



Installation Instructions

⚠ WARNING

Read the instructions before installing the Plug-n-Tow. Failure to understand how to install or operate this product could result in property damage, personal injury or even death.



Before you begin the installation...

Note: The lighting systems in Ford Windstar 1999-2003 minivans and Ford Freestar 2004 and later minivans are not compatible with this wiring method.

The power circuit remains open in vehicles of this type, and will override a towed vehicle wiring system connected directly to the brake and turn signal wiring. We recommend a bulb and socket kit, a magnetic wiring kit or other method that will bypass the towed vehicle's wiring.

The umbilical cord, used to conduct brake and turn signals between the motorhome and the towed vehicle, is not included in this kit. The plug, socket and mounting bracket for the towed vehicle are also not included.

Parts list

- Plug-n-Tow control box
- Self-tapping screw
- Zip ties
- 5/16-inch ring terminal
- (9) 16-14 gauge butt connectors

Required tools

- Wire strippers
- Wire crimpers
- Dikes/cutters
- 1/4-inch bit and electric drill
- Volt meter
- Tool(s) to access the towed vehicle's taillight assemblies (These will vary, depending on the vehicle.)

Installation instructions

1. At the rear of the towed vehicle, find a location to mount the Plug-n-Tow control box. Choose a point away from pre-existing components or electronics, within five feet of the taillight assemblies.

Choose a location where the LED panel on the front of

the control box will be clearly visible.

Do not mount the control box now; it will be considerably easier to attach the wiring with the control box loose.

2. Gain access to the back of the two taillight assemblies in the towed vehicle. This can be accomplished from the exterior or the interior —

- From the exterior — remove the screws holding the taillight covers. Remove the covers and work the taillight assemblies loose.

- From the interior — remove the plastic or fabric covering over the assemblies, remove any screws or fasteners holding the assemblies in place and work the assemblies loose.

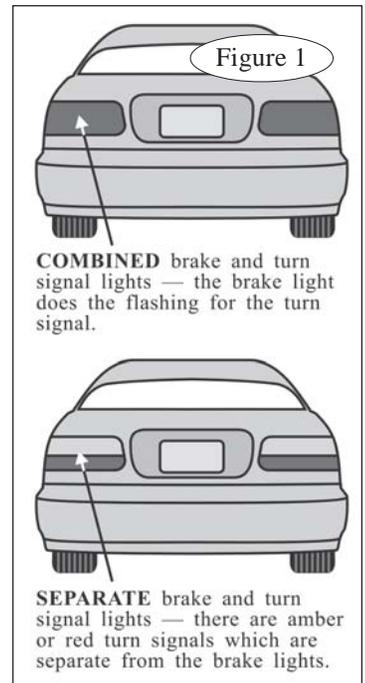
3. Both sides of the Plug-n-Tow wiring harness have red and brown wires. In addition to these colors, the left side of the harness has yellow wires; the right side has green. The yellow side of the harness will be connected to the left side of the taillight assembly; the green side of the wiring harness will be connected to the right side.

4. Use a volt meter to find the wires described below, then the included 16-14 gauge butt connectors to wire the vehicle's lights for towing.

5. If the towed vehicle has a **combined** lighting system (refer to Figure 1)...

a. Find the wire conducting the left turn and brake signal. Cut the wire, within five or six inches of the lights. Attach the red wire with a black stripe on the Plug-n-Tow harness to the end of the left turn and brake

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Safety Definitions

These instructions contain information that is very important to know and understand. This information is provided for **safety** and to **prevent equipment problems**. To help recognize this information, observe the following symbols:

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in property damage, serious person 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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signal wire connected to the taillight assembly.

Connect the other end of the left turn and brake signal wire to the solid red wire on the Plug-n-Tow harness.

b. Find the wire conducting the left taillight signal. Cut the wire, within five or six inches of the lights. Attach the brown wire with a white stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the left taillight wire to the solid brown wire on the Plug-n-Tow wiring harness.

c. Find the wire conducting the right turn and brake signal. Cut the wire, within five or six inches of the lights. Attach the red wire with a black stripe on the Plug-n-Tow harness to the end of the right turn and brake signal wire connected to the taillight assembly.

Connect the other end of the right turn and brake signal wire to the solid red wire on the Plug-n-Tow harness.

d. Find the wire conducting the right taillight signal. Cut the wire, within five or six inches of the lights. Attach the brown wire with a white stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the right taillight wire to the solid brown wire on the Plug-n-Tow wiring harness.

