

WHELEN[®]

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Installation Guide: Low Profile Highway Bar

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

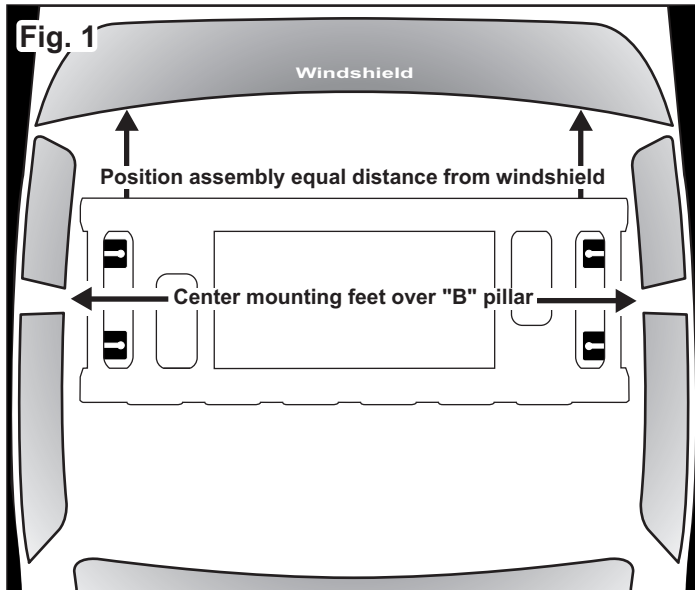
This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained 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.**
- **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:

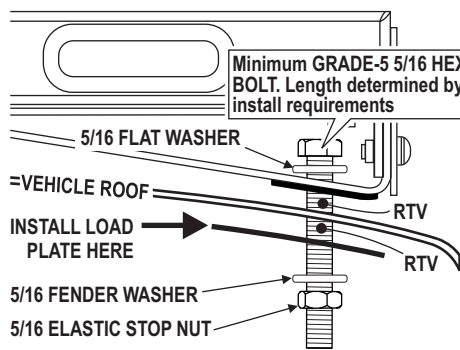
Before beginning installation park the vehicle on a level surface. **IMPORTANT! The lightbar should be located a minimum of 16" from any radio antennas!**

1. Remove the headliner from the vehicle. (Refer to vehicle owners manual)
2. Place the light assembly onto the vehicle roof. The mounting feet must be centered over the vehicles "B" pillars (Fig. 1). Make sure unit is centered side to side on the vehicle roof and equal distance from the top of the windshield. With the light assembly in place, mark the four mounting hole locations onto vehicle.



3. Remove the light assembly from the vehicle. In the four locations you marked in step 2, drill the mounting holes using a 5/16" sized drill. Also drill a 1" cable passage hole (location to be determined by installer). Install a rubber grommet (customer supplied) in the cable passage hole to protect wires. *Always deburr all holes and remove any metal filings from the vehicle to prevent rust spots.*

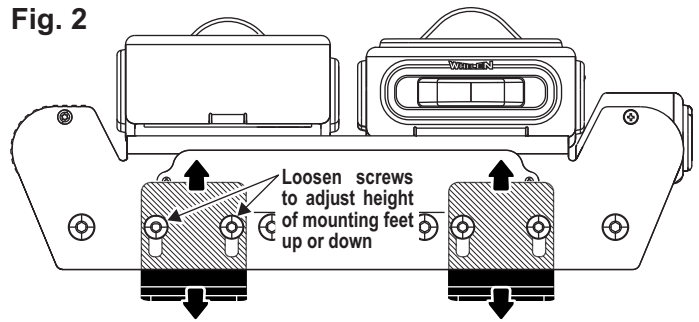
4. Apply RTV sealer around the mounting holes on the roof. Place the light assembly onto the vehicle lined up with the mounting holes and insert the mounting bolts into the holes. Feed the cable through the cable access hole. With the cable in place, apply RTV sealer to the cable access hole.



