

# WHELEN<sup>®</sup>

## ENGINEERING COMPANY INC.

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## Installation Guide: Cenator Mini Lightbar

### 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.

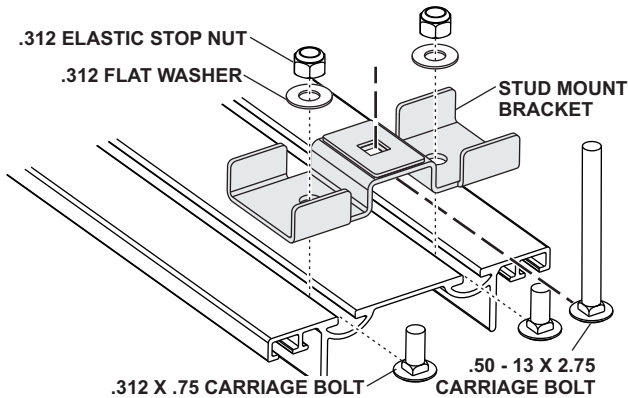
- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**
- **Any holes, either created or utilized by this product, should be made both air- and watertight using a sealant recommended by your vehicle manufacturer.**
- **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!**

### Installation:

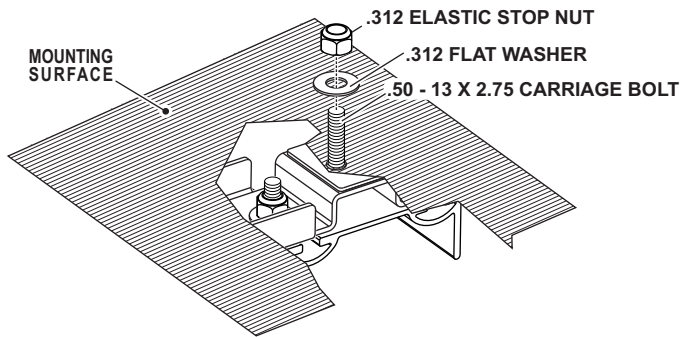
**IMPORTANT! The lightbar should be located a minimum of 16" from any radio antennas!**

### Stud Mounting:

1. Insert the two supplied .312 X .75 CARRIAGE BOLTS into the Stud Mount Bracket. Loosely install them into the bracket using the supplied .312 ELASTIC STOP NUT and .312 FLAT WASHER.
2. Flip the lightbar over and slide the heads of the carriage bolts into the two tracks in the bottom of the lightbar extrusion. When they are in the position you want them, tighten the mounting hardware to secure the brackets to the extrusion. Repeat steps 1 and 2 for the other stud mounts you are installing.



3. Position the lightbar onto the vehicle and mark the mounting bolt locations onto the mounting surface.
4. Remove the lightbar and drill holes in the locations you marked off using a 5/16 drill bit.



5. Insert the carriage bolts into the mounting holes you drilled and secure the lightbar to the mounting surface with the supplied mounting hardware.

### Temporary Magnetic/Suction Cup Mounting

**WARNING! The use of any magnetically mounted warning device on the outside of a vehicle in motion is not recommended and is the sole risk and responsibility of the user.**

**Mount the magnetic/suction cup on a flat part of the roof.**

**Magnetic/suction:** Thoroughly clean the proposed mounting surface prior to mounting. Wipe the suction cup clean, place the beacon onto its mounting surface and apply gentle pressure to ensure a good seal has been achieved.

