

2562579A REV. A 910

Safety Message to Installers of Federal Signal Products

⚠ WARNING

People's lives depend on your proper installation of our products. It is important to read, understand, and follow all instructions shipped with this product and the related add-on products. In addition, listed below are some other important safety instructions and precautions you should follow:

- To properly install this equipment, you must have a good understanding of automotive electrical procedures and 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. Failure to observe this warning will reduce the effectiveness of the airbag or potentially dislodge the equipment, causing serious injury to you or others.
- 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 the lights at a close range or permanent damage to your eyesight may occur.
- If a vehicle seat is removed, verify with the vehicle manufacturer if the seat needs to be recalibrated for proper airbag deployment.
- When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged. Remove all burrs from drilled holes. To prevent electrical shorts, grommet all drilled holes through which wiring is run.
- Never attempt to install aftermarket equipment that connects to the vehicle wiring without reviewing a vehicle wiring diagram available from the vehicle manufacturer. Insure that your installation will not effect vehicle operation or mandated safety functions or circuits. Always check the vehicle for proper operation after installation.
- Locate the controls so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- The flasher should be frequently inspected 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 installing and/or reinstalling the product.

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

Overview of the Model FHL-TAIL

The Model FHL-TAIL tail light flasher alternates red and white light, creating an effective rear-warning signal to greatly reduce rear-end collisions. The flasher also provides an additional output for rear deck package tray lights. The flasher is designed for vehicles that have the negative post of the battery connected to the chassis of the vehicle. The 12-wire module has isolating diodes for the reverse wire that is required for many new cars and trucks.

Table 1 Product specifications

Standby Current:	Approx. 4.6 A per 55 W halogen lamp
Flash Pattern:	Flashback™: Alternates lower brake lights against the reverse lights at 2.6 FPS
Dimensions:	4.7 in L x 2.05 in W x 0.7 in H (11.9 cm L x 5.2 cm W x 1.8 cm)
Material:	ABS plastic housing
Mounting:	Mounts on 4-inch centers
Wire Length:	18 in (45.7 cm)

Testing for the Presence of a Brake Shift Interlock Device

WARNING

CHECK FOR BRAKE SHIFT INTERLOCK SYSTEM—Determine if your vehicle is equipped with an Ignition or Shift Interlock device before attempting to install any rear flasher that connects to the vehicle brake system. An interlock device prevents the vehicle from being shifted into gear if the brake pedal is not pressed. This information can be found in the vehicle Owner's Manual or by performing the test described in this section. Failure to follow this warning may lead to property damage or serious injury.

To perform the test:

1. Set the parking brake according to the instructions in the vehicle Owner's Manual and start the engine.
2. Try to shift the transmission out of PARK without pressing the brake pedal.
 - A. If the transmission **WILL NOT SHIFT**, your vehicle **IS** equipped with an interlock device.
 - B. If the transmission **DOES SHIFT**, your vehicle is **IS NOT** equipped with an interlock device.
3. Install the rear flasher according to the instructions in the next section. If your vehicle **IS NOT** equipped with an interlock device, the installation is complete. If your vehicle **IS** equipped with an interlock device, perform the test described in "Testing the Operation of the Brake Shift Interlock Device" on page 6.

Installing the Flasher

The Model FHL-TAIL Headlight Flasher is designed to be water resistant. However, to ensure years of trouble-free operation, it should be mounted in a location that is protected from direct water spray and high temperatures. Before installing the flasher, plan all wire routings.

These installer-supplied items are required:

- ✓ Mounting hardware
- ✓ Activation switch
- ✓ 1 A ATO fuse and fuse holder
- ✓ 15 A ATO fuse and fuse holder
- ✓ 14 AWG wire (minimum) to extend the flasher's white wire to the battery
- ✓ 16 AWG wire (minimum) to extend all other wires

- ✓ 18 AWG wire (minimum) to extend wires for the package tray lighting option

For requirements for the option of flashing the package tray lights, see Figure 2 on page 6.

To mount the flasher and make the power connections:

1. For vehicles with a trunk, select a location for the flasher as close to the driver side taillight housing as possible. For vehicles with a tailgate or lift gate, select a location for the flasher as close to the taillight housing on the driver side. For pickup trucks, remove the driver side taillight housing and select a location behind the taillight housing.