IMPORTANT: The mounting hardware shown is the minimum requirement to mount this product. This lightbar can be mounted to several different vehicles. It is up to the installer to choose suitable mounting hardware that will safely secure the lightbar to the vehicle depending on vehicle requirements.

5. It is suggested that you use a load plate (customer supplied) on the inside of the roof that is equal or greater than the size of the mounting feet. Secure the four mounting feet to the vehicle and tighten all hardware firmly. **NOTE: All mounting hardware is customer supplied.**

Fig. 2



6. Check to make sure the light assembly is level with the road. If it needs adjustment, slightly loosen the screws that hold the mounting feet to the light assembly (Fig. 2). Place a level on the assembly and adjust the angle until it is level. When the assembly is level fully tighten the mounting foot leveling screws to 14 In. Lbs.

Operation

The Highway bar is operated from the control cable exiting the light assembly.

RED - Warning Flashers: Applying positive voltage to the RED wire engages the warning flashers.

BLUE - Takedown Override: Applying positive voltage to the BLUE wire engages the Takedowns.

WHITE - Alley Light: Applying positive voltage to the WHITE wire engages the Alley Lights.

ORANGE - Motor Negative (-) (See wiring diagram)

GREEN - Motor Positive (+) (See wiring diagram)

BLACK - Ground (-) (See wiring diagram)

Operation / TrafficAdvisor: The Connect to control box (customer supplied)

Operation of the lift motor:

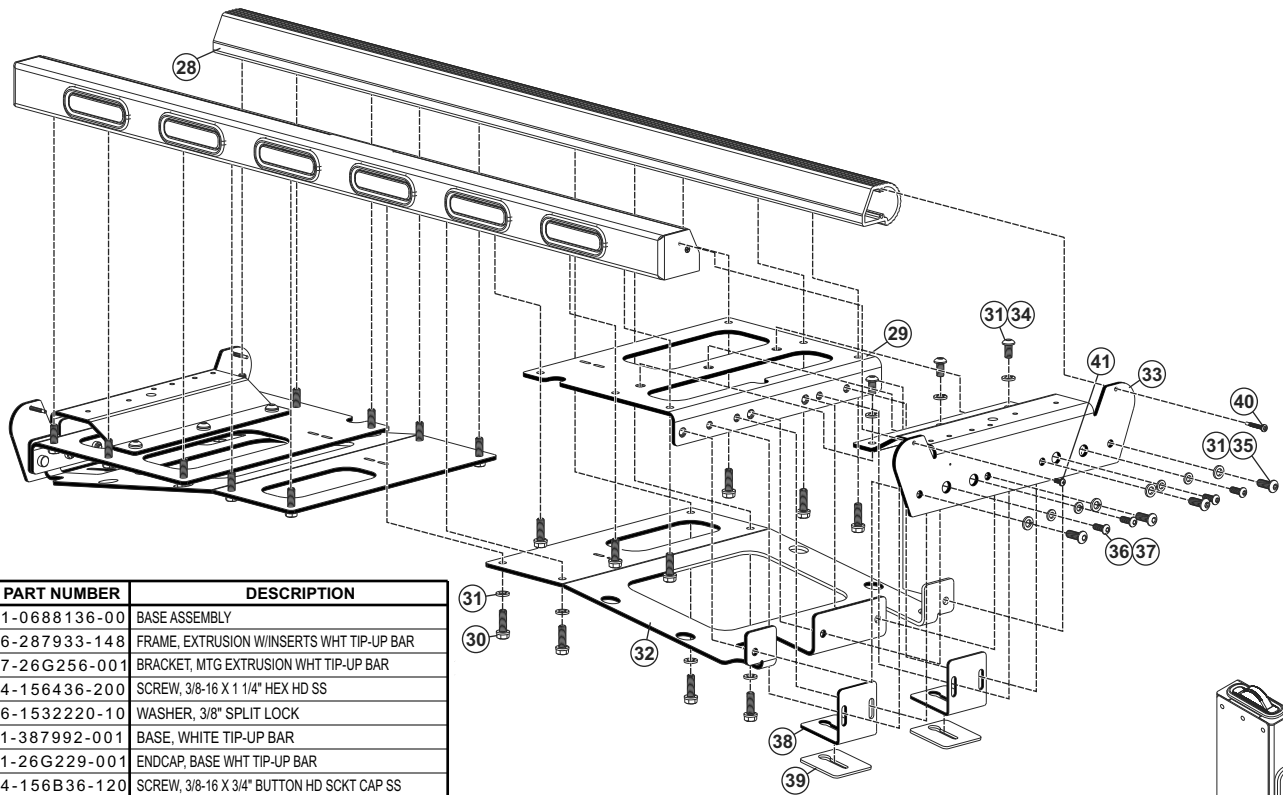
This switch is programmed at the factory to raise or lower the lightbars on your "Highway Lightbar System" with a running time of 12-15 seconds. The switch is also programmable to between 5 and 24 seconds of running time. You may need this feature since system voltages vary and this will affect the accuracy of the operation. Most systems are 12 volts. If your system is a higher voltage, you will need less lift and lowering time, for a lower voltage system you will need more time. You can tell whether you need to adjust the programming if the bars don't raise or lower completely when you use the factory set time.

