

## Safety Message to Installers of Siren Speakers

### **⚠ 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. In addition, listed below are some other important safety instructions and precautions you should follow:

- 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 installing equipment on a vehicle.
- 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. You should verify or test your combination to make sure the system works together properly and meets federal, state and local standards or guidelines.
- Be 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.
- 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 a ESD-approved cover over it to prevent metal shavings from entering the unit. Inspect the unit after mounting to be sure that there are no shavings present in or near it.
- Sound output will be severely reduced if any objects are in front of the speaker. If maximum sound output is required for your application, you should ensure that the front of the speaker is clear of any obstructions.
- DO NOT install the speaker(s) or route the speaker wires where they may interfere with the operation of airbag sensors.
- DO NOT install equipment or route wiring or cord in the deployment path of an airbag.
- Locate the control head so the vehicle and control can be operated safely under all driving conditions and CONTROL can be.
- After installation, test the siren system to ensure that it is operating properly.
- If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- 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.

## Before You Begin

**IMPORTANT:** The ES100 complies with the requirements of SAE J1849 EVS3 and CCR Title 13 Class A when it is used with Federal Signal Corporation electronic sirens. The ES100 is a compact speaker intended to be mounted with the supplied mounting system. If the ES100 is installed with another mounting system, the safety and effectiveness of the installation must be carefully evaluated.

## Unpacking the Kit

After unpacking the product, inspect it for damage that may have occurred in transit. If it has been damaged or is missing a part, do not attempt to install or operate it. File a claim immediately with the carrier, stating the extent of the damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them. Ensure that all parts in Table 1 on page 2 have been included. 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	Grille, Polished	8567102
1	Grille, Black	856700276
1	Trim Ring	8567093
2	Mounting Bracket Assy.	8567191
2	Bolt, SS, 5/16-18 x 3/4"	7002A005-12
4	Screw, 1/4-20 x 1"	7000476
2	Lock Washer, Split, 5/16"	7074A020
2	Flat Washer, 5/16"	7072A031

## Mounting a Speaker

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**NOTICE**

**ES100 MOUNTING PRECAUTIONS** — *To avoid reducing the sound output and damaging the speaker, ensure that the speaker is mounted with the wires protruding from the bottom of the speaker.*

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**⚠ WARNING**

**DRILLING PRECAUTIONS** — *Before drilling holes, check the area into which you plan to drill to ensure you do not damage vehicle components. All drilled holes should be deburred and all sharp edges should be smoothed. All wires going through drilled holes should be protected by a grommet or convolute/split-loom tubing.*

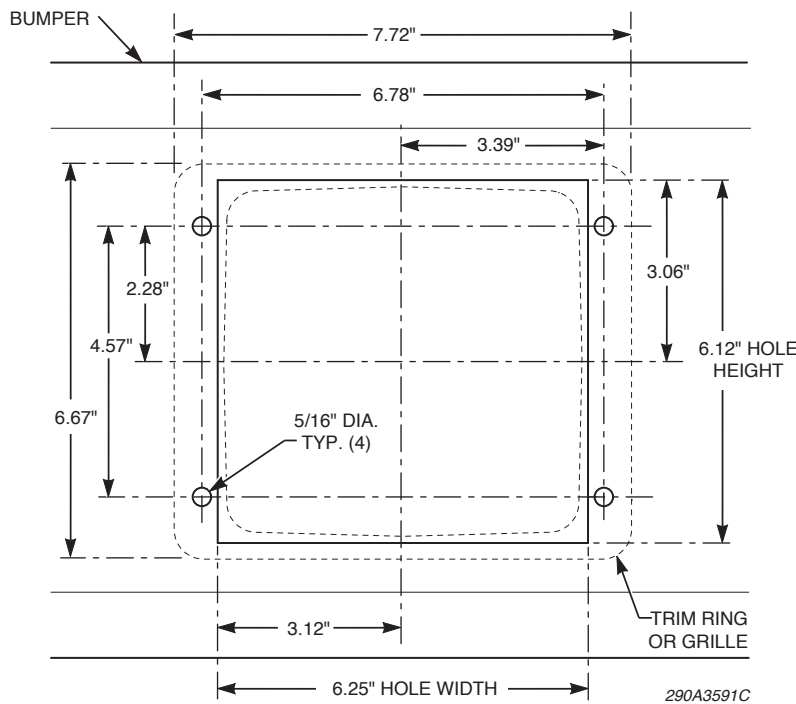
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To mount a speaker:

1. Use Figure 1 on page 3 as a guide to determine the mounting location of the ES100 speaker in the bumper. Also, ensure that there is adequate clearance behind the bumper. If you are installing a second speaker/bracket, determine its mounting position at this time.
2. Cut the hole in the bumper as shown in Figure 1.
3. Drill the four 5/16" holes as shown in Figure 1.
4. Attach the two mounting brackets to the speaker with the two 5/16-18 x 3/4" bolts, 5/16" lock washers, and 5/16" flat washers as shown in Figure 2 on page 3. Do not tighten these bolts yet.

5. Insert the speaker/brackets assembly into the bumper cutout from the inside of the bumper. Ensure that the wires will exit from the speaker when the installation is complete.
6. Secure the assembly to the bumper with the trim ring and the four 1/4-20 x 1" button-head cap screws as shown in Figure 3 on page 4.
7. Adjust the speaker so that it is perpendicular to the ground and pointed straight forward. Tighten the two 5/16" bolts.
8. If you are installing a second speaker, repeat steps 2 through 7 for the second speaker.

