INSTALLATION MANUAL

59004

Level of Difficulty

Difficult

Installation difficulty levels are based on time and effort involved and may vary depending on the installer level of expertise, condition of the vehicle and proper tools and equipment.

Tools Required

Test light	Phillps Screwdriver
Wire crimpers	Drill
Wire cutters	Drill bit, 3/32"
Wire stripers	Heat gun
Utility knife	--

⚠ WARNING

Do not exceed product rating or tow vehicle lamp load rating, whichever is lower.

Be sure not to lay tools across the positive terminal (typically noted with red covers or a red '+' symbol). This can cause a ground to short leading to sparks and/or electrical shocks.

The battery connection must be fuse-protected, 20-amp max. Exceeding the product rating can cause loss of warranty, overheating and potential damage.

Product Photo

NOTICE

Before you begin installation, read all instructions thoroughly.

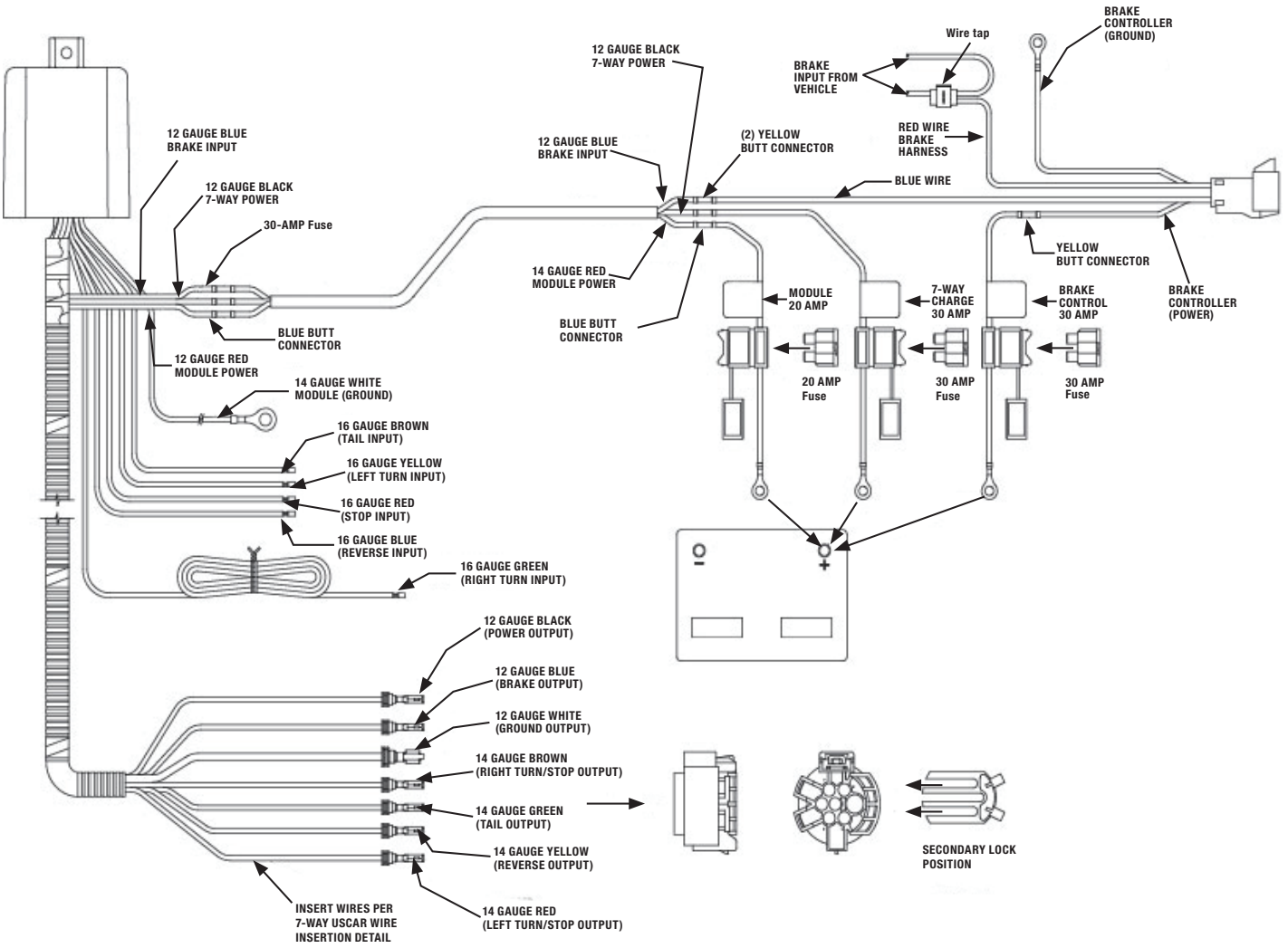
Proper tools will improve the quality of installation and reduce the time required.

