



851722-17 03/23

Universal Wiring Kit

part number 154

Installation Instructions

All specifications are subject to change without notice.

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Note: in the unlikely event both the motorhome's and the towed vehicle's wiring have separate brake and turn signals, two additional diodes are required. See the 'separate to separate' schematic at www.roadmasterinc.com.

WARNING

Read the instructions before installing the kit components, and wire the towed vehicle according to the instructions and illustrations. Failure to understand how to install this product could result in an electrical malfunction or other collateral or consequential damage.



Wire the towed vehicle

Step A

Identify the vehicles' lighting systems

1. The vehicle will be wired for towing according to the type of brake and turn signals in both vehicles. There are two types – combined or separate (Figure 1). In a **combined** system, the brake light does the flashing for the turn signal; in a **separate** system, there are amber or red turn signal lights which are separate from the brake lights.

Note: if the motorhome has a separate lighting system, a 3-to-2 converter must be installed in order to use this kit. A 3-to-2 converter converts a separate system to a combined system.

Many late-model motorhomes come with converters already installed – test for this before installation: if the motorhome's trailer plug energizes the same pins for both brake lights and turn signals, then a 3-to-2 converter is

already installed and the motorhome should be treated as combined.

If a converter is needed, install ROADMASTER's Brite-Lite™, part number 732.

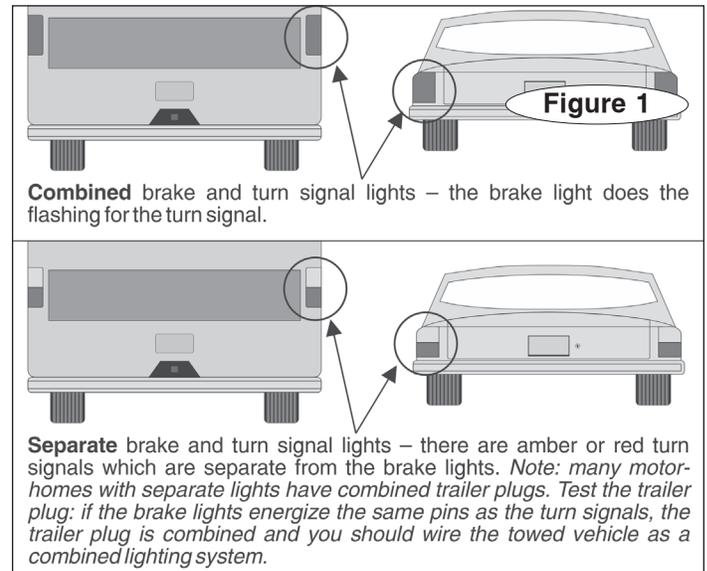
Step B

Wire the vehicle for towing

1. You will attach one end of the wiring harness (the 27-foot length of four-wire electrical cord) to the taillight assemblies, then route the other end of the wiring harness to the front of the vehicle.

Before you attach the wiring harness, plan a route to the front of the vehicle that avoids the possibility of fraying or melting the wiring against moving parts, sharp edges, the fuel lines or hot components. (If the OEM wiring harness is

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IMPORTANT NOTICE!

Safety Definitions

Statements in these instructions identified as follows are of special significance.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in property damage, serious personal injury or even death.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage, or minor or moderate personal injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE

Refers to important information and is placed in italic type. It is recommended that you take special notice of these items.

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accessible, consider routing the harness alongside it.)

 **WARNING**

Plan a route that will avoid moving parts, sharp edges, the fuel lines or hot components such as the engine or exhaust system.

Wiring exposed by moving parts, sharp edges or hot components may cause a short circuit, which can result in damage to the vehicle's electrical system as well as other, consequential damage.

Wiring which is attached in close proximity to the fuel lines may ignite the fuel.

2. If it will be necessary to drill a hole to route the wiring, drill the hole now.

Cut one of the four-wire flats from the wiring harness, leaving three feet of the harness attached. (You may use this section later at the motorhome.)

