

2561784 Rev B2 0720

## Safety Message to Installers and Service Personnel of Emergency Vehicle Safety 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. Listed below are some other important safety instructions and precautions you should follow.

### Before Installation

#### *Qualifications*

- To properly install an electronic siren, you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment. Always refer to the vehicle's service manuals when performing equipment installations on a vehicle.

#### *Sound Hazards*

- Your hearing and the hearing of others, in or close to your emergency 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."
- All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sound and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.
- Federal Signal siren amplifiers and speakers are designed to work together as a system. Combining a siren and speaker from different manufacturers may reduce the warning effectiveness of the siren system and may damage the components. Verify or test your combination to ensure that the system works together properly and meets federal, state and local standards or guidelines.

### During Installation

- DO NOT get metal shavings inside the product. Metal shavings in the product can cause the system to fail. If drilling must be done near the unit, place an ESD approved cover over the unit to prevent metal shavings from entering the unit. Inspect the unit after mounting to ensure that there are no shavings present in or near the unit.
- DO NOT connect this system to the vehicle battery until ALL other electrical connections are made, mounting of all components is complete, and you have verified that no shorts exist. If wiring is shorted to vehicle frame, high current conductors can cause hazardous sparks, resulting in electrical fires or flying molten metal.
- Make sure the siren amplifier and speaker(s) in your installation have compatible wattage ratings.

- In order for the electronic siren to function properly, the ground connection must be made to the NEGATIVE battery terminal.
- Sound output will be severely reduced if any objects are in front of the speaker. If maximum sound output is required for your application, ensure that the front of the speaker is clear of any obstructions.
- Install the speaker(s) as far forward on the vehicle as possible, in a location that provides maximum signaling effectiveness and minimizes the sound reaching the vehicle's occupants. Refer to the National Institute of Justice guide 500-00 for further information.
- Mounting the speakers behind the grille will reduce the sound output and warning effectiveness of the siren system. Before mounting speakers behind the grille, make sure the vehicle operators are trained and understand that this type of installation is less effective for warning others.
- Sound propagation and warning effectiveness will be severely reduced if the speaker is not facing forward. Carefully follow the installation instructions and always install the speaker with the projector facing forward.
- DO NOT install the speaker(s) or route the speaker wires where they may interfere with the operation of air bag sensors.
- Installation of two speakers requires wiring speakers in phase.
- Never attempt to install aftermarket equipment that connects to the vehicle wiring without reviewing a vehicle wiring diagram, which is available from the vehicle manufacturer. Ensure that your installation will not affect vehicle operation and safety functions or circuits. Always check the vehicle for proper operation after installation.
- DO NOT install equipment or route wiring or cord in the deployment path of an air bag.
- Locate the control head so the vehicle, controls, and microphone can be operated safely.
- When drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged.

### After Installation

- After installation, test the siren system and light system to ensure that it is operating properly.
- Test all vehicle functions, including horn operation, vehicle safety functions, and vehicle light systems, to ensure proper operation. Ensure that installation has not affected vehicle operation or changed any vehicle safety function or circuit.
- After testing is complete, provide a copy of these instructions to the instructional staff and all operating personnel.
- 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.

### 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 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 1 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).

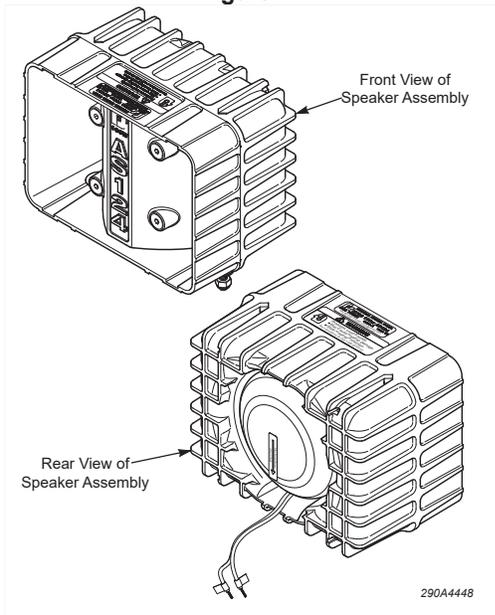
Table 1 Kit Contents

Qty.	Description	Part Number
2	Step Bolt 1/4-20 Stainless Steel	7017162
2	Nut, 1/4-20 Stainless Steel	7059A020
2	Washer, Stainless Steel	7072A024
2	Lockwasher, 1/4 inch Stainless Steel	7074A016
2	1/4 inch Bolt Retainer	8567059
1	Label, Warning, User Installed	1612339

