

## ROADMASTER Limited Warranty

### 1. WARRANTY

#### 1a. WARRANTY OF CONFORMITY AT TIME OF SALE

ROADMASTER, Inc. warrants that at the time of sale of this product it will be free from defects in material and manufacture and will conform to ROADMASTER'S specifications for the product.

#### 1b. CONDITIONAL ONE-YEAR WARRANTY

In addition to the preceding time-of-sale warranty, ROADMASTER will provide an additional warranty that for a period of one year after sale the product will remain in good working order, PROVIDED THAT the product is installed and maintained in accordance with ROADMASTER'S instructions and is not subjected to: (a) alteration or unauthorized repairs or repairs by anyone other than ROADMASTER or a ROADMASTER-authorized service center, (b) misuse, abuse, commercial use, or improper maintenance, (c) Acts of God (including without limitation hurricanes, tornadoes, floods, or other severe weather or natural phenomena), (d) failures due to products not supplied by ROADMASTER, or (e) other treatments, uses, or installations for which the product was not intended. This warranty extends only to the first retail purchaser-consumer of the product and is not transferable.

### 2. DISCLAIMER OF OTHER WARRANTIES

The preceding warranties are the exclusive and sole express warranties given by ROADMASTER. They supersede any prior, contrary or additional representations, whether oral or written. No agent, representative, dealer or employee has the authority to alter or increase the obligations or limitations of this warranty. Any implied warranties, including the WARRANTY OF MERCHANTABILITY and any WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, are limited in duration to thirty days or the term of the applicable express warranty provided above, whichever is longer.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

### 3. EXCLUSIVE REMEDY FOR ANY NONCONFORMITIES

If during the applicable Warranty Period, the product does not conform to the preceding Warranties, notify ROADMASTER as provided below, and within a reasonable time ROADMASTER will provide, at its option, one of the following: (1) replacement components for any nonconforming or defective product or components or (2) the percentage of the purchase price for the nonconforming product equal to the percentage of the Warranty Period remaining when ROADMASTER is notified of the nonconformity. ROADMASTER will, at its option, (a) use new and/or reconditioned parts in performing warranty repairs and making replacement products, (b) use parts or products of original or improved design in the repair or replacement. If ROADMASTER repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 60 days from the date of the return shipment to the customer, whichever is greater. All replaced products and all parts removed from repaired products become the property of ROADMASTER. ROADMASTER will not provide, and will not be liable for, labor, costs of removal or reinstallation of components, disposal, shipping, freight, taxes, or other incidental charges.

#### THESE REMEDIES ARE THE EXCLUSIVE AND SOLE REMEDIES FOR ANY BREACH OF WARRANTY.

For any breach of warranty, the Owner must telephone ROADMASTER at 1-800-669-9690 within thirty (30) days after discovering the nonconformity. Do not return any product without first calling ROADMASTER and getting a return authorization number. Returned products must include the return authorization number and a copy of the original invoice, bill or other proof of the date of purchase. ROADMASTER will authorize (a) shipment of the product to ROADMASTER or (b) repair or replacement at the nearest warranty service center—in both cases with shipping at your expense. Do not purchase replacement parts or pay for repair labor—you will not be reimbursed. Compliance with the requirements of this paragraph is a condition to coverage under the Warranty: if these requirements are not complied with, ROADMASTER will have no obligation to provide any remedy for any breach of warranty.

### 4. DISCLAIMER OF INCIDENTAL AND CONSEQUENTIAL DAMAGES

IN NO EVENT SHALL ROADMASTER BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM NONDELIVERY OR FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

### 5. APPLICABLE LAW

This Warranty will be interpreted, construed, and enforced in all respects in accordance with the laws of the State of Oregon, without reference to its choice of law rules. The U.N. Convention on Contracts for the International Sale of Goods will not apply to this Warranty.

### 6. SEVERABILITY

If any provision of this warranty is found to be invalid or unenforceable, then the remainder shall have full force and effect, and the invalid provision shall be partially enforced to the maximum extent permitted by law to effectuate the purpose of the agreement.