### Permanent Mounting:

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

**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

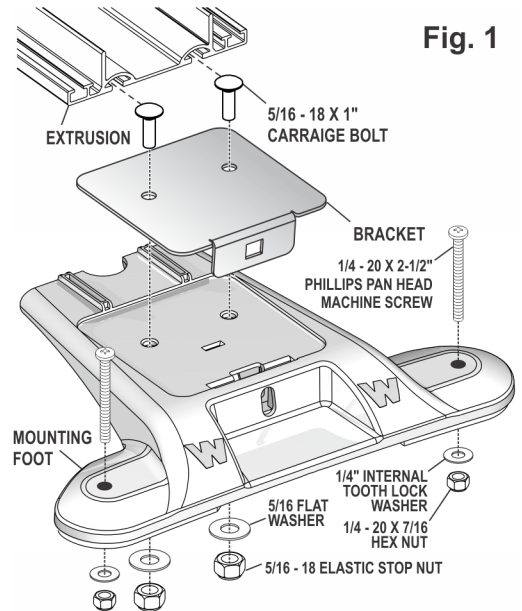
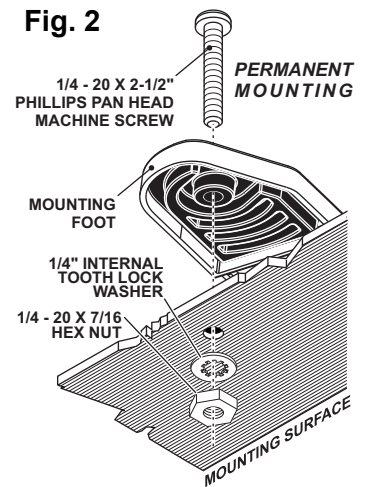


Fig. 1

different mounting location.

1. Secure the mounting bracket to the mounting foot using the supplied mounting hardware. Leave the mounting hardware loose enough so you can slide the two heads of the carriage bolts into the tracks in the bottom of the lightbar base extrusion.
2. Install the mounting foot onto the lightbar extrusion by sliding the heads of the two carriage bolts you installed into the two tracks in the bottom of the extruded base (Fig. 1).
3. Slide the bracket to the outer end of the base extrusion and secure the bracket to the extrusion by tightening the elastic stop nuts. Repeat steps 1 - 3 for other side of lightbar.
4. Drill two holes in each mounting foot (Fig. 2) to accommodate the permanent mount hardware.
5. Position the lightbar onto the vehicle in its exact mounting location and mark the location of the mounting holes onto the surface of the roof using the mounting feet as templates.
6. Remove the lightbar and drill the 4 mounting holes.
7. Install the lightbar using the supplied 1/4 - 20 Phillips Pan Head Machine Screw, 1/4" Internal Tooth Lock Washer and 1/4 - 20 X 7/16 Hex Nut.

Fig. 2

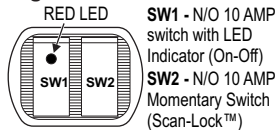


## Wiring and Operation:

Extend the control cable to your switch panel and make connections. Connect control cable to control head or switch box and fuse there. Applying +12VDC to a control wire will activate its function. BLK and WHT/BLK are ground wires. (Optional Alley/Takedown cable shown).

**Cigar Plug:** In models that feature a cigar plug, you can control Scan-Lock pattern selection and Power with the two switches located on the top of the plug.

### Cigar Cord Switch



## Control Cable:

### RED / Front Corners:

Apply +12VDC to the RED wire to activate the *Front Corners*.

### BLUE / Rear Corners

Apply +12VDC to the BLUE wire to activate the *Rear Corners*.

### ORANGE / Front Directionals:

Apply +12VDC to ORG wire to activate the *Front Directionals*.

### WHT/ORG / Rear Directionals:

Apply +12VDC to WHT/ORG wire to activate the *Rear Directionals*.

### BROWN / Low Power:

The switch type used depends on how you wish *Low Power* to function:

**Latching Mode:** Apply +12 VDC to the BROWN wire for less than 1 sec. to "latch" the lightbar into *Low Power*. The unit must be turned off and then back on to restore normal operation. (Momentary Switch)

**Level Mode:** Apply +12 VDC to the BROWN wire for over 1 sec. to hold the lightbar in *Low Power* until voltage is removed. (Toggle Switch)

### WHITE-GREEN / Scan-Lock™:

The WHT/GRN wire allows you to choose from available flash patterns. You must activate the function to select a pattern:

#### TO CYCLE THROUGH ALL PATTERNS:

To cycle forward apply +12 VDC to the WHT/GRN wire for less than 1 second and release.

To cycle backward apply +12 VDC to the WHT/GRN wire for more than 1 second and release.