All steps must be followed to ensure the product will function properly. Once installed, test for proper function by using a test light or connecting a properly wired trailer.

Maintenance

Periodic inspection of all wires and connections should be performed to ensure there is no visible damage or loose connections.

WIRING DIAGRAM

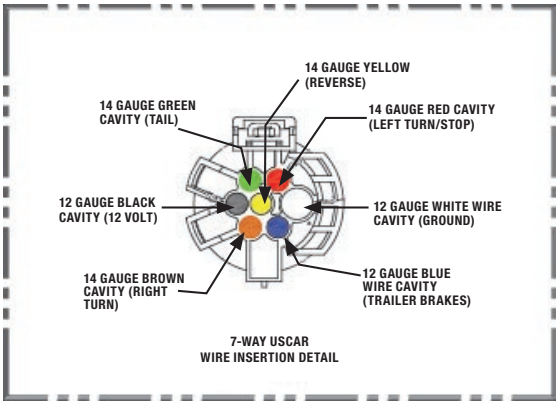


⚠ CAUTION

Review the wiring details prior to inserting terminals into the connector to ensure proper pinning.

Carefully insert the terminals into the cavities until a click is heard to lock into the connector. Do not force the terminals into the connector.

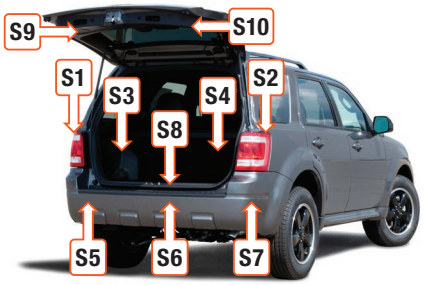
Insert the secondary lock AFTER the terminals are inserted.



Testing
Using a voltmeter or test light, carefully probe each wire one at a time.
Determine type of vehicle system and location of required input functions.
Follow each of the tow vehicle input as shown in the wiring location guide.

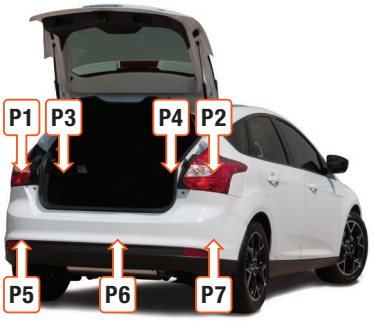
WIRING LOCATION GUIDE

Wiring Location Guide* for SUVs and Vans (S)	
S1	Behind driver side taillight housing
S2	Behind passenger side taillight housing
S3	Behind driver side rear access panel
S4	Behind passenger side rear access panel
S5	Behind driver side rear bumper
S6	Behind center of rear bumper
S7	Behind passenger side rear bumper
S8	Under rear floor panel
S9	Behind driver side rear access panel
S10	Behind passenger side rear access panel



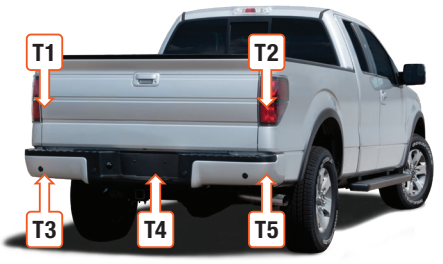
* Representative vehicle shown

Wiring Location Guide* for Passenger Cars (P)	
P1	Behind driver side taillight housing, outside of trunk
P2	Behind passenger side taillight housing, outside of trunk
P3	Behind driver side taillight housing, inside of trunk
P4	Behind passenger side taillight housing, inside of trunk
P5	Behind driver side rear bumper
P6	Behind center of rear bumper
P7	Behind passenger side rear bumper



* Representative vehicle shown

Wiring Location Guide* for Trucks (T)	
T1	Behind driver side taillight housing
T2	Behind passenger side taillight housing
T3	Behind driver side rear bumper
T4	Behind center of rear bumper fascia
T5	Behind passenger side rear bumper



* Representative vehicle shown

How to Determine Vehicle Wiring Types

First, determine which wires will not be used for installation. With the vehicle running, check to ensure all lights are off at the back of the vehicle. With all vehicle lights off, probe the taillight connectors while they are still connected to the vehicle.