### 7. ADDRESS FOR NOTICES TO ROADMASTER

ROADMASTER, Inc., 5602 N.E. Skyport Way, Portland, OR 97218

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.



# Universal Wiring Kit

*part #154 (plus Combo Kits)*

## Wiring and Installation Instructions



Quality Towing Systems Since 1974

ROADMASTER, Inc. 5602 N.E. Skyport Way • Portland, OR 97218  
800-669-9690 • Fax 503-288-8900 • [www.roadmasterinc.com](http://www.roadmasterinc.com)

## IMPORTANT NOTICE!

### Safety Definitions

Statements in these instructions preceded by the following words 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.

## Before you begin...

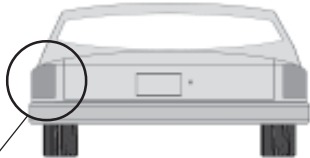
Read these instructions cover to cover before installing any of the kit components. Do not cut any wires in the kit or in the vehicle until instructed to do so.

- Depending on the wiring system used by your motorhome and towed vehicle, you may need additional components to successfully wire your vehicle.
- IMPORTANT: Do not use this kit to wire 1999-2003 Ford Windstars, or 2004 and newer Ford Freestars.** These vehicles use a "low side switching" system that will prevent the factory taillights from functioning properly when they receive power from the motorhome. These vehicles have a 12 volt negative ground system, except the ground circuit is turned on and off instead of the positive circuit, as in conventional systems. This means that feed wires to the bulbs are always "hot." Current trailer wiring products will not work, and conventional probing methods do not apply.

Use ROADMASTER's Magnetic Tow Light Kit (part number 2120) or ROADMASTER's Taillight Bulb and Socket Kit (part number 1555) for these vehicles.

## Step One

Determine which type of lighting system your motorhome and towed vehicle have:



**Combined Brake and Turn Light System**  
The brake light does the flashing for the turn signal.



**Separate Brake and Turn Light System**  
There are amber or red turn signals which are separate from the brake lights.

## If you coach has...

- ...a **combined brake and turn signal system**, and your towed vehicle has a combined brake and turn signal system, this kit contains the necessary components to wire most vehicles.
- ...a **combined brake and turn signal system**, and your towed vehicle has a separate brake and turn signal system, this kit contains the necessary components to wire most vehicles.
- ...a **separate brake and turn signal system**, and your towed vehicle has a combined brake and turn signal system, you will need a Brite-Lite three-to-two-wire taillight converter (not included) in addition to this kit.
- ...a **separate brake and turn signal system**, and your towed vehicle has a separate brake and turn signal system, you will need two additional diodes and, depending on the application, either a six-wire Flexo-Coil electrical cord or a six-wire straight electrical cord (not included) in addition to this kit.

## Option B

Follow the instructions below to **illuminate the towed vehicle's license plate bulb when towing**.

This wiring option requires an additional diode (not supplied), plus a sufficient length of molded 4-wire cord, as shown in Figure H below.

To wire the towed vehicle...

- The license plate diode can be teed into either the driver side or the passenger side taillight.
- Connect the license plate diode upstream of the diodes used to isolate the taillight bulb.
- Install the license plate diode near the license plate bulb and socket, as shown below.
- If the vehicle has more than one license plate light, follow both wires back until they join, and install the diode upstream of their junction.

Follow the Option B instructions to...illuminate the towed vehicle's license plate bulb when towing.

#### CAUTION

Due to the complexity of the electronics in some vehicles, this wiring option may not allow the license plate bulb to be illuminated.

To test the vehicle before wiring it, connect any wire which is conducting electricity to the bulb and socket of the tail light. If the tail light functions properly when temporarily energized, then this wiring option will illuminate the license plate bulb.

