WHELEN®
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Automotive: Lightheads

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.
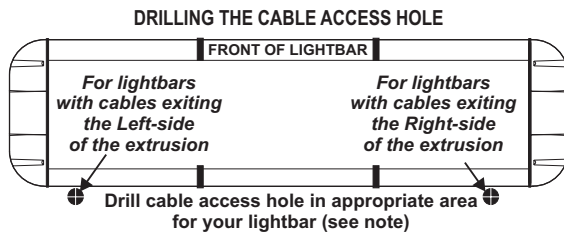
- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**

- **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 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 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!**

> *For warranty information regarding this product, visit* **www.whelen.com/warranty**

Mounting your Lightbar:

Refer to the Lightbar mounting guide included with your lightbar.

Caution: 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 location.

DRILLING THE CABLE ACCESS HOLE

FRONT OF LIGHTBAR

For lightbars with cables exiting the Left-side of the extrusion

For lightbars with cables exiting the Right-side of the extrusion

Drill cable access hole in appropriate area for your lightbar (see note)

Routing your Lightbar Cable(s)

1. 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.

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 than insert a 1" grommet.

3. 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.

4. Route the cable(s) through the vehicle following manufacturers recommendations. **WARNING: Some vehicles are equipped with side curtain & B-pillar air bags. Alternate routing may be required.**

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 <u>FUSED</u> at the battery to carry that load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!

Power Cable: *RED +12 volts BLACK ground*

5. 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.

6. Route the cable along the factory wiring harness to the battery.

7. 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.

8. Connect the fuse block to the POSITIVE (+) terminal on the battery. There can not be 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.

9. Connect the BLACK wire to the factory chassis ground.

Control Cable:

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

Operation:

Scan-Lock™: (WHITE/VIOLET)

TO CYCLE FORWARD THROUGH AVAILABLE PATTERNS: Activate ONLY the control wire of the function you wish to effect and apply +12 volts to the Scan-Lock™ wire (WHITE/VIOLET) for less than 1 second and release. This will change the pattern. Repeat to advance to 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 and it is now restored to its factory default pattern.

Available Flash Patterns: ECE DoubleFlash (default pattern) > ECE SingleFlash

(Optional) Traffic Advisor Patterns: Sequence to Solid (default setting) > Sequence On-Sequence Off > Single Lamp: Sequence On to TripleFlash™ > Two Lamp: Sequence On to TripleFlash™.
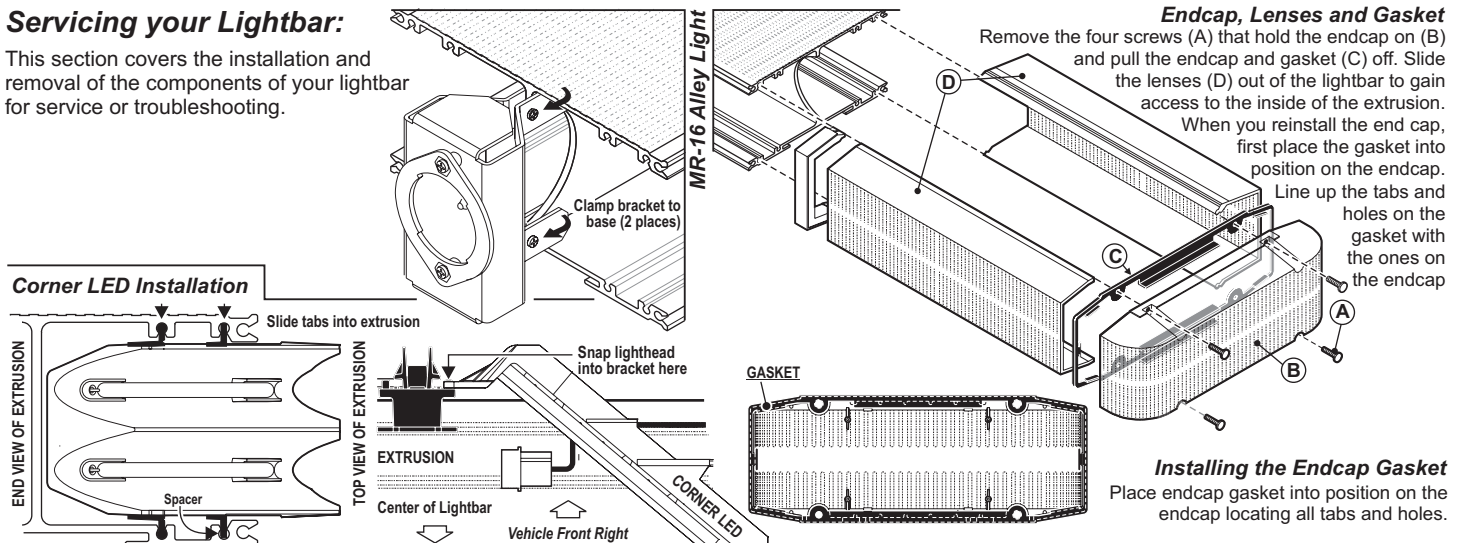
IMPORTANT! Before returning this vehicle to active service, visually confirm the proper operation of this product, as well as all vehicle components/equipment.

