FEDERAL SIGNAL®
Safety and Security Systems

Installation and Maintenance Instructions for Models VSLR1 and VSLR1-MPS Series Lights

2562683 Rev C0 0226

Safety Message to Installers of Warning Light Equipment

⚠ WARNING

People's lives depend on your proper installation and servicing of Federal Signal products. It is important to read and follow all instructions shipped with this product and the original product. Listed below are some other important safety instructions and precautions you should follow:

- To properly install the lighting system, you must have a good understanding of automotive systems, along with proficiency in the installation and use of safety warning equipment.
- Do not install equipment or route wiring in the deployment path of an airbag.
- If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- Locate light control so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- Frequently inspect the light system to ensure that it is operating properly and that it is securely attached to the vehicle.
- When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged.
- In order for the light to function properly, a separate ground connection must be made. If practical, it should be connected to the negative battery terminal. At a minimum, it may be attached to a solid metal body or chassis part that will provide an effective ground path as long as the light system is to be used.
- Do not stare directly into the lights at a close range, or permanent damage to your eyesight may occur.
- Refer to the instructions packed with related products for additional precautions and information.
- File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

Product Overview

Featuring the patented Solaris LED Rotator, the IVP SLR creates a burst of illumination with the benefits of a rotator to create a sweep of light unmatched by flashing lights.

The IVP SLR is available in two styles that compliment Federal Signal's Vision SLR lightbars. The VSLR1 features red, blue, or amber LEDs and may be used as part of an NFPA lighting package. The VSLR1-R1-M6RBA is NFPA compliant and features a red LED rotator and a MicroPulse® Ultra 6 or MicroPulse Wide Angle Pro.

Driver-side (VSLR1D) and passenger-side (VSLR1P) oscillating models are also available. They are designed to be mounted on the rear of a fire apparatus. When oscillating, the LEDs emit light in the areas shown in Figure 1 on page 2.