Route the cut end of the harness through the hole so that the other end of the harness, with the four-wire flat, can be routed to the front of the vehicle.

3. Expose the wires behind both taillight assemblies. (It may be necessary to remove the taillight assemblies from the exterior of the vehicle to gain access.)

4. With a circuit tester, identify the brake light, taillight and turn signal wiring.

5. Attach the diodes according to the appropriate schematic on page three.

6. Jump the diodes attached to the taillights, as shown in the schematic.

Note: use the yellow female spade connector to jump the diodes.

7. Following the schematic, separate the bonded wires in the wiring harness and attach the appropriate wires to the diodes at either one of the taillight assemblies.

Peel off the appropriate wires and route them to the other side.

Attach those wires to the other diodes.

8. Use the included ring terminal and self-tapping screw to attach the ground wire.

Note: to avoid grounding problems, attach the wire to a good chassis ground, preferably directly to the frame.

CAUTION

Refer to the owner's manual before attaching the ground wire. Some manufacturers stipulate that ground wires must be attached at specific locations.

Significant damage to the vehicle's electrical system, as well as other consequential, non-warranty damage will occur if the ground wire is not attached at one of these points.

 **WARNING**

Attach the diodes as close to the towed vehicle's lights as possible, to avoid interaction with other circuits which may be tied into the center brake light, the running lights, the turn signals or the brake light wires. Attaching the diodes farther away may cause the towed vehicle's lights to work improperly, as well as cause

damage to other electrical components in the vehicle.

CAUTION

Failure to attach the diodes as indicated in the wiring diagrams will create a backfeed through the vehicle's electrical system, which will allow electrical current from the towed vehicle to disrupt one or both of the vehicles' electrical systems.

Additionally, if a supplemental braking system is installed it may not operate, or may only operate intermittently.

Step C

Route the wiring harness

1. Route the other end of the wiring harness to the front of the vehicle, using the route you planned in Step B. Where appropriate, use a section of the included split loom to protect the wires; use one or more of the included wire ties to secure the wiring in place.

2. If it was necessary to drill a hole, seal it with silicone sealant after you have routed the harness to the front.

Step D

Attach the wiring harness

1. After you route the wiring harness to the front of the vehicle, choose a mounting point for the four-wire flat. Look for a mounting point near the center, away from pre-existing components, with a surface of sufficient strength to hold it firmly in place.

CAUTION

The four-wire flat must be mounted near the center. If it is attached too far to either side, it may be damaged or pulled away when the motorhome turns.

2. Use one of the included wire ties to attach the four-wire flat. Allow enough slack so that it can easily be connected and disconnected from the power cord.

Wire the motorhome

CAUTION

The color codes listed are the most commonly used. However, color coding is not standard with all manufacturers.

Use the color codes for initial reference only; confirm the function of each wire with a circuit tester.

The towed vehicle's lighting system may not function, or function improperly, if the wires are not connected correctly. Cross-wiring may also cause a short circuit, a blown fuse or other electrical damage.

1. Use one of the included wire ties to secure the four-wire flat at the end of the three-foot length of wiring harness you removed in Step B, "Attach the wiring harness," to the rear of the motorhome. Make sure the four-wire flat is centrally located, near the receiver, with enough slack so that it can easily be connected and disconnected from the power

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cord.

CAUTION

Attach the four-wire flat close to the center of the motorhome. If the four-wire flat is attached too far to either side, it may be damaged or pulled away when the motorhome turns.

2. With a circuit tester, identify the wires conducting the left turn/stop, right turn/stop and taillight signals in the motorhome electrical system.

3. If necessary, trim the three-foot length of electrical harness. Then strip ¼" to 3/8" of insulation from each of the wires.

4. Using the included butt connectors, attach the wires as follows:

Wire color from four-wire flat	Motorhome wiring
Attach the yellow wire to.....	Left turn/Stop
Attach the green wire to.....	Right turn/Stop
Attach the brown wire to.....	Taillights

5. Use the included ring terminal and self-tapping screw to attach the white ground wire.

Note: to avoid grounding problems, attach the wire to a good chassis ground, preferably directly to the frame.