IMPORTANT WARNING!

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

Servicing your Lightbar:

This section covers the installation and removal of the components of your lightbar for service or troubleshooting.

MR-16 Alley Light

Clamp bracket to base (2 places)

Corner LED Installation

END VIEW OF EXTRUSION

Slide tabs into extrusion

Spacer

TOP VIEW OF EXTRUSION

Snap lighthead into bracket here

EXTRUSION

Center of Lightbar

CORNER LED

Vehicle Front Right

Endcap, Lenses and Gasket
Remove the four screws (A) that hold the endcap on (B) and pull the endcap and gasket (C) off. Slide the lenses (D) out of the lightbar to gain access to the inside of the extrusion. When you reinstall the end cap, first place the gasket into position on the endcap. Line up the tabs and holes on the gasket with the ones on the endcap

GASKET

Installing the Endcap Gasket
Place endcap gasket into position on the endcap locating all tabs and holes.

CONTROL CABLE

1 - GREEN .... Front Corner LED's
2 - BLUE .... Rear Corner LEDs
3 - GREEN/WHITE .... Not Active
4 - BLUE/WHITE .... Not Active
5 - GREEN/BLACK .... Not Active
6 - BLUE/BLACK .... Not Active
7 - WHITE/GREEN .... Not Active
8 - WHITE/BLUE .... Not Active
9 - YELLOW ... Passenger Alley / Optional

10 - WHITE .... Driver Alley / Optional
11 - WHITE/BLACK .... Not Active
12 - WHITE/ORANGE .... Not active
13 - WHITE/YELLOW .... Not Active
14 - WHITE/BROWN .... Not Active
15 - WHITE/VIOLET .... Scan-Lock™
16 - WHITE/RED .... Not Active
17 - RFI shield drain .... Ground Activating

POWER CABLE
1 - RED / +12 VOLTS DC   2 - BLK / Ground

P1 - VIOLET   P5 - WHITE/BLUE   P9 - GREEN   P13 - BLUE   **16 POSITION**
P2 - GREEN/BLACK   P6 - WHITE/ORANGE   P10 - WHITE/BROWN   P14 - WHITE   **CONN.**
P3 - GREEN/WHITE   P7 - WHITE/VIOLET   P11 - BLUE/WHITE   P15 - SHIELD
P4 - BLUE/BLACK   P8 - WHITE/RED   P12 - YELLOW   P16 - WHT/BLK

P1 - WHITE/YELLOW   P2 - WHITE/GREEN   P3 - N/C   **3 POSITION CONNECTOR**

Control and power cable exit lightbar

LC SERIES / I.O. CARD *(Located inside lightbar)*
FRONT   REAR   AUX   ALLEY   TAKE DOWN

DRIVER'S SIDE LEFT HAND DRIVE VEHICLE

PASSENGER'S SIDE LEFT HAND DRIVE VEHICLE

Control and power cables exit here.

ORANGE / CORNER   RED / CORNER

O P T I O N A L

LC SERIES I.O. CARD ASSEMBLY (See above)

