

WHELEN[®]

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Installation Guide: Liberty™ and Freedom™ LC Lightbars

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.**
- **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 any 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 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 owners 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.**
- **If this product uses a remote device to activate or control this product, make sure that this control is located in an area that allows both the vehicle and the control 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!**

Mounting your Lightbar:

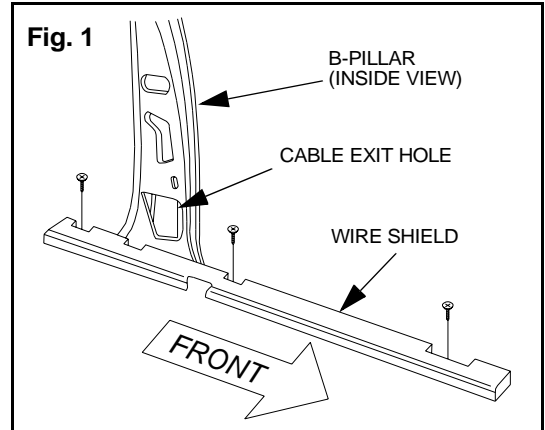
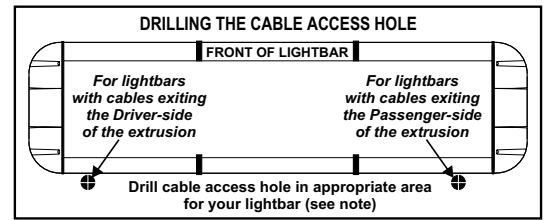
Refer to the Lightbar mounting guide included with your lightbar

Routing your Lightbar Cable(s)

- To protect the headliner from damage caused by drilling the cable access hole through the vehicle roof, allow a 5" to 7" distance between roof and headliner by lowering the headliner before drilling.
- Using a 1" hole saw, drill the cable access hole.

WARNING! There may be a roof support member that spans the distance between the driver's and passenger's side. **DO NOT DRILL THROUGH THIS MEMBER!** Adjust the location until the hole can be drilled without contacting this support member.

- Use a round file to smooth and de-burr the edges of the hole. Insert a 1" grommet (user supplied) into the cable access hole.
- Insert the cable(s) through the cable access hole into the vehicle. Use RTV silicone to weatherproof the access hole after the cable(s) are pulled completely into the vehicle.
- Route the cable(s) down through the B-pillar. The cable(s) must make a 90° turn to enter the B-pillar. Although routing the cable in this manner may be difficult, this has been determined to be the best procedure. It is up to the installation technicians discretion whether to route the cable(s) as recommended or use an alternative route. Pull the full length of the cable(s) out of the hole at the base of the B-pillar (Fig. 1) and route towards your switch panel. Refer to the instructions included with your switches for switch wiring information.



Connecting the Cables:

WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and **FUSED** at the battery to carry that load. **DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!**

Power Cable:

- Open the wiring shield lid (Fig. 1) and route the power cable into the wiring shield and towards the firewall.
- Follow the factory wiring harness through the firewall. It may be necessary to drill a hole in the firewall. If so, be absolutely sure that there are no components that could be damaged by drilling. After the hole has been drilled, insert a grommet to protect the cable.
- Route the cable along the factory wiring harness towards the battery.
- Install a 30 amp fuse block (customer supplied) on the end of the RED wire in the power cable. Remove the fuse from the fuse block before connecting any wires to the battery.
- Connect the fuse block to the POSITIVE (+) terminal on the battery. There can not be more than two (2) feet of wire between the fuse block and the battery. The wire between the fuse block and the battery is "unprotected", do not allow this wire to come into contact with any other wires.
- Connect the BLACK wire to the factory chassis ground adjacent to the battery.

Control Cable:

Extend the control cable to your switch panel and make the appropriate connections using the information provided. The control cable connects to your control head or switch box and is fused there. Typical fusing is 5 Amps. Applying +12VDC to a control wire activates its function.

