

# WHELEN<sup>®</sup>

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## Installation Guide: LFL Liberty™ LC 2010 Lightbar

### 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.

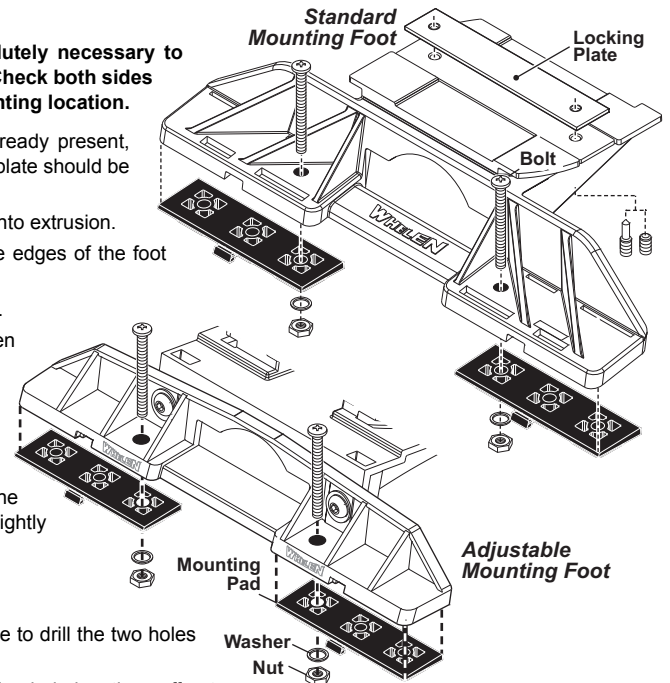
- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Failure to use specified installation parts and/or hardware will void the product warranty!**
- **If mounting this product requires drilling holes, the 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 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 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.**
- **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!**

**For warranty information regarding this product, visit [www.whelen.com/warranty](http://www.whelen.com/warranty)**

## Permanent Mounting:

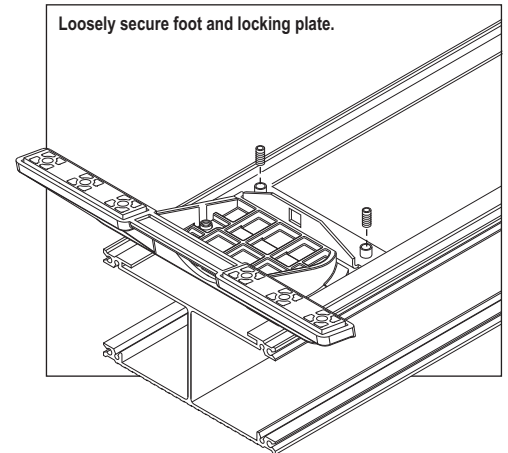
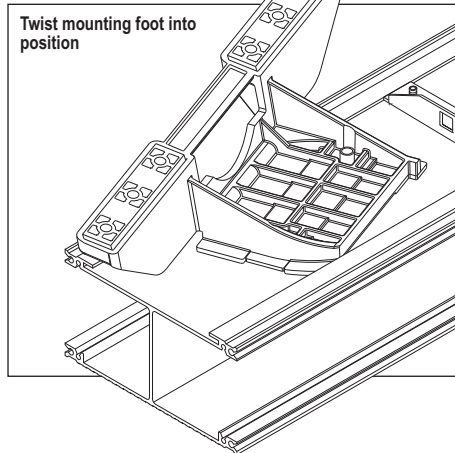
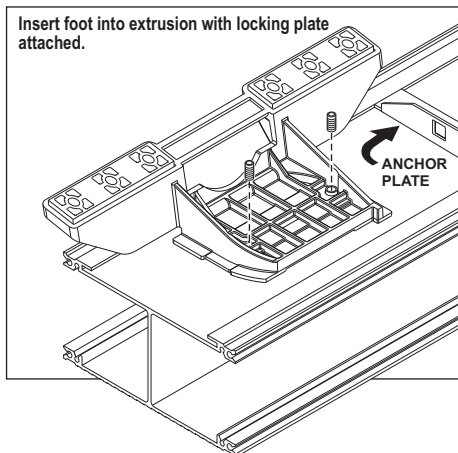
**WARNING:** Permanent mounting of this product will require drilling. It is absolutely necessary to make sure that no other vehicle components could be damaged by this process. Check both sides of the mounting surface before starting. If damage is likely, select a different mounting location.