⚠ WARNING

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

2. Use the flasher as a template to mark the center of the two mounting holes.

NOTICE

DRILLING PRECAUTION—When drilling holes, check the area into which you are drilling to be sure you do not damage vehicle components while drilling. All drilled holes should be de-burred and all holes should be smooth. All wire routing going through drilled holes should be protected by a grommet or convolute/split loom tubing.

3. Drill the two holes and use the installer-supplied mounting hardware to mount the flasher.
4. Connect the GREEN wire to a convenient reliable ground (see Figure 1 on page 5).

NOTICE

PRECAUTION FOR EXTENDING WHITE WIRE—Failure to extend the WHITE wire to the battery with 14 AWG wire will result in improper operation and may cause damage to the flasher or other devices in the vehicle.

NOTICE

FUSE PRECAUTION—Do not use a circuit breaker, fusible link, or slow-blow fuse. Improper fusing can cause equipment failure and damage.

5. Extend the WHITE wire with 14 AWG wire from the flasher to the positive post of the battery.

NOTE: Do not install the fuse until all other connections have been made, including driver- and passenger-side connections.

6. Connect a fuse holder to the positive post of the battery. The fuse holder must be rated at 15 A or greater.
7. Connect the 14 AWG extension wire to the fuse holder.

⚠ WARNING

DO NOT CONNECT TO HIGH-MOUNTED STOP LAMP—Do not connect the Model FHL-TAIL flasher to the High-Mounted Stop Lamp (i.e., also known as Cyclops, Center Light, and CHMSL. Flashing the High-Mounted Stop Lamp violates Federal Motor Vehicle Safety Standard (FMVSS) No. 108, which requires that the High-Mounted Stop Lamp only illuminate when the brakes are applied. Failure to heed this warning may cause property damage, injury, or death.

Driver-Side Connections

See Figure 1 on page 5 and make these connections:

1. Locate and cut the brake-light wire.
2. Connect the BLUE wire from the flasher to the end of the wire that goes to the brake light.
3. Connect the ORANGE wire from the flasher to the end of the brake light wire that goes to the front of the vehicle.
4. Locate and cut the reverse-light wire.
5. Connect the RED wire from the flasher to the end of the wire that goes to the reverse light.
6. Connect the WHITE/RED wire from the flasher to the end of the reverse light wire that goes to the front of the vehicle.

Passenger-Side Connections

See Figure 1 on page 5 and make these connections:

1. Extend the YELLOW, PINK, WHITE/BLACK and BLACK wires over to the passenger side of the vehicle.
2. Locate and cut the brake light wire.
3. Connect the YELLOW wire from the flasher to the end of the brake light wire that goes to the brake light.
4. Connect the PINK wire from the flasher to the end of the brake light wire that goes to the front of the vehicle.
5. Locate and cut the reverse-light wire.
6. Connect the BLACK wire from the flasher to the end of the wire that goes to the reverse light.
7. Connect the WHITE/BLACK wire from the flasher to the end of the reverse light wire that goes to the front of the vehicle.

NOTE: The RED/BLACK wire is the auxiliary output to control the package tray lights. For instruction to wire this feature, see page 6.