1 - GRN Front Corner LED's	8 - WHT/BLU Flashing Alley & Takedowns	15 - VIO Low Power (See page 3)
2 - BLU Rear Corner LED's	9 - YEL Passenger-side Alley Lights	16 - WHT/VIO Scan-Lock™ (See page 3)
3 - GRN/WHT Front Outboard LED's.	10 - WHT Driver-side Alley Lights	17 - WHT/RED Front Center LED's
4 - BLU/WHT Rear Outboard LED's	11 - WHT/BLK . . . Take-down Lights	18 - NONE RFI shield drain; connect to ground
5 - GRN/BLK Front Inboard LED's	12 - WHT/ORN . . . Cruise Lights & AUX	
6 - BLU/BLK Rear Inboard LED's	13 - WHT/YEL . . . Left TA	
7 - WHT/GRN Right TA	14 - WHT/BRN . . . Rear Center LED's	

NOTE:
Activating WHT/GRN + WHT/YEL = Split TA

WHT/ORN - Cruise Lights + AUX:

The WHT/ORN wire operates in one of 3 different modes. The modes are controlled with the Scan-Lock™ wire (WHT/VIO). Refer to the Scan-Lock™ section for information on using Scan-Lock™. The three modes are as follows:

MODE 1 (Default) - Cruise Lights are activated in Low Power and the AUX port is activated.

MODE 2 - Cruise Lights are activated in High Power and the AUX port is activated.

MODE 3 - Cruise Lights are not activated and the AUX port is activated.

VIO - Low Power:

The type of switch used is dependant on how the operator wishes the Hi/Lo feature to function:

Latching Mode: By applying +12 VDC voltage to the Violet wire for less than 1 sec., the lightbar is "latched" into low power operation. The unit must be turned off and then back on to restore normal, Hi power operation (a momentary switch is preferred).

Level Mode: Applying +12 VDC voltage to the Violet wire for more than 1 sec. holds the lightbar in low power mode until voltage is removed (a toggle switch is preferred).

WHT/VIO - Scan-Lock™:

TO CYCLE FORWARD THROUGH AVAILABLE PATTERNS: Activate ONLY the control wire of the function you wish to effect. Apply +12 volts to the Scan-Lock™ wire for less than 1 second and release. This will change the pattern. For example, to change the front, outboard LED pattern, apply +12VDC to the GRN/WHT wire and then *momentarily* apply +12VDC to the Scan-Lock™ wire (WHT/VIO). Repeat this procedure until the desired pattern is displayed. Let this pattern run for at least 5 seconds to configure it as the pattern the front outboard LEDs will display when activated. **Important! Only ONE function may be active while changing patterns!** Repeat to advance to the next pattern.

TO CHOOSE A PATTERN: Allowing the desired pattern to run for more than 5 seconds makes it the default pattern.

TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off *all lightbar functions*. Apply +12 volts to the Scan-lock™ wire and turn the appropriate function back on. This function is now restored to its factory default pattern.

Available Flash Patterns:

SignalAlert™ 75 Alternating (default setting) / CometFlash® 75 Alternating / DoubleFlash 150 Alternating / DoubleFlash 75 Alternating / SingleFlash 375 Alternating / SingleFlash 150 Alternating / SingleFlash 75 Alternating / ActionFlash™ 75 Alternating / ModuFlash™ 75 Alternating / CalFlash™ Single 75 driver Steady / Steady / ActionScan™

Traffic Advisor Patterns: Sequence to Solid (default setting) / Sequence On-Sequence Off / Single Lamp: Sequence On to TripleFlash™ / Two Lamp: Sequence On to TripleFlash™

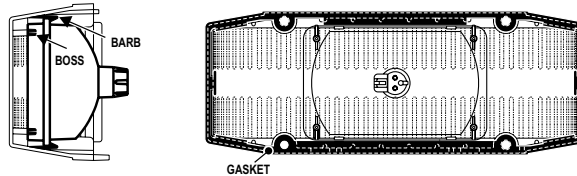
Flashing Takedowns & Flashing Alleys: SingleFlash 75 (default setting) / DoubleFlash 75 / SingleFlash 75 (Flashing Takedowns only) / DoubleFlash 75 (Flashing Takedowns only)

