Lytx® ER-SV2 International Connection Guide

Last Updated: March 20, 2018

This document is to be used in addition to the Lytx® ER-SV2 Installation Instructions – Heavy Duty Vehicles.

Lytx, Inc.

THE DEVICE SHOULD BE INSTALLED AND MAINTAINED BY QUALIFIED TECHNICIANS. Only a properly qualified technician should install and maintain the ER-SV2. Any electrical work should be performed only by an ASE (minimum T6 & L2), MECP or equivalent certified technician with an expertise in installing and troubleshooting advanced vehicle onboard components including multiplexed circuits. Lytx, Inc. disclaims all responsibility for any damages arising from improper installation and maintenance of the ER-SV2.

CONTENTS

Attention!

This is not a standalone document. It is only intended to be used in conjunction with the ER-SV2 Installation Instructions – Heavy Duty Vehicles ("ER-SV2 HDV Guide"). If you do not have the ER-SV2 HDV Guide, do NOT proceed with installation until you also obtain and read the ER-SV2 HDV Guide from Lytx, Inc. U.S. Technical Support Center at 866.910.0403 or support@lytx.com

Note: Always check to make sure you have the most current guide from Lytx® before beginning any installation work. If you are installing the ER-SV2 on a model vehicle that is not covered by this guide or a model vehicle that has new connection options not shown in this guide, please contact Lytx US Technical Support Center at 866.910.0403 or email support@lytx.com and obtain the necessary guides before beginning installation.

Note: If you find any updates to recommend for this guide or an option available for use on other models or years of vehicles, please email installfeedback@lytx.com*.*

SAFETY INSTRUCTIONS

Installation Safety Warnings

This Connection Guide is a supplement to the ER-SV2 HDV Guide. All instructions, precautions, and warnings in the ER-SV2 HDV Guide must be followed when using this supplement. Read and follow the instructions and precautions in the ER-SV2 HDV Guide, this Connection Guide, and all documents referenced therein when installing the ER-SV2.

Read and follow the instructions and precautions in this guide and all documents referenced in this guide when installing this device. Always refer to the vehicle manufacturer's service manual for proper installation and wiring of any aftermarket devices, including the Lytx device. Failure to do so may result in property damage and/or personal injury.

WARNING: Park the vehicle on a level surface before beginning any maintenance or installation. Block the wheels to prevent the vehicle from moving. Never work under a vehicle supported only by jacks as jacks can slip and fall over.

EXPLOSION HAZARD: Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

WARNING: Substituting or supplementing components may impair suitability and performance. If you are missing any components contact Lytx Technical Support Center at 866.910.0403 or email support@lytx.com.

WARNING: Wear safe eye protection to prevent serious eye injury when you perform vehicle maintenance or service.

THIS GUIDE IS NOT A SUBSTITUTE FOR A QUALIFIED TECHNICIAN.

THE DEVICE SHOULD NOT INTERFERE WITH THE VEHICLE'S COMPUTER SYSTEMS. The Lytx device interfaces with the vehicle's computer systems to capture data for safety analysis. However, it should not interfere with any of the vehicle's computer systems. If there is a malfunction of the vehicle's computer systems after installation, contact Lytx Technical Support Center at 866.910.0403 or email support@lytx.com immediately. Lytx recommends that you do not drive the vehicle until the malfunction is resolved. Lytx, Inc. disclaims all responsibility for any damages arising from improper installation and maintenance of the device.

WARNING: Some countries/regions have adopted laws that restrict locations where objects can be attached to the vehicle windshield. Always refer to any applicable federal, state, provincial and local laws that concern mounting devices on vehicle windshields or other locations in a vehicle before choosing a mounting location.

Driver Safety Warnings

WARNING: In order to reduce the potential danger of injuries, the driver and front passenger must always be correctly seated with seat belts correctly fastened when operating the vehicle.

DISCLAIMER: The Lytx Event Recorder is a driver aid only, not a substitute for a safe, conscientious driver. The Lytx Event Recorder cannot compensate for a driver who is distracted, inattentive or impaired by fatigue, drugs or alcohol. Whether or not the Lytx Event Recorder is in use, it is always the responsibility of the driver to take appropriate corrective action. Never wait for the device to provide a warning before taking measures to avoid an accident. Failure to do so can result in serious personal injury or death or severe property damage.

Always, it is the driver's responsibility to:

- Use safe driving techniques
- Exercise proper judgment
- Maintain a safe speed and distance between vehicles
- Take measures to avoid an accident
- Comply with all applicable laws and regulations

WARNING: In certain conditions, including inclement weather, low visibility, certain road conditions (including poor lane markings, construction zones, dirt roads, heavy or complicated traffic, and curvy and winding roads), the Lytx Event Recorder may have limited to no functionality. The Lytx Event Recorder may not detect certain objects such as motorcyclists, bicyclists or pedestrians even in the most ideal conditions. Always keep the lens and view of the Lytx Event Recorder unobstructed and properly calibrated so as not to inhibit function. Driving in certain conditions or any interference with the Lytx Event Recorder can result in false, few or no warnings. The driver must always monitor traffic and surroundings and take measures to avoid an accident; failure to do so can result in serious personal injury or death or severe property damage.

WARNING: If the Lytx Event Recorder is not functioning properly at any time, please contact your supervisor and have the device inspected immediately to correct the issue.

Whether or not the Lytx Event Recorder is functioning, it is the driver's responsibility to maintain vehicle control; failure to do so can result in serious personal injury or death or severe property damage.

Adherence to Applicable Local, State and Federal Laws

WARNING: Some jurisdictions have adopted, or may in the future adopt, laws that prohibit objects from being mounted on a vehicle's windshield or other locations in a vehicle. You are responsible for complying with such laws, and Lytx, Inc. does not accept responsibility for your failure to do so.

USA Federal Communications Commission (FCC) Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications to this product not expressly approved by Lytx, Inc. could void the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

It is recommended that the antenna must not be co-located or operating in conjunction with any other antenna or radio transmitter.

Canada – Industry Canada Notice

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To prevent radio interference to the licensed service, this device must be operated indoors only and should be kept away from windows to provide maximum shielding.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil est conforme aux normes RSS exemptes de licence d'Industrie Canada. Son utilisation est soumise aux deux conditions suivantes: (1) Cet appareil ne doit pas causer

d'interférences nuisibles et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences susceptibles de provoquer un fonctionnement indésirable.

Pour éviter les interférences à des services radio autorisés, cet appareil doit être utilisé uniquement à l'intérieur et doit être tenu à l'écart des fenêtres afin de fournir un blindage maximal.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Wiring Safