FEDERAL SIGNAL
Safety and Security Systems

Installing Reversible Polarity Backup Alarms and Specialty Alarms

2561686 Rev. D3 0420

Safety Message to Installers of Sound/ 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 a backup alarm, you must have a good understanding of truck and heavy equipment electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged.
- Locate Backup Alarm so it will operate safely under all conditions. The location must provide protection from impact and adverse weather conditions while allowing unobstructed sound projection to the target hazard area.
- All effective Backup Alarms produce loud sounds which may cause, in certain situations, permanent hearing loss. You should take appropriate precautions and follow your employer's hearing conservation program and safety guidelines for instructions as to whether you should wear hearing protection.
- Ensure that the vehicle's supply voltage is within the voltage rating specified on the Backup Alarm.
- You should frequently inspect the Backup Alarm system to ensure that it is operating properly and that it is securely attached to the vehicle.
- File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product. Pass these instructions on to the operator of the backup alarm system.

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

Introduction

These Reversible Polarity Backup Alarms are lightweight, low current, piezoelectric, solid-state audible warning devices. They can generate two distinct warning tones: a pulsed (beeping) tone and a constant tone. The tone is changed by reversing the polarity of the connections to the power source. The housing is environmentally sealed against moisture, dust, and corrosion. The compact design only requires 6.7 square inches of surface area for mounting. All units are supplied with a heavy-gauge plated steel universal mounting bracket.

Unpacking the Kit

After unpacking the kit, 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 damage. Carefully check all envelopes, shipping labels, and tags before removing or destroying them. Ensure that the parts in the Kit Contents List are included in the package. Disposal of all shipping materials must be carried out in accordance with national and local codes and standards. If you are missing any parts, contact Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday (CT).

Table 1 Kit Contents

Qty.	Description	Part Number
1	Bracket, Mounting	8435717
2	Screw, Pan Head, 6-32 x 1/4 in	7000A404-04
1	Screw, Hex Head, 1/4-20 x 1/2 in	7002A000-08
2	Lockwasher, Int. Tooth, #6	7075A010
1	Label, Warning	1612857
2	Connector, Ring, 18-20 Gauge	439570

Table 2 Specifications

Operating Voltage	12-48 Vdc
Operating Current	0.15 A at 12 Vdc
Pulse Frequency	80 beeps per minute ± 20
Frequency2	400 Hz ±400 Hz
Temperature Range	-40° F to 165° F (-40°C to +74°C)

NOTE: The units are protected against voltage spikes. Reverse polarity activates the constant tone.

Installation

This alarm is designed to concentrate its audible alarm in the target hazard area. For proper warning signal coverage, the alarm should be mounted approximately 4 feet above ground level with the unit's sound ports facing the target hazard area. There should be no obstructions around or blocking the sound ports of the unit.

Do not mount the alarm with the sound ports facing upwards where it can become buried, submerged or clogged with mud, water and other debris. A clogged alarm will be rendered ineffective and will produce little or no sound output. Always be sure that the alarm's sound ports are facing the area you are trying to warn, the ports are not clogged and that the alarm is functioning properly before using the vehicle.

Select a mounting location at the rear of the vehicle that will provide protection from impact and adverse weather conditions while allowing unobstructed sound projection to the target hazard area.

The supplied "L-type" mounting bracket provides mounting flexibility and allows installation in a variety of locations. Ensure that the sound openings are positioned to allow unobstructed sound projection to the target hazard area.

Wiring the Backup Alarm

1. Terminate one end of a user-supplied red (or white) 18 AWG wire with a supplied #6 ring terminal. Terminate one end of a user-supplied black 18 AWG wire with the other #6 ring terminal.
2. To generate the pulsed (beeping) tone, use a #6-32 by 1/4-inch screw and #6 lockwasher to connect the red (or white) wire to the "+" terminal on the alarm. Use a #6-32 by 1/4-inch screw and #6 lockwasher to connect the black wire to the "-" terminal on the alarm. Torque the screws to a maximum of 12 in-lb (1.3 Nm).

   To generate a constant tone, use a #6-32 by 1/4-inch screw and #6 lockwasher to connect the red (or white) wire to the "-" terminal on the alarm. Use a #6-32 by 1/4-inch screw and #6 lockwasher to connect the black wire to the "+" terminal on the alarm. Torque the screws to a maximum of 12 in-lb (1.3 Nm).
3. Route the other end of the red (or white) wire to the vehicle's backup light circuit, or to an independent actuating switch. DO NOT connect the red (or white) wire to the backup light circuit or to the independent actuating switch at this time.

⚠ WARNING

Improper grounding could cause the alarm to function improperly and result in death or serious injury to those who rely on this device for safety. The ground connection (-) must be attached to a solid metal body or chassis part that will provide a dependable ground path for as long as the device is to be used.

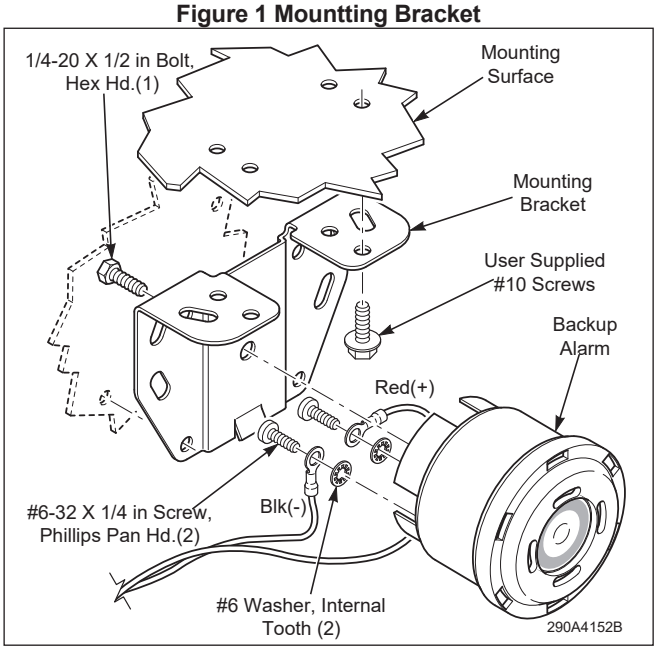
4. Connect the other end of the black wire to a known good chassis ground.

Mounting

Mounting with the Bracket

1. Using the bracket as a template, scribe four drill position marks on the mounting surface.

Figure 1 Mountting Bracket



NOTICE

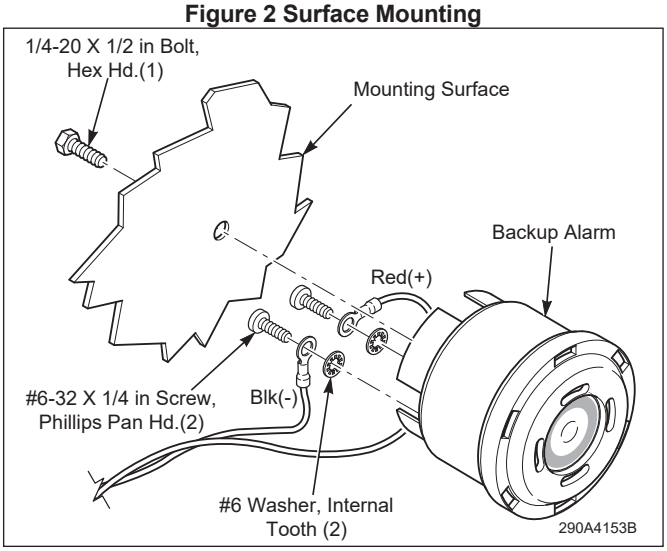
DRILLING PRECAUTIONS: When drilling holes, check the area you are drilling into to ensure that you do not damage vehicle components while drilling. All drilled holes should be de-burred, and all sharp edges should be smoothed. All wire routings going through drilled holes should be protected by a grommet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

2. Drill four mounting holes (size determined by the user-supplied mounting bolts) at the drill position marks.
3. Attach the alarm to the mounting bracket using the 1/4-20 by 1/2-inch hex head bolt. Ensure that the wires are not pinched between the bracket and the alarm.
4. Torque the bolt completely into the alarm to a maximum of 25 in-lb (2.8 Nm). Ensure that the wires are not pinched between the bracket and the alarm.
5. Secure the bracket/alarm assembly to the mounting surface with user-supplied #10 screws.

Surface Mounting

1. Scribe a drill position mark at the desired location.

Figure 2 Surface Mounting



NOTICE

DRILLING PRECAUTIONS: When drilling holes, check the area you are drilling into to ensure that you do not damage vehicle components while drilling. 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.

2. Drill a 0.281-inch hole in the mounting surface.

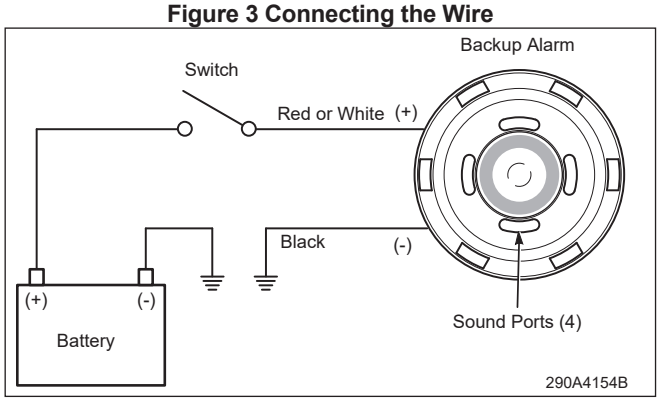
3. Attach the alarm to the mounting surface using the 1/4-20 by 1/2-inch hex head bolt. Ensure that the wires are not pinched between the bracket and the alarm.

4. Torque the bolt completely into the alarm to a maximum of 25 in-lb (2.8 Nm). Ensure that the wires are not pinched between the bracket and the alarm.

Final Installation and Testing

1. Connect the red (or white) wire to the vehicle's backup light circuit, or to an independent actuating switch. See Figure 3.

Figure 3 Connecting the Wire



2. Install the WARNING label in a location clearly visible to the operator at all times.

3. Test the backup alarm for proper operation.

Safety Messages to Operators of Sound/ Light Systems

⚠ WARNING

People's lives depend on your safe operation of Federal Signal products. It is important to read and follow all instructions shipped with the products. Listed below are some other important safety instructions and precautions you should follow.

- Do not operate the vehicle if the alarm is inoperative; it could jeopardize the safety or lives of those who depend on the alarm signal for safety.
- All effective backup alarms produce loud sounds which may cause, in certain situations, permanent hearing loss. You should follow your employer's hearing conservation program and safety guidelines for instructions as to whether you should wear hearing protection.
- Your hearing and the hearing of others, in or close to your vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations.OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure."
- Optimum sound propagation will be reduced if Backup Alarm becomes clogged with a foreign substance such as mud or snow. While cleaning, ensure that foreign material is not packed into the sound ports.
- Although your warning system is operating properly, it may not alert everyone. People may not hear, see, or heed your warning signal. You must recognize this fact and continue to operate your vehicle cautiously.
- Testing the Backup Alarm should be listed on the daily maintenance report. The units on operating vehicles must be tested each day prior to the vehicles' operation. Results of this test must be recorded in the maintenance file.
- Notify your supervisor that people operating this equipment MUST check for proper operation at the beginning of every shift.
- It is important that you fully understand how to safely operate this warning system before use.
- Failure to follow all safety precautions and instructions may result in property damage, serious injury or death.

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 a 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.

FEDERAL SIGNAL
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