Figure 1 Oscillating Sweep of Model VSLR1D and VSLR1P lights

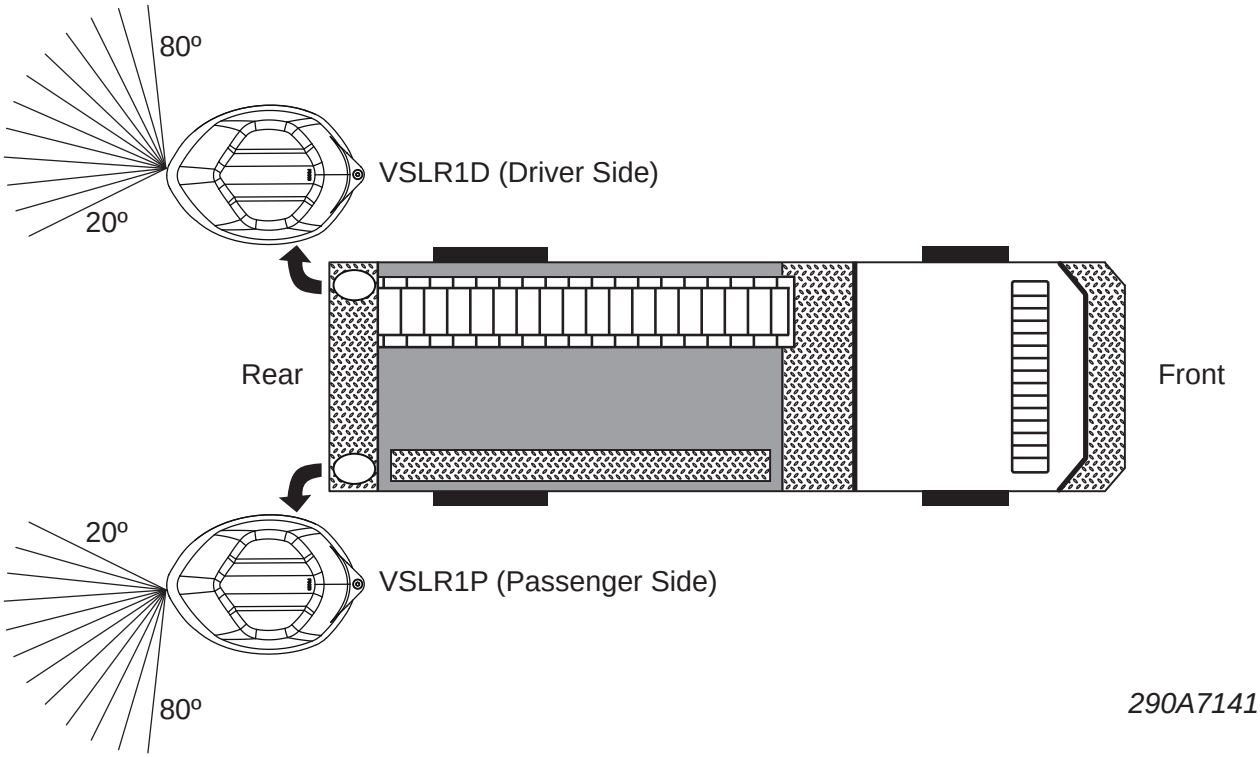


Table 1 Product Specifications

	VSLR1	VLSR1-MPS
Voltage	12/24 Vdc	12 Vdc
Operating Temp.	-30 ºC to +65 ºC	-30 ºC to +65 ºC
Ship Weight	5.5 lb (2.5 kg)	6.0 lb (2.7 kg)
Dimensions (H x L x D)	4.5 x 7.3 x 10.0 in (11.4 x 18.5 x 25.4 cm)	5.0 x 7.3 x 10.25 in (12.7 x 18.5 x 26.04 cm)
Amperage	1.8 at 12 Vdc 1.0 at 24 Vdc	2.8 at 12 Vdc

Unpacking the Product

After unpacking the product, inspect it for damage that may have occurred in transit. If it has been damaged, do not attempt to install or operate it. File a claim immediately with the carrier, stating the extent of the damage. Failure to identify the damage before installation could lead to rejection of any claim. Carefully check all envelopes, shipping labels, and tags before removing or destroying them. Ensure that the parts listed in Table 2 are included in the package. If you are missing any parts, contact Federal Signal Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday (CT).

Table 2 Mounting kit contents

Qty.	Description	Part Number
3	Elastic Stop Nut	7058A010
6	Rubber Mounting Pad	8422A033
1	Grommet	8108A014

Mounting the Light

To mount the light:

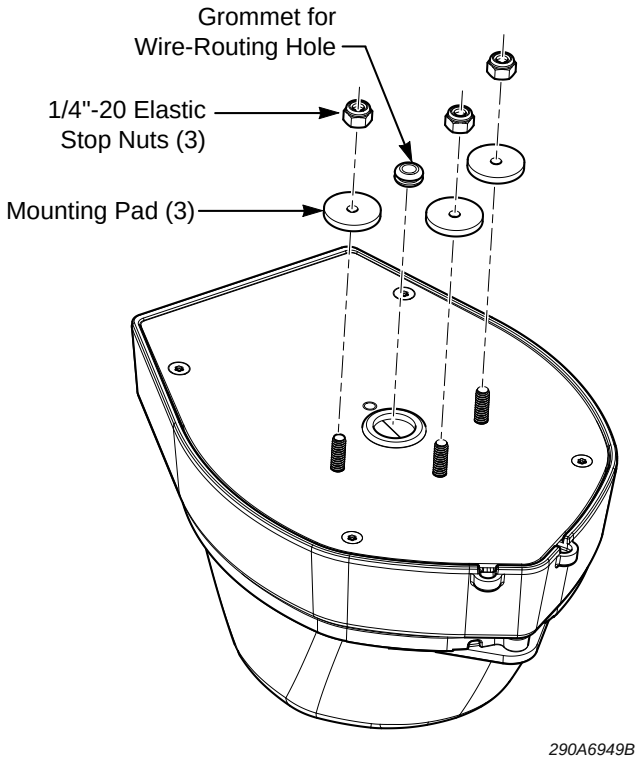
1. Select a mounting location for the light. Place the unit on the mounting location.
2. Using the base of the unit as a template, scribe four drill-position marks on the mounting surface. Refer to “Figure 8 Drilling Measurements (not to scale)” on page 11.

NOTICE

DRILLING PRECAUTIONS: When drilling holes, check the area into which you are drilling to ensure that you do not damage vehicle components. All drilled holes should be de-burred and all sharp edges should be smoothed. All wire routings going through drilled holes should be protected by a grommet or convolute/split loom tubing

3. Drill one 3/8-inch wire-routing hole at the center drill-position mark. Drill three 9/32-inch holes at the remaining drill-position marks on the mounting surface.
4. Install the grommet in the 3/8-inch wire-routing hole. See Figure 2.

