FEDERAL SIGNAL
Safety and Security Systems

e-Q2B Electronic Siren System



Installation, Maintenance, and Service Manual

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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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Contents

Safety Messages for Installers and Operators 5
Safety Messages to Installers of Federal Signal Sound/Light Systems 5
Safety Messages to Operators of Federal Signal Sound/Light Systems 7
An Overview of the e-Q2B Siren System 9
LED Indicators 9
Electrical Specifications and Operating Temperature (200-Watt) 10
Electrical Specifications and Operating Temperature (100-Watt) 11
e-Q2B Kit Contents 11
Wiring the e-Q2B Siren System 12
Selecting the Mounting Location 12
Reconnecting Speakers to the e-Q2B (200 Watt) 13
Reconnecting Speakers to the e-Q2B (100 Watt) 14
Connecting the Control Head 15
Connecting Power to the Model e-Q2B 15
Connecting Power Leads to the e-Q2B from the Series A 16
Preparing to Connect the Power Leads 18
Connecting the Power Leads to the Vehicle Battery 19
Connecting the e-Q2B to the Rumbler 2 Low Frequency Amplifier 19
Mounting the Siren Amplifier 21
Mounting the Siren Amplifier 22
Final Preparations of the e-Q2B Siren System 23
Testing the Installation 23
Distributing the Safety Message Card 24
Applying the Siren Safety Labels in the Vehicle 24
Safety Messages to Personnel Servicing Electronic Sirens 25
Servicing the e-Q2B Siren System 26
Servicing the Siren Amplifier 26
Removing the Siren Amplifier 26
Reinstalling the Siren Amplifier 26
Replacing the 30 A Fuse in the Siren Amplifier 27
Ordering Replacement Parts 27
Getting Technical Support and Service 28
Getting Repair Service 28

Tables

Table 1 Dimensions 9
Table 2 Specifications for 8616033-3 and 8616033-07 10
Table 3 Specifications for 8616033-04 and 8616033-08 11
Table 4 86166033-03 and 86166033-07 kit contents 11
Table 5 86166033-04 and 86166033-08 kit contents 11
Table 6 Replacement parts 27

Figures

Figure 1 Model e-Q2B 8616033 9
Figure 2 Model e-Q2B Series A and B 9
Figure 3 Dimensions of the siren amplifier 10
Figure 4 e-Q2B 200-watt siren connections with two 100-watt speakers 13
Figure 5 e-Q2B 100-watt siren connections with one 100-watt speaker 14
Figure 6 Connection from control head to siren amplifier 15
Figure 7 Location of product label on Model e-Q2B Series A and B 16
Figure 8 Order of power connections to e-Q2B 17
Figure 9 Connections for power, ground, and ignition 18
Figure 10 Rumbler 2 connections to e-Q2B F1 15 A white zip cord Rumbler Speakers 20
Figure 11 Mounting hardware information for the siren amplifier 22
Figure 12 e-Q2B system diagnostic LEDs 23
Figure 13 Safety message card (left) and siren safety labels (right) 24
Figure 14 Location of 30 A fuse 27

Safety Messages for Installers and Operators

For your safety, read and understand this manual thoroughly before installing, operating, and servicing the e-Q2B Siren Amplifier. The safety messages presented in this section and throughout the manual are reminders to exercise extreme care at all times. In addition, read and understand the safety instructions to installers (doc. no. 256A692), and keep it close at hand for reference.

To download copies of this manual, go to www.fedsig.com or call the Federal Signal Service Department at 1-800-433-9132, 7 a.m. to 5 p.m., Monday through Friday (CT).

Safety Messages to Installers of Federal Signal Sound/Light Systems

⚠ 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. You should verify or test your combination to make sure the system works together properly and meets federal, state and local standards or guidelines.

Light Hazards

- To be an effective warning device, an emergency warning system produces bright light that can be hazardous to your eyesight when viewed at close range. Do not stare directly into the lights at close range, or permanent damage to your eyesight may occur.

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 available from the vehicle manufacturer. Ensure that your installation will not affect vehicle operation and safety functions or circuits. Always check vehicle for proper operation after installation.
- Do NOT install equipment or route wiring or cord 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 air bag deployment.

- Locate the control head so the vehicle, controls, and microphone can be operated safely.
- When drilling into a vehicle structure, enure that both sides of the surface are clear of anything that could be damaged.

After Installation

- After installation, test the emergency warning 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 or reinstalling the product.

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

RETAIN AND REFER TO THESE MESSAGES

Safety Messages to Operators of Federal Signal 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 attempt to activate or deactivate the controls of the emergency warning system while driving in a hazardous situation.
- Although your warning system is operating properly, it may not be completely effective. People may not see, hear, or heed your warning signal. You must recognize this fact and continue to drive cautiously.
- Situations may occur that obstruct your warning signal when natural and man-made objects are between your vehicle and others, such as raising your hood or trunk lid. If these situations occur, be especially careful.
- All effective sirens and horns produce loud sounds that may cause, in certain situations, permanent hearing loss. You and your passengers should consider taking appropriate safety precautions, such as wearing hearing protection.
- The effectiveness of an interior mounted warning light depends on the clarity, the tinting, and the angle of the glass it is being placed behind. Tinting, dirt, defects, and steeply angled glass reduce the light output of the warning light. This may reduce the effectiveness of the light as a warning signal. If your vehicle has dirty, tinted, or steeply angled glass, use extra caution when driving

your vehicle or blocking the right of way with your vehicle.

- In order to be an effective warning device, this product produces bright light that can be hazardous to your eyesight when viewed at a close range. Do not stare directly into this lighting product at a close range, or permanent damage to your eyesight may occur.
- It is important that you fully understand how to safely operate this warning system before use.
- Operate your vehicle and its light/sound system in accordance with your department's Standard Operating Procedures.
- If a selected function does not perform properly or if any of the lamps remain illuminated when the control is off, disconnect the power connector from the control unit and contact the nearest service center.
- At the start of your shift, ensure that the entire warning light system and the siren system is securely attached and operating properly.
- Suction cup mounting is for temporary applications only. The unit should be removed from the window and stored securely when not in use. Temperature changes and sunlight can cause suction cups to lose holding power. Periodically check the unit to be sure the suction cups have a firm grip on the mounting surface. An improperly secured light could fall off of the vehicle causing injury and damage.
- The holding power of magnetic mounting systems is dependent upon surface finish, surface flatness, and thickness of the steel mounting surface. Therefore, to promote proper magnetic mounting:
  - Keep mounting surface and magnets clean, dry, and free of foreign particles that prevent good surface contact.
  - Ensure that mounting surface is flat.
  - Do not use a magnet mounting system on vehicles with vinyl tops.
  - To prevent sliding of light assembly on mounting surface, avoid quick acceleration and hard stops.

Failure to follow these precautions may result in property damage, serious injury, or death.

