



Time Tested • Time Proven

Combo Kit

designed for 7- to 4-wire systems

Installation Instructions

854791-03 03/23

All specifications are subject to change without notice.

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WARNING

Read the instructions before installing the kit components. Failure to understand how to install this product could result in property damage, personal injury or even death.



Step A

Identify the vehicles' lighting systems; determine if additional components are required

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. In a **combined** system (Figure 1), the brake light does the flashing for the turn signal; in a **separate** system (Figure 1), 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.

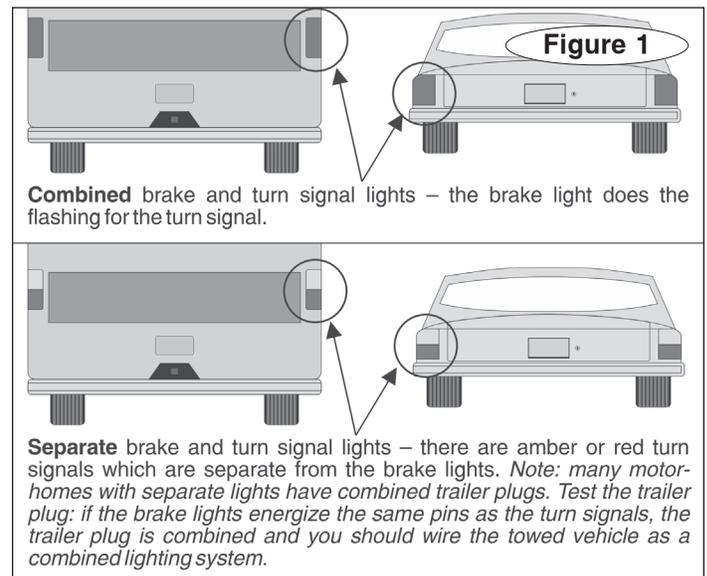
Many late-model motorhomes come with converters already installed – test for this before installation: if the motorhome's trailer plug energizes the same pins for both brake lights and turn signals, then a 3-to-2 converter is already installed and the motorhome should be treated as combined.

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

2. Based on the type of brake and turn signals, additional components may be required...

- If both the motorhome and the towed vehicle have combined lighting systems, no additional components are necessary.
- If the motorhome has a combined lighting system and the towed vehicle has a separate lighting system, no additional components are necessary.
- If the motorhome has a separate lighting system and the towed vehicle has a combined lighting system, a Brite-Lite™ 3-to-2 wiring converter (part number 732) is required. Installation instructions are included with the converter.

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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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- If both the motorhome and the towed vehicle have separate lighting systems, two additional diodes (part number 792), one 10 ga. x .250 female spade connector and a six-wire electrical cord (straight: part number 98146; coiled: part number 146) are required.

Step B

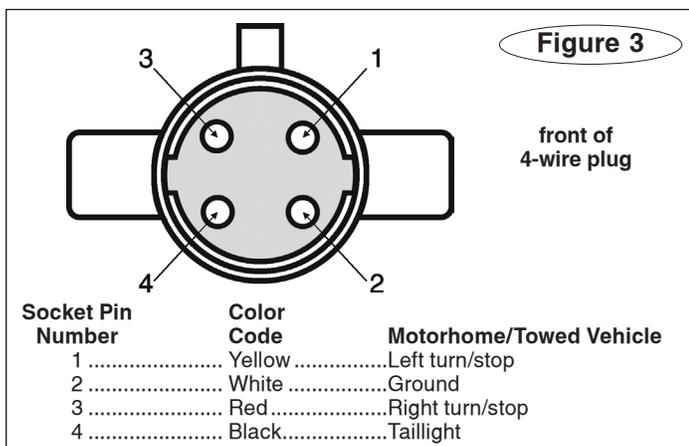
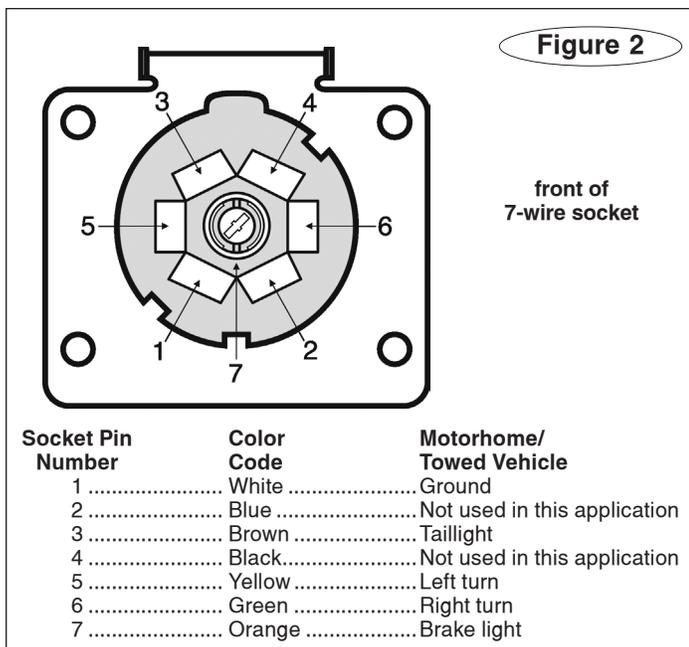
Attach the socket bracket