Note: When power is first applied to the timer unit, it assumes the bars are in the down position. If the bar is not down, use the manual control to lower it.

WARNING! Do not raise lightbars with the vehicle moving or drive vehicle with bars raised.

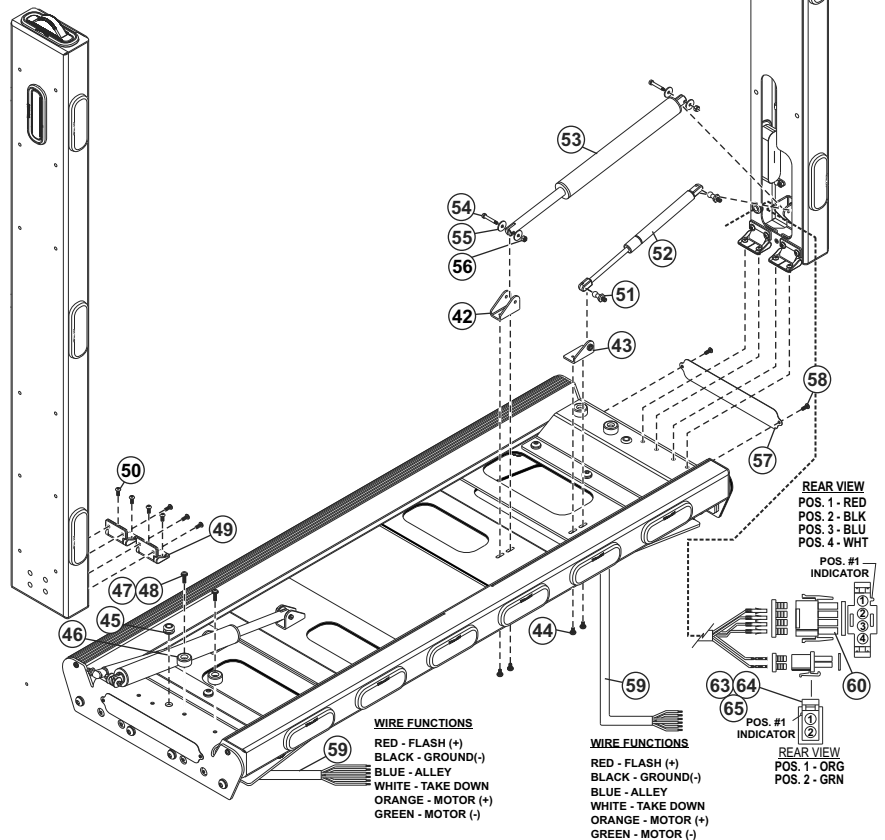
For manual control: Press and hold the UP or DOWN button for more than 1 second. The bars will travel in either the UP or DOWN direction until you release the button.