An Overview of the e-Q2B Siren System

The e-Q2B siren amplifier incorporates the latest solid state designs for superior reliability and sound quality. It operates on a 12-volt, negative-ground electrical system. The siren circuit is protected by a replaceable 30 A fuse that protrudes from the siren housing.

Figure 1 Model e-Q2B 8616033



Figure 2 Model e-Q2B Series A and B



LED Indicators

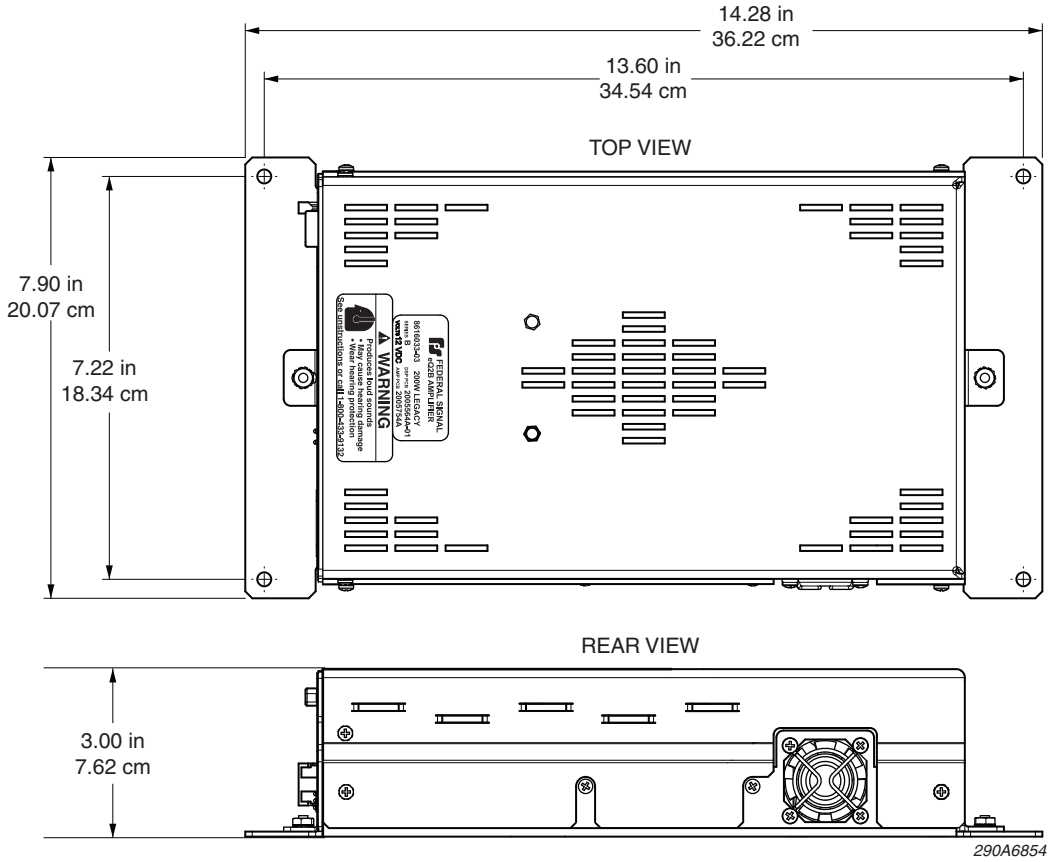
Green LEDs on the side of the siren amplifier indicate when power is supplied to the amplifier, when output is available, and when a load is connected. Red LEDs indicate a speaker short or thermal overload.

Table 1 Dimensions

H x W x L (with cover)	3.00 x 7.90 x 14.28 inches (7.62 x 20.07 x 26.22 cm)
Net Weight	6.75 lb (3.06 kg)

See Figure 3 on page 10.

Figure 3 Dimensions of the siren amplifier



Electrical Specifications and Operating Temperature (200-Watt)

Table 2 Specifications for 8616033-3 and 8616033-07

Input Voltage	11 Vdc to 16 Vdc
Polarity	Negative ground only
Standby Current	Less than 0.5 A
Operating Current	20 A (nominal) (13.6 V battery, 5.5-ohm load at high power)
Frequency Range	725 to 1600 Hz
Nominal Cycle Rate	Wail: 12 cycles per minute Yelp: 180 cycles per minute Priority: 370 cycles per minute
Nominal Voltage Output	33 V_{RMS}(siren tones)
Audio Response	300 Hz to 3000 Hz ± 3 dB
Audio Power	200 W in PA Mode (typical with 1.4 V peak-to-peak input)
Harmonic Distortion	Less than 10 percent from 5 to 200 W
Input Impedance (PA)	4000 ohms (nominal)
Siren Tone Compliances	SAE J1849 JUL89
Operating Temperature Range	–40°C to +65°C (–40°F to +149°F)

Electrical Specifications and Operating Temperature (100-Watt)

Table 3 Specifications for 8616033-04 and 8616033-08

Input Voltage	11 Vdc to 16 Vdc
Polarity	Negative ground only
Standby Current	Less than 0.5 A
Operating Current	14 A (nominal) (13.6 V battery, 5.5-ohm load at high power)
Frequency Range	725 to 1600 Hz
Nominal Cycle Rate	Wail: 12 cycles per minute Yelp: 180 cycles per minute Priority: 370 cycles per minute
Nominal Voltage Output	33 V_{RMS} (siren tones)
Audio Response	300 Hz to 3000 Hz ± 3 dB
Audio Power	100 W in PA Mode (typical with 1.4 V peak-to-peak input)
Harmonic Distortion	Less than 10 percent from 5 to 100 W
Input Impedance (PA)	4000 ohms (nominal)
Siren Tone Compliances	SAE J1849 JUL89
Operating Temperature Range	–40°C to +65°C (–40°F to +149°F)

e-Q2B Kit Contents

Tables 4 and 5 list the parts included with the e-Q2B Siren System. After unpacking the kit, examine it for damage that may have occurred in transit. If the product has been damaged, 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 all parts in the packing list are included in the shipment. If any parts are missing, call Federal Signal Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday, CT.

Table 4 86166033-03 and 86166033-07 kit contents

Qty.	Description	Part Number
1	e-Q2B Siren Amplifier, 200 W, Legacy Connection	8616033-03
1	Connector, 3-Position, Power	140535
1	Card, Safety Instructions	256B691
1	Label, Warning, Siren/Speaker	1612339

Table 5 86166033-04 and 86166033-08 kit contents

Qty.	Description	Part Number
1	e-Q2B Siren Amplifier, 100 W, Legacy Connection	8616033-04
1	Connector, 3-Position, Power	140535
1	Card, Safety Instructions	256B691
1	Label, Warning, Siren/Speaker	1612339

Wiring the e-Q2B Siren System

Before permanently mounting the e-Q2B Siren System, plan all wire routings and select the mounting locations for the siren amplifier. Read and understand all instructions included with related equipment before installing it.