### Wiring from the motorhome...

BROWN = motorhome taillight wire  
GREEN = combined brake and right turn signal  
YELLOW = combined brake and left turn signal  
WHITE = ground

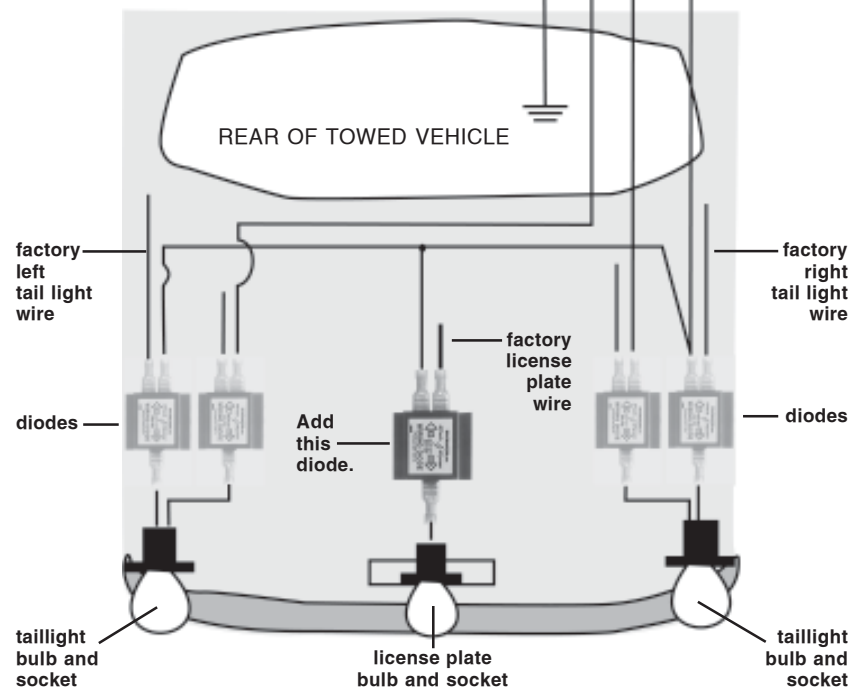


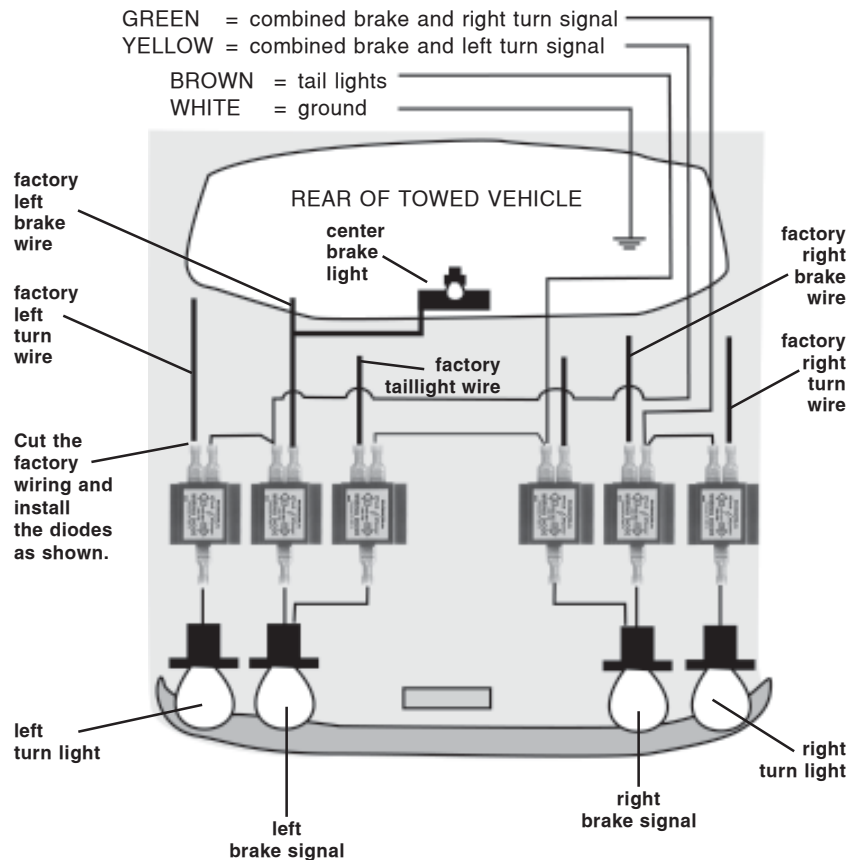
Figure H

## Option A

continued from the preceding page

If the motorhome has combined brake and turn signals and the towed vehicle has separate brake and turn signals, following the wiring schematic below (Figure G) will allow the amber turn signals to illuminate while the vehicle is being towed.