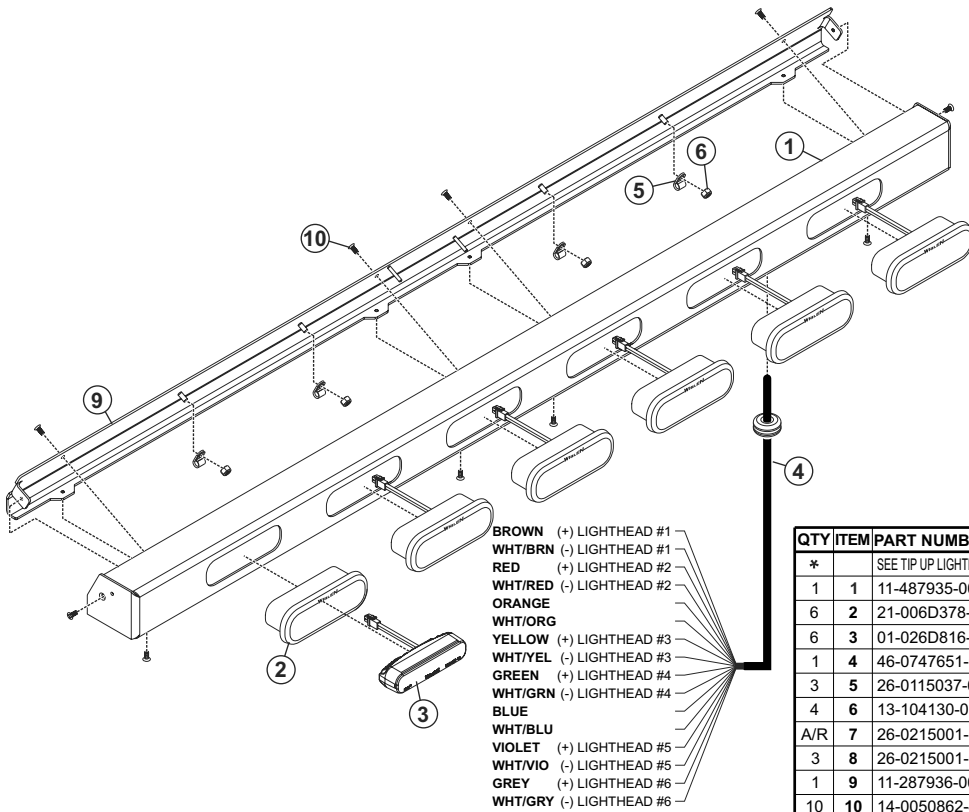
To raise or lower the bars automatically: Press either UP or DOWN on the control switch.