Selecting the Mounting Location

Suggested mounting locations are under the front seat, in a vehicle compartment, or in the trunk under the rear deck near the rear seat speakers. After completing the wiring described in this section, refer to the instructions for mounting the siren amplifier on page 21.

⚠ WARNING

AIRBAG DEPLOYMENT: Do not install equipment or route wiring in the deployment path of an airbag. Failure to observe this warning will reduce the effectiveness of the airbag or potentially dislodge the equipment, causing serious injury or death.

⚠ WARNING

SEAT REMOVAL PRECAUTION: If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment. Failure to follow this warning cause serious injury or death.

NOTICE

UNIT REQUIRES AIR FLOW: The siren amplifier is cooled by an internal fan. Do not install it in areas where the air flow is restricted. Do not mount the unit near a heater duct or under the hood.

NOTICE

UNIT IS NOT WATERPROOF: The housing of the e-Q2B siren amplifier is NOT waterproof. The module must be mounted in a location that is sheltered from falling rain, snow, standing water, etc.

Wiring connectors are located on the siren amplifier. Ground, ignition, and power connections are located on the three-position, pluggable, terminal block. To maintain the reliability of the siren amplifier, do not block the air vents or the fan. See Figure 1 on page 9.

Reconnecting Speakers to the e-Q2B (200 Watt)

⚠ WARNING

SOUND HAZARD: All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sounds and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.

NOTICE

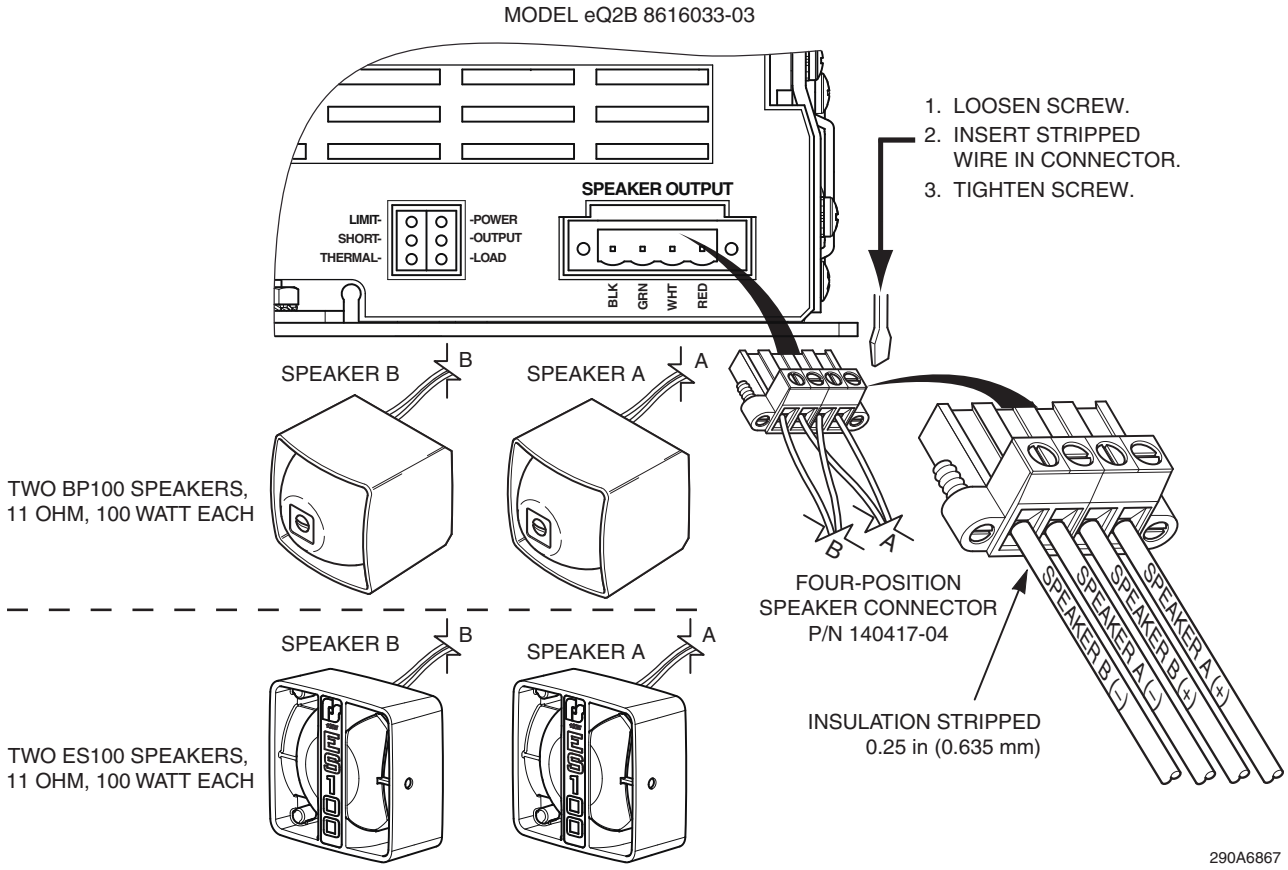
SPEAKER CONNECTIONS: For proper operation and performance, always connect the speakers in parallel and in phase.

The 200-watt Model e-Q2B 8616033-03 and 8616033-07 operate one 200-watt speaker or two 100-watt speakers with an impedance of 11 ohms.

To connect the two 11-ohm, 100-watt speakers to the Model e-Q2B siren amplifier:

1. Reconnect the speaker output connector. See Figure 4.
2. To prevent fretting or disconnection, tighten the two screws on the four-position speaker connector.

Figure 4 e-Q2B 200-watt siren connections with two 100-watt speakers



Reconnecting Speakers to the e-Q2B (100 Watt)

⚠ WARNING

SOUND HAZARD: All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sounds and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.