Power Switch Connection

NOTICE

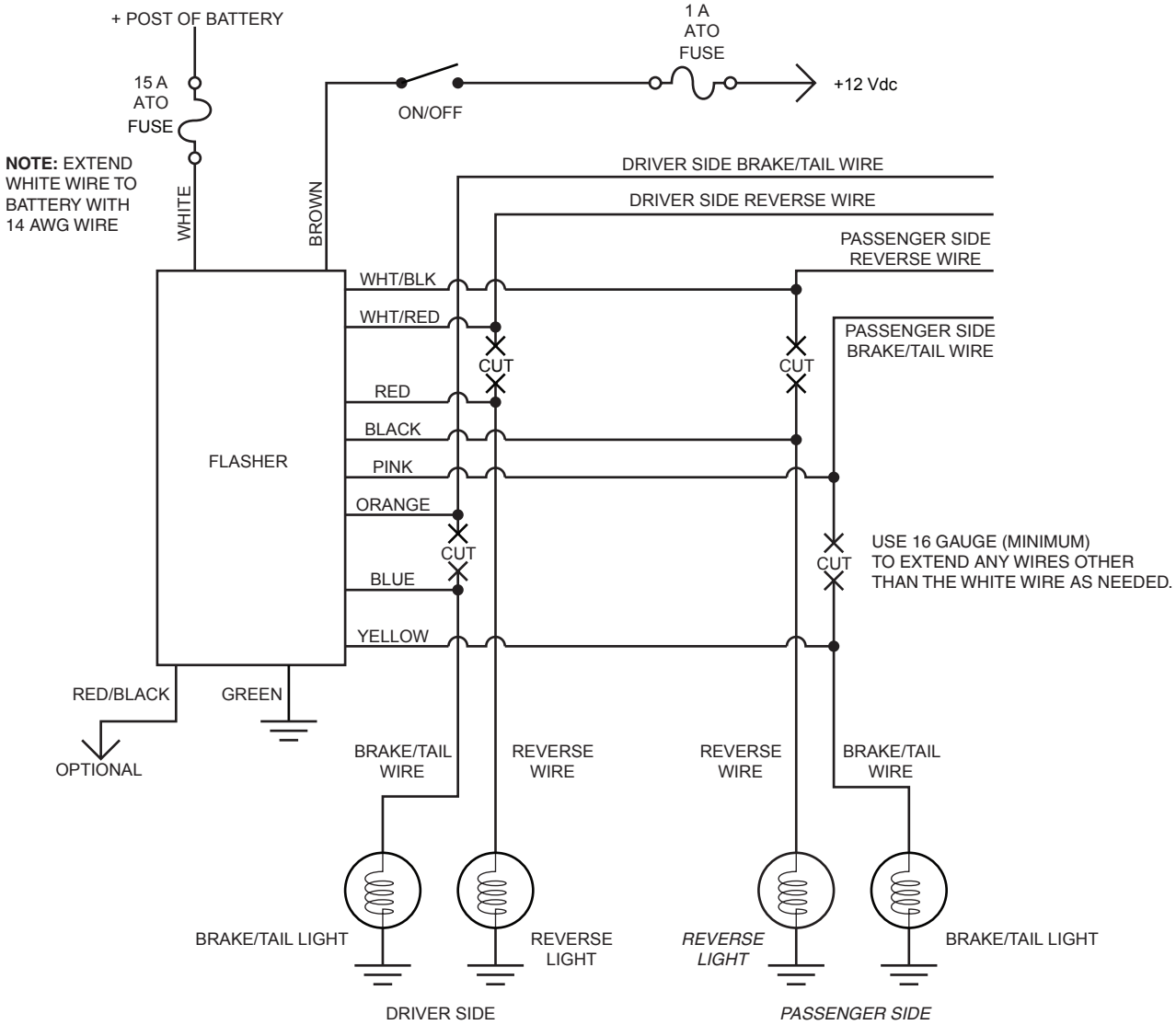
FUSE PRECAUTION—Do not use a circuit breaker, fusible link, or slow-blow fuse. Improper fusing can cause equipment failure and damage.

Extend the BROWN wire from the flasher to an installer-supplied powered switch that will turn the flasher on and off. To protect the wire between the switch and the flasher, install a fuse holder connected to the powered switch with a 1 A ATO or smaller fuse.

15 A Fuse Installation

After you complete the wiring, install a 15 A fuse in the fuse holder between the 14 AWG WHITE wire extension and the positive post of the battery.

Figure 1 Wiring Diagram

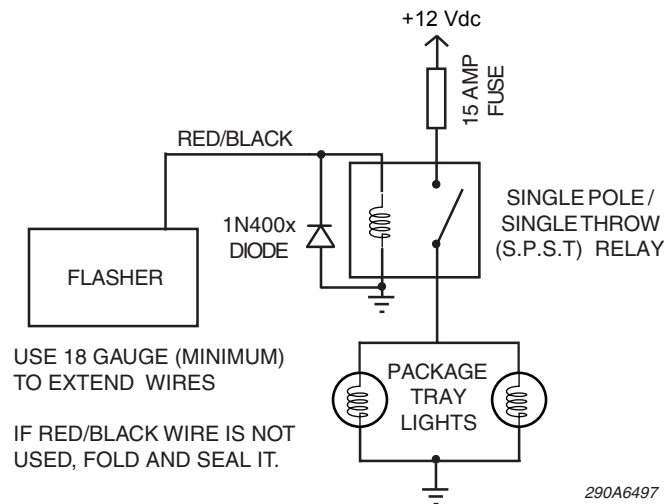


NOTE: FOR VEHICLES THAT REQUIRE BLOCKING DIODES IN THE REVERSE WIRE, USE OF THE 12-WIRE MODEL FHL-TAIL FLASHER PROVIDES THE BLOCKING DIODES INTERNALLY.