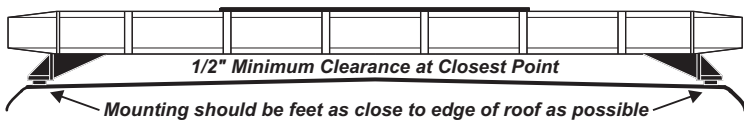
1. Locate the mounting foot and locking plate included with your lightbar. If not already present, install the locking plate onto the mounting foot using the supplied set screws. This plate should be centered from side to side on the mounting foot.
2. Flip lightbar upside-down to expose bottom of extrusion and place mounting foot onto extrusion.
3. Rotate the mounting foot 90° in a counter-clockwise direction. Make sure that the edges of the foot swing into position under the extrusion mounting lip.
4. Repeat procedure for remaining foot and return lightbar to its right side-up position.
5. Position the lightbar onto the vehicle roof in the desired mounting location. One often selected location is directly above the B-pillars. This area is the strongest part of the roof. Refer to your lightbar manual for your lightbars cable exit location, so that the lightbar is facing the proper direction.
6. Adjust the two mounting feet outwards as close to the edge of the roof as possible. Make sure that both mounting feet are in full contact with the roof (See below). There should be no less than 1/2" clearance between the roof and the lightbar at their closest point. When the mounting feet are in the proper position, lightly tighten the allen head set screws.
7. Turn the lightbar upside down and firmly tighten all of the set screws from step 6 (2 or 4 per side).
8. On both the standard foot or the adjustable foot, use the hole in the pad as a guide to drill the two holes into the mounting foot.
9. Place the lightbar in its final mounting position on the vehicle and mark the mounting hole locations off onto the mounting surface. Remove lightbar and drill the mounting holes.
10. Place the lightbar back onto the vehicle lined up with the mounting holes and secure the mounting feet to the vehicle using the supplied hardware.



## Strap Mounting:

1. Locate the mounting foot, locking plate, anchor plate and tinnerman nut supplied with the lightbar. If not already present, install the locking plate onto the mounting foot. Center this plate from side to side on the foot.
2. Flip the lightbar upside-down to expose the bottom of the extrusion. First slide the anchor plate into the extrusion, then place the mounting foot onto the extrusion.
3. Rotate the mounting foot counter-clockwise 90°. The edges of the mounting foot must swing into position under the extrusion mounting lip.
4. Repeat this procedure for the remaining mounting foot and return the lightbar to its right side-up position.
5. Position the lightbar onto the vehicle roof in the desired mounting location. One often selected location is directly above the B-pillars. This area is the strongest part of the roof. Refer to your lightbar manual for cable exit location, to be sure that the lightbar is facing the proper direction.
6. Adjust the two mounting feet outwards so that they are as close to the edge of the roof as possible. Both mounting feet must be in full contact with the roof. Be sure that there is no less than 1/2" clearance between the roof and the lightbar at their closest point. When both mounting feet are in their proper position, lightly tighten the allen head set screws.
7. Return the lightbar to an upside down position. Slide each anchor plate outwards until it is fully engaged with its corresponding mounting foot. With the mounting foot and anchor plate in their proper positions firmly tighten all of the set screws (2 or 4 per side). Flip the lightbar right side-up and return it to its mounting position.
8. Open both drivers side doors. In the area directly below the mounting foot, carefully pull the drivers side weather-strip away from the vehicle. Remove enough so that the area where the mounting strap will be secured to the vehicle is exposed. Repeat for passenger side.
9. Insert the mounting strap through the mounting foot. Be sure that the strap fits flush against the area where it will be secured onto the vehicle. Insert the tension bolt through the mounting strap and into the anchor plate and secure it with the tinnerman nut. Tighten slightly with a long shafted, Phillips screwdriver. Repeat procedure for passenger side.
10. If your mounting strap has mounting holes in the end, use these holes as a template to drill holes through the strap and into the vehicle and secure it with sheet metal screws. Repeat passenger side.
11. Firmly tighten the tension bolts to secure the lightbar to the vehicle.