#### TO SET A PATTERN AS DEFAULT:

When the pattern is displayed, allow it to run for more than 5 seconds. The lighthead will now display this pattern when activated.

#### TO RESET TO THE FACTORY DEFAULT PATTERN:

With power off, apply +12 VDC to WHT/GRN wire while turning power on.

Use a normally open momentary switch for Scan-Lock operation.

### BLACK / Ground:

Connect the BLACK wire to ground.

### BLK/WHT / Ground:

Connect the BLK/WHT wire to ground.

### Control Cable (Takedown-Alley Option):

#### YEL/GRN / Passenger Alley:

Apply +12VDC to the YEL/GRN wire to activate the Passenger Alley lights.

#### WHT / Driver Alley

Apply +12VDC to the WHT wire to activate the Driver side Alley lights.

#### WHT/BLU / Takedowns:

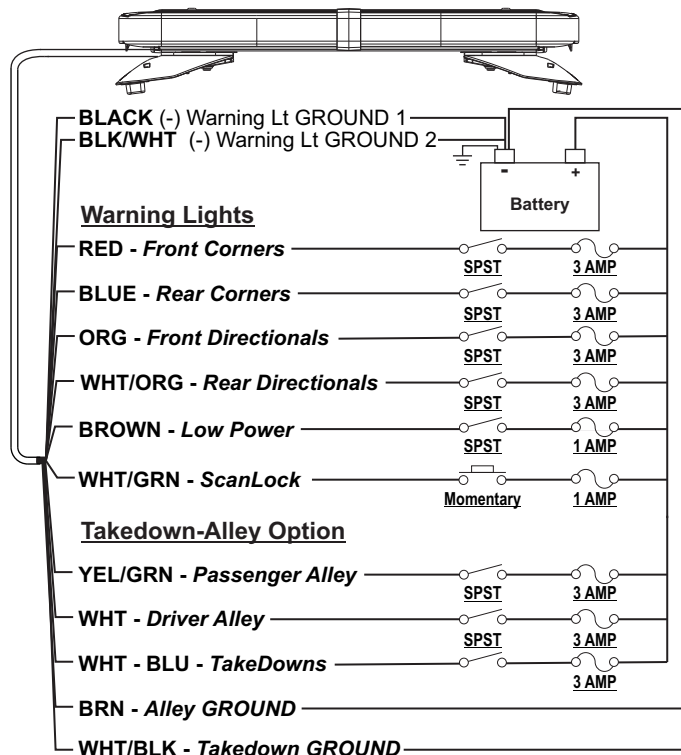
Apply +12VDC to WHT/BLU wire to activate the Takedowns.

#### BRN / Alley Ground:

Connect BRN wire to ground.

#### WHT/BLK / Takedown Ground:

Connect the WHT/BLK wire to ground.