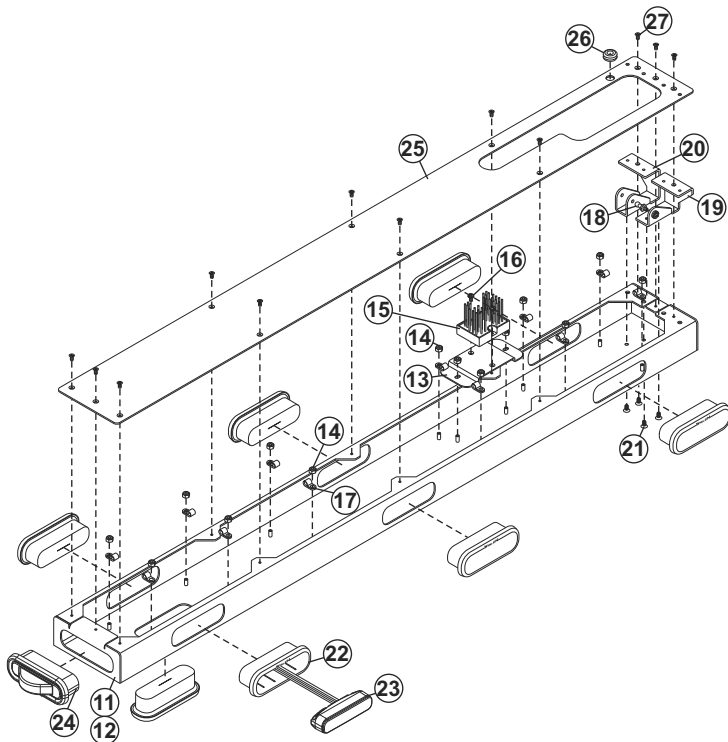
QTY	ITEM	PART NUMBER	DESCRIPTION
*		01-0688136-00	BASE ASSEMBLY
1	28	06-287933-148	FRAME, EXTRUSION W/INSERTS WHT TIP-UP BAR
2	29	07-26G256-001	BRACKET, MTG EXTRUSION WHT TIP-UP BAR
20	30	14-156436-200	SCREW, 3/8-16 X 1 1/4" HEX HD SS
34	31	16-1532220-10	WASHER, 3/8" SPLIT LOCK
2	32	11-387992-001	BASE, WHITE TIP-UP BAR
2	33	11-26G229-001	ENDCAP, BASE WHT TIP-UP BAR
6	34	14-156B36-120	SCREW, 3/8-16 X 3/4" BUTTON HD SCKT CAP SS
8	35	14-156B36-160	SCREW, 3/8-16 X 1" BUTTON HD SCKT CAP SS
8	36	14-148B26-120	SCREW, 5/16-18 X 3/4" BUTTON HD SCKT CAP SS W/ NYLON PATCH
8	37	16-1431920-08	WASHER, 5/16" SPLIT LOCK
4	38	07-247536-000	BRACKET, MOUNTING FOOT TIP-UP BAR
4	39	38-0147537-00	PAD, FOOT TIP-UP BAR
2	40	14-0023347-00	SCREW, 10-24 X 1.25" TX PHD SWEDGE FORM 1/4" LEAD 1" THREAD
2	41	14-104216-081	SCREW, 10-24 X 1/2" PPHMS SEMS WIT LOCK WASHER SS

QTY	ITEM	PART NUMBER	DESCRIPTION
*		01-0688136-00	TIP-UP LIGHTBAR
2	42	07-223965-000	BRACKET, MTG ACTUATOR TIP-UP BAR
2	43	07-223975-000	BRACKET, MTG LOWER GAS SPRING TIP-UP BAR
8	44	14-104216-061	SCREW, 10-24 X 3/8" PPHMS SS SEMS WIT LOCK WASHR BLK OXIDE
2	45	21-11121608-0	GROMMET, 3/8 ID 3/4 OD 1/2 THK BLK RUBBER MINOR RUBBER 52563
4	46	08-0618416-000	RUBBER BUMPER, 1" DIA 1/2" H 7/32 CBORE UNTHREAD
4	47	14-104216-120	SCREW, 10-24 X 3/8" PPHMS SS
4	48	16-1001620-35	WASHER, #10 FLAT .200" ID, .437" OD, .035" THICK
4	49	07-318752-000	HINGE, FREE OPERATING 2" X 2.25", TIP-UP LIGHTBAR
16	50	14-104B26-08V	SCREW, 10-24 X 1/2" BUTTON HD SCKT CAP SS VIBRA-TITE VC-3
2	51	22-0518809-00	BALL STUD, 1/4-20 #BS-11208
2	52	23-4018810-00	GAS STRUT, M6 X 1.0 .31D ROD 50 LB FORCE
2	53	27-1217124-01	ACTUATOR, LINEAR 12V 1-3/16"D, TIP-UP LIGHTBAR
4	54	14-082K26-164	SCREW, 8-32 X 1" SOCKET HD 3/16 DIA SHOULDER SS 18-8
8	55	16-0002430-06	WASHER, FLAT, NYLON .200 ID X .750 OD X .06 THK
4	56	13-082120-052	NUT, 8-32 ELASTIC STOP
2	57	09-0244349-02	PANEL, BACK "FLEET-RACK" LOGO WHITE
4	58	14-040216-030	SCREW, 4-40 X 3/16" PPHMS
2	59	46-076G929-00	ASSY, CABLE INPUT TIP-UP LIGHTBAR
2	60	39-1V17269-01	SEAL, WIRE 4 POS UNIVERSAL MATE-N-LOK
2	61	39-1V04017-00	HOUSING, 4 POS PLUG UNIVERSAL MATE-N-LOK
2	62	39-1V17269-00	SEAL, INTERFACE 4 POS UNIVERSAL MATE-N-LOK
2	63	39-2H17430-02	SEAL, GANG 2 POS MINI UMNL
2	64	39-0917425-02	HOUSING, PLUG, 2 X 1 POS MINI UMNL, SEALED
2	65	39-2H17429-02	SEAL, INTERFACE 2 POS MINI UMNL
1	66	10-0522878-02	LABEL, MODEL TIP-UP LIGHTBAR SERIALIZED





