

WHELEN[®]

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Installation Guide: Mini Freedom™ Lightbar / Rota-Beam™ 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 he can operate the system without taking his 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!**

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

IMPORTANT! 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.

Permanent Mounting:

1. Locate the mounting foot and locking plate. If not already installed, install the locking plate onto the mounting foot using the supplied allen set screws (Fig. 1).
2. Flip the lightbar upside-down to expose the bottom of the extrusion. Place the mounting foot into the extrusion and rotate the foot so that the top of the foot swings into position under the lips in the extrusion (Figs. 2, 3 & 4).
3. Repeat this procedure for the remaining mounting foot and return the lightbar to its right side-up position.
4. 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. Check the light bar cable exit location to be sure that the lightbar is facing the proper direction (Cable exits in rear).
5. When the mounting feet are properly positioned, lightly tighten the allen head set screws.
6. Turn the lightbar upside down and tighten all of the allen head set screws (Fig.4). With the lightbar upside down, drill 2 holes into the mounting foot (for the mounting bolts) using the holes in the mounting pads as guides (Fig. 1).

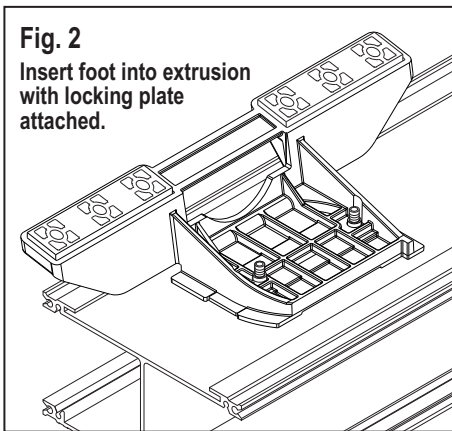
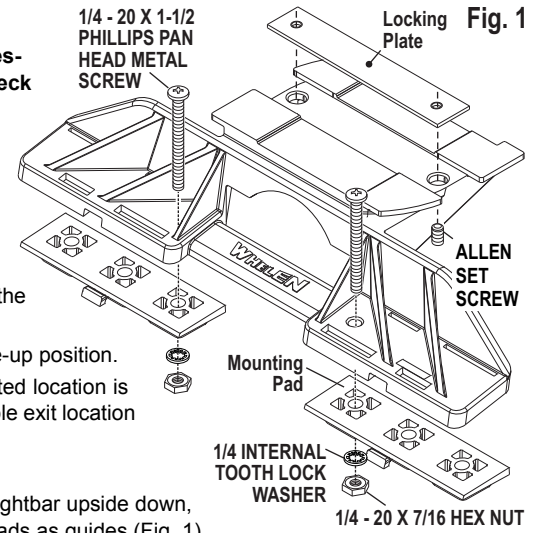


Fig. 2
Insert foot into extrusion with locking plate attached.