1. At the front of the towed vehicle, choose a suitable point to attach the electrical socket and bracket. 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 bracket must be mounted near the center. If the bracket is attached too far to either side, the bracket and the electrical socket may be pulled away when the motorhome turns.

2. Attach the bracket.



Step C

Wire the socket and plug

1. For Combo Kits with straight electrical cords only – route the bare end of the electrical cord through either of the tow bar channel guides so that the end with the attached seven-way plug will face the motorhome when towing.

2. With a circuit tester, confirm that the wires conducting the left turn/stop, ground, right turn/stop and taillight signals in the motorhome electrical system are to code – See Figure 2.

3. Wire the four-way plug according to Figure 3; wire the four-way socket according to Figure 4.

Note: apply a clear silicone sealant around each attachment point on the plug, as well as each wire entry and set screw indentation on the socket. This will help weatherproof the plug and socket and secure the socket set screws.

CAUTION

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

Use the color code 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.

Step D

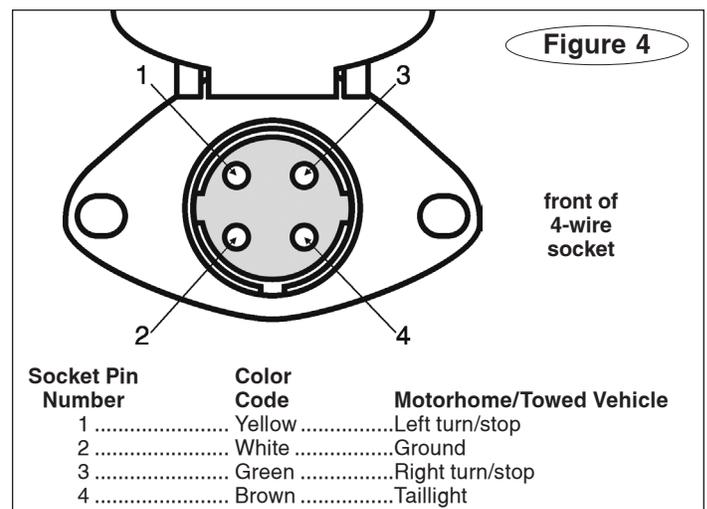
Route the wiring harness

1. The wiring harness will be routed to the rear of the vehicle, then split and attached to the back of both taillight assemblies. Before you begin, plan a route that avoids the possibility of fraying or melting the wiring against moving parts, sharp edges, the fuel lines or hot components. If possible, plan a route alongside the vehicle's existing aftermarket wiring harness.

Where appropriate, a section of the included split loom can be used to protect the wires; use the included wire ties to secure the wiring in place.

2. Route the wiring harness. Leave six inches of slack near the socket, to allow for modifications at a later time.

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WARNING

Route the wiring to 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.

Failure to follow these instructions may cause property damage, personal injury or even death.

3. At the rear of the vehicle, find a suitable point to gain access to the vehicle's taillights.

4. Route the electrical harness to the closest taillight assembly, then to the other taillight assembly.

Trim the excess wiring. (Save the brown wire; you will use it in step E4.) Then separate the bonded wires in the harness and, depending on the lighting systems in both vehicles (see page four), peel back the appropriate wire to the other side.

Step E

Wire the vehicle for towing

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

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

3. Wire the diodes according to the appropriate schematic (on page four) that matches your combination of vehicles.

Note: the wiring schematics apply to the majority of vehicles. However, applications vary. Before wiring, refer to the owner's manual or call the dealership for vehicle-specific information. (Wiring information for many vehicles is available at www.roadmasterinc.com, under 'Vehicle-Specific Information'.)

4. Use the brown wire you saved in step D4 to jump the diodes attached to the taillights, as shown in the schematics.

Note: use the yellow female spade connector on the diode you will use to jump the brown wire.

5. 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.

6. If it was necessary to drill a hole, seal it with silicone sealant after you have routed the wires through.

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.

Failure to follow these instructions may result in property damage, personal injury or even death.

CAUTION

Failure to attach 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.

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

WARNING

Wire the towed vehicle according to the instructions above, and the appropriate schematic. Improperly wiring the towed vehicle may cause an electrical malfunction or other damage, which may result in property damage, personal injury or even death.