NOTICE

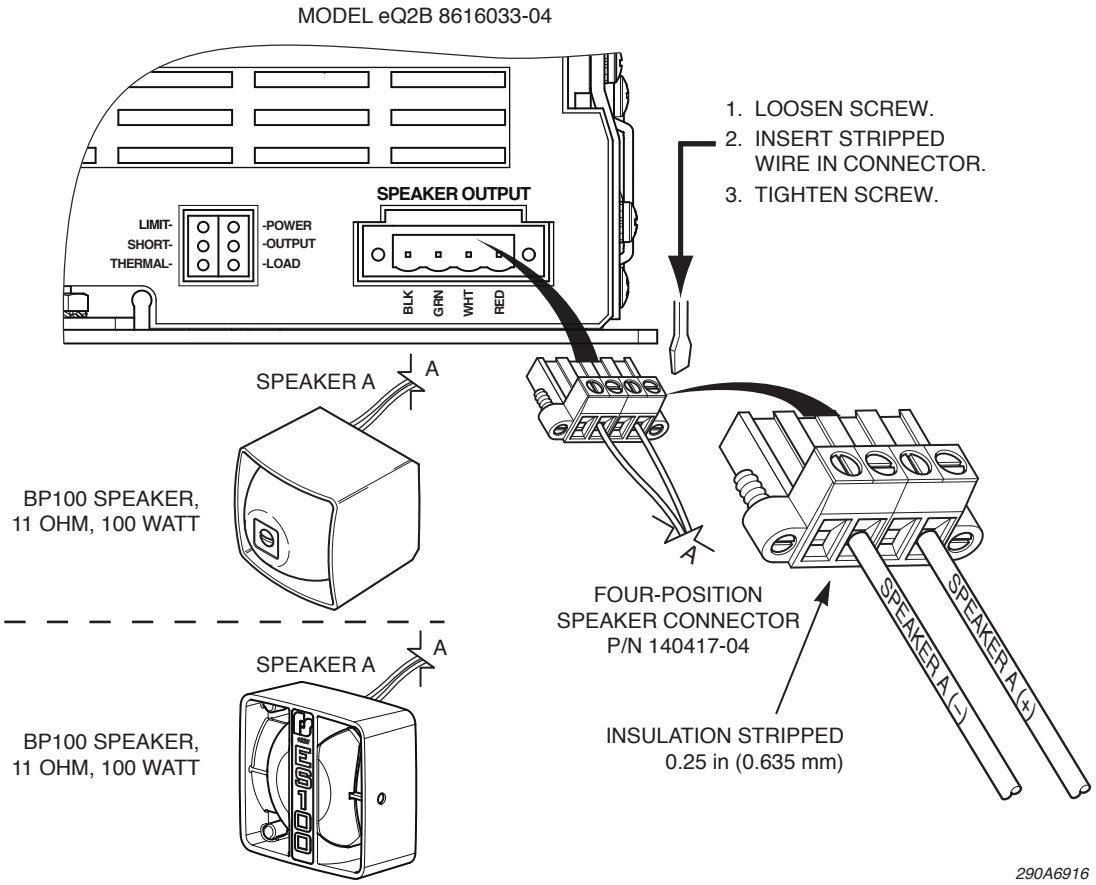
SPEAKER CONNECTIONS: For proper operation and performance, always connect the speakers in parallel and in phase.

The Model e-Q2B 8616033-04 and 8616033-08 operate one 100-watt speaker with an impedance of 11 ohms.

To connect an 11-ohm, 100-watt speaker to the Model e-Q2B siren amplifier:

1. Reconnect the speaker output connector. See Figure 5.
2. To prevent fretting or disconnection, tighten the two screws on the four-position speaker connector.

Figure 5 e-Q2B 100-watt siren connections with one 100-watt speaker

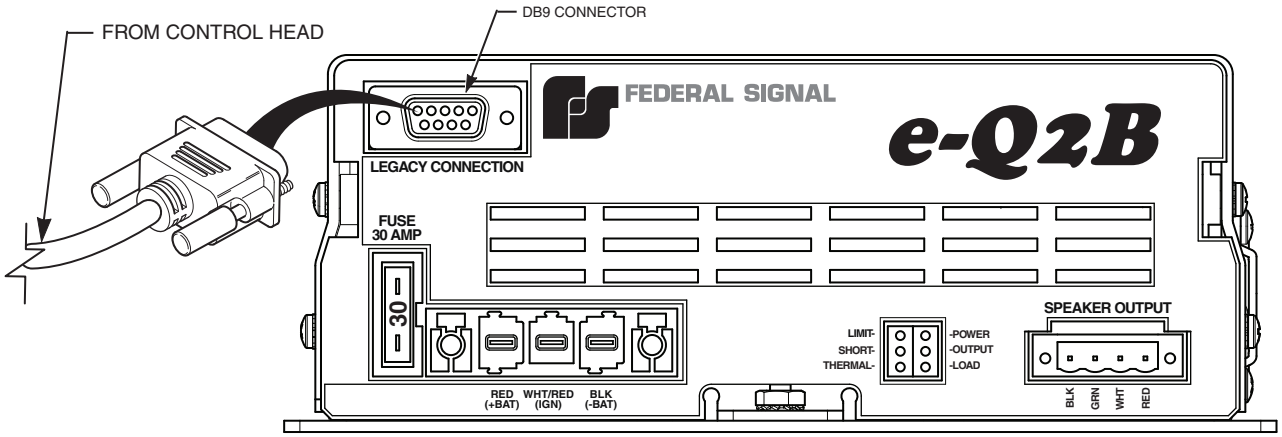


Connecting the Control Head

To connect the control head to the siren amplifier:

1. Plug the DB9 cable connector from the control head into the legacy connector in the upper left corner of the siren amplifier. See Figure 6.
2. Plug the other end of the cable into the connector on the back of the control head.
3. Hand tighten the thumb screws on the DB9 cable connector to secure it to the legacy connector.
4. To provide strain relief, secure the cables with installer-supplied clamps and hold-downs.

Figure 6 Connection from control head to siren amplifier



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Connecting Power to the Model e-Q2B

⚠ WARNING

BATTERY EXPLOSION: To avoid a battery explosion, always disconnect the negative battery cable first and reconnect it last. Avoid causing a spark when connecting near or to the battery. The gases produced by a battery can cause a battery explosion that could result in vehicle damage and serious injury.

⚠ CAUTION

HIGH CURRENT ARCING: Do not connect this system to the vehicle battery until ALL other electrical connections are made and you have verified that no shorts exist. High current conductors can cause hazardous sparks or burning wire, resulting in electrical fires.

Taking the preparatory steps in this section before mounting and wiring the siren amplifier to a vehicle will help ensure that your installation is fast, easy, and error free. You will be reusing the power and ignition cables from your old e-Q2B siren amplifier. To avoid damage to your new e-Q2B siren system, disconnect the siren amplifier power (+BAT) and ground (–BAT) cables from the battery.

Connecting Power Leads to the e-Q2B from the Series A

If your old e-Q2B siren amplifier is a Series A (Figure 7), you must cut the power leads from the old terminal to connect them to your replacement e-Q2B as described in this section.