Figure 2 Mounting Hardware for Models VSLR1 and VSLR1-MPS



5. Install one or two mounting pads over each of the three mounting studs as shown in Figure 2.
6. Position the light over the mounting holes and route the cable through the grommet. For the VSLR1-MPS, allow 10 to 18 inches of slack in the cable under the roof so the unit can be removed if the MicroPulse® is damaged and needs to be replaced.
7. To prevent water leakage if applicable, apply a silicone sealing compound around the cable and grommet where they pass through the mounting surface.
8. Secure the unit to the mounting surface with the three 1/4"-20 elastic stop nuts.

Wiring the Light in the Vehicle

The light is completely wired at the factory and does not require any additional internal wiring. All the conductors necessary for control of light assembly are contained in the leads. The basic light functions of the unit must be controlled by a installer-supplied control head. Before proceeding, ensure that the light assembly has been installed on the vehicle roof in accordance with the instructions

⚠ WARNING

LOCATING OPERATOR CONTROLS: The controls for the light system must be located so that the VEHICLE and CONTROLS can be operated safely under all driving conditions.

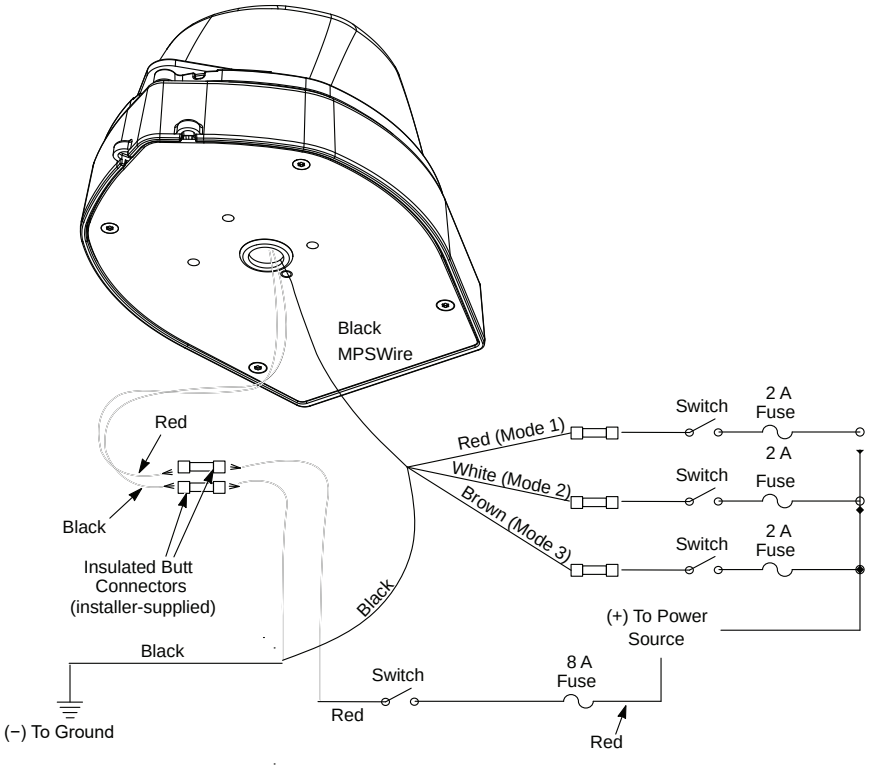
To wire the pod:

1. Determine the length of wires needed for the installation. For lengths up to 15 feet (5 m), use a minimum of 18 AWG (1 mm^2) wire. For lengths over 15 feet, use a minimum of 16 AWG (1.5 mm^2) wire.

   Use insulated butt connectors to splice the leads. Ensure that the connectors are securely crimped and properly insulated.

2. Connect the black lead to chassis ground (—NEG). See Figure 3.

Figure 3 Wiring for VSLR1-MPS



3. Connect the red wire (+BAT) to one terminal of an installer-supplied switch with a current capacity of at least 8 A.

4. Connect the other terminal of the switch through an installer-supplied 8 A fuseholder to the positive (+BAT) terminal of the voltage source.