Freedom Lightbar: Servicing your Lightbar

Installing Endcap Gasket & Alley Light

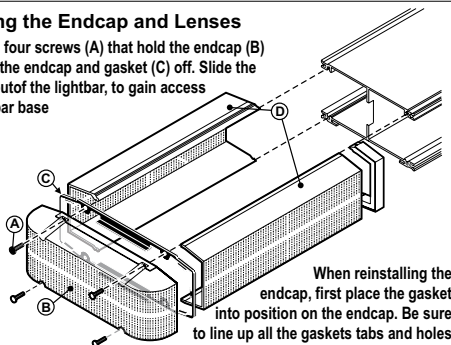
Place the endcap gasket into position on the endcap, locating all tabs and holes.

Align the reflector assembly of the alley light with the 4 bosses in the endcap and press the reflector in place until the 4 barbs engage around the reflector.

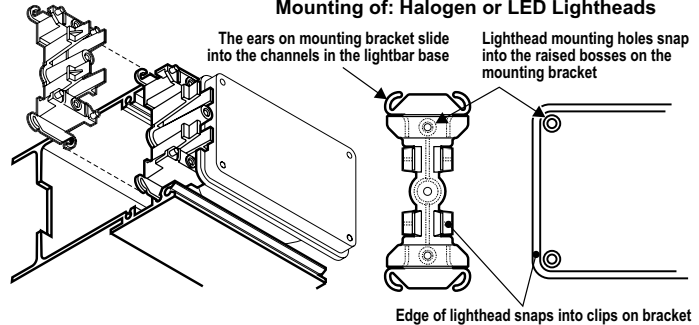


Removing the Endcap and Lenses

Remove the four screws (A) that hold the endcap (B) on and pull the endcap and gasket (C) off. Slide the lenses (D) out of the lightbar, to gain access to the lightbar base

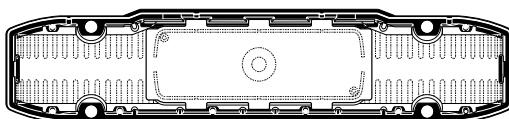


Mounting of: Halogen or LED Lightheads



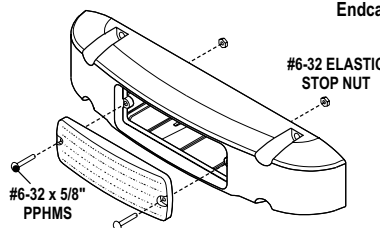
Liberty Lightbar: Servicing your Lightbar

Endcap: Lighthead and Gasket



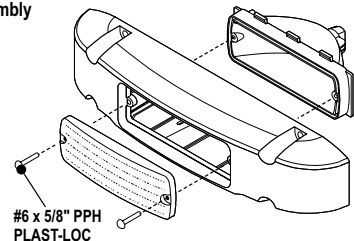
Place the endcap gasket onto the endcap matching up all the tabs and holes.

Without Alley Light

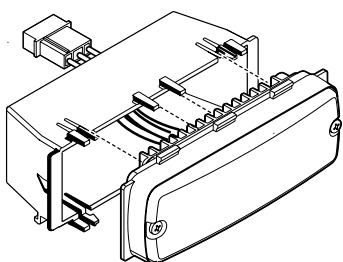


Endcap Assembly

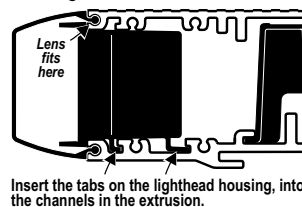
With Alley Light



Installing a Lighthead into the Housing



Installing lens and lighthead housing into extrusion



"Dummy" Ballast (spacer) Installation

Installing Corner Linear LED Lighthead into extrusion

