

WHELEN[®]

ENGINEERING COMPANY INC.

51 Winthrop Road
Chester, Connecticut 06412-0684
Phone: (860) 526-9504
Fax: (860) 526-4078
Internet: www.whelen.com
Sales e-mail: autosale@whelen.com
Canadian Sales e-mail: canadiansales@whelen.com
Customer Service e-mail: custserv@whelen.com

Installation Guide: Hi-Way™ Riser Lightbar Series

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. **PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.**

Warnings to Users

Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.

Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**
- **Failure to use specified installation parts and/or hardware will void the product warranty.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).**
- **If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.**
- **Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

Strap Mounting:

1. Place the lightbar onto the vehicle. Position the lightbar as shown, an equal distance from the windshield and centered side to side so it is centered over the "B" Pillars (Fig. 1)
2. Set mounting feet as wide as possible on roof (Fig. 2).

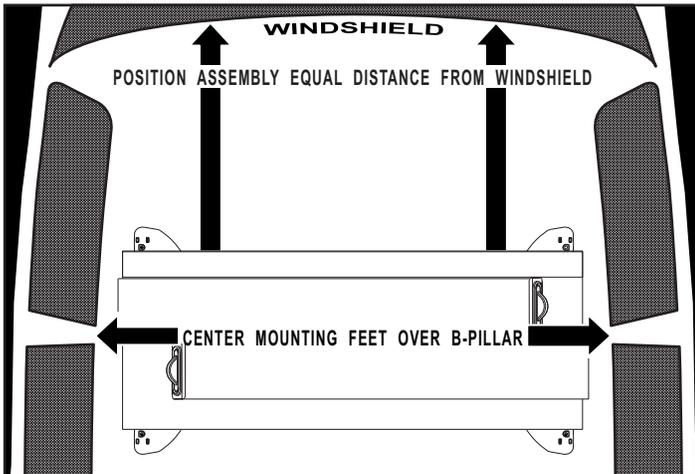
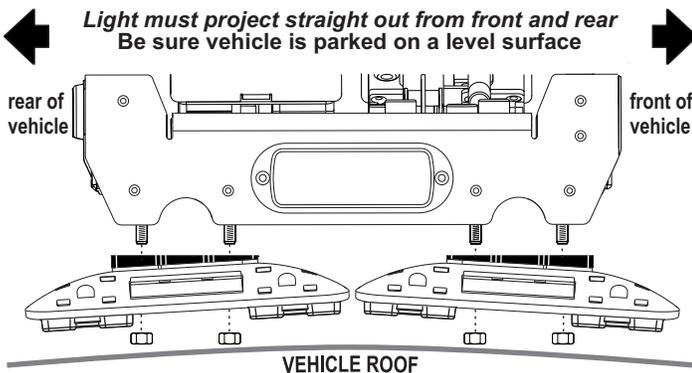


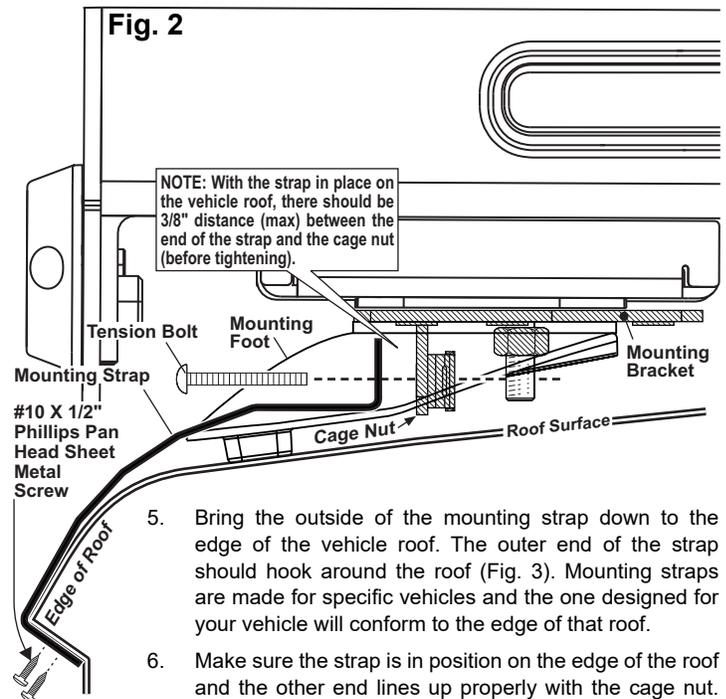
Fig. 1

3. **Installing Spacers:** Spacers are used as required to make the lightbar level with the road so that the light does not project up or down when viewed from the front or rear of the vehicle. Each spacer creates a 2° incline. **IMPORTANT: All mounting pads on all four mounting feet must engage the vehicle roof completely and sit flat on the roof.**