Wiring the MicroPulse®

To wire the MicroPulse without the included waterproof connector:

1. Determine the required functions and the length of wires needed to access them. A five-conductor cable can be selected for a full-featured installation. For lengths up to 15 feet (5 m), use a minimum of 18 AWG (1 mm^2) wire. For lengths over 15 feet, use a minimum of 16 AWG (1.5 mm^2) wire. Before wiring the light head, refer to Table 3 for the function of each wire.

Table 3 Wire Connections

Color	Description	Connection Point
Black	Ground	Battery Negative
Red	Mode 1	Switched Positive 12-24 Vdc
White	Mode 2	Switched Positive 12-24 Vdc
Brown	Mode 3	Switched Positive 12-24 Vdc
Green	Program/FSLink	12-24 Vdc (for programming only)
Blue (For MPSWP light head only)	Down-lighting	Switched Positive 12-24 Vdc

2. Strip 1/4 inch (5 mm) of insulation from the ends of the installer-supplied wires.
3. Use insulated butt connectors to connect the wires to the power cable of the light head. Ensure that the connectors are securely crimped and properly insulated.
4. Connect the end of the fuse holder to the positive (+) terminal of the voltage source.
5. Connect the black wire from the light head to a known good vehicle ground as close to the light head as practical.
6. The black wire is ground and must be connected to a suitable chassis ground if it cannot be taken directly to the negative terminal of the battery.
7. The green wire has multiple functions:
   - If using the light head with an external flasher, this wire is tied directly to chassis ground. This allows an external flasher to control each color independently via the Mode wires.
   - If using the light head's internal flasher, it is the runner wire that synchronizes FSLink®-equipped products, and it serves as the function/pattern programming wire.
8. The red wire powers the light head in Mode 1 when connected to a fused, positive voltage.
9. The white wire powers the light head in Mode 2 when connected to a fused, positive voltage.
10. The brown wire powers the light head in Mode 3 when connected to a fused, positive voltage.

    NOTE: Mode 3 overrides Mode 2, which overrides Mode 1.
11. (For MPSWP light head only) The blue wire powers the down-lighting of the light head when connected to a fused, positive voltage.

    NOTE: The down-lighting is a steady-on light function only and will not flash.

Replacing the MicroPulse®

⚠ WARNING

SHOCK HAZARD: Disconnect ALL power to the unit before any maintenance is performed. Failure to do so may result in property damage, serious injury, or death.

To remove the MicroPulse:

1. Disconnect all power to the light assembly at the battery.
2. Remove the bezel from the MicroPulse. See Figures 4 and 5.