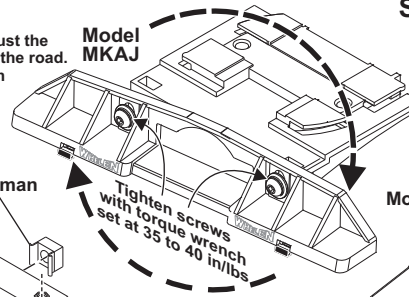
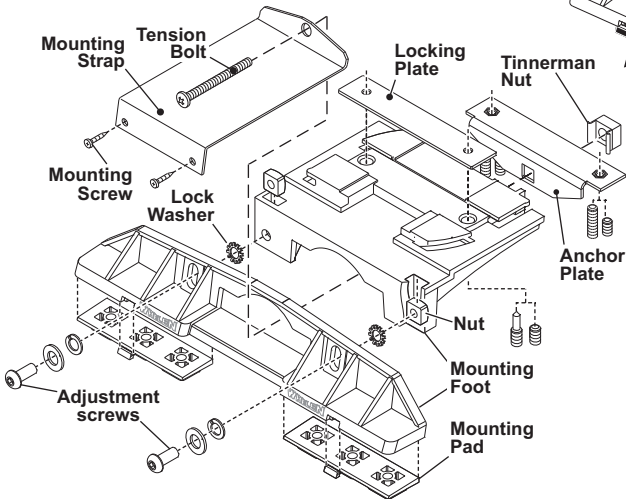


**IMPORTANT:** For strap mounted bars, be sure you have the right size lightbar for your vehicle. The bar should be approximately the same width as the vehicle roof. If too large or small it will not mount properly to the vehicle and may come loose.

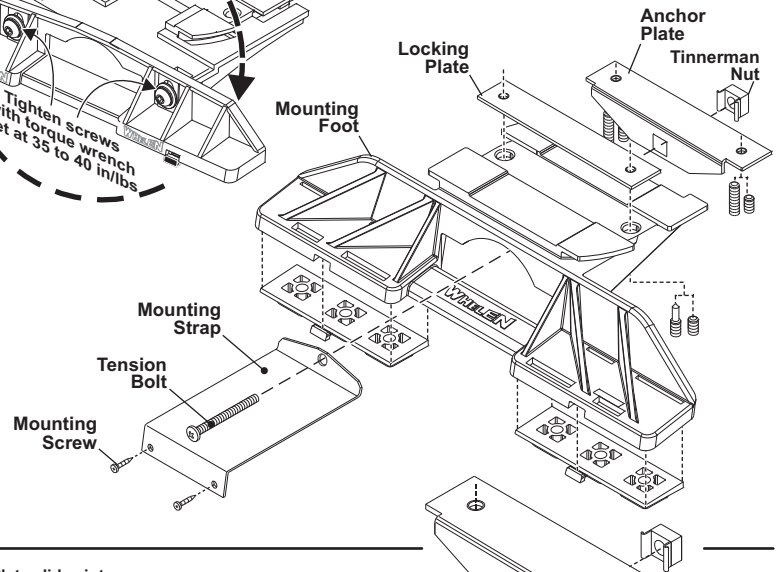
**NOTE:** Unless otherwise specified, the lightbar mounting feet must be sitting as close to the edge of the roof as possible, in full contact with the roof and not be hanging off the edge.

### Adjustable Mounting Foot / Model MKAJ

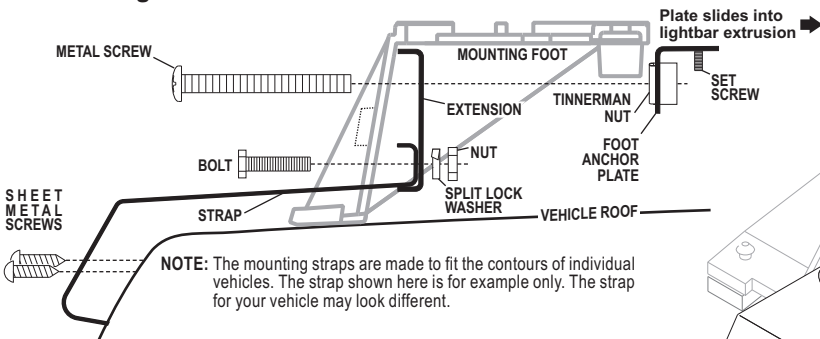
On this model you may loosen the screws on the rear of the foot and adjust the angle of the lightbar. This is used if the angle of the roof is not level with the road. **IMPORTANT:** To adjust the leveling screws you must use a torque wrench set at 35 to 40 ft. lbs