Figure 7 Location of product label on Model e-Q2B Series A and B



To re-terminate the power leads to the e-Q2B from the Series A:

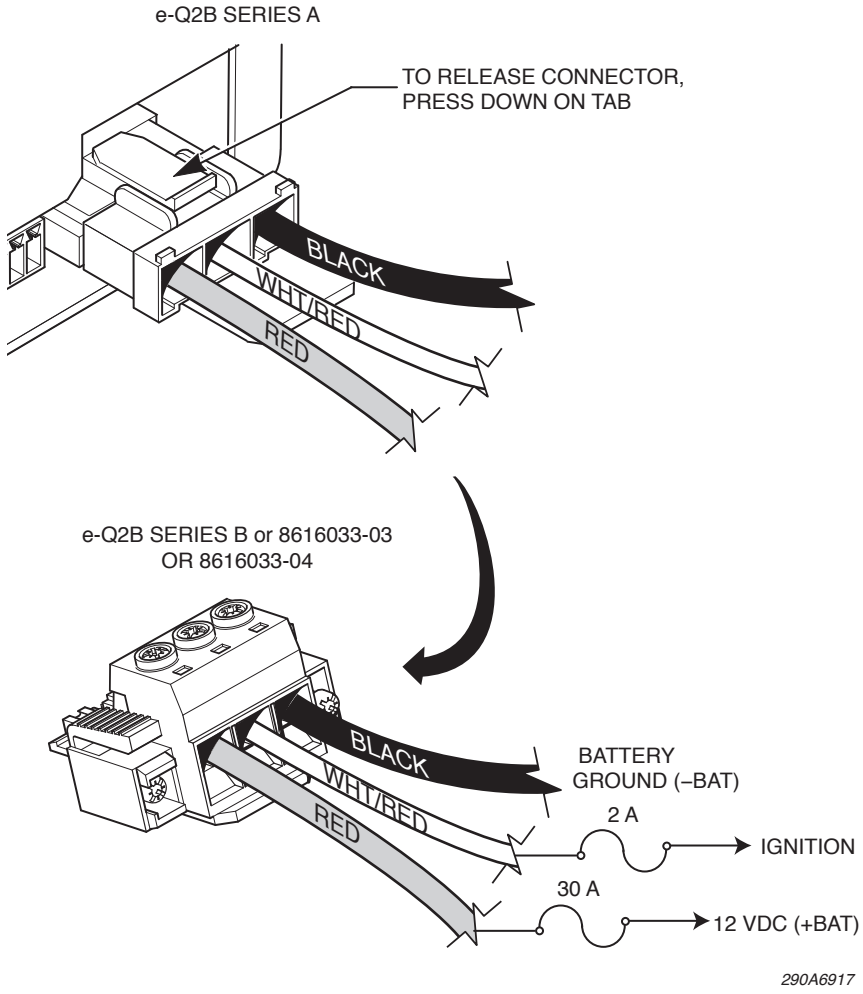
1. To dismount the old siren amplifier, and remove and retain the hardware securing it to the mounting location. Remove it from the vehicle.
2. Press the tab on the three-position power terminal to release it and unplug it from the siren amplifier.
3. Cut the three leads close to the Series A power terminals and strip 1/4 inch from the end of each lead.
4. Note the order of the legends below the power terminals on the e-Q2B: RED (+BAT), WHT/RED (IGN), and BLK (–BAT). See Figure 8 on page 17.

NOTICE

REVERSE POLARITY/MISWIRING: Reverse polarity may damage the siren amplifier. To avoid damage to the siren/amplifier, ensure that the battery voltage is the same as voltage as the rating of the light and that the correct polarity is observed.

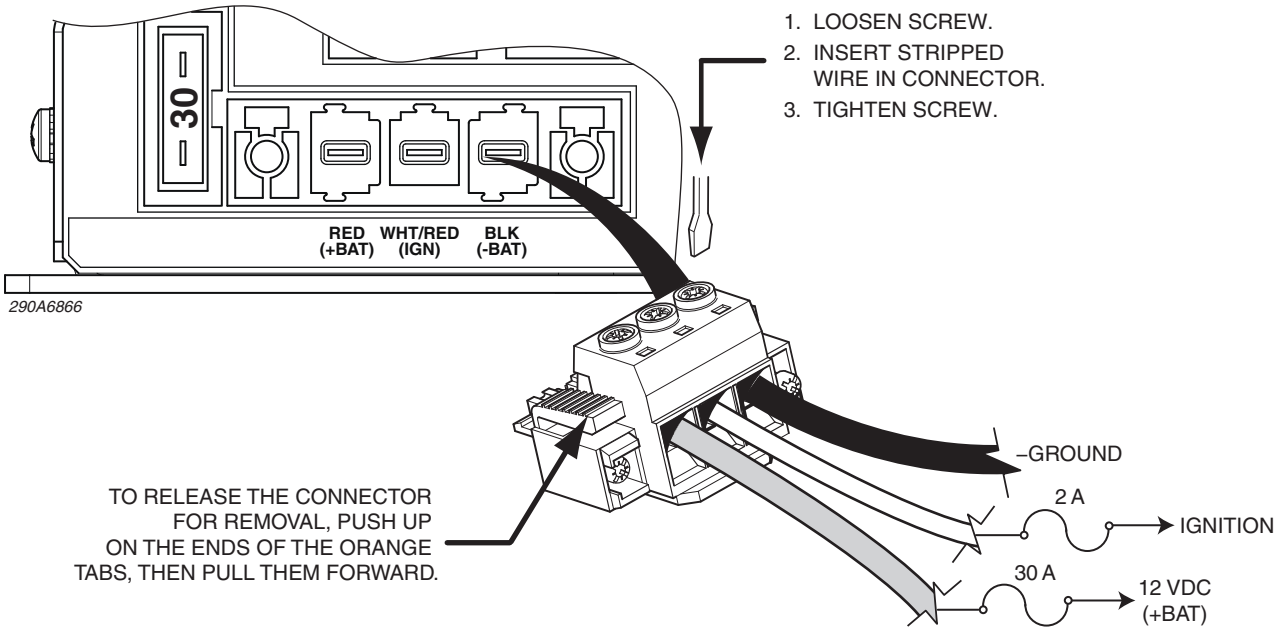
5. Loosen the screws on the three-position power connector and insert the stripped ends of the leads into the terminals in the same order as shown in the legends. See Figure 8. Tighten the screws.

Figure 8 Order of power connections to e-Q2B



6. Insert the three-position power terminal into the power connector on the e-Q2B. See Figure 9.

Figure 9 Connections for power, ground, and ignition



7. To prevent fretting or disconnection, tighten the two side-screws on the connector.

Preparing to Connect the Power Leads

Before connecting the amplifier/relay module to the battery, ensure that your final installation goes smoothly by taking these preparatory steps:

1. Visually check all connections and wiring to ensure that all connections are correct and secure.
2. Ensure that there are no loose strands or other bare wires that may cause a short circuit. All wires must be protected from any sharp edges that could eventually cut through the insulation.
3. Verify that are other electrical connections are completed and that no shorts exit.
4. Use an ohmmeter to verify that a short circuit does not exist between the positive (+) and negative (–) battery cable leads. There must be no short circuits between the positive wires and the vehicle chassis.
5. Insulate spliced leads with twist-on wire connectors. Fold and seal unused leads. Use wire ties and hold-downs for strain relief.

Connecting the Power Leads to the Vehicle Battery

The installer-supplied red (positive) and black (negative ground) power leads from the siren amplifier to the vehicle battery should be as short and direct as possible.