Figure 4 MicroPulse

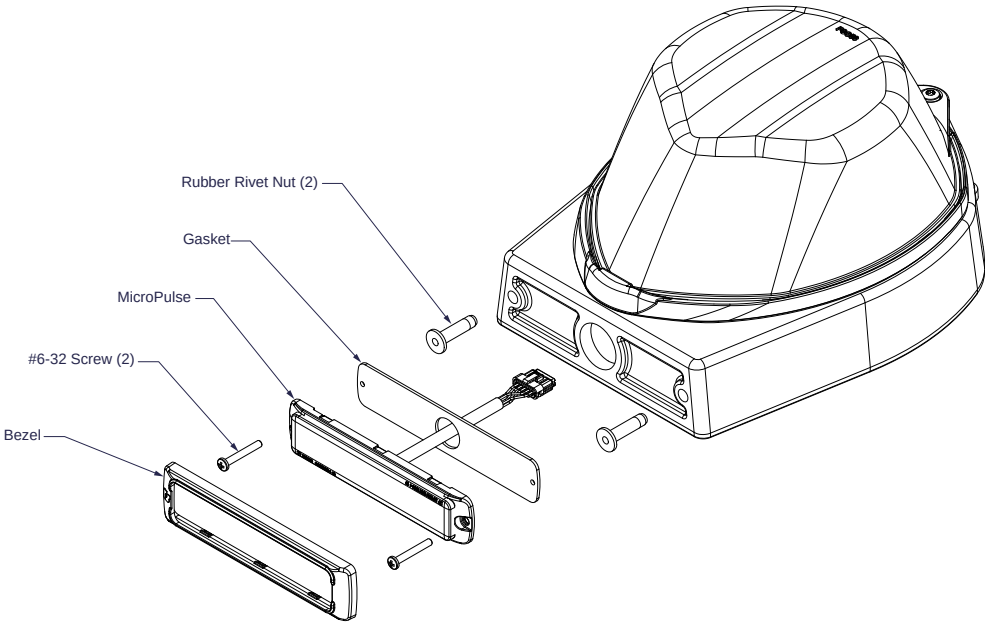
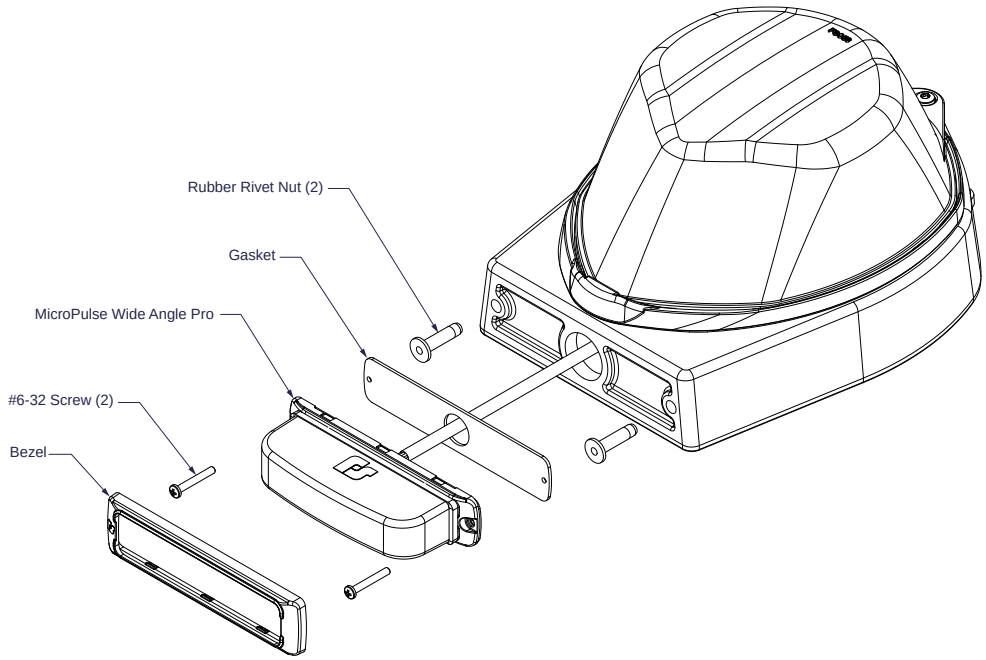


Figure 5 MicroPulse Wide Angle



3. Using a Phillips® head screwdriver, remove the two screws securing the light head to the assembly.
4. Slowly remove the light head from the base, ensuring that the electrical connections come through the center hole.
5. Disconnect the wires to the light head.
6. Inspect the gasket on the MicroPulse® to ensure that it is not torn, brittle, or damaged. Replace it if necessary.

To reinstall a MicroPulse:

1. Install the gasket on the MicroPulse.
2. Reconnect the light head to the existing wire harness coming through the base. Refer to “Wiring the MicroPulse®” on page 5.
3. Ensure that the rubber rivet nuts are in place and undamaged. Place the MicroPulse in the correct location on the base.
4. Slide each screw into the mounting holes and hand tighten to avoid cross-threading.
5. Using a Phillips head screwdriver, tighten each screw until the light head is secured to the base.
6. Replace the bezel onto the light head.
7. Reconnect power to the unit.

Cleaning the Plastic Dome

⚠ WARNING

CRAZING HAZARD: Crazed, cracked, or faded domes or reflectors reduce the light output and the effectiveness of the lighting system. Tops or reflectors showing this type of aging must be replaced. Failure to follow this warning may result in bodily injury or death to you or others.

⚠ WARNING

CLEANING SOLUTION WARNING: The use of cleaning solutions, such as strong detergents, solvents, and petroleum products, can cause crazing (cracking) of the domes and reflectors. Failure to follow this warning can damage the domes and reflectors and may result in bodily injury or death to you or others.

To clean the dome:

1. Rinse the dome with lukewarm water to loosen dirt and debris.
2. Use a mild detergent, lukewarm water, and a soft cloth to gently clean the dome. To avoid damaging the finish, do not use heavy pressure or caustic, abrasive, or petroleum-based cleaners.
3. Rinse and dry the dome with a soft cloth to prevent water spotting.
4. To remove fine scratches and haze, use a soft cloth and a high quality automotive paste cleaner/wax that is non-abrasive.