### Standard Mounting Foot / Model MKEZ



### 5" Mounting Foot



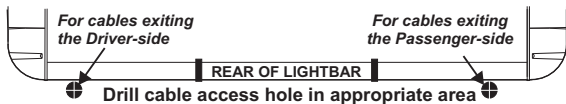
**IMPORTANT!** The lightbar should be a minimum of 16" from any radio antennas!

### Routing your Lightbar Cable(s)

1. To protect the headliner from damage, allow a 5" to 7" distance between roof and headliner by lowering the headliner before drilling.

**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.

2. Using a 1" hole saw, drill the cable access hole. Use a round file to smooth and de-burr the edges then insert a 1" grommet.



3. Insert cable(s) through cable access hole into the vehicle. Use RTV silicone to weatherproof access hole after the cable(s) are pulled completely into vehicle. Route the cable(s) following manufacturers recommendations.

**WARNING:** Many vehicles are now equipped with side curtain and B-pillar air bags. Alternate routing may be required.

**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!**

### Control Cable:

Refer to the chart on the next page for wire function and fusing. Apply +12 VDC to a control wire to activate it's function. Extend the control wires to a customer supplied switch box and connect following the switch box instructions.

### Power Cable:

1. Open the wire shield lid and route the power cable into the wire shield, towards the firewall. **Do not to pinch or crush any wires.**
2. Follow the factory wiring harness through the firewall. If you need to drill a hole in the firewall, be sure there are no components that could be damaged. After you drill the hole, insert a grommet to protect the cable.
3. Route the cable along the factory wiring harness to the battery.
4. 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.
5. Connect the fuse block to the POSITIVE (+) terminal on the battery. Leave no more than two 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 touch any other wires.
6. Connect the BLACK wire to the factory chassis ground.

**Operation:**

**Cruise Lights & AUX (WHITE/ORANGE):**

Cruise lights have 3 modes. **MODE 1 (Default)** - Cruise Lights are activated in Low Power mode. **MODE 2** - Cruise Lights are activated in a Lower power mode. **MODE 3** - Off. Activate the WHITE/ORANGE wire and select a mode using Scan-Lock™. Only the COLOR 1 corner LEDs are on in cruise mode.

**Hi/Low Power (VIOLET):**

The type of switch used depends on how you wish the Hi/Low feature to function:

**Latching Mode:** Apply +12 VDC to the VIOLET wire for less than 1 second and the lightbar is "latched" into low power. Turn the unit off and then back on to restore normal, high power operation. (*momentary switch*)

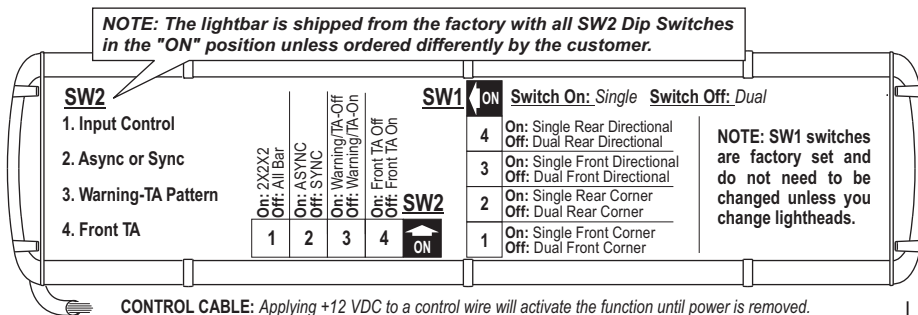
**Level Mode:** Applying +12 VDC to the VIOLET wire for over 1 second holds the lightbar in low power mode until voltage is removed. (*toggle switch*)

**Photocell Hi/Low:**

Photocell Hi/Low will automatically change to a lower intensity as it gets darker out.