Red/Black Wire

The RED/BLACK wire is the auxiliary output that controls the package tray lights (Figure 2). For the wiring instructions, see Figure 2.

Figure 2 Wiring diagram for installation with package tray lighting



Testing the Operation of the Brake Shift Interlock Device

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 the lights at a close range or permanent damage to your eyesight may occur.

If your vehicle has an interlock device, perform this test after installing the flasher to verify the the proper operation of the device.

1. Set the parking brake according to the instructions in the vehicle Owner's Manual and start the engine.
2. With the flasher OFF, try to shift the transmission out of PARK without pressing the brake pedal. **THE TRANSMISSION MUST NOT SHIFT.** If the vehicle shifts from PARK, disconnect the flasher, restore the vehicle wiring, and contact the Federal Signal Service Department at 1-800-433-9132 for further instructions.
3. With the flasher ON, try to shift the transmission out of PARK without pressing the brake pedal. **THE TRANSMISSION MUST NOT SHIFT.** If the vehicle shifts from PARK, disconnect the flasher, restore the vehicle wiring, and contact the Federal Signal Service Department at 1-800-433-9132 for further instructions.
4. Periodically have the operator of the vehicle repeat this test to ensure the proper operation of the vehicle safety systems.

Testing the Installation

⚠ 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 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.

⚠ 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 the lights at a close range or permanent damage to your eyesight may occur.

After testing the flasher, test the emergency warning system to ensure that it is operating properly. Also test all vehicle functions, including horn operation, vehicle safety functions, and vehicle lighting systems to ensure proper operation. Ensure that the installation has not affected the vehicle operation or changed any vehicle safety functions or circuits. After testing is complete, provide a copy of these instructions to the instructional staff and all operating personnel.

Do not test the sound and light system of the vehicle while driving. Operating the vehicle warning systems may pose a hazard to the operator and other drivers if the systems do not function as expected. Test the vehicle only in a controlled environment.

Limited Warranty

Federal Signal warrants the Model FHL-TAIL Headlight Flasher for five years from the date of purchase to the original purchaser against any manufacturer defects or workmanship. This warranty applies only to the units installed according to the manufacturer's installation instructions and operated within the specifications of the unit. Federal Signal's obligation under this warranty is limited to repairing or exchanging the unit. Exchanging units under this warranty is as follows: 100 percent of purchase price for the first two years, 75 percent of the purchase price for the third year, 50 percent of the purchase price for the fourth year, and 25 percent of the purchase price for the fifth year. Warranty is void if the unit was installed incorrectly or maliciously damaged. All warranty claims must be accompanied by dated proof of purchase. Federal Signal retains the right to be the sole mediator of what constitutes defects in performance or manufacturing.

Obtaining Technical Support and Service

For technical support and service, please contact:

Federal Signal Corporation
Public Safety Systems
Service Department
Phone: 1-800-433-9132
Fax: 1-800-343-9706
Email: empserviceinfo@fedsig.com

Returning a Product to Federal Signal

Before returning a product to Federal Signal, call 800-264-3578, 800-433-9132, or 800-824-0254 to obtain a Returned Merchandise Authorization number (RMA number). To expedite the process please be prepared with the following information:

- Your Federal Signal customer or account number.
- The purchase order number under which the items were purchased.
- The shipping method.
- The model or part number of the product being returned.
- The quantity of products being returned.
- Drop ship information as needed.
- Any estimate required.

When you receive your RMA Number:

- Write the RMA number on the outside of the box of returned items.
- Reference the RMA number on your paperwork inside of the box.
- Write the RMA number down, so that you can easily check on status of the returned equipment.

Send all material with the issued RMA Number to:

Federal Signal Corporation
Public Safety Systems
2645 Federal Signal Drive
University Park, IL 60484-3167
Attn: Service Department
RMA: # _____

800-433-9132
800-343-9706 (fax)
www.fedsig.com

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