Replacing a Dome

The pod domes filter the LED lights and protect the LED and circuitry. If a dome is damaged, it must be replaced.

Tool required:

- T25 Torx driver

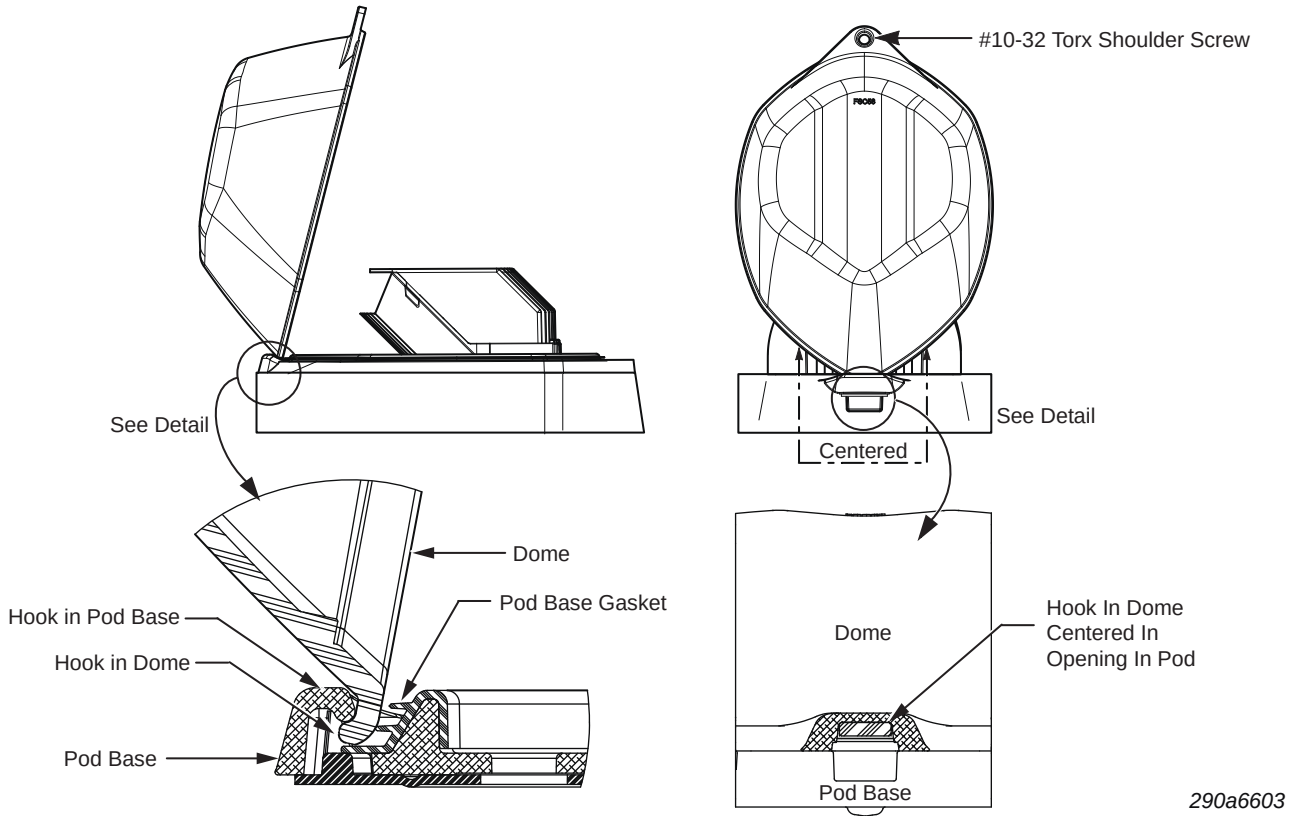
Removing a Dome

⚠ WARNING

SHOCK HAZARD: Disconnect ALL power to the unit before any maintenance is performed. Failure to do so may result in property damage, serious injury, or death. To remove a light assembly dome:

1. Disconnect all power to the light assembly at the battery.
2. Use a T25 Torx driver to remove the #10-32 Torx shoulder screw. See Figure 6.