**Scan-Lock™ (WHITE/VIOLET):**

**TO CYCLE FORWARD THROUGH AVAILABLE PATTERNS:** Activate **ONLY** the control wire of the function you wish to effect, then apply +12 volts to the WHT/VIO wire for less than 1 second and release. Repeat until the desired pattern is displayed.



**Dip Switch Settings:**

There are 2 banks of Dip Switches inside the lightbar. **SW1** Controls Single or Dual operation for corners & directionals. **SW2** controls function.

**SW1:**  
Switch 1 **ON:** Single Front Corner operation.  
Switch 1 **OFF:** Dual Front Corner operation.

Switch 2 **ON:** Single Rear Corner operation.  
Switch 2 **OFF:** Dual Rear Corner operation

Switch 3 **ON:** Single Front Directional operation.  
Switch 3 **OFF:** Dual Front Directional operation.

Switch 4 **ON:** Single Rear Directional operation.  
Switch 4 **OFF:** Dual Rear Directional operation.

**SW2:**  
Switch 1 **ON:** Enables 2X2X2 operation  
Switch 1 **OFF:** Enables All Bar operation.

Switch 2 **ON:** Operates in Asynchronous mode  
Switch 2 **OFF:** Operates in Synchronous mode

Switch 3 **ON:** Normal Operation  
Switch 3 **OFF:** Activates WARNING/TA

Switch 4 **ON:** Normal operation.  
Switch 4 **OFF:** Activates FRONT TA

**IMPORTANT WARNING!**

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

POS WIRE	Wire Function	Fuse @
1. GREEN	Front Corners	1 AMP
2. BLUE	Rear Corners	1 AMP
3. BLU/WHT	Rear Outboards	1 AMP
4. GRN/WHT	Front Outboards	1 AMP
5. BLU/BLK	Rear Inboards	1 AMP
6. GRN/BLK	Front Inboards	1 AMP
7. WHT/BRN	Rear Center	1 AMP
8. WHT/RED	Front Center	1 AMP
9. YELLOW	Passenger Alley in steady mode	1 AMP
10. WHT/BLK	Take-downs in steady mode	1 AMP
11. WHITE	Driver Alley in steady mode	1 AMP
12. WHT/BLU	Take-downs and Alleys in flash mode	1 AMP
13. VIOLET	Low Power (See copy)	1 AMP
14. WHT/ORG	"A" corner LEDs in cruise mode	1 AMP
15. RED	California Steady RED w/S/L	1 AMP
16. WHT/VIO	Flash Pattern Selection (See copy)	.5 AMP
17. WHT/YEL	Left Side TrafficAdvisor™	1 AMP
18. RED/WHT	Only "B" outlets	1 AMP
19. RED/BLK	Both "A" and "B" outlets	1 AMP
20. WHT/GRN	Right Side TrafficAdvisor™	1 AMP

ALT = Alternating    CHEC = Checkerboard Pattern    IN/OUT = Flashes from inside to outside    SIM = Simultaneous    BOLD TYPE = California Title XIII compliant

**All Bar Setting 1**

#	PATTERN	PHASING
1.	SignalAlert™ 75	ALT
2.	DoubleFlash 120	CHEC
3.	SingleFlash 90	IN/OUT
4.	SingleFlash 75	SIM
5.	SingleFlash 120	ALT
6.	TripleFlash™ 90	CHEC
7.	SignalAlert™ 120	IN/OUT
8.	SingleFlash 75	SIM
9.	DoubleFlash 75	ALT
10.	SingleFlash 120	CHEC
11.	TripleFlash™ 120	IN/OUT
12.	SingleFlash 75	SIM

3.	SingleFlash 90	IN/OUT
4.	SingleFlash 75	SIM
5.	SingleFlash 120	ALT
6.	SingleFlash 90	CHEC
7.	SingleFlash 120	IN/OUT
8.	SingleFlash 75	SIM
9.	SingleFlash 75	ALT
10.	SingleFlash 120	CHEC
11.	SingleFlash 120	IN/OUT
12.	SingleFlash 75	SIM
13.	SingleFlash 75	ALT
14.	SingleFlash 120	CHEC
15.	SingleFlash 120	IN/OUT
16.	SingleFlash 75	SIM