**Figure G**



## ⚠ WARNING

As you are wiring the vehicle, keep the wiring away from all moving parts, and secure all of the wiring with cable ties to locations which do not conduct electricity, and which do not have sharp edges.

If an exposed wire touches a wire or electrical component that is conducting electricity, it may cause an electrical short and damage to the wiring, the electrical system, or the vehicle.

If any part of your body comes into contact with a wire that is conducting electricity, you may receive an electrical shock, which may cause severe personal injury or even death.

## ⚠ WARNING

Remove all personal jewelry before working on any electrical system.

If a wire that is conducting electricity comes into contact with metallic jewelry on your body, you may receive an electrical shock, which may cause severe personal injury or even death.

## ⚠ WARNING

Do not attach electrical wiring to the vehicle's fuel lines, or any heat source.

A wire which is conducting electricity may ignite the fuel in the lines, which may cause property damage, severe personal injury or even death.

## Step Two

- From the included roll, route a length of the molded 4-wire cord from the front of the vehicle to the rear of the vehicle, on the opposite side of the exhaust system. It may be easier to route the wire if you cut the molded plug off. If you do cut the plug off, be certain to leave a few feet of wire on the plug.

Use some split loom at the front of the vehicle, to protect the wires and improve the appearance.

Using cable ties, fasten the wiring to secure locations.

**Suggestion:** Where sharp edges can't be avoided, use split loom to help protect the wiring from potential cuts and avoid grounding out problems.

## Step Three

- Expose the wires located at the rear of the towed vehicle's taillight assemblies. On many pickups and SUVs, it may be necessary to remove the taillight assemblies to gain access to the wiring. Use the proper test equipment to identify and mark: the wire for the brake light; the wire for the tail light; and the wire for the turn signal.

## Step Four

- Find a suitable point for the wiring you routed in Step Two to enter the rear

of the vehicle, on the opposite side of the exhaust system. It may be necessary to drill a hole to properly route the wiring – Be certain to seal any holes with silicone sealant. Now, route the wiring to the back of the taillight assembly which is opposite the exhaust system.

## Proceed to Step Five or Step Six

If you are connecting...

- ...a combined brake and turn signal motorhome to a combined brake and turn signal towed vehicle, **proceed to step five.**
- ...a combined brake and turn signal motorhome to a separate brake and turn signal towed vehicle, **proceed to step five.** Also, see the section titled "Option A" in these instructions.
- ...a separate brake and turn signal motorhome to a combined brake and turn signal towed vehicle, you must **install an optional Brite-Lite** three-to-two-wire taillight converter in the motorhome's wiring. **Then, proceed to step five.**
- ...a separate brake and turn signal motorhome to a separate brake and turn signal towed vehicle, **proceed to step six.**