Figure 6 Dome Removal and Replacement



3. Carefully lift the dome from the back and rotate it to a vertical position to avoid damaging the pod hook and pod base gasket.
4. Inspect the gasket on the base of the pod to ensure that it is not torn, brittle, or damaged. Replace it, if necessary.

Installing a Dome

To install a dome:

NOTICE

DO NOT FORCE THE DOME DOWNWARD: If there is resistance to the dome dropping into position on the base, do not force it downward. To avoid damaging the dome, ensure that the dome hook is properly centered with the mating recess in the pod base so that it drops down from the vertical position.

1. Hold the dome at an angle and insert the pod hook into the mating recess in the pod base. Ensure the dome hook is properly centered with the mating recess in the pod base. The dome drops from the vertical position when the dome hook is properly aligned. See Figure 6 on page 8.

NOTICE

DO NOT OVERTIGHTEN SCREW: Do avoid damaging the pod, do not overtighten the #10-32 screw securing it to the pod base.

2. Insert the #10-32 Torx shoulder screw into the hole through the tip of the dome and into the pod base. To prevent cross-threading, back the screw counterclockwise until you hear the click of the threads engaging, then tighten the screw.
3. Reconnect power to the light assembly.

Replacing a Pod

The pod contains the LED light and printed circuit board. The pod is replaceable in one piece.

Tool required:

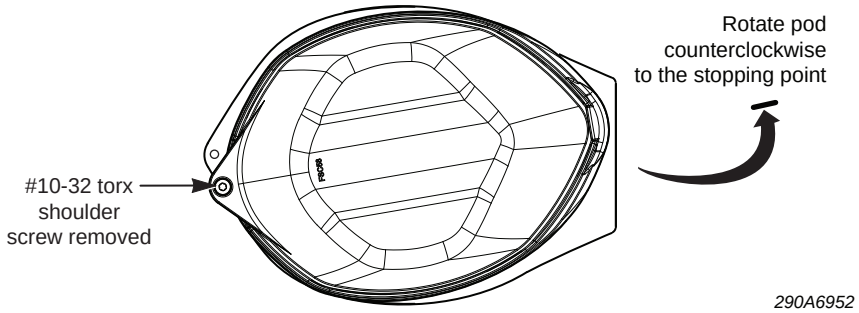
- T25 Torx driver

Removing a Pod

To remove a pod:

1. Disconnect all power to the light assembly at the battery.
2. Use a T25 Torx driver to loosen the #10-32 Torx shoulder screw by 1/4 inch, just enough for the tip of the screw to clear the top plate. See Figure 7.

Figure 7 Pod rotated for removal



3. Rotate the pod counterclockwise to the stopping point.
4. Lift the pod from the base and unplug the electrical connector from the pod.

5. Inspect the gasket on the base of the pod to ensure that it is not torn, brittle, or damaged. Replace it if necessary.

Installing a Pod

To install a pod:

1. Reconnect the electrical connector to the pod.
2. Place the pod atop in the correct location in the light assembly and rotate it clockwise.
3. Insert the #10-32 x 1/4-inch Torx shoulder screw into the hole through the tip of the dome and into the pod base. To prevent cross-threading, back the screw counterclockwise until you hear the click of the threads engaging, then tighten the screw.
4. Reconnect power to the light assembly.