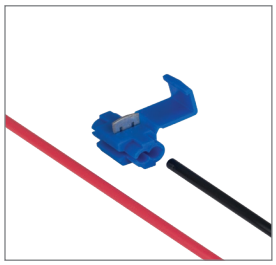
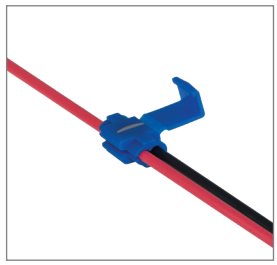
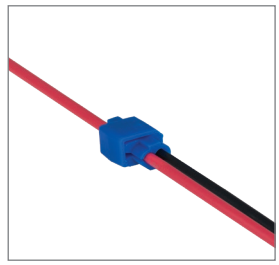
If using a multimeter:
Ensure the meter is in the DC volt setting. Any wires carrying less than two volts will not be used to determine vehicle wiring type and will not be used by the taillight converter.

If using a test light:
Any wires that illuminate the bulb (dim or fully) will be used to determine vehicle wire type and will not be used by the taillight converter.

Vehicle wiring type and function signal location in the housing can now be determined by activating each light's circuit, one at a time, and probing the remaining wires. Follow the chart on the next page.

Vehicle Wiring Type	Wiring Description	Wire Probing Voltage on Vehicle Wires			
--	--	Only passenger side signal activated	Only brakes depressed	Only driver side signal activated	Only tail lamps activated
Two-wire	Combined stop and turn signal with an independent tail signal	Flashing signal on passenger side	Signal on both sides - same wire as turn signal	Flashing signal on driver side	Signal on tail
Three-wire	Independent stop, turn and tail turn signals	Flashing signal on passenger side	Signal on stop wire on both sides	Flashing signal on driver side	Signal on tail
PWM-ST	Combined stop and tail signal with an independent turn signal	Flashing signal on passenger side	Signal on stop / tail wire on both sides - same wire used as stop and tail	Flashing signal on driver side	Signal or dim lamp on stop / tail wire on both sides - same wire used as stop and tail
PWM-ST	Combined stop, turn and tail signal	Flashing signal on passenger side - same wire used as stop, turn and tail	Signal on stop / turn / tail wire on both sides - same wire used as stop, turn, and tail	Flashing signal on driver side - same wire used as stop, turn and tail	Signal or dim lamp on stop / turn / tail wire on both sides - same wire used as stop, turn, and tail

Wire Tap Detail

Prep Vehicle

Locate the vehicle's battery, once located disconnect the battery negative cable.

⚠ CAUTION

Isolate the batteries negative cable to prevent metal items from creating a ground.

Tow Vehicle Inputs Installation

Locate vehicle taillight wiring. Refer to the wiring location guide.

Identify the wiring type of your vehicle using the 'how to determine vehicle wiring types' instructions.

Using wire taps, attach the input wires of the taillight converter to the corresponding vehicle harness wires identified in the 'wiring installation' table below. Refer to photos a, b and c to install the wire taps.

Locate a flat spot near the taillight. Adhere the lighting module using the provided double-sided tape and secure it with the included cable ties.

Locate a suitable grounding point near the lighting module such as an existing screw with nut in the vehicle frame or drill a 3/32" pilot hole for the provided screw. The area should be free of rust, debris, and paint. Secure the white ground wire using the ring terminal and provided screw.

⚠ WARNING

Check for miscellaneous items that may be hidden behind or under any surface before drilling to avoid damage and / or personal injury.

Secure any loose wires with the provided cable ties.