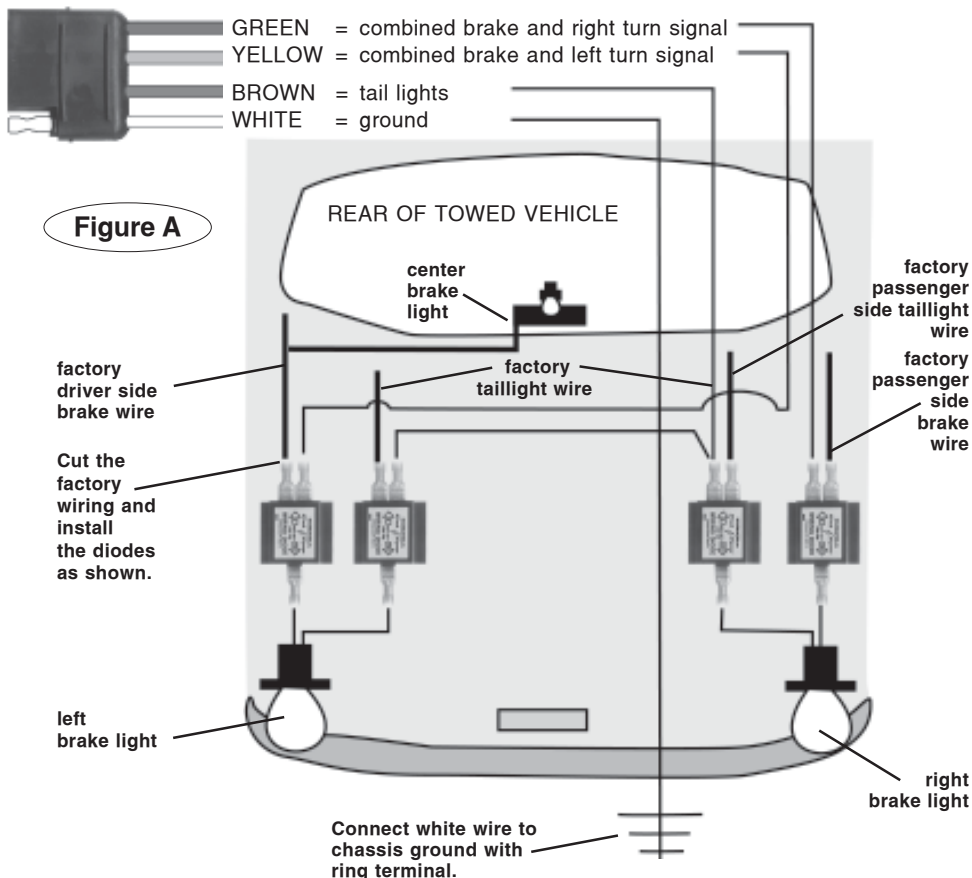


## Step Five

- Run the molded 4-wire cord from the brake light opposite the exhaust system to the other brake light. Cut off any excess wiring, and peel the **green** wire back to the other side. Then, make all of the connections as shown below, in Figure A.

*Step Five is continued on the next page*

**Note:** If your towed vehicle has a separate brake and turn signal system, the wiring schematic below (Figure A) will not use the factory turn signal lights when the vehicle is towed. Instead, your brake lights will function as both brake signals and turn signals – for towing purposes only. When driving your vehicle, the turn signals will function normally. Refer to “Option A” in these instructions if you want the turn signals to illuminate while towing.



Follow the Step 5 instructions if...

...you are wiring a **combined** brake and turn signal motorhome to a **combined** brake and turn signal towed vehicle; or,  
...if you are wiring a **combined** brake and turn signal motorhome to a **separate** brake and turn signal towed vehicle.

### CAUTION

**Install the brake light diode within a few inches of the brake light, and downstream from the connection for the center brake light. Installing the diode ahead of the center brake light connection may prevent the brake lights from functioning, and may cause damage to electrical components. If the brake lights fail to function properly, reinstall the diode downstream from the center brake light connection and retest.**

## Step Six

*continued from the preceding page*

- Connect the towed vehicle's electrical system to the motorhome's electrical system...
- A. If the socket on the rear of the motorhome accepts the plug on the Flexo-Coil or straight wire electrical cord included with this kit, simply plug the cord into both sockets.

### CAUTION

**Failure to properly wire the sockets may result in circuit failure, short circuits, blown fuses, fire, damage to the vehicles' electrical systems, or a vehicular accident.**

- B. If the socket on the rear of the motorhome does not accept the plug on the Flexo-Coil or straight wire electrical cord included with this kit, replace the socket on the motorhome with the socket included with this kit.  
Wire the socket according to the

instructions for wiring the towed vehicle socket, on page seven. (If you wish to keep the existing socket, you can run jumper wires from the old socket to the new socket.)

- C. If there is no electrical socket at the rear of the motorhome, install one of the sockets included in this kit at an appropriate location on the rear of the motorhome. The wiring configuration for the motorhome socket will be the same as the wiring configuration for the towed vehicle socket.

Wire the socket according to the instructions for wiring the towed vehicle socket, and refer to Figure F.