BROWN / CORNER   **REAR OF LIGHTBAR**   YELLOW / CORNER

FRONT
990.6 mm

FRONT
1263.65 mm

FRONT
1400.175 mm

FRONT
1536.7 mm

OPTIONAL MR 16 ALLEY LIGHT ASSEMBLY
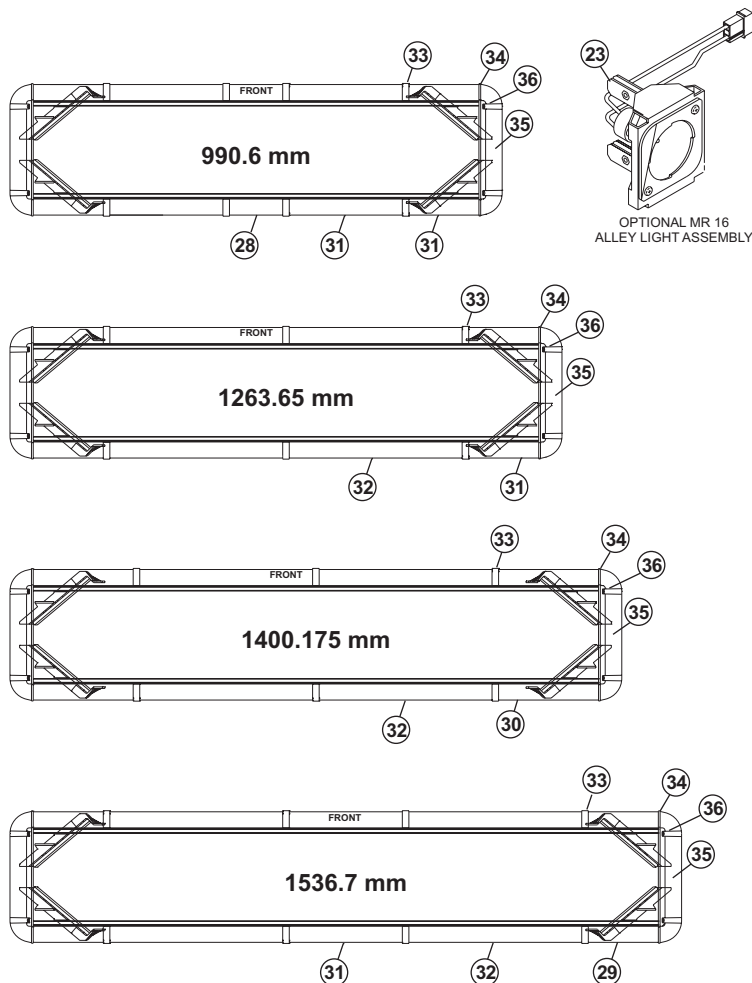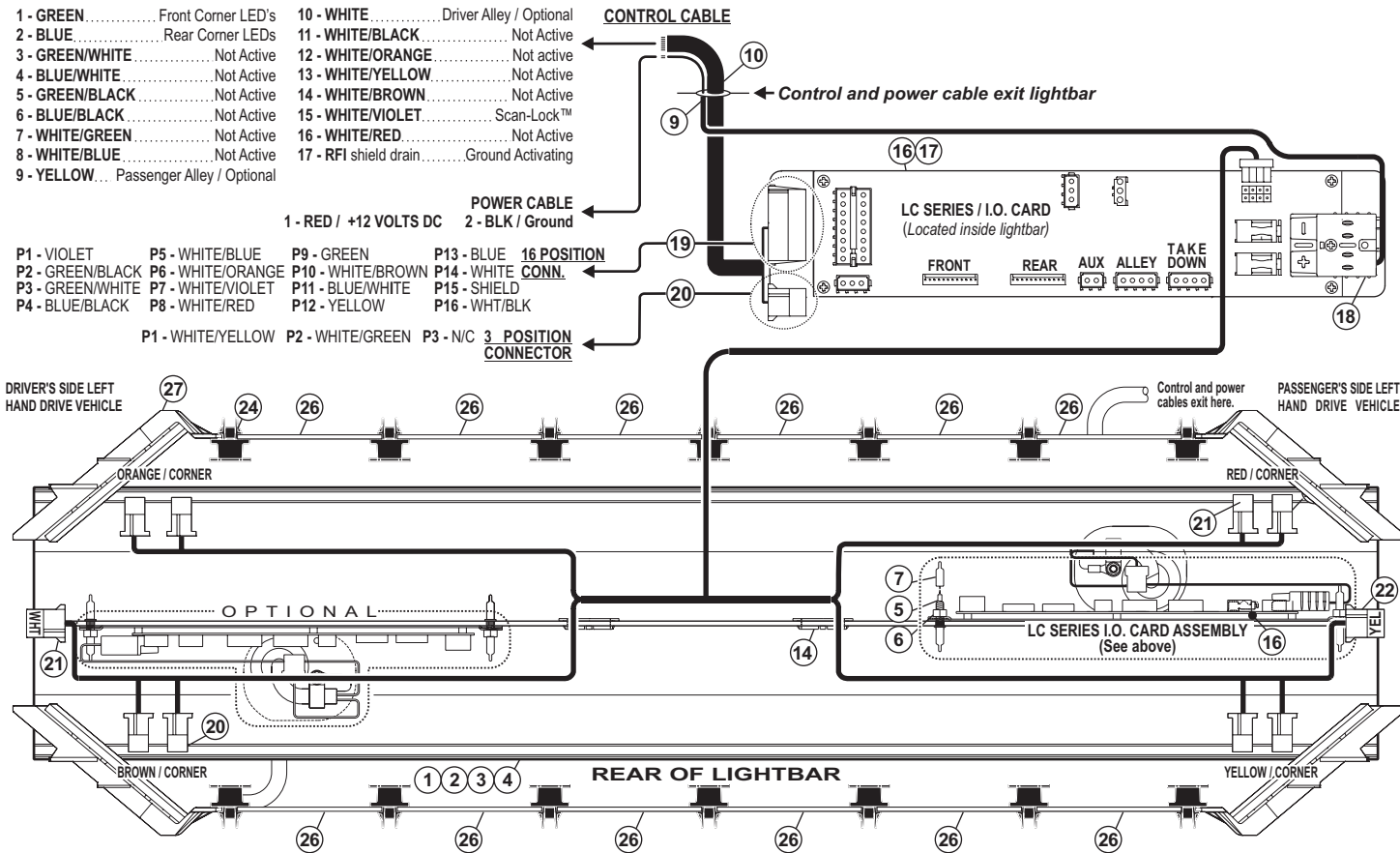
QTY	QTY	QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
			*		01-0684681-01	FREEDOM GEN 3 LC R-R-B-B 50"
		*			01-0684681-02	FREEDOM GEN 3 LC R-R-B-B 55"
	*				01-0684681-03	FREEDOM GEN 3 LC R-R-B-B 60"
*					01-0684681-00	FREEDOM GEN 3 LC R-R-B-B 44"
-	-	-	1	1	11-363141-000	BASE EXTRUSION / 45.75"
-	-	1	-	2	11-363142-000	BASE EXTRUSION / 51.125"
-	1	-	-	3	11-363143-000	BASE EXTRUSION / 56.50"
1	-	-	-	4	11-363390-000	BASE EXTRUSION / 40.375"
2	2	2	2	5	22-0542701-00	MTG. STUD
2	2	2	2	6	13-130111-072	1/4-20 ELASTIC STOP NUT / 316 STAINLESS
4	4	4	4	7	22-0416982-00	PROTECTIVE COVER
1	1	1	1	8	21-11245004-1	GROMMET / 1.562" / Not Shown
1	1	1	1	9	46-0742957-17	CABLE / 2-C 10GA 17'
1	1	1	1	10	46-0742883-17	CABLE / 17-C 22GA 17'
1	1	1	1	11	14-104216-160	#10-24 x 1 PPHMS / Not Shown
1	1	1	1	12	13-104111-063	NUT / #10-24 WHIZ / Not Shown
1	1	1	1	13	26-0115663-10	5/8" CABLE CLAMP / Not Shown