QTY	ITEM	PART NUMBER	DESCRIPTION
*		SEE TIP UP LIGHTBAR	SUB ASSY, TRAFFIC ADVISOR, TIP-UP LIGHTBAR
1	1	11-487935-001	HOUSING, TRAFFIC ADVISOR WHT TIP-UP BAR
6	2	21-006D378-00	GROMMET, BODY MOUNT ION LIGHT
6	3	01-026D816-10	SUB ASSY, ION LT AMBER 2-WIRE BLACK HSG
1	4	46-0747651-00	CABLE ASSY, TIP-UP LIGHTBAR TRAFFIC ADVISOR
3	5	26-0115037-04	CABLE CLAMP, 1/4"D, 3/8"W .203" MTG HOLE, BLACK
4	6	13-104130-062	NUT, 10-24 ELASTIC STOP BRASS
A/R	7	26-0215001-03	TY WRAP, 3" BLACK
3	8	26-0215001-06	TY WRAP, 6" BLACK
1	9	11-287936-001	COVER, TRAFFIC ADVISOR WHT TIP-UP BAR
10	10	14-0050862-48	SCREW, 8-32 X 3/8 PFH100/CSNK



QTY.	ITEM	PART NUMBER	DESCRIPTION
*		SEE TIP UP LIGHTBAR	8 LIGHT, WING
2	11	11-487934-001	HOUSING, LIGHTBAR ASSY WHT TIP-UP BAR
OPT	12	11-487934-101	HOUSING, LIGHTBAR ASSY WHT TIP-UP BAR, W/O SIDE LIGHT
2	13	07-247257-000	BRACKET, THERMOSTAT DOT HEATED LENS
28	14	13-104130-062	NUT, 10-24 ELASTIC STOP BRASS
2	15	01-026G810-00	SUB ASSY, BREAKOUT BOARD TIP-UP LIGHTBAR
4	16	14-082216-061	SCREW, 8-32 X 3/8 PPHMS SEMS W/IT LOCK WASHER SS
24	17	26-0115037-04	CABLE CLAMP, 1/4"D, 3/8"W .203" MTG HOLE, BLACK
2	18	22-0518809-00	BALL STUD, 1/4-20 #BS-11208
2	19	07-26G473-000	BRACKET, MTG UPPER GAS SPRING TIP-UP BAR
2	20	07-26G389-000	BRACKET, MTG UPPER ACTUATOR TIP-UP BAR
8	21	14-104116-06V	SCREW, 10-24 X 3/8 PFHMS SS 100 DEG HEAD VIBRA-TITE VC-3
16	22	21-006D378-00	GROMMET, BODY MOUNT ION LIGHT
A/R	23	01-026C747-*4	SUB ASSY, ION LIGHT MUMNLL, DIE CAST
A/R	24	01-026E781-*6	SUB ASSY, ION V-SERIES 6 POS MUMNLL
2	25	11-26G228-001	COVER, LIGHTBAR ASSEMBLY WHT TIP-UP BAR
2	26	21-11121603-0	GROMMET, 3/8" ID 1/2" LG FLNGE MCMASER # 9600K34
24	27	14-0050862-48	SCREW, 8-32 X 3/8 PFH100/CSNK