### Overview

AS114 speaker model 750501 is a general application, neodymium automotive speaker for use in emergency vehicle siren applications. See Figure 1. The speaker is designed to meet the guidelines of J1849 and EVS2 applications. The device is comprised of a high-impact resistant injection molded housing with attached projector, Federal Signal NS100W driver, associated 18-8 stainless steel hardware, and user-installed warning labels.

Figure 1



**NOTE:** The 750501 is for horizontal mounting; the 750501V is for vertical mounting.

### Mechanical Specifications And Features

The outer dimensions of the device are 7.84 inches wide by 5.78 inches tall, with a depth of 4.66 inches. Typical weight is approximately 6 pounds. The components' housing and projector are an injection molded 30% glass filled black polyester thermoplastic, resistant to most acids and alkalines. Factory-mounted bolts attaching the driver to the housing are 18-8 stainless steel socket flat head 1/4-20 by 2-1/4 inches length. Mounting screws supplied within the kit are 18-8 stainless steel step 1/4-20 bolts. Corresponding kit mounting washers, nuts, and lockwashers are also 18-8 stainless steel.

### Electrical Specifications And Features

The unit is rated for use at 12.8 Vdc. The driver housing is marked with a "2" and a "1" near each associated terminal for proper polarity identification in the event a supplied lead wire is disconnected from the terminal. Connect the two leads from the speaker to the electronic siren's speaker cable. If two speakers are installed, it is necessary to connect the speakers in-phase. This is accomplished by connecting the two speaker leads marked "1" to the same lead of the siren's speaker cable, and the two speaker leads marked "2" to the other lead of the siren's speaker cable. Refer to the instructions included with the electronic siren for additional details.

### Installing the Speaker

This product is intended for mounting directly upon a rigid surface which has been determined to be suitable for speaker installation. In addition, the speaker may be used with an adapter bracket fabricated by the installer to meet the dimensional spacing of the unit's mounting holes. Because of the variety of vehicles and possible mounting arrangements, the installer must determine installation details and mounting bracket fabrication.

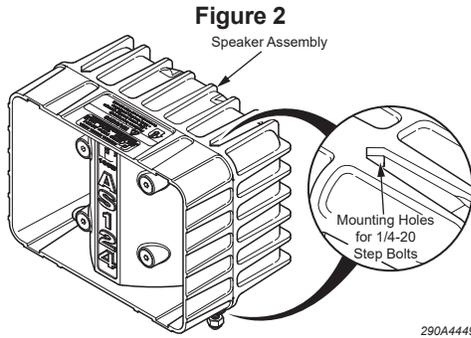
To install the speaker:

1. Select an appropriate mounting location, which provides both adequate support and sufficient clearance for the speaker assembly. Note that the speaker's included mounting hardware has two step bolts with washers, lockwashers, nuts, and bolt retainers for mounting. Allow adequate spacing around the mounting surface member to attach the hardware. In addition, the mounting location should provide maximum signaling effectiveness while minimizing the sound reaching the vehicle's occupants.