6. Connect the power cord to the motorhome and towed vehicle. Test to make certain that the towed vehicle's turn signals, taillights and brake lights operate in conjunction with those of the motorhome.

Wiring schematics

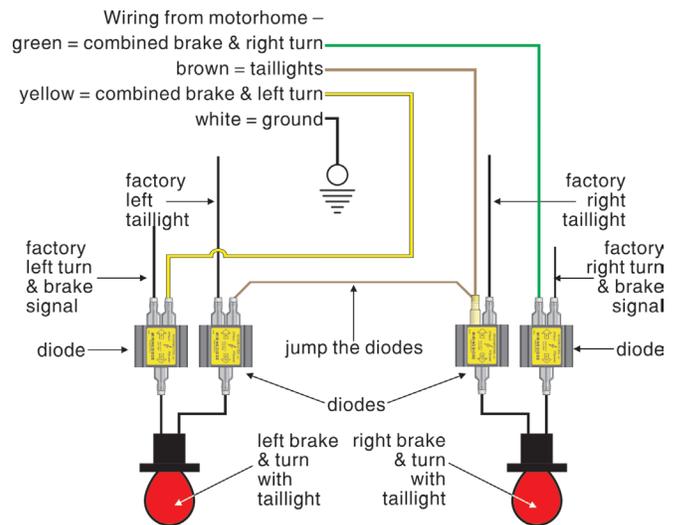
CAUTION

The color codes listed below are the most commonly used. However, color coding is not standard with all manufacturers.

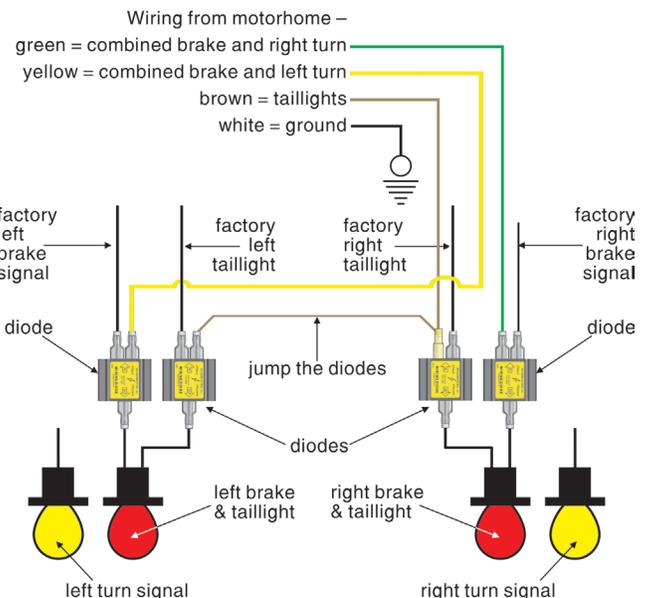
Use the color codes for initial reference only; confirm the function of each wire with a circuit tester.

The towed vehicle's lighting system may not function, or function improperly, if the wires are not connected correctly. Cross-wiring may also cause a short circuit, a blown fuse or other non-warranty damage.

Combined towed vehicle to combined motorhome



Separate towed vehicle to combined motorhome



Advertisement

Don't do the Fuse Limbo...

How about if you never had to spend another minute with your face on the floor mat, gazing up into a black void, hunting for a miniscule piece of plastic playing hide and seek?

You don't have to.