3.	SingleFlash 120	CHEC
4.	SingleFlash 75	SIM
5.	DoubleFlash 90	ALT
6.	SignalAlert™ 90	IN/OUT
7.	SingleFlash 120	CHEC
8.	SingleFlash 75	SIM
9.	TripleFlash™ 90	ALT
10.	SignalAlert™ 90	IN/OUT
11.	SignalAlert™ 120	CHEC
12.	SingleFlash 75	SIM

**2 X 2 X 2**

1.	SignalAlert™ 75
2.	CometFlash® 75
3.	DoubleFlash 150
4.	DoubleFlash 75
5.	SingleFlash 375
6.	SingleFlash 150

7.	SingleFlash 75
8.	ActionFlash™ 150
9.	ModuFlash™
10.	ActionScan™

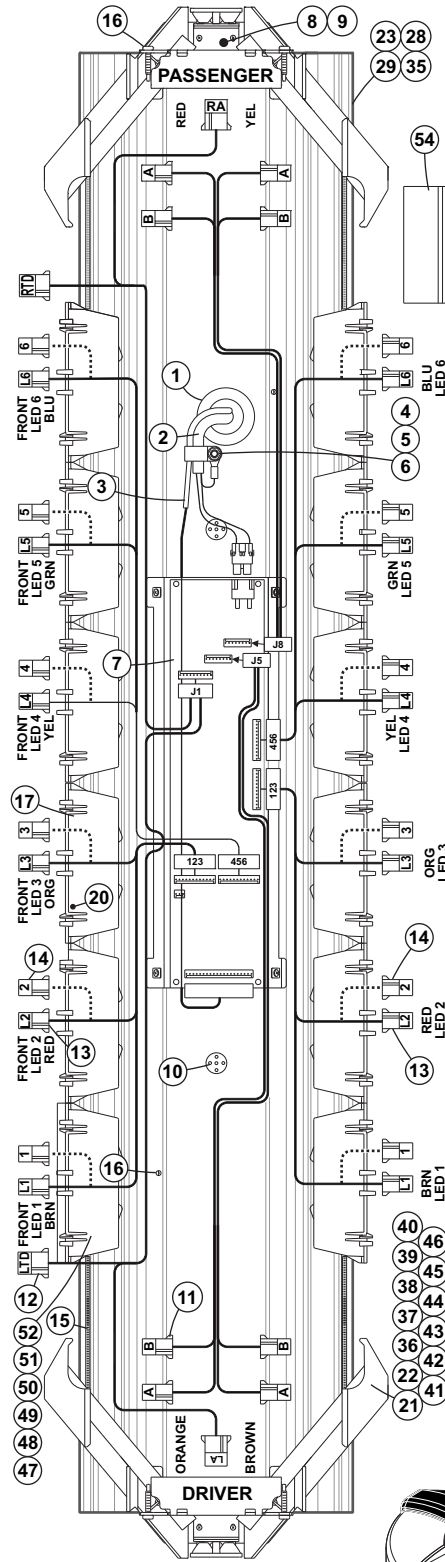
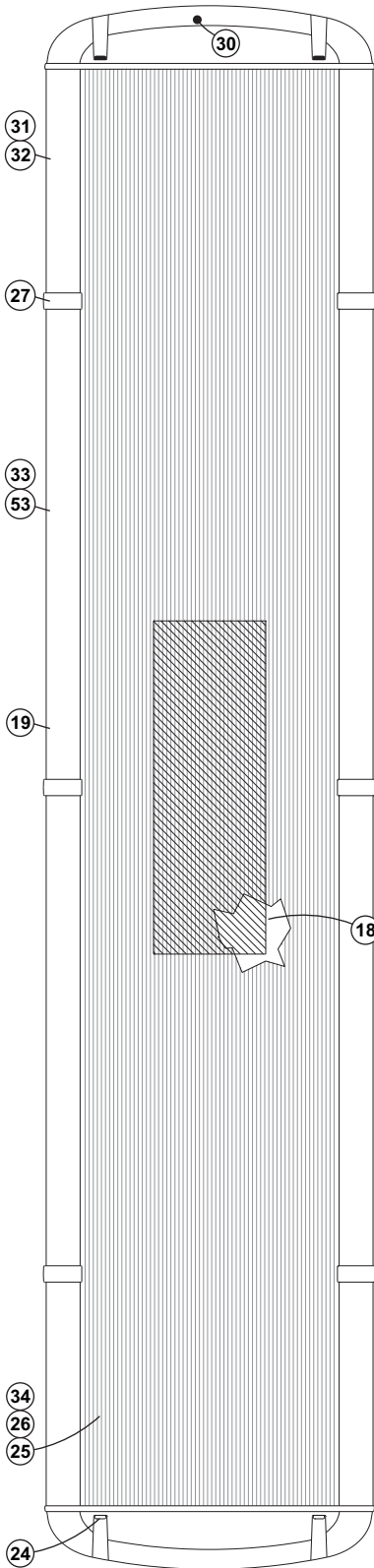
**Other Patterns**