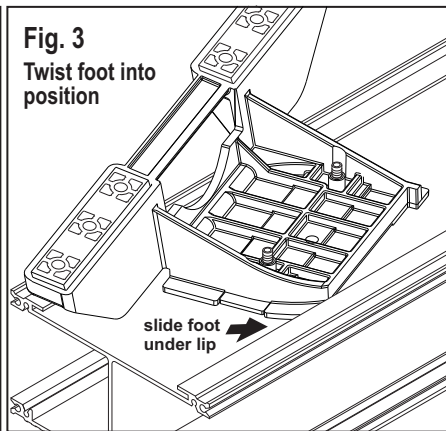


Fig. 3
Twist foot into position
slide foot under lip

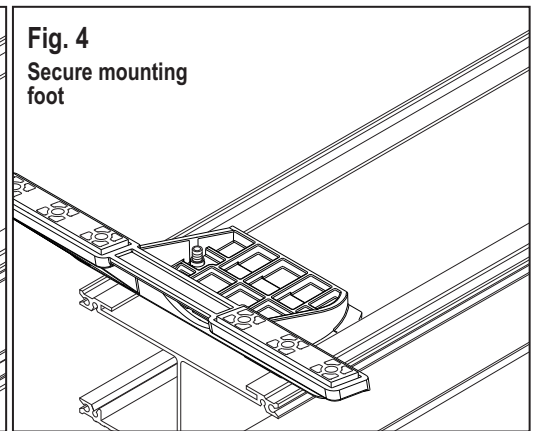
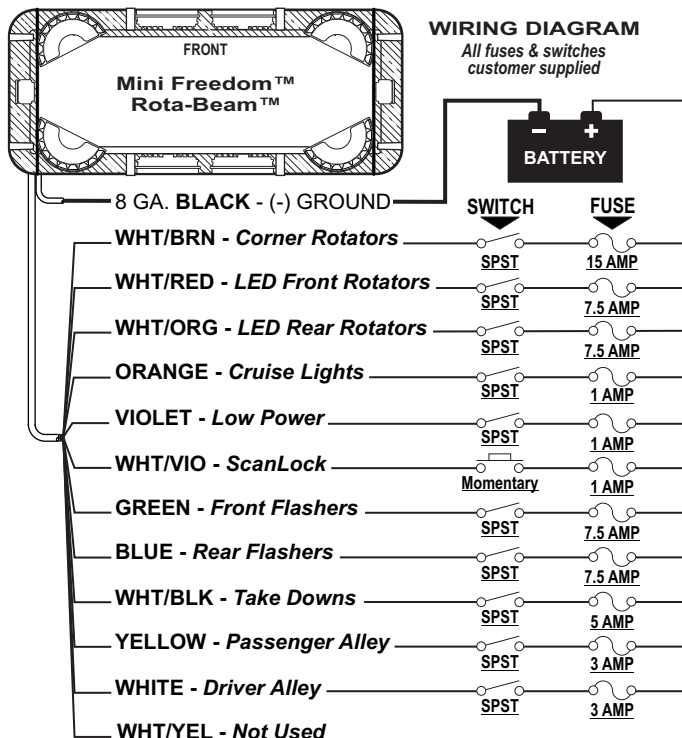
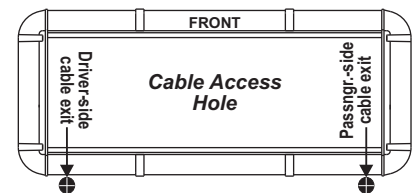


Fig. 4
Secure mounting foot

7. Place the lightbar in its final mounting position on the vehicle, mark the mounting hole locations off onto the mounting surface, remove the lightbar and drill the mounting holes. You will need to lower the vehicle headliner (if present) for steps 7 & 8.
8. 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.



Wiring:

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!**

WARNING! When routing the wires, it is important to choose a path that will keep the wires away from excessive heat or any vehicle equipment. (ex. trunk lids, door jams, etc.)

Control Cable Operation:

Wht/Vio: Scan-Lock™ (Fuse wire @ 1 AMP)

To change the flash pattern on any light, activate only that light.

TO CHANGE PATTERNS: To cycle forward to the next available pattern apply +VBAT to the WHITE-VIOLET wire for less than 1 second and release. To cycle back to the previous pattern apply +VBAT to the WHITE-VIOLET wire for more than 1 second and release.

TO CHANGE THE DEFAULT PATTERN: When the desired pattern is displayed, allow it to run for more than 5 seconds. The light will now display this pattern when initially activated.

TO RESTORE THE FACTORY DEFAULT PATTERN: Turn power to the light off. While applying +VBAT to the WHITE-VIOLET wire, turn power to the light on. The factory default pattern is now displayed.

Use a Normally Open Momentary Switch for Scan-Lock™ operation. Scan-Lock is also used to select from four cruise light intensities.

Violet: Low Power (Fuse wire @ 1 AMP)

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

Latching Mode: By applying +VBAT to the VIOLET wire for less than 1 sec., the power supply is "latched" into low power operation. The unit must be turned off and then back on to restore normal, Hi power operation. (Momentary Switch)

Level Mode: Applying +VBAT to the VIOLET wire for over 1 sec. holds the power supply in low power mode until voltage is removed. (Toggle Switch)

Wht/Brn: All Corner Rotators (Fuse wire @ 15 AMPS)

Applying +VBAT to the WHT/BRN wire activates Corner Rotators.

Wht/Red: LED Front Rotators (Fuse wire @ 7.5 AMPS)

Applying +VBAT to the WHT/RED wire activates Option #1.

Wht/Org: LED Rear Rotators (Fuse wire @ 7.5 AMPS)

Applying +VBAT to the WHT/ORG wire activates Option #2.

Orange: Cruise (Fuse wire @ 1 AMP)

Applying +VBAT to the ORG wire activates all four corner rotators at low intensity with no flash. Choose from four light intensities using ScanLock.

White: Driver Side Alley Light (Fuse wire @ 3 AMPS)

Applying +VBAT to the WHT wire activates Driver Side Alley.