1. Connect the 10 AWG red positive lead (+) to a positive power source capable of supplying 40 amperes. Install a user-supplied 30-ampere fuse (minimum) at the source. The e-Q2B is internally fused at 30 amperes. See Figure 14 on page 27.
2. Connect the 10 AWG negative (–) black lead directly to the negative battery terminal.
3. Connect the 12 AWG white lead with the red stripe to a switched circuit that is hot, or active, in the ON and START position of the vehicle ignition system. Install a user-supplied 2-ampere fuse at the source.
4. To prevent fretting or disconnection, tighten the screws on the connector.

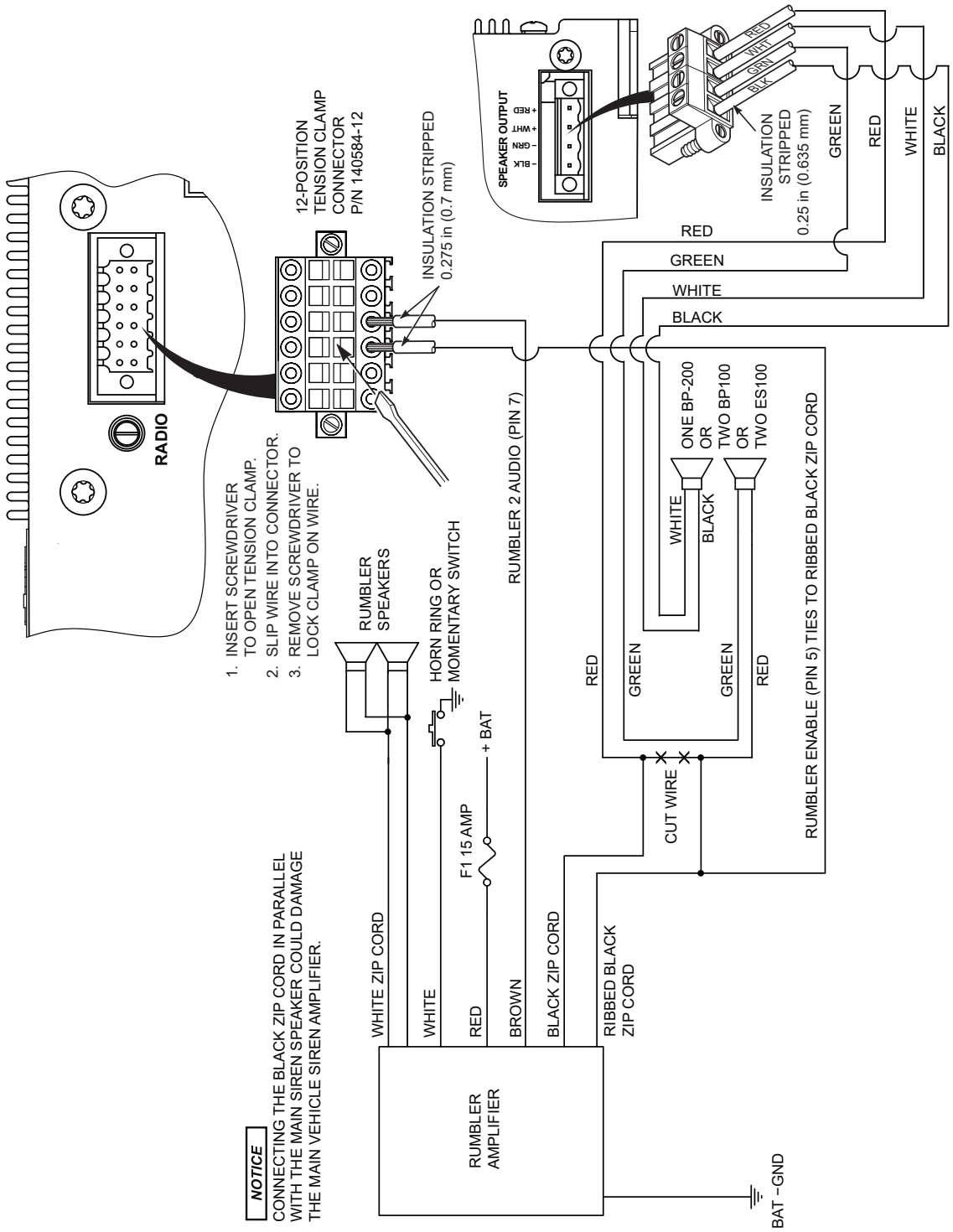
Connecting the e-Q2B to the Rumbler 2 Low Frequency Amplifier

The e-Q2B has a Rumbler audio output that enables it to interface to a Federal Signal Rumbler 2 siren amplifier. The Rumbler 2 intersection-clearing system uses the output of the e-Q2B siren amplifier to synthesize a low-frequency signal. It then amplifies the signal to drive a Federal Signal low-frequency siren speaker. Low frequency tones have the distinct advantage of penetrating solid materials, enabling vehicle operators and nearby pedestrians to feel the sound waves.

Figure 10 on page 20 shows the connections between the Rumbler 2 and the e-Q2B siren amplifier.

For more information, refer to Federal Signal document “Model Rumbler 2 Low Frequency Siren Amplifier,” document number 2562420, Rev. B or later.

Figure 10 Rumbler 2 connections to e-Q2B F1 15 A white zip cord Rumbler Speakers



Mounting the Siren Amplifier

The next step in the installation after wiring and connecting the e-Q2B Siren System is to permanently mount the siren amplifier and control head in the vehicle. Verify that the mounting locations you selected earlier are safe for installing these components. Before installing the siren amplifier and control head, note the following precautions.

⚠ WARNING

AIRBAG DEPLOYMENT: Do not install equipment or route wiring in the deployment path of an airbag. Failure to observe this warning will reduce the effectiveness of the airbag or potentially dislodge the equipment, causing serious injury or death.

⚠ WARNING

SEAT REMOVAL PRECAUTION: If a vehicle seat is temporarily removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment. Failure to follow this warning cause serious injury or death.

NOTICE

UNIT REQUIRES AIR FLOW: The siren amplifier is cooled by an internal fan. Do not install it in areas where the air flow is restricted. Do not mount the unit near a heater duct or under the hood.

NOTICE

UNIT IS NOT WATERPROOF: The housing of the e-Q2B siren amplifier is NOT waterproof. The module must be mounted in a location that is sheltered from falling rain, snow, standing water, etc.

⚠ WARNING

DRILLING PRECAUTIONS: Before drilling holes, check the area into which you plan to drill to ensure that you do not damage vehicle components. All drilled holes should be deburred and all sharp edges should be smoothed. Additionally, all exterior drilled holes must be sealed with Motorcraft seam sealer T-A-2-B or equivalent to prevent the potential exposure to carbon monoxide or other potentially harmful fumes. Failure to observe this warning could cause serious injury or death.