WIRING INSTALLATION

Vehicle Wiring Type	Green Wire	Red Wire	Yellow Wire	Brown Wire
Two-wire	Splice to right stop / turn wire	Ground with white wire	Splice to left stop / turn wire	Splice to tail wire
Three-wire	Splice to right turn wire	Splice to stop wire	Splice to left turn wire	Splice to tail wire
PWM-ST	Splice to right turn wire	Splice to stop / tail wire	Splice to left turn wire	Ground with white wire
PWM-ST	Splice to right turn / stop / tail wire	Ground with white wire	Splice to left turn / stop / tail wire	Ground with white wire

⚠ CAUTION

When splicing use appropriate gauge wire splices. Provided blue wire taps are for 16–18-gauge wire only.
On driver's side in the rear of the vehicle, mount the module using double sided tape or provide zip tie.

⚠ CAUTION

Exterior mounting of module requires the epoxy side of module must face down to prevent water intrusion over time from the elements.

7-Way Harness:

Underneath the vehicle, determine a 7-way connector mounting location (bracket not included).

Route the 7-way harness containing the 7 taped wires behind rear bumper or fascia and over any bumper support brackets, toward the mounting location. Ensure to not route taped wires to an area that can pinch the wires causing damage.

Remove tape from the 7 wires and insert the wires per the insertion detail for the USCAR 7-way connector.

⚠ CAUTION

Review the wiring details prior to inserting terminals into the connector to ensure proper pinning. Carefully insert the terminals into the cavities until a click is heard to lock into the connector. Do not force the terminals into the connector. Insert the secondary lock AFTER the terminals are inserted

Mount 7-way bracket (bracket not included). Once bracket is mounted insert the 7-way socket into the bracket.

Connect the 7-way harness to the mounted USCAR socket, being careful to not break mounting tabs.

Body Harness:

See wiring detail for body harness connection to module.

Starting on the driver's side, route body harness (red, black, blue wires) along the frame to the front of the vehicle to the engine compartment.

⚠ WARNING

Route the wire harness forward, being careful to avoid vehicles exhaust, heat shields, fuel tank, rotating driveline components or any other points that can cut or break wire insulation that can cause a harness malfunction.

Route the body harness black 12-gauge wire into vehicles engine compartment to the positive battery terminal. Using 30-amp fuse holder (7-way charge 30 amp), heat shrinkable butt connect the fuse holder to the black wire. Crimp a supplied ring terminal to the end of the fuse holder.
NOTE: Using a heat gun or lighter, supply heat to the butt connectors, working from the inside to the outer edge, to shrink the insulated connector to the wire.

Route the body harness red 12-gauge wire to vehicles positive battery terminal. Using 20-amp fuse holder (module 20 amp), heat shrinkable butt connector the fuse holder to the red wire. Crimp a supplied ring terminal to the end of the fuse holder.
NOTE: Using a heat gun or lighter, supply heat to the butt connectors, working from the inside to the outer edge, to shrink the insulated connector to the wire.

Connect the red and black fuse holders without fuses installed to the positive side of the battery.

Brake Control Harness:

Determine a suitable mounting point in the tow vehicle's interior for the electric brake control harness.

Note: Brake controller not included. Brake control harness connector designed to work with Curt brake control units only.

Secure the brake control harness near desired brake control mounting location.

Route the brake control harness's white/blue/black wires through an existing grommet in the vehicle's fire wall and into the engine compartment.

Note: Route wires through grommet by creating a small hole in the grommet to pass the wires through.

Route the brake control harnesses black wire to the vehicle's positive battery post in the engine compartment. Using 30-amp fuse holder (Brake Control), butt connect black wire to the fuse holder. Connect supplied ring terminal to the fuse holder's other end.
NOTE: Using a heat gun or lighter, supply heat to the butt connectors, working from the inside to the outer edge, to shrink the insulated connector to the wire.

Connect the brake control harness's black wire to the positive battery post.

⚠ CAUTION

Make sure the 30-amp fuse is removed prior to connecting the brake control harness black wire to the battery.

Route blue wire (electric brake output) to body harness blue wire located in the engine compartment. Using heat shrinkable butt connector, connect blue wires.
NOTE: Using a heat gun or lighter, supply heat to the butt connectors, working from the inside to the outer edge, to shrink the insulated connector to the wire.

Route the red wire of the brake control harness to the brake pedal switch or the best suited alternative. Connect red wire of the brake control harness, using supplied wire tap to the brake pedal output wire. Ensure wires are pinned out per the 7-Way USCAR wire insertion detail.

NOTE: There is an extra red wire located in the jacketed body wire harness. This can be used for alternative connection points, such as a center tail stop light.

