____ How did you hear about these HID Upgrade Kit?

Where Purchased _____ _____ Magazine Ad _____ Retail store ____ Direct mail

Vehicle Make _____ _____ Trade Show _____ Friend _____ Saw on Vehicle

Vehicle Model _____ Year _____ Website (which?) _____

Comments _____

Warranty claims will require proof of Purchase at time of claim. Please retain your sales receipt.

This Certificate verifies that the products enclosed have been tested by an accredited laboratory and have been found to be in compliance with the jurisdictional standards listed below.

FMVSS108
CMVSS108