**Figure 1** Mounting dimensions on bumper



**Figure 2** ES100 attached to mounting brackets

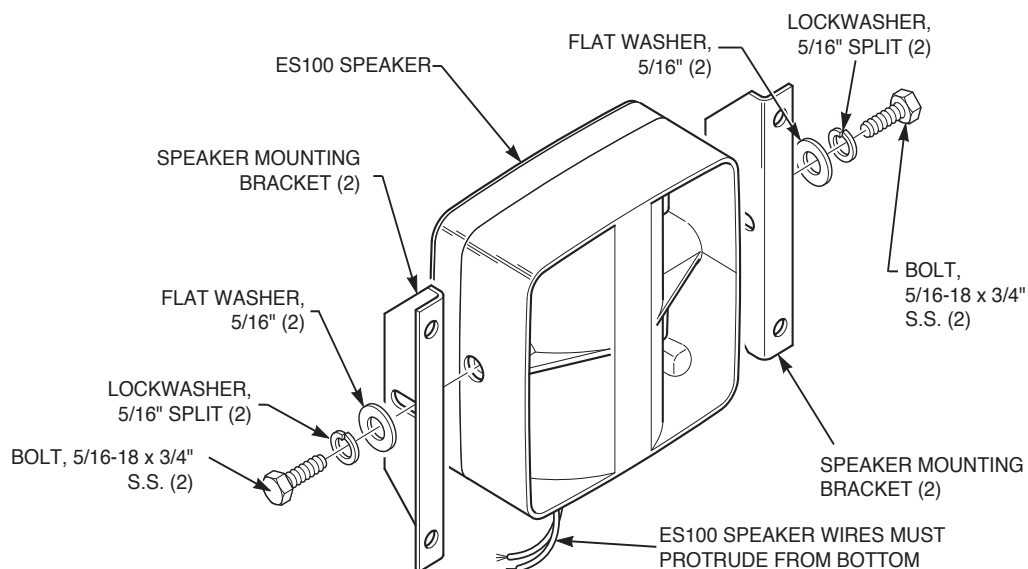
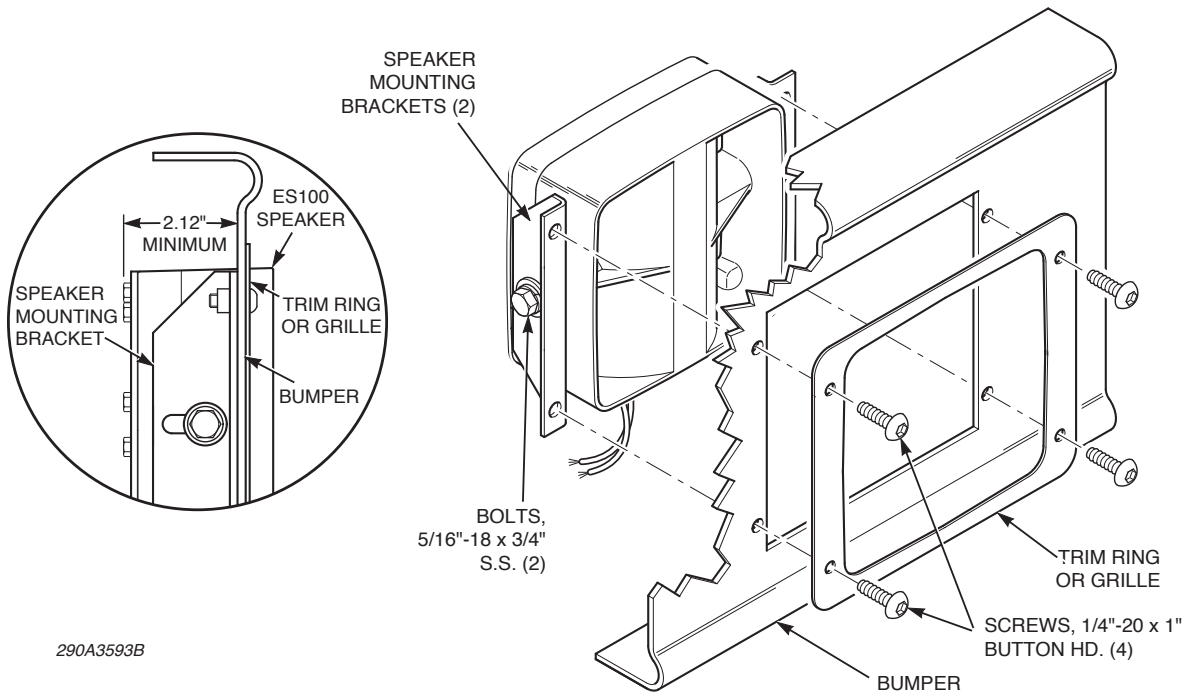


Figure 3 ES100 attached to bumper with mounting brackets



## Wiring the Speaker

- To connect one speaker, connect the two leads from the speaker to the electronic siren's speaker cable.
- To connect two speakers, it is necessary to connect them in phase. Connect the two red speaker leads to one lead of the siren's speaker cable. Connect the two black speaker leads to the other lead of the siren's speaker cable.

For additional details, refer to the instructions provided with the electronic siren.

## Getting Technical Support and Service

Federal Signal Corporation will service your equipment or provide 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 number. The RMA number can be obtained from your local distributor or Federal Signal. Please provide a brief explanation of the service requested or the nature of the malfunction. Contact your local dealer/distributor for replacement parts availability or contact the Federal Signal Service Department (7 A.M. to 5 P.M., Monday through Friday, Central Time) at:

Service Department  
Federal Signal Corporation  
2645 Federal Signal Drive  
University Park, IL 60484-3167  
800-433-9132  
800-343-9706 (fax)  
www.fedsig.com