6. If the towed vehicle has a **separate** lighting system (refer to Figure 1)...

a. Find the wire conducting the left turn signal. Cut the wire, within five or six inches of the lights. Attach the yellow wire with a black stripe on the Plug-n-Tow harness to the end of the left turn signal wire connected to the taillight assembly.

Connect the other end of the left turn signal wire to the solid yellow wire on the Plug-n-Tow harness.

b. Find the wire conducting the left taillight signal. Cut the wire, within five or six inches of the lights. Attach the brown wire with a white stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the left taillight wire to the solid brown wire on the Plug-n-Tow wiring harness.

c. Find the wire conducting the left brake signal. Cut the wire, within five or six inches of the lights. Attach the red wire with a black stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the left brake wire to the solid red wire on the Plug-n-Tow wiring harness.

d. Find the wire conducting the right turn signal. Cut the wire, within five or six inches of the lights. Attach the green wire with a black stripe on the Plug-n-Tow harness to the end of the right turn signal wire connected to the taillight assembly.

Connect the other end of the right turn signal wire to the solid green wire on the Plug-n-Tow harness.

e. Find the wire conducting the right taillight signal. Cut the wire, within five or six inches of the lights. Attach the brown wire with a white stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the right taillight wire to the solid brown wire on the Plug-n-Tow wiring harness.

f. Find the wire conducting the right brake signal. Cut the wire, within five or six inches of the lights. Attach the red wire with a black stripe on the Plug-n-Tow harness to the end of the wire connected to the taillight assembly.

Connect the other end of the right brake wire to the solid red wire on the Plug-n-Tow wiring harness.

7. Reattach the taillight assemblies.

8. With the remaining 12-10 gauge butt connector, attach the included ring terminal to the end of the white wire extending from the 18-pin female connector on the Plug-n-Tow control box. Then ground the white wire to any good chassis ground, using the included self-tapping screw.

To avoid grounding problems, attach the ground wire to the towed vehicle's frame or, if available, to any existing grounding strap or bolt within reach of the ground wire.

CAUTION

Failure to establish a good ground between the towed vehicle and motorhome could cause aftermarket accessories to malfunction, damage to both vehicle's electrical systems and other consequential damage.

9. Plug the male 18-pin connector on the Plug-n-Tow wiring harness into the female 18-pin connector on the Plug-n-Tow control box.

10. Peel off the backing strip on the back of the Plug-n-Tow control box and mount the control box at the point you chose in step 1.

11. Route the Plug-n-Tow four-wire harness to the front of the vehicle.



Route the harness 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.

If necessary, use one or more of the included wire ties to secure the four-wire harness in place.

12. Attach the mounting bracket for the umbilical cord to the front of the vehicle. Choose an unobtrusive location close to the center, away from other components. The mounting point must have a surface of sufficient strength to hold the bracket in place, and be located where the plug on the umbilical cord can be easily attached and removed.

Use one or more of the included wire ties to secure the Plug-n-Tow 4-wire harness in place, close to the mounting bracket.

13. Use the instructions that came with the electrical cord to attach the wires at the end of the Plug-n-Tow 4-wire harness to the electrical socket. Match the wiring code on the plug on the motorhome — either 4-wire, 6-wire or 7-wire.

Use the instructions that came with the bracket to mount the socket to the bracket.

14. If the towed vehicle is equipped with a supplemental braking system, the motorhome monitor wire can be attached

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to the Plug-n-Tow control box. However, a positive current must be supplied to the brake switch for the motorhome monitor to function.

If it is your intention to attach the monitor wire to the Plug-n-Tow control box, test to see if there is 12 VDC+ current to the vehicle's brake switch while the vehicle is being towed — turn the ignition key to the 'tow' position and wait 10 minutes (to ensure that an 'elapsed time turn-off' feature is not supplying power).

Then depress the brake pedal.

- If the brake lights illuminate, 12 VDC+ current is being supplied to the brake switch.
- If the brake lights do not illuminate, no current is being supplied to the brake switch.

If no current is being supplied to the brake switch, a 'two-in, one-out' diode and 10-amp fuse must be added inline. To install the diode and fuse, a fuse holder, a length of 16 gauge wire (up to 8 feet, depending on the application) and a ring terminal with the same diameter as the positive post on the battery are also required. These parts are not included in the kit.

Refer to the instructions below ("To enable the monitor light to illuminate if there is no power to the brake switch...") to attach the monitor wire to the Plug-n-Tow control box.