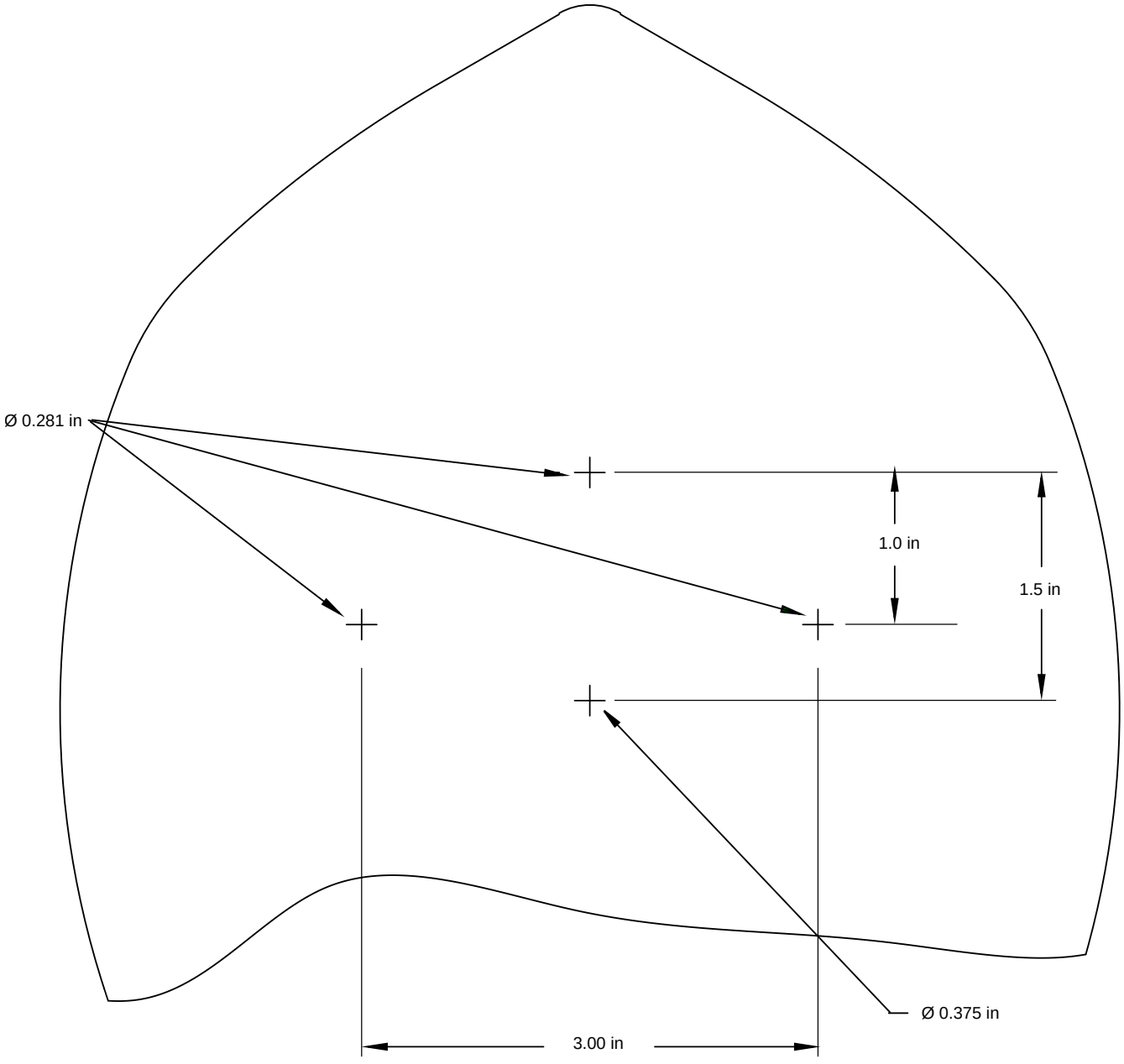
Replacement Parts

This section contains a partial list of replacement parts. To order replacement parts, call the Federal Signal Service Department at 800-433-9132, 7 a.m. to 5 p.m., Monday through Friday (Central Time) or contact your nearest distributor.

Table 4 Replacement parts

Description	Part Number
Controller PCB Assembly	Contact Service
Pod Assembly	Contact Service
Dome	Contact Service
Pod Seal	8652107
Pod Base Gasket	8652108
Rubber Rivet Nut	70900567

Figure 8 Drilling Measurements (not to scale)



Getting Technical Support

For technical support, please contact:

Federal Signal Corporation
Service Department
Phone: 1-800-433-9132
Email: empserviceinfo@fedsig.com

Getting Repair Service

The Federal Signal factory provides technical assistance with any problems that cannot be handled locally. Any product returned to Federal Signal for service, inspection, or repair must be accompanied by a Return Material Authorization (RMA). Obtain an RMA from a local Distributor or Manufacturer's Representative. Provide a brief explanation of the service requested or the nature of the malfunction.

Address all communications and shipments to the following:

Federal Signal Corporation
Service Department
2645 Federal Signal Dr.
University Park, IL 60484-3167

Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at www.fedsig.com/SSG-Warranty. A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to info@fedsig.com or call
+1 708-534-3400.

This limited warranty is in lieu of all other warranties, express or implied, contractual or statutory, including, but not limited to the warranty of merchantability, warranty of fitness for a particular purpose and any warranty against failure of its essential purpose.

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