**This completes the electrical wiring for your towed vehicle.**

Always check for and secure any loose wiring which could be damaged. Before each trip, test the vehicle's brake, taillight and turn signal lights to ensure they are operating properly.

## Option A

Use the Option A instructions if you have combined brake and turn signals on the motorhome, separate brake and turn signals on the towed vehicle, and...

- ... you want the amber turn signals on the towed vehicle to illuminate.

Or, use these instructions...

- ... if you have a braking system which causes the brake lights to override the turn signals when towing.

Option A allows the towed vehicle's turn signals to flash. When wired properly, both the turn signal and the brake light will flash when the turn signal is on. When the brake is applied while the turn signal is on, the brake light will stay illuminated, while the turn signal flashes.

This wiring option requires two additional diodes (not supplied), plus a sufficient length of molded 4-wire cord, as shown in Figure G on the next page.

*Option A is continued on the next page*

### CAUTION

**Install the brake light diode within a few inches of the brake light, and downstream from the connection for the center brake light. Installing the diode ahead of the center brake light connection may prevent the brake lights from functioning, and may cause damage to electrical components. If the brake lights fail to function properly, reinstall the diode downstream from the center brake light connection and retest.**

## Step Six

continued from the preceding page

- Double-check the molded 4-wire cord connector on the front of the vehicle for proper connections, using Figure E.



Figure E

- Install a socket at the front of the towed vehicle, and connect the molded 4-wire cord to the socket –

### CAUTION

**Failure to properly wire the sockets may result in circuit failure, short circuits, blown fuses, fire, damage to the vehicles' electrical systems, or a vehicular accident.**

- Find a suitable location on the front of the towed vehicle, and install one of the sockets that came with the 6-wire electrical cord. The socket must be within reach of the molded 4-wire cord.

- Peel off several feet of white wire from the molded 4-wire cord that was left over (from routing the 4-wire cord from the front to the rear of the vehicle).

Use a ring terminal to connect one end of the white wire to any suitable chassis ground.

Route the other end of the white wire to the end of the molded 4-wire cord at the front of the vehicle.

- At the front of the vehicle, cut off the

**Connect 'hot' wires to shielded terminals only. Connecting a 'hot' wire to an unshielded terminal may cause a direct electrical short. Refer to Figure E.**

connector on the end of the molded 4-wire cord.

- Now, strip back about 1/4" of insulation on each of the five wires at the front of the towed vehicle.

- Remove the protective boot on the back of the socket, loosen the set screw and remove the inner plug from the housing.

Now, run all five wires through the back of the protective boot and the back of the housing.

- Loosen all of the set screws on the side of the socket, and connect the wires to the back of the socket as shown in Figure F below.

Then, tighten all of the set screws, and check each wire to see if it is securely fastened.

Use a clear silicone seal around each wire entry and set screw indentation – this will help to weather-proof the socket, and secure the set screws.

Slide the protective boot against the socket.

*Step Six is continued on the next page*

Front of socket on towed vehicle and motorhome, with cover raised

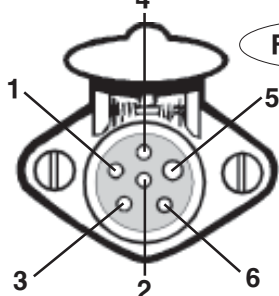


Figure F

Socket Pin Number	Wire Color	Motorhome	Car
3	Green	Right turn	Right turn
6	Yellow	Left turn	Left turn
4	Brown	Tail light	Tail light
1	White	Brake light	Brake light
5	White	Chassis ground	Chassis ground
2	not used	not used	not used

## Step Five

continued from the preceding page

- Double-check the molded 4-wire cord connector on the front of the vehicle for proper connections, using Figure B below.



Figure B

- Install a socket at the front of the towed vehicle, and connect the molded 4-wire cord to the socket –

### CAUTION

**Failure to properly wire the sockets may result in circuit failure, short circuits, blown fuses, fire, damage to the vehicles' electrical systems, or a vehicular accident.**

- Find a suitable location on the front of the towed vehicle, and install one of the sockets that came with the molded 4-wire cord. The socket must be within reach of the molded 4-wire cord.