#### NOTICE

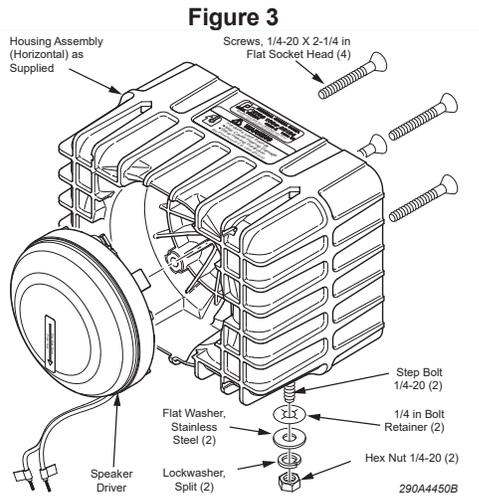
**The AS124 speaker unit as provided must be mounted with the "DRAIN HOLE, THIS SIDE DOWN" correctly orientated on the rear of the speaker driver to promote proper water drainage. Failure to observe this caution will result in possible speaker damage.**

Two mounting holes are provided on the top and bottom horizontal mid-sections of the unit as shown in Figure 2. If the speaker must be mounted in the vertical position (upon a vertical structural member), proceed with step 2.

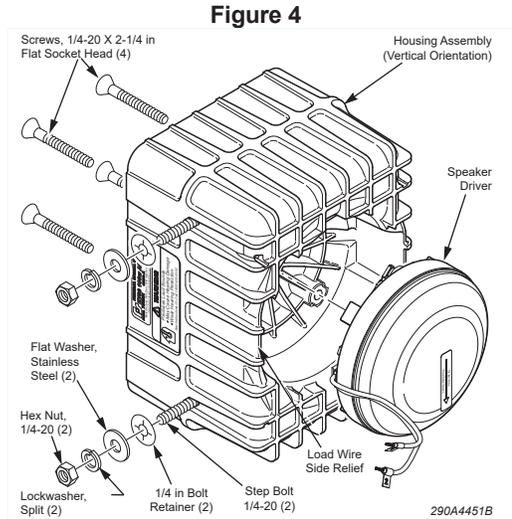


If the speaker will be mounted in a horizontal position, proceed to step 7. To reorient the driver, follow steps 2 through 6.

- The AS124 unit is constructed of two main parts, the housing assembly, consisting of the rectangular housing with attached AS124 projector and the speaker driver. Both are held together with four 1/4-20 by 2-1/4 inch flat head socket bolts. Remove the four bolts with a 5/32-inch socket key disassembling the driver from the housing assembly. See Figure 3.



- Upon removing the driver, position the housing assembly vertically (as your intended mount).
- Rotate the driver 90° so as the “DRAIN HOLE, THIS SIDE DOWN” label is pointing downward.
- Reinstall the driver into the housing assembly so the label maintains its downward positioning and the lead wires exit at one of the side reliefs. See Figure 4.



- Reattach the four flat head mounting bolts securing the driver to the housing unit.
- Scribe two drill positioning marks spaced at 5.6 inches apart on the intended mounting surface.

**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.

- Drill two 5/16-inch holes at the drill position marks.
- Position the speaker over the holes and feed through the two step bolts, ensuring that the head lies flat upon the speaker’s internal housing wall. Attach the washers and stop nuts to secure the unit to the mounting surface.

**CAUTION**

**The maximum torque upon tightening the nuts onto the 1/4-20 step bolts is not to exceed 75 in-lbs. Exceeding this limit may overstress the bolt/housing mounting design limitations.**

- Connect the speaker to the electronic siren as described in the instructions supplied with the siren.
- After the mounting and performing the electrical connections to the vehicle are completed, test the unit for proper operation upon power up, and test drive the vehicle so that any vibration does not permit an inadequately mounted unit to loosen from its intended sound direction.
- Attach the supplied warning labels concerning safety on exposure to the speaker’s sound level in suitable locations within the vehicle.

## **Getting Technical Support**

For technical support, please contact:

Federal Signal Corporation  
Service Department  
Phone: 1-800-433-9132  
Email: [empserviceinfo@fedsig.com](mailto: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](http://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](mailto: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.



2645 Federal Signal Drive  
University Park, Illinois 60484-3167

[www.fedsig.com](http://www.fedsig.com)

Customer Support

Police/Fire-EMS: 800-264-3578 • +1 708 534-3400

Work Truck: 800-824-0254 • +1 708 534-3400

Technical Support: 800-433-9132 • +1 708 534-3400

© Copyright 2003 - 2020 Federal Signal Corporation