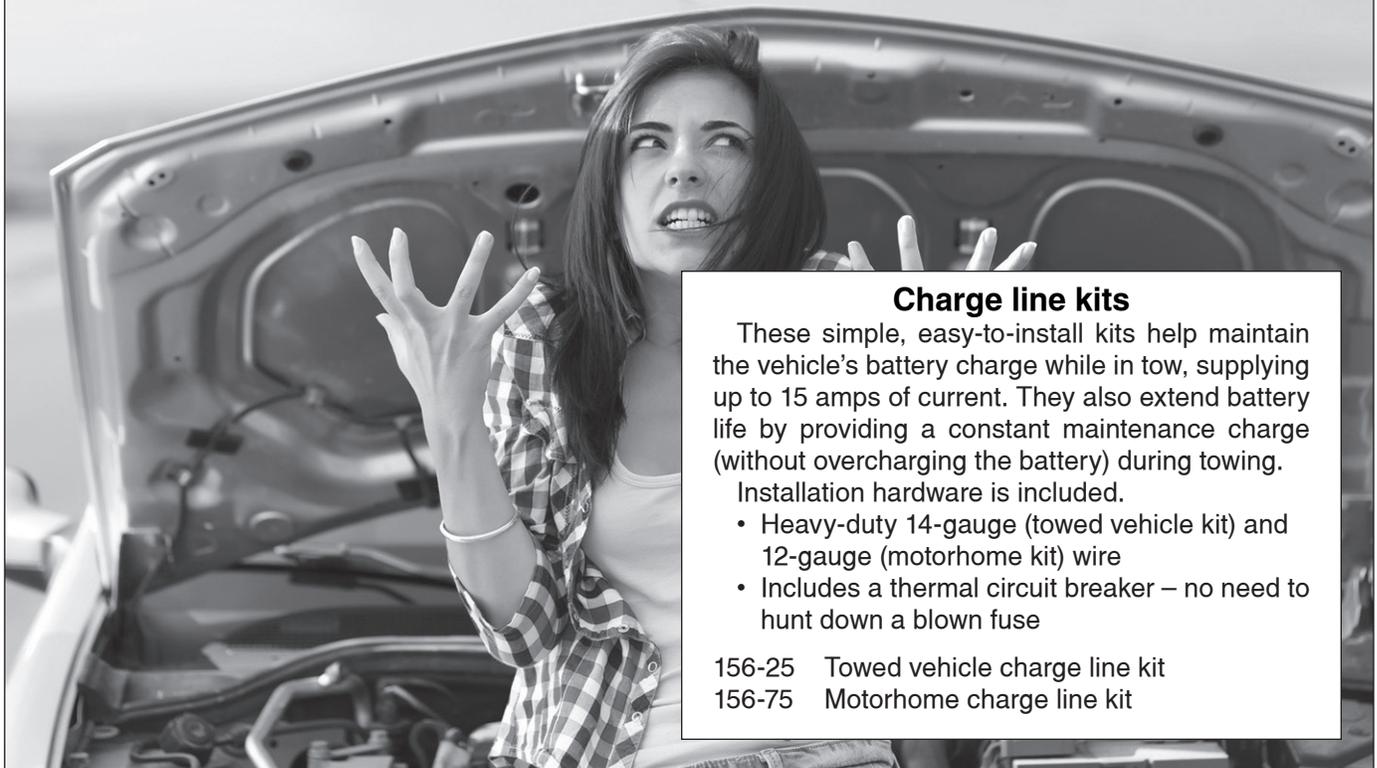
FuseMaster eliminates the necessity of having to remove a fuse for towing, then having to reinsert it for driving. After it's installed you simply flip a switch to accomplish the same task.

There are several FuseMasters which, collectively, fit most vehicles which must have fuses removed for towing. For the fit list, click the 'Vehicle Specific Info' tab at roadmasterinc.com or scan the QR code.



...Just flip a switch!

No more dead battery!



Charge line kits

These simple, easy-to-install kits help maintain the vehicle's battery charge while in tow, supplying up to 15 amps of current. They also extend battery life by providing a constant maintenance charge (without overcharging the battery) during towing.

Installation hardware is included.

- Heavy-duty 14-gauge (towed vehicle kit) and 12-gauge (motorhome kit) wire
- Includes a thermal circuit breaker – no need to hunt down a blown fuse

156-25 Towed vehicle charge line kit

156-75 Motorhome charge line kit