#### FLASH PATTERNS:

- |                              |                               |                               |
|------------------------------|-------------------------------|-------------------------------|
| 1. SignalAlert™ L/R SYNC     | 24. LongBurst™ SIM            | 48. SingleFlash 120 STDY RT   |
| 2. SignalAlert™ L/R ASYNC    | 25. LongBurst™ ALT/SIM        | 49. SingleFlash 120 STDY BOTH |
| 3. SignalAlert™ IN/OUT       | 26. SingleFlash 60 L/R SYNC   | 50. SingleFlash 240 L/R SYNC  |
| 4. SignalAlert™ SIM          | 27. SingleFlash 60 L/R ASYNC  | 51. SingleFlash 240 L/R ASYNC |
| 5. SignalAlert™ ALT/SIM      | 28. SingleFlash 60 IN/OUT     | 52. SingleFlash 240 IN/OUT    |
| 6. CometFlash® L/R SYNC      | 29. SingleFlash 60 SIM        | 53. SingleFlash 240 SIM       |
| 7. CometFlash® L/R ASYNC     | 30. SingleFlash 60 ALT/SIM    | 54. SingleFlash 240 ALT/SIM   |
| 8. CometFlash® IN/OUT        | 31. SingleFlash 60 STDY LEFT  | 55. ActionFlash™ L/R SYNC     |
| 9. CometFlash® SIM           | 32. SingleFlash 60 STDY RT    | 56. ActionFlash™ L/R ASYNC    |
| 10. CometFlash® ALT/SIM      | 33. SingleFlash 60 STDY BOTH  | 57. ActionFlash™ IN/OUT       |
| 11. DoubleFlash 75 L/R SYNC  | 34. SingleFlash 90 L/R SYNC   | 58. ActionFlash™ SIM          |
| 12. DoubleFlash 75 L/R ASYNC | 35. SingleFlash 90 L/R ASYNC  | 59. PingPong™ L/R SYNC        |
| 13. DoubleFlash 75 IN/OUT    | 36. SingleFlash 90 IN/OUT     | 60. PingPong™ L/R ASYNC       |
| 14. DoubleFlash 75 SIM       | 37. SingleFlash 90 SIM        | 61. PingPong™ IN/OUT          |
| 15. DoubleFlash 75 ALT/SIM   | 38. SingleFlash 90 ALT/SIM    | 62. PingPong™ SIM             |
| 16. SingleFlash 75 L/R SYNC  | 39. SingleFlash 90 STDY LEFT  | 63. ModuFlash™ L/R SYNC       |
| 17. SingleFlash 75 L/R ASYNC | 40. SingleFlash 90 STDY RT    | 64. ModuFlash™ L/R ASYNC      |
| 18. SingleFlash 75 IN / OUT  | 41. SingleFlash 90 STDY BOTH  | 65. ModuFlash™ IN/OUT         |
| 19. SingleFlash 75 SIM       | 42. SingleFlash 120 L/R SYNC  | 66. ModuFlash™ SIM            |
| 20. SingleFlash 75 ALT/SIM   | 43. SingleFlash 120 L/R ASYNC | 67. ActionScan™               |
| 21. LongBurst™ L/R SYNC      | 44. SingleFlash 120 IN/OUT    |                               |
| 22. LongBurst™ L/R ASYNC     | 45. SingleFlash 120 SIM       |                               |
| 23. LongBurst™ IN/OUT        | 46. SingleFlash 120 ALT/SIM   |                               |
|                              | 47. SingleFlash 120 STDY LEFT |                               |

L/R SYNC = LEFT / RIGHT SYNCHRONOUS

L/R ASYNC = LEFT / RIGHT ASYNCHRONOUS

SIM = SIMULTANEOUS

IN/OUT = IN / OUT

STDY LEFT = STEADY LEFT

STDY RT = STEADY RIGHT

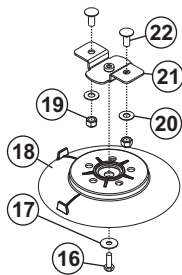
STDY BOTH = STEADY BOTH

ALT/SIM = ALTERNATING SIMULTANEOUS

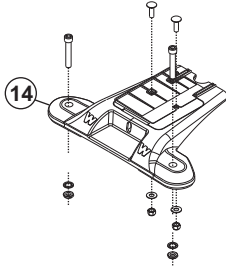
QTY	QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
		*		01-0688441-__	CENATOR MINI, 24" LIGHTBAR, PERM MT
	*			01-0688441-__	CENATOR MINI, 24" LIGHTBAR, MAGNETIC MOUNT
	*			01-0688441-__	CENATOR MINI, 24" LIGHTBAR, VACUUM MOUNT
A/R	A/R	A/R	1	01-026H800-__0	SUB ASSY, 3LED LINEAR SOLO (3535)
A/R	A/R	A/R	2	01-026H819-__0	SUB ASSY, 6LED LINEAR SOLO XQ-E
A/R	A/R	A/R	3	01-026H818-__0	SUB ASSY, 6LED LINEAR SOLO (3535)
A/R	A/R	A/R	4	07-26H813-000	BRACKET, FILLER CERIDIAN LTBAR
-	-	A/R	5	01-0247958-30	SUB ASSY, 3LED TD/ALLEY XQ-E
-	-	A/R	6	01-0247941-30	SUB ASSY, TD/ALLEY XP-L
A/R	A/R	A/R	7	68-196H600-__	LENS, OPTIC FILTER
2	2	2	8	68-1988220-__	LENS, OPTIC END MODULE
2	2	2	9	38-046H072-00	SEAL, LENS DIVIDER
1	1	1	10	38-046H071-__	DIVIDER, LENS