⚠ CAUTION

When splicing use appropriate gauge wire splices. Provided blue wire taps are for 16–18-gauge wire only.

Secure the brake control harness connector near the desired Brake control mounting location.

Service Kit for Curt Brake Controllers to Add Diode

Some vehicles require adding the supplied diode service kit. This diode prevents the brake controller from lighting the vehicle lights when the manual brake on the brake controller is applied. Vehicle's such as RAM, Jeep and Toyota require this to prevent any warning lights or malfunction to the vehicle. Consult with your dealer or owner's manual for further information. If vehicle requires this, please follow the instructions below.

Tools Required: wire cutters, wire crimpers, crimp tool, heat gun/lighter
Components: Splices (qty: 2), Diode, heat shrink tubing

IMPORTANT: Read and follow installation manual carefully. Failure to do so could result in damage to the brake control unit, loss of trailer brakes or poor brake performance.

1. If mounted on a vehicle:
   A. Turn vehicle off and disconnect the brake controller from the vehicle by disconnecting the black connector at the back of the trailer brake controller.
   B Dismount the trailer brake controller from the mounting bracket.

2. Locate the RED wire on the trailer brake controller. Using wire cutters, cut the red wire about half way between the connector and trailer brake controller.

3. Using wire strippers, strip approximately ¼" of insulation of each cut wire.

4. Place the supplied heat shrink tubing over one of the cut red wires and slide down, keeping the red wires exposed.

5. Using a crimp tool, splice one end of the splice terminals to one end of the cut and stripped red wire. Repeat with the second splice on the other stripped red wire.

6. Place the diode with the band of the diode orientated towards the trailer brake controller. Splice each end to the splices on the red wires.

NOTE: Ensure crimps are secure.

7. Slide the heat shrink tubing over the crimps and diode. Using a heat gun or lighter, heat tubing, shrinking it to the wire.

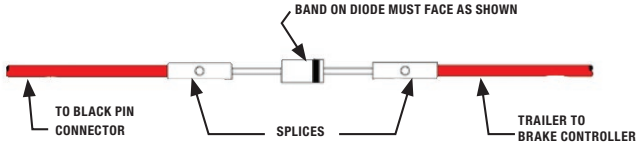
⚠ CAUTION

Ensure there is no bare wires exposed. Failure to do so may damage the brake controller.

8. Follow the trailer brake controllers instructions for installation and testing.

⚠ WARNING

Brake lights will not illuminate with manual override use.



TROUBLESHOOTING GUIDE

Completion:
Evaluate and verify installation with a test light or trailer once after harness installation.
Secure harness with the cable ties provided, to prevent damage or rattling of harness installation. Be careful to avoid any areas that would cut, melt or contact moving parts.
Apply heat directly to heat shrinkable butt connectors, working from the center out to the edges, using a heat gun or other source. Until the tubing recovers and the adhesive flows. Allow to cool before inspecting splice and checking integrity.
Replace all coverings, grommets or any other components that were removed for ease of installation. Certain grommets will need to be altered to allow wires to pass through. Seal altered grommets with silicone (not provided).
Reconnect the vehicle's negative (-) battery cable.

7-Way not functioning properly
Ensure T-Connector ends, 7-way wire insertion, USCAR socket are fully inserted and locked in place.
Ensure all fuses are fully inserted and not blown.
Ensure wires are pinned out per the 7-Way USCAR wire insertion detail.
Remove Tow Harness Power Module 20-amp fuse for 10 seconds and repeat test.
Check chassis grounds. Ensure ring terminals are in full contact with vehicle's chassis.
Remove Tow Harness Power Module 20-amp fuse for 10 seconds and repeat test.

No Power to 7-Way
Start vehicle and turn all functions off: Tail (head lights), brake, turn functions and hazards
Remove Tow Harness Power Module 20-amp fuse for 10 seconds and repeat test.
Ensure the fuses are fully inserted into fuse holder. Fuses should have no breaks.
Fuse holder connected properly to positive post of battery. Remove 20-amp fuse for 10 seconds and repeat test.
Ensure module power is connected to the positive battery post. Using a tester or multimeter. check for voltage on either side of the heat shrinkable butt connector near the module.
Remove Tow Harness Power Module 20-amp fuse for 10 seconds and repeat test.