15. If 12 VDC+ current is being supplied to the brake switch, use one of the included 16-14 gauge butt connectors to attach the black wire extending from the Plug-n-Tow control box to the wire conducting the supplemental braking system's motorhome monitor light signal.

As before, route the monitor wire to avoid moving parts, sharp edges, the fuel lines or hot components such as the engine or exhaust system. Where necessary, use wire ties to secure the monitor wire in place.

The installation is complete.

16. Test the installation — with the motorhome and towed vehicle electronics connected and the towed vehicle's ignition key turned to the 'tow' position...

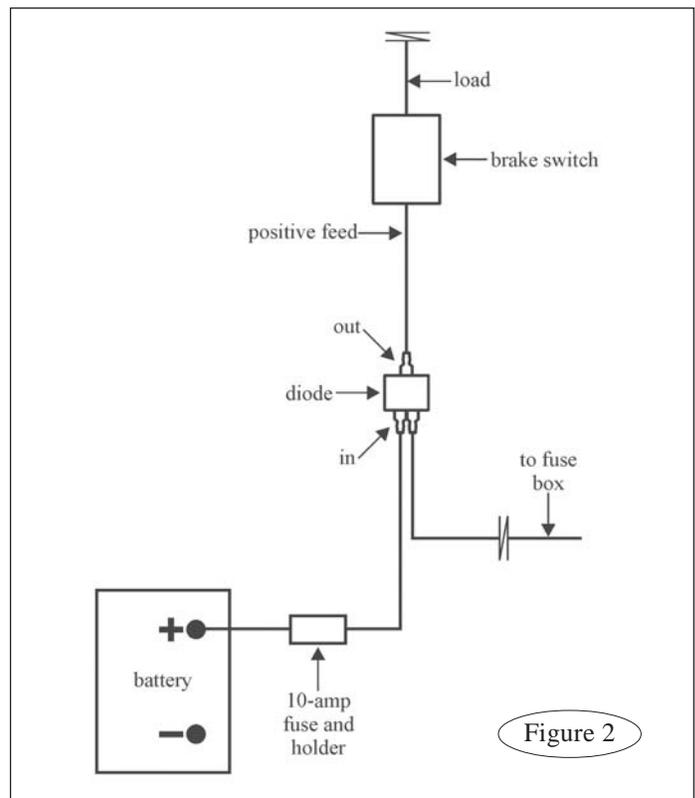
- ...depress the motorhome brake pedal. The red LEDs on the Plug-n-Tow control box will illuminate if the vehicle has a combined lighting system. Both the red and yellow LEDs will illuminate if the vehicle has a separate lighting system.
- ...activate the motorhome left and right turn signals. Both the red and yellow LEDs on the left of the control box will illuminate when the left turn signal is on. Both the red and yellow LEDs on the right of the control box will illuminate when the right turn signal is on.
- ...turn on the motorhome headlights. The green LEDs on the control box will illuminate.

To enable the monitor light to illuminate if there is no power to the brake switch while the vehicle is being towed...

...a diode and 10-amp fuse (and fuse holder) must be attached to the brake switch wire. Refer to Figure 2.

1. With a volt meter, identify the 'hot' and 'cold' sides of the brake switch wire — the 'hot' side of the wire will register 12 VDC+; the 'cold' side will not register voltage.

2. Cut the brake switch wire, a few inches downstream from



the 'hot' side.

3. Attach one end of the brake switch wire to the 'out' connector on the diode and the other end to either of the 'in' connectors, as shown in Figure 2.

4. Attach a length of 16 gauge wire to the remaining 'in' connector on the diode. Route the wire to the battery.

As before, route the wire to avoid moving parts, sharp edges, the fuel lines or hot components such as the engine or exhaust system. Where necessary, use wire ties to secure the wire in place.

5. Cut the wire to length and attach the 10-amp fuse and holder, within six inches of the end of the wire.

⚠ CAUTION

In order to prevent damage from a short circuit, the fuse must be within six inches of the positive terminal. If the fuse is farther than six inches, a short circuit may cause significant damage to the towed vehicle's electrical system, an electrical fire or other consequential damage.

6. Measure the diameter of the positive post on the battery. Attach a ring terminal with the same diameter as the positive post to the end of the wire.

Use the ring terminal to attach the wire to the positive post.

The installation is complete.

7. Test the installation — with the motorhome and towed vehicle electronics connected and the towed vehicle's ignition key turned to the 'tow' position, depress the towed vehicle's brake pedal. The motorhome monitor light will illuminate.