2	2	2	2	14	21-242401-000	1-5/8" BUSHING
2	2	2	2	15	21-7263998-00	3/4"VENT
A/R	A/R	A/R	A/R	16	01-0264880-00	ASSEMBLY / I-O BOARD LC / ECE 65 12v
A/R	A/R	A/R	A/R	17	01-0264880-01	ASSEMBLY / I-O BOARD LC / ECE 65 24v
1	1	1	1	18	39-0017188-08	HOUSING / 2 POLE
1	1	1	1	19	39-0416323-04	HOUSING / 16 POS SOCKET CMNL
1	1	1	1	20	39-0403023-04	HOUSING / 3 POS SOCKET
1	1	1	1	21	46-0763942-00	HARNESS / 4 LIGHT 72"
A/R	A/R	A/R	A/R	22	46-0763967-00	HARNESS / ALLEY LIGHT
A/R	A/R	A/R	A/R	23	02-0364418-00	MR16 ALLEY ASS'Y
-	-	4	-	24	07-242815-000	BRACKET / SPACER
12	18	18	14	25	07-263103-000	MOUNTING BRACKET
10	16	12	12	26	09-1363158-00	FILLER PANEL / "400" SERIES
4	4	4	4	27	01-0264564220	EXT CORNER / LED FREEDOM BLU/BLU
2	2	-	-	28	68-1983816-20	LENS / 5.00" BLUE
4	4	-	4	29	68-1983817-20	LENS / 6.562" BLUE
-	-	4	-	30	68-1984104-20	LENS / 9.25" BLUE
4	2	-	-	31	68-1183491B02	LENS / 10.375" BLUE
-	4	4	4	32	68-1984105-20	LENS / 15.75" BLUE
8	8	6	6	33	02-0341448-00	LENS DIVIDER ASS'Y. / BLACK
2	2	2	2	34	38-0283381-00	GASKET / ENDCAP
2	2	2	2	35	68-1183369-20	ENDCAP / BLUE
8	8	8	8	36	14-104286-16JB	#10-24 x 1-1/4" TX. PHD. SCREW with SHLDR