Lightbar angle: With the lightbar on the vehicle roof in its exact mounting location, use a level to check the angle of the lightbar. If, because of the curvature of the vehicle roof the front and rear lights project up or down, you will need to install one of the supplied spacers. Note the angle of the tilt to determine where to place the spacer. **Installation:** Remove mounting feet (not bracket) and install the spacer (maximum 1 per mounting foot) then reinstall the feet.

4. Make sure the lightbar is still in position on the vehicle, slide the end of the mounting strap (*with the single hole*) into the mounting foot as shown and loosely secure it to the foot with the tension bolt (Fig. 3). **NOTE: When the opposite end of the strap (which mounts to the vehicle) is in its mounting position (on the edge of the roof) the end of the strap going to the foot should be no more than 3/8" from the cage nut it mounts to. If the distance from the strap to the cage nut is greater than 3/8", remove the lightbar from the vehicle and move both mounting feet the necessary distance to correct this before doing step 5.**



5. Bring the outside of the mounting strap down to the edge of the vehicle roof. The outer end of the strap should hook around the roof (Fig. 3). Mounting straps are made for specific vehicles and the one designed for your vehicle will conform to the edge of that roof.
6. Make sure the strap is in position on the edge of the roof and the other end lines up properly with the cage nut. Drill two holes for a #10 screw through the two mounting holes in the strap and secure the strap with the two #10 X 1/2" Phillips Pan Head Sheet Metal Screws.
7. Tighten tension bolt to 14-16 In. Lbs. to secure the foot to the vehicle.
8. Repeat for all four mounting feet and installation is complete.

Permanent mounting:

Before beginning installation park the vehicle on a level surface. **IMPORTANT!** The lightbar should be located a minimum of 16" from any radio antennas!

Retrofit Installation:

If replacing an existing Hi-Way™ Riser Series Lightbar, install the new lightbar mounting feet as shown



here. When positioned as shown, the mounting holes from the new lightbar will match the footprint of the lightbar you are replacing. Adjust as necessary so the lightbar sits properly on the vehicle and add spacers if necessary (See below). Make sure mounting hardware is tightened to 14 In. Lbs.

New Installation:

1. Remove headliner from vehicle. (See vehicle owners manual)
2. Place the light assembly onto the vehicle roof. The mounting feet must be centered over the vehicle "B" pillars (Fig. 1). Make sure the unit is centered side to side on the vehicle roof and equal distance from the top of the windshield.

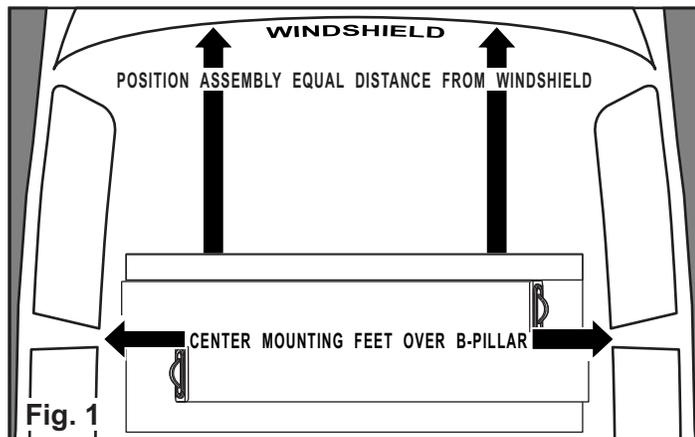
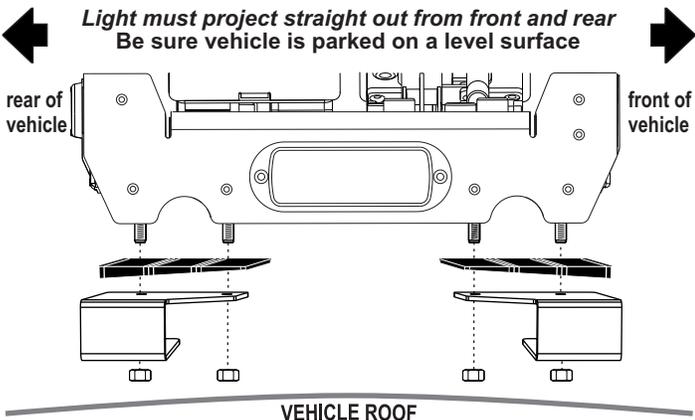