4	4	4	11	21-17020602-3	SCREW GROMMET, MOLDED
2	2	2	12	11-26H069-000	ENDCAP, END MODULE LENS
4	4	4	13	15-045410-100	SCREW, 4 X 5/8" PPH PLAST 48-2 STEEL ZINC & BLK CHROM.
-	-	2	14	02-036H812-00	SUB ASSY, MOUNTING FOOT
-	2	-	15	02-036H847-00	SUB ASSY, MAGNET MOUNT
2	-	-	16	14-130436-120	SCREW, 1/4-20 X 3/4" HEX HD MS SS
2	-	-	17	16-1302820-06	WASHER, FLAT 1/4" 7/8 OD SS 17/64 ID .056-.070" THK
2	-	-	18	08-1583927-05	SUCTION CUP, MAGNET MOUNT
4	-	-	19	13-062120-052	NUT, 6-32 X 5/16" ELASTIC STOP SS
4	-	-	20	16-1402420-05	WASHER, 5/16" FLAT SS 3/4" OD
2	-	-	21	07-247960-023	BRKT, MAG/SUC CUP MT BLACK
4	-	-	22	14-148046-140	BOLT, 5/16-18 X 3/4" CARRIAGE SS
-	-	A/R	23	02-036H848-00	SUB ASSY, STUD MT,

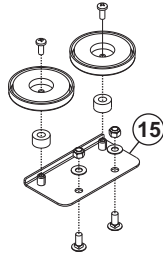
#### VACUUM MOUNT



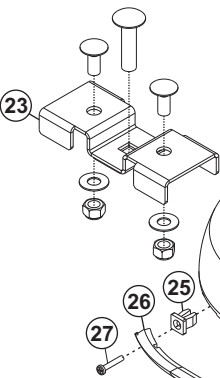
#### PERMANENT



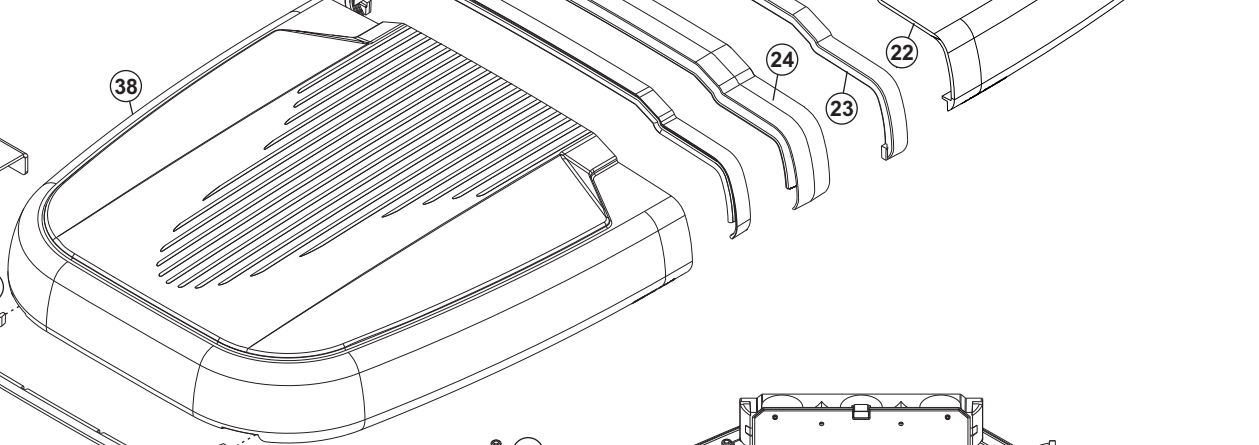
#### MAG MOUNT



#### STUD MOUNT



### MOUNTING OPTIONS



### LIGHTHEAD OPTIONS