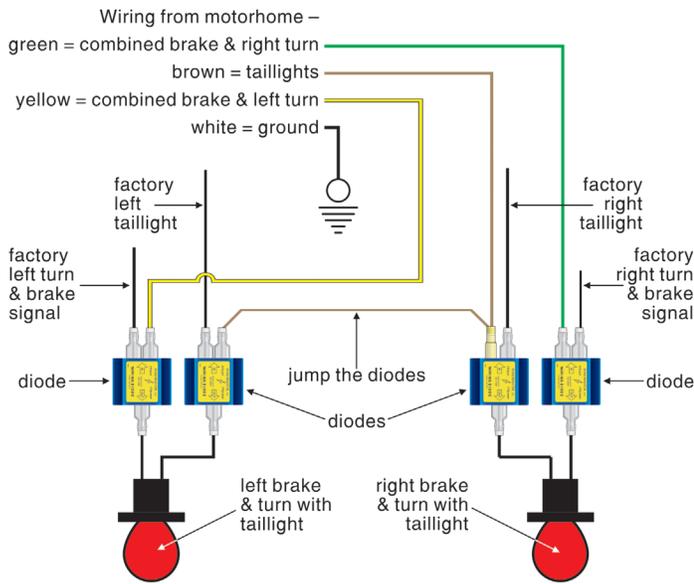
CAUTION

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

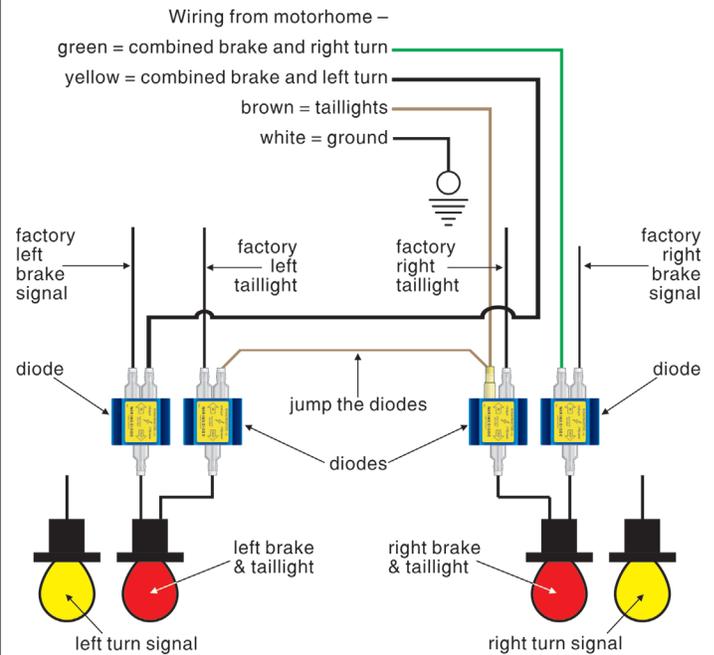
Use the color codes for initial reference only; confirm the function of each wire with a circuit tester.

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.

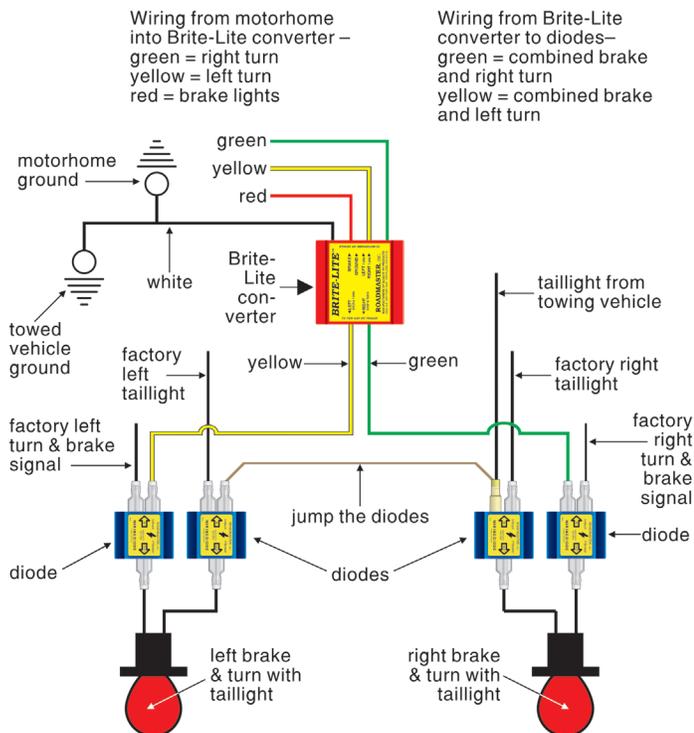
Combined towed vehicle to combined motorhome



Separate towed vehicle to combined motorhome



Combined towed vehicle to separate motorhome



Separate towed vehicle to separate motorhome