**Take-downs and Alleys**

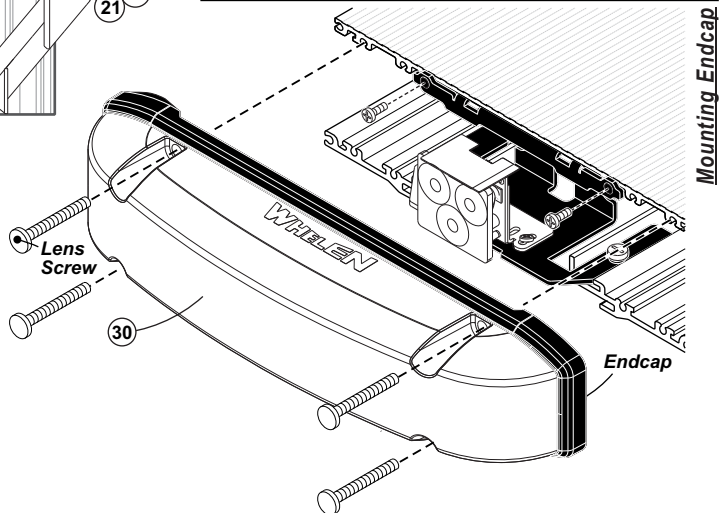
1.	SingleFlash 240 ALT
2.	DoubleFlash 120 ALT
3.	SingleFlash 240 Sim
4.	DoubleFlash 120 Sim