Fig. 1

NOTE: The mounting feet can be adjusted inward and outward a small amount. If the mounting feet do not sit properly on your vehicle, loosen the foot's mounting bolts, adjust the feet so they sit properly then retighten the bolts firmly.

3. **Installing Spacers:** Spacers are used to make the lightbar level with the road so that the light does not project up or down when viewed from the front or rear of the vehicle. Each spacer creates a 2° incline. **IMPORTANT:** All mounting pads on all four mounting feet must engage the vehicle roof completely and sit flat on the roof.



Lightbar angle: Place the lightbar onto the vehicle roof in its exact mounting location and use a level to check the angle of the lightbar. If because of the curvature of the vehicle roof the front and rear lights project up or down, you will need to install one of the supplied spacers. Note the angle of the tilt to determine where to place the spacer. **Installation:** Remove the mounting feet (not bracket) and install the spacer (maximum 1 per side) then reinstall the feet and tighten to 14 In. Lbs.

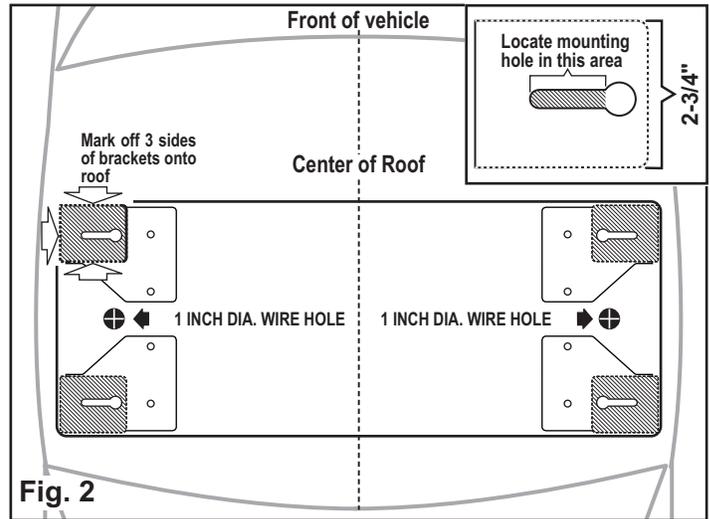
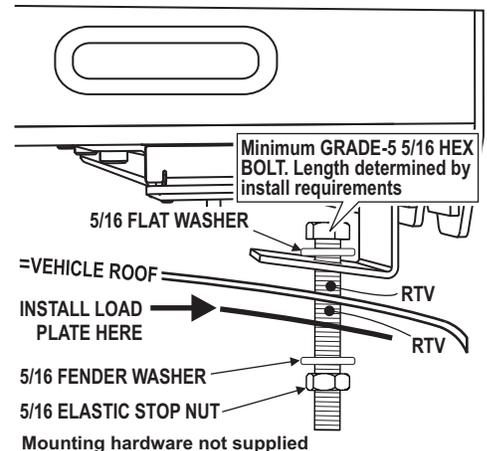


Fig. 2

4. Position the lightbar on the roof of the vehicle in the exact position you will mount it. With the lightbar in place, on the vehicle, mark the three outside edges of each mounting foot (Fig. 2). Remove the lightbar from the vehicle.
5. In each mounting foot location, measure as shown above and mark the location of the four mounting holes.
6. Remove the lightbar and drill the four mounting holes. Also drill a 1" cable passage hole (location to be determined by installer). Install a rubber grommet (customer supplied) in the cable passage hole to protect wires. *Always deburr all holes and remove any metal filings from the vehicle to prevent rust spots.*
7. Apply RTV sealer around the mounting holes on the roof. Place the lightbar onto the vehicle lined up with the mounting holes and insert the mounting bolts into the holes. Feed the cable through the cable access hole. With the cable in place, apply RTV sealer to the cable access hole.