Mounting the Siren Amplifier

Installer-supplied #10-32 mounting hardware is required to mount the siren amplifier.

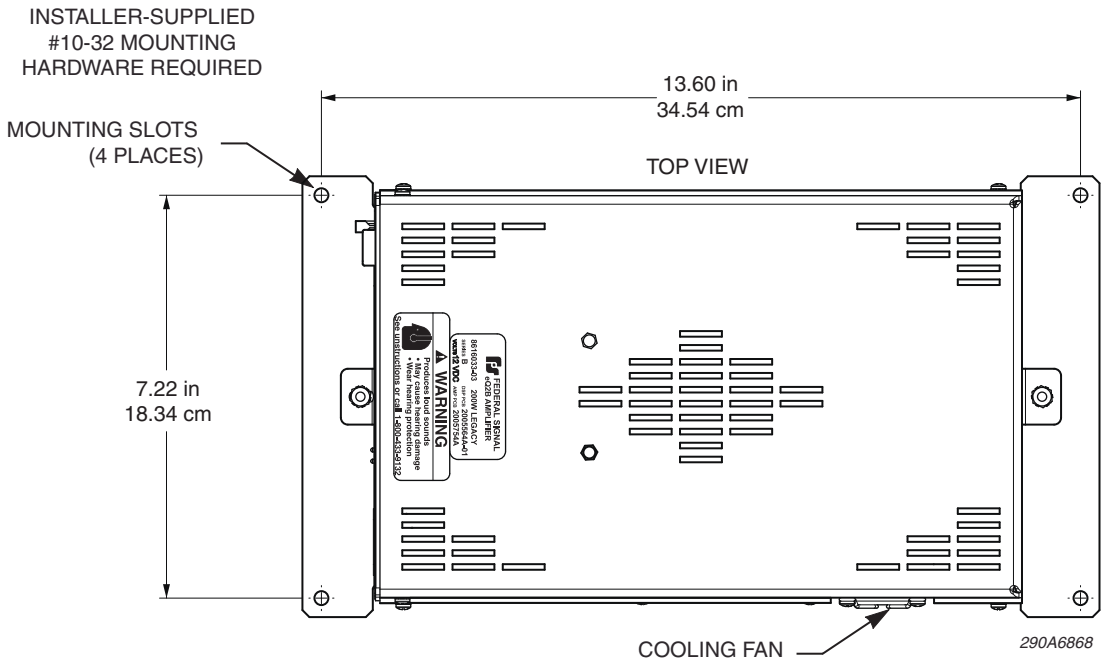
Tools needed:

- #18 tap drill for steel and iron
- Phillips screwdriver
- Pencil or felt-tip pen for marking drill locations

To mount the siren amplifier in the vehicle:

1. Use the base of the siren amplifier as a template to mark the centers of the four mounting holes. See Figure 11.

Figure 11 Mounting hardware information for the siren amplifier



2. Tap and drill the center of the four mounting holes.
3. Center the slots in the base of the siren amplifier over the drilled holes and secure it with the installer-supplied #10-32 mounting hardware.

Final Preparations of the e-Q2B Siren System

The final step in the installation of the e-Q2B Siren System is to ensure that the system is installed correctly, that all vehicle functions operate properly, and that safety stickers and messages are available to vehicle operators. Before proceeding, note the following precautions.

⚠ WARNING

SOUND HAZARD: All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sounds and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.

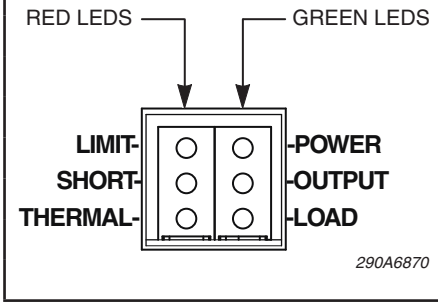
⚠ WARNING

LIGHT HAZARD: To be an effective warning device, an emergency warning system produces bright light that can be hazardous to your eyesight when viewed at a close range. Do not stare directly into this lighting product at a close range, or permanent damage to your eyesight may occur.

Testing the Installation

Test the e-Q2B Siren System to verify that it is operating properly. Be sure to note the status of the LED indicators on the front of the siren amplifier. See Figure 12.

Figure 12 e-Q2B system diagnostic LEDs



System Activity	LED Activity
Power on	No LEDs light
Power and ignition on	POWER lights
Siren active	OUTPUT lights
Short circuit	SHORT lights
Siren speakers are receiving current	LOAD lights
Siren amplifier overheats	THERMAL lights
30-ampere fuse is intact	LIMIT lights

Test all vehicle functions, including horn operation, vehicle safety functions, and vehicle lighting systems for proper operation. Ensure that the installation has not affected the vehicle operation or changed any vehicle safety functions or circuits. Do not test the sound and light system of the vehicle while driving. Operating the vehicle warning system may pose a hazard to the operator and other drivers if the system does not function as expected. Test the vehicle only in a controlled environment. After testing is complete, provide a copy of this manual to the instructional staff and all operating personnel.