**Traffic Advisor Sequence**

1.	Sequence to Solid
2.	Sequence on Sequence off
3.	One Lamp Triple
4.	Two Lamp Triple

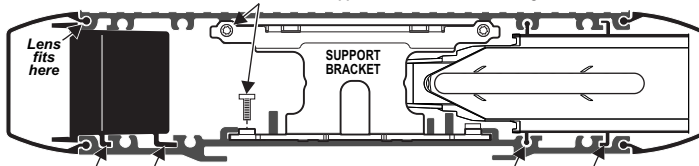


QTY	QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
	*			01-0686402-	LFL Liberty™ 48.50" LC 2010
	*			01-0686402-	LFL Liberty™ 54.00" LC 2010
	*			01-0686402-	LFL Liberty™ 43.13" LC 2010
1	1	1	1	21-11245004-1	GROMMET, 1.562"
1	1	1	2	46-0743196-17	INPUT CABLE, (2C-10GA), 17'
1	1	1	3	46-0743903-17	CABLE, 17/C 22GA (17')
1	1	1	4	13-104111-063	#10-24 WIZ NUT
1	1	1	5	26-0115663-10	CABLE CLAMP, 5/8"
1	1	1	6	14-0023347-00	SCREW, 10-24 x 1.25" TX PHD
1	1	1	7	01-026B873-00	ASSY, ELECTRONIC I/O
2	2	2	8	02-036B855-00	END SUPPORT BRACKET
A/R	A/R	A/R	9	01-026B855-30	LR11 ALLEY LIGHT (WHT)
2	2	2	10	21-7263998-00	PLUG, VENT (3/4")
1	1	1	11	46-0986417-00	HARNASS, CORNER LED
1	1	1	12	46-0786418-00	HARNASS, TD/WORK LIGHTS
REF	REF	REF	13	46-0986413-00	HARNASS, INBOARD SINGLE
2	2	2	14	46-0986421-00	HARNASS, INBOARD DUAL
-	4	-	15	07-243170-000	SPACER, CORNER
6	6	6	16	14-104216-063	#10-24 X 3/8 PPH SCREW
10	12	12	17	11-483564-000	HOUSING, LT HEAD (SNAP-IN)
1	1	1	18	38-0142783-00	INSULATOR, FOAM PAD
1	1	1	19	10-0322935-00	LABEL, "FRONT" LTBAR ASSY.
10	12	12	20	09-1363542-00	PANEL, FILLER
A/R	A/R	A/R	21	01-026B6938D0	EXT CORNER 18LED W/R AMP
A/R	A/R	A/R	22	01-026B6938E0	EXT CORNER 18LED B/W AMP
1	1	1	23	10-0522960-00	LABEL, MODEL & SERIAL NO.
8	8	8	24	14-104286-16JB	#10-24 X 1-1/4" TX. PHD. W/SHLDR
-	-	1	25	11-26B607-044	TOP, EXTRUDED (44.00")
-	1	-	26	11-26B607-049	TOP, EXTRUDED (49.39")
8	6	6	27	02-0342791-30	ASSY., LENS DIVIDER (CLEAR)
-	-	1	28	11-363312-044	BASE, EXTRUDED (44.00")
-	1	-	29	11-363312-049	BASE, EXTRUDED (49.39")
2	2	2	30	02-036E683-30	OVERMOLD ENDCAP CLEAR
-	-	4	31	68-1983819-30	LENS, 5.687" LG. (CLEAR)
-	4	-	32	68-1963333C08	LENS, 8.375" LG. (CLEAR)
-	4	4	33	68-1983567-30	LENS, 15.800" LG. (CLEAR)
1	-	-	34	11-26B607-038	TOP, EXTRUDED (38.61")
1	-	-	35	11-363312-038	BASE, EXTRUDED (38.61")
A/R	A/R	A/R	36	01-026B6938J0	EXT CORNER 18LED B/R AMP
A/R	A/R	A/R	37	01-026B693850	EXT CORNER 18LED RED AMP
A/R	A/R	A/R	38	01-026B693840	EXT CORNER 18LED GRN AMP
A/R	A/R	A/R	39	01-026B693830	EXT CORNER 18LED WHT AMP
A/R	A/R	A/R	40	01-026B693820	EXT CORNER 18LED BLU AMP
A/R	A/R	A/R	41	01-026B693810	EXT CORNER 18LED AMB AMP
A/R	A/R	A/R	42	01-026B693250	EXT CORNER 12LED RED AMP
A/R	A/R	A/R	43	01-026B693240	EXT CORNER 12LED GRN AMP
A/R	A/R	A/R	44	01-026B693230	EXT CORNER 12LED WHT AMP
A/R	A/R	A/R	45	01-026B693220	EXT CORNER 12LED BLU AMP
A/R	A/R	A/R	46	01-026B693210	EXT CORNER 12LED AMB AMP
A/R	A/R	A/R	47	01-026B8272M0	SUB 500 12LED AMB/BLU
A/R	A/R	A/R	48	01-026B8272K0	SUB 500 12LED AMB/RED
A/R	A/R	A/R	49	01-026B8272J0	SUB 500 12LED RED/BLU
A/R	A/R	A/R	50	01-026B8272E0	SUB 500 12LED BLU/WHT
A/R	A/R	A/R	51	01-026B8272D0	SUB 500 12LED RED/WHT
A/R	A/R	A/R	52	01-026B8272A0	SUB 500 12LED AMB/AMB
4	-	-	53	68-1963333C03	LENS, 10.500" LG. (CLEAR)
2	-	-	54	68-1983818-30	LENS, 5.062" LG. (CLEAR)



### Accessing the Lightbar

Installing Lens and Lighthouse Housing into extrusion      Top and bottom of extrusion secure to Support Bracket.      Installing Corner Linear-LED® Lighthouse into extrusion



Insert the tabs on the lighthouse housing, into the channels in the extrusion.

Insert the tabs on the lighthouse housing, into the channels in the extrusion.