Yellow: Passenger Side Alley Light (Fuse wire @ 3 AMPS)

Applying +VBAT to the YEL wire activates Passenger Side Alley

Wht/Blk: Take Downs (Fuse wire @ 5 AMPS)

Applying +VBAT to the WHT/BLK wire activates Take Downs.

Green: Front Flashers (Fuse wire @ 7.5 AMPS)

Applying +VBAT to the GREEN wire activates Front Flashers.

Blue: Rear Flashers (Fuse wire @ 7.5 AMPS)

Applying +VBAT to the BLUE wire activates Rear Flashers.

White/Yellow: Not Used

Ground Cable:

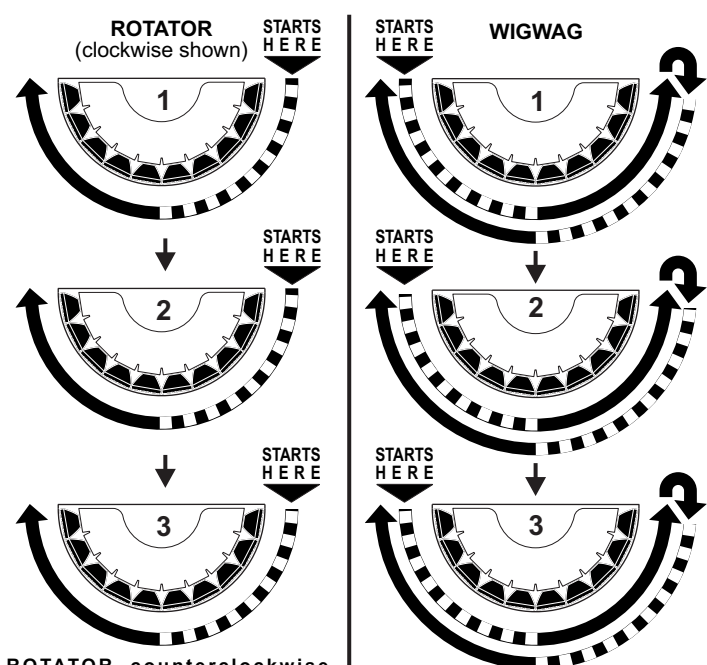
Black: Ground Wire / Extend to ground.

Flash Patterns:

ROTATOR flash patterns operate as shown. You can change the pattern speed and the direction it travels (75 or 150 FPM) (clockwise or counterclockwise). In patterns 9 - 14 each LED panel will flash in ModuFlash, DoubleFlash or QuadFlash.

WIGWAG flash patterns operate as shown. The difference in available WIGWAG flash patterns is the speed the pattern cycles (75 or 150 FPM).

Center WIGWAG is the same except after each sweep there is a delay before the pattern sweeps back simulating the light going around a full beacon.



ROTATOR counterclockwise starts on the opposite side and travels in the opposite direction.

Flash Patterns:

#	PATTERN	DIRECTION
1.	Rotator 75	Counter Clockwise
2.	Rotator 75	Clockwise
3.	Rotator 150	Counter Clockwise
4.	Rotator 150	Clockwise
5.	WigWag 75	N/A
6.	WigWag 150	N/A
7.	Center WigWag 75	N/A
8.	Center WigWag 150	N/A
9.	Rotator ModuFlash™	Counter Clockwise
10.	Rotator ModuFlash™	Clockwise

IMPORTANT WARNING!

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

IMPORTANT! It is the responsibility of the installation technician to make sure that the installation and operation of this product will not interfere with or compromise the operation or efficiency of any vehicle equipment! Before returning the vehicle to active service, visually confirm proper operation of this product, as well as all vehicle components/equipment.

QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
	*		01-0687554-__	FREEDOM MINI, ROTA-BEAM
*			01-0687554-__	FRONT FACING FREEDOM MINI, ROTA-BEAM
1	1	1	11-363681-001	BASE, EXTRUSION (24.25") NO MAG HOLES
2	2	2	22-0542701-00	MTG. STUD
1	1	3	21-11245004-1	GROMMET, 1.562"
1	1	4	14-104216-160	#10-24 x 1 PPHM SCREW
1	1	5	21-242401-000	BUSHING, 1-5/8"
1	1	6	01-026E714-00	ASSY, HC POWER DISTRIBUTION FREEDOM ROTA-BEAM
2	2	7	13-130111-072	NUT, 1/4-20 ELASTIC STOP (316 STAINLESS)
4	4	8	22-0416982-00	PROTECTIVE COVER
1	1	9	46-0746850-00	ASSY, CABLE INPUT DELTA ROTATOR LIGHTBAR
1	1	10	67-1N00800M00	WIRE, 8 GA 20' BLACK 5952-BK CONTACT/STRIP 3/16
1	1	11	39-0001007-00	HOUSING, 1 POS, 75A, BLACK POWERPOLE 75
1	1	12	26-0115663-10	CABLE CLAMP, 5/8"D, 1/2"W .203" MTG HOLE, BLACK
1	1	13	13-104111-063	NUT, #10-24 WHIZ
1	1	14	26-0215001-06	TY WRAP, 6" BLACK
-	2	15	46-076E762-05	ASSY, HARNESS 5" LED ROTA-BEAM
2	3	16	46-076E762-20	ASSY, HARNESS 20" LED ROTA-BEAM
1	1	17	46-076E762-30	ASSY, HARNESS 30" LED ROTA-BEAM
A/R	A/R	18	26-0215001-03	TY WRAP, 3" BLACK
6	6	19	07-263103-000	BRACKET, LIGHTHEAD MOUNTING EDGE ULTRA
4	4	20	09-1363158-00	PANEL, FILLER 400 SERIES BLACK
4	4	21	07-246869-000	BRACKET, CLAMP 180 END ROTATOR FREEDOM
4	4	22	14-062216-121	SCREW, 6-32 X 3/4 PPHMS SEMS W/IT LOCK WASHER SS
4	4	23	13-062111-053	NUT, 6-32 X 5/16 WHIZ LOCK STEEL ZINC PLATED
8	8	24	13-062C40-16J	SCREW GROMMET, #6/#8 FASTEX
1	2	25	01-0287455-*0	ASSY, DRVR-FRONT/PASS-REAR, FREEDOM ROTA-BEAM
1	2	26	01-0287456-*0	ASSY, PASS-FRONT/DRVR-REAR, FREEDOM ROTA-BEAM
1	-	27	07-76E427-123	PLATE, LED ARRAY MT PASSENGER 180 END ROTATOR FREEDOM
1	-	28	07-76E427-023	PLATE, LED ARRAY MT DRIVER 180 END ROTATOR FREEDOM
12	12	29	15-065419-080	SCREW, 6 X 1/2 PPH PLASTI 410 SS
A/R	A/R	30	01-02863612**	LED, 400 SPLIT GEN III AMP
A/R	A/R	31	01-0287457-*0	ASSY, CENTER ROTATOR FREEDOM ROTA-BEAM
A/R	A/R	32	01-026A213-05	ASSY, ELECT FLASHER ROTATOR DELTA
A/R	A/R	33	08-0617078-00	RUBBER BUMPER, .375 SQUARE BLK
A/R	A/R	34	14-062216-041	SCREW, 6-32 X 1/4 PPHMS
A/R	A/R	35	46-0787428-02	ASSY, HARNESS FLASHER HC DELTA ROTA-BEAM
A/R	A/R	36	46-0787523-04	ASSY, HARNESS FLASHER OUTPUT FREEDOM ROTA-BEAM
A/R	A/R	37	01-026A936-01	SUB ASSY, DUAL LR11 TAKEDOWN 9M/FREEDOM
A/R	A/R	38	01-026B047-31	SUB ASSY, DUAL LR11 ALLEY 20 DEG 9M/FREEDOM
A/R	A/R	39	46-0743719-00	ASSY, "Y" HARNESS LED TD/ALY FREEDOM
A/R	A/R	40	46-0787523-00	ASSY, HARNESS TAKEDOWN FREEDOM ROTA-BEAM
A/R	A/R	41	46-0787523-02	ASSY, HARNESS ALLEY FREEDOM ROTA-BEAM
2	2	42	68-1183491C02	LENS SECTION (CLEAR) 10.375
4	4	43	68-1983817-30	LENS SECTION (CLEAR) 6.562"
4	4	44	02-0341448-30	LENS DIVIDER (CLEAR)
2	2	45	38-0283381-00	GASKET, ENDCAP EDGE 9000
2	2	46	68-1183369-30	ENDCAP, CLEAR EDGE ULTRA SERIES
8	8	47	14-104286-16JB	#10-24 x 1-1/4" TX, PHD. SCREW W/SHOULDER
1	1	48	10-0523067-02	LABEL, PN/MN/SN EDGE FREEDOM SERIES
1	1	49	10-0322935-00	LABEL, "FRONT"
1	1	50	01-0483969007	MOUNTING KIT 7S
A/R	A/R	51	38-0417738-00	O RING, CORD STOCK .093 DIA BLACK

OPTIONS