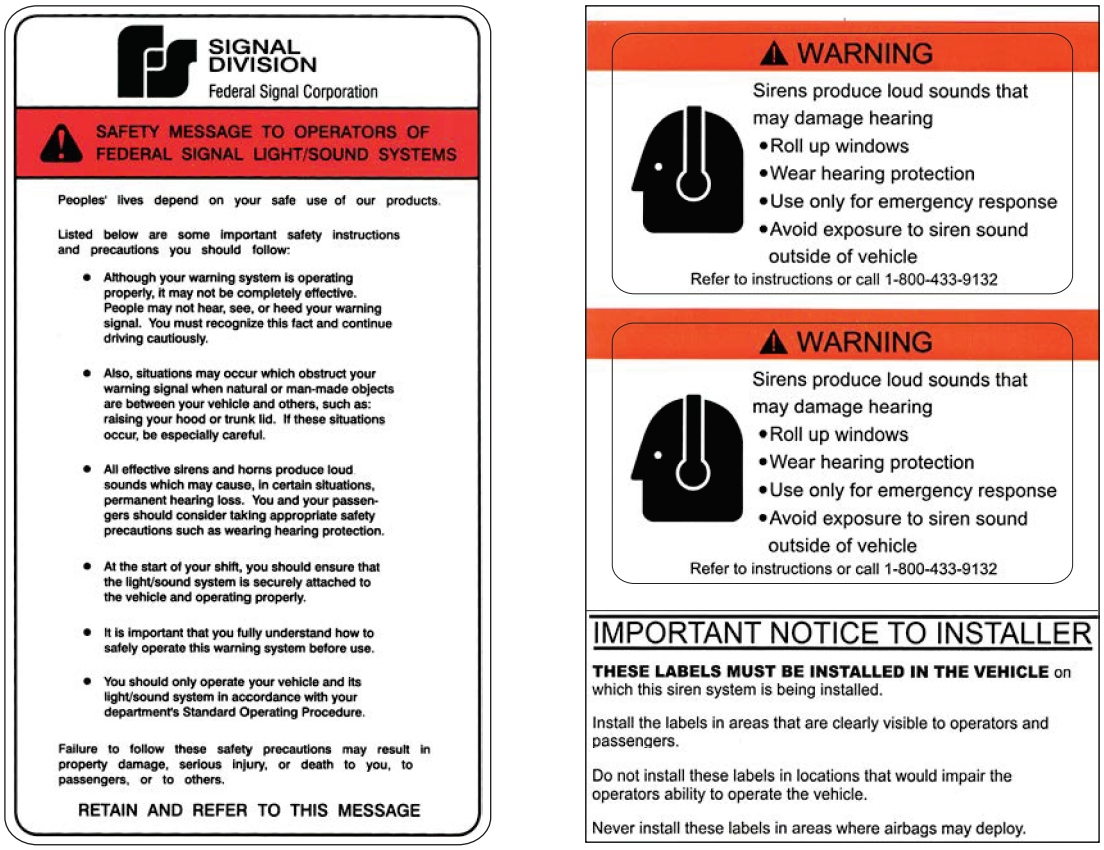
Distributing the Safety Message Card

Give the operator of the E-Q2B System the card entitled “Safety Message to Operators of Federal Signal Light/Sound Systems” (part no. 256B691). See Figure 13. The operator must read and understand the safety instructions and keep the card in the vehicle for reference.

Applying the Siren Safety Labels in the Vehicle

The e-Q2B Siren System kit includes a sheet of two labels with siren safety messages (part no. 1612339) (Figure 13). These labels must be installed in the vehicle in which the system is installed. Place these labels in areas that are clearly visible to operators and passengers. Do not adhere the labels to locations that would impair the driver’s ability to operate the vehicle. Never install the labels in areas where airbags may deploy.

Figure 13 Safety message card (left) and siren safety labels (right)



Safety Messages to Personnel Servicing Electronic Sirens

⚠ WARNING

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

- Read and understand all instructions in this manual before servicing the electronic siren or control head.
- To properly service an electronic siren or control head, 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 service manuals when performing service on a vehicle.
- Electronic repairs must be performed by a qualified and competent electronics technician.
- 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.
- Do NOT connect this system to the positive terminal of the battery until servicing is complete and you have verified that there are no short circuits to ground.
- For the electronic siren to function properly, the ground connection must be made to the NEGATIVE battery terminal.
- After repair, test the electronic siren and speaker system to ensure that it is operating properly.
- 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 both federal, state and local standards or guidelines.

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

Servicing the e-Q2B Siren System

Federal Signal recommends that the e-Q2B siren amplifier and control head be returned to your local distributor or to Federal Signal for service. External components, such as cabling and the 30-ampere fuse, are available as replacement parts. See Table 6 on page 27. With the exception of the selector knob and the PA volume knob on the control head, there are no other user-serviceable parts within the control head or the siren amplifier. After servicing the e-Q2B Siren System, test it to ensure that it is operating properly. See "Final Preparations of the e-Q2B Siren System" on page 23 for more information.

Servicing the Siren Amplifier

Servicing the siren amplifier includes replacing damaged cables or external wiring and the 30-ampere fuse. It also includes removing and reinstalling the siren amplifier when necessary. For information on ordering replacement parts from Federal Signal, see page 27.

Tools needed:

- 16-inch nut driver
- Flat-head screwdriver
- Small needle-nose pliers (for fuse replacement)

Removing the Siren Amplifier

To remove the siren amplifier for service or replacement:

1. Remove and retain the installer-supplied #10-32 hardware.
2. Disconnect the DB9 cable and speaker leads from the siren amplifier.
3. Loosen the two strain-relief screws securing the power connector and unplug it.

Reinstalling the Siren Amplifier

To reinstall the siren amplifier in the vehicle:

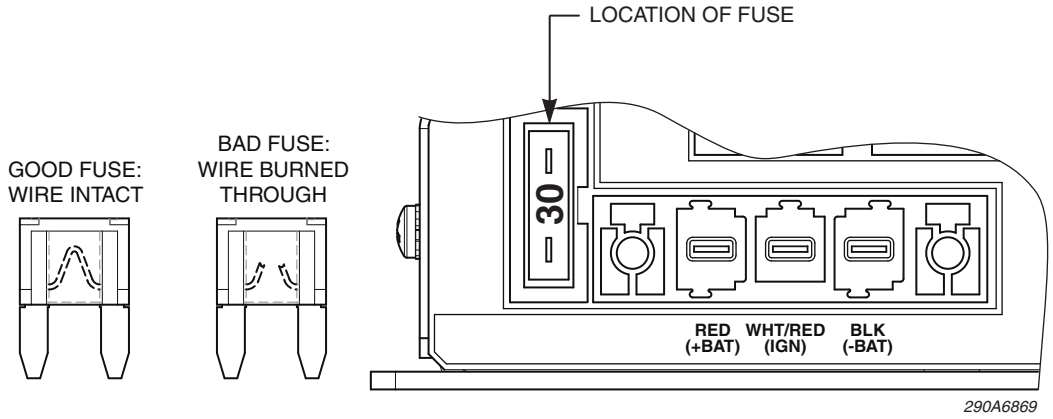
1. Test the siren system to ensure that it is operating properly.
2. Reinstall the siren amplifier with the installer-supplied #10-32 hardware.
3. Reconnect the DB9 connector and speaker leads from the siren amplifier.
4. Reconnect the 3-position power connector.

Replacing the 30 A Fuse in the Siren Amplifier

To replace the fuse:

1. Investigate and correct the cause of the fuse failure.
2. Remove the 30-ampere fuse by pulling it out with a pair of needle-nose pliers. See Figure 14. Be careful not to bend the blades.

Figure 14 Location of 30 A fuse



3. Insert the blades of the new 30-ampere fuse into the fuse holder. Make sure it is properly seated.

Ordering Replacement Parts

To order replacement parts, call Customer Support at 1-800-264-3578, 7 a.m. to 5 p.m., Monday through Friday (CT) or contact your nearest distributor.

Table 6 Replacement parts

Description	Part Number
e-Q2B Siren Amplifier, 200 W, Legacy Connection	8616033-03
e-Q2B Siren Amplifier, 100 W, Legacy Connection	8616033-04
Fuse, 30 A	148A142-08
Connector, Power	140535
Connector, Speaker	140417-04

Getting Technical Support and Service

For technical support and service, please contact:

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

Getting Repair Service

The Federal Signal factory provides technical assistance with any problems that cannot be handled locally.

Any units 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 Drive
University Park, IL 60484-3167

FEDERAL SIGNAL
Safety and Security Systems

2645 Federal Signal Drive
University Park, Illinois 60484-3167

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