8. It is suggested that you use a fender washer on each mounting screw or a load plate (customer supplied) on the inside of the roof that is equal or greater than the size of the mounting feet. Secure the four mounting feet to the vehicle and tighten all hardware to 14 In. Lbs.



Mounting hardware not supplied

9. Remount headliner to vehicle and installation is complete.

IMPORTANT: The mounting hardware shown is the minimum requirement to mount this product. This lightbar can be mounted to several different vehicles. It is up to the installer to choose suitable mounting hardware that will safely secure the lightbar to the vehicle depending on vehicle requirements.

Operation

The Hi-Way™ Riser Series Lightbar is operated from the control cable exiting the light assembly.

WHT/BRN - Front Lightbar Arm (+): Applying positive voltage to the WHT/BRN wire will power up the *front lightbar arm*. You may now choose a flash pattern for the front using Scanlock.

WHT/ORG - Rear Lightbar Arm (+): Applying positive voltage to the WHT/ORG wire will power up the *rear lightbar arm*. You may now choose a flash pattern for the rear using Scanlock.

GRN - Front Warning Base (+): Applying positive voltage to the GRN wire will power up the front warning base. You may now choose a flash pattern for the base using Scanlock.

WHT/BLK - Base Take Downs (+): Applying positive voltage to the WHT/BLK wire will power up the take down lights in the base.

BLUE - Riser Arm Take Downs (+): Applying positive voltage to the BLUE wire will power up the take down lights in both arms.

YEL Riser Arm Alleys (+): Applying positive voltage to the YEL wire will power up the Alley Lights in both arms.

WHT - Base Alley (+): Applying positive voltage to the WHT wire will power up the Alley Lights in the base.

WHT/RED - Front Riser Arm (-): Connect to ground (see wiring).

WHT/YEL Rear Riser Arm (-): Connect to ground (see wiring).

ORG Base (-): Connect to ground (see wiring).

WHT/VIO - Actuator Motor (-): Connect to control box (see wiring).

VIO - Actuator Motor (+): Connect to control box (see wiring).

TrafficAdvisor Operation: Connect to control box (customer supplied).

IMPORTANT WARNING!

CAUTION! DO NOT LOOK DIRECTLY AT THESE LED'S WHILE THEY ARE ON. MOMENTARY BLINDNESS AND/OR EYE DAMAGE COULD RESULT!

Operation of the lift motor:

This switch is programmed at the factory to raise or lower the lightbars on your Hi-Way™ Riser Series Lightbar with a running time of 12-15 seconds. The switch is also programmable to between 5 and 24 seconds of running time. You may need this feature since system voltages vary and this will affect the accuracy of the operation. Most systems are 12 volts. If your system is a higher voltage, you will need less lift and lowering time, for a lower voltage system you will need more time. You can tell whether you need to adjust the programming if the bars don't raise or lower completely when you use the factory set time.

Note: When power is first applied to the timer unit, it assumes the lightbar arms are in the down position. If an arm is not down, use the manual control to lower it.

WARNING! Do not raise lightbar arms with the vehicle moving or drive vehicle with the arms raised.

For manual control: Press and hold the UP or DOWN button for more than 1 second. The arms will travel in either the UP or DOWN direction until you release the button.

To raise or lower the lightbar arms automatically: Press either UP or DOWN on the control switch.

To stop the arm in between a fully raised or lowered position: Pressing either up or down while the arm is in motion will stop the arm. You may then press either up or down to restart the arm in either direction, which will automatically engage for the correct amount of time to seat the arm in either the up or down position (no matter where you stopped the arm).

Programming:

To enter the programming mode, the bar must be in the down position (status indicator off)

1. Press the DOWN button (Brown Wire) 3 short times, then a 4th time, this time holding the button for more than one second. At this time the status indicator will begin to flash rapidly.
2. Next press the UP button (Yellow Wire) to raise the bar to the desired position. The status indicator will now flash once a second.
3. When the bar reaches the desired position release the button, the time is stored for future use and will be saved even if power is removed from the unit. If you release the button after less than 5 seconds, the procedure will be ignored. If you release the button after more than 24 seconds, 24 seconds will be recorded.

To TrafficAdvisor™ Control Box