- At the front of the vehicle, cut off the connector on the end of the molded 4-wire cord.

- Now, strip back about 1/4" of insulation on each of the four wires at the front of the towed vehicle.

**Connect 'hot' wires to shielded terminals only. Connecting a 'hot' wire to an unshielded terminal may cause a direct electrical short. Refer to Figure B below.**

- Remove the protective boot on the back of the socket, loosen the set screw and remove the inner plug from the housing.

Now, run the molded 4-wire cord through the back of the protective boot and the back of the housing.

- Loosen all of the set screws on the side of the socket, and connect the wires to the back of the socket as shown in Figure C below.

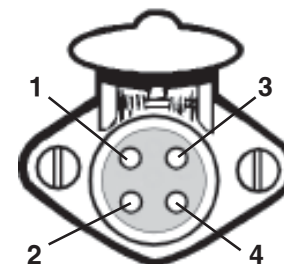
Then, tighten all the set screws, and check each wire to see if it is securely fastened.

Use a clear silicone seal around each wire entry and set screw indentation – this will help to weather-proof the socket, and secure the set screws.

Slide the protective boot against the socket.

*Step Five is continued on the next page*

Figure C



Front of socket on towed vehicle and motorhome, with cover raised

Socket Pin Number	Wire Color	Motorhome	Car
3	Green	Right turn / Brake	Right turn / Brake
1	Yellow	Left turn / Brake	Left turn / Brake
4	Brown	Tail light	Tail light
2	White	Ground	Ground

## Step Five

*continued from the preceding page*

- Connect the towed vehicle's electrical system to the motorhome's electrical system...

A. If the socket on the rear of the motorhome accepts the plug on the Flexo-Coil or straight wire electrical cord included with this kit, simply plug the cord into both sockets.

### CAUTION

Failure to properly wire the sockets may result in circuit failure, short circuits, blown fuses, fire, damage to the vehicles' electrical systems, or a vehicular accident.

B. If the socket on the rear of the motorhome does not accept the plug on the Flexo-Coil or straight wire electrical cord included with this kit, replace the socket on the motorhome with the socket included with this kit.

Wire the socket according to the instructions for wiring the towed vehicle socket, on page four. (If you wish to keep the existing socket, you can run jumper wires from the old socket

to the new socket.)

C. If there is no electrical socket at the rear of the motorhome, install one of the sockets included in this kit at an appropriate location on the rear of the motorhome. The wiring configuration for the motorhome socket will be the same as the wiring configuration for the towed vehicle socket.

Wire the socket according to the instructions for wiring the towed vehicle socket, and refer to Figure C.

Use an appropriate length of molded 4-wire cord to connect the socket to the wiring harness at the rear of the motorhome. If there isn't enough molded 4-wire cord left from wiring the towed vehicle, contact ROADMASTER to order a sufficient length of molded 4-wire cord.

### This completes the electrical wiring for your towed vehicle.

Always check for and secure any loose wiring which could be damaged. Before each trip, test the vehicle's brake, taillight and turn signal lights to ensure they are operating properly.

## Step Six

**Note:** You will need two additional diodes and either a six-wire Flexo-Coil electrical cord or a six-wire straight electrical cord (depending on the application), if both vehicles have separate brake and turn signals.

- Run the molded 4-wire cord from the turn signal opposite the exhaust system to the other turn signal. Cut off any excess wiring, and peel the **green** wire back to the other side. Then, make all of the connections as shown below, in Figure D.

**Note:** Instructions for connecting the ground wire are on the next page.

*Step Six is continued on the next page*

Follow the Step 6 instructions if...  
...you are wiring a motorhome with **separate** brake and turn signals to a towed vehicle with **separate** brake and turn signals.

### CAUTION

Install the brake light diode within a few inches of the brake light, and downstream from the connection for the center brake light. Installing the diode ahead of the center brake light connection may prevent the brake lights from functioning, and may cause damage to electrical components. If the brake lights fail to function properly, reinstall the diode downstream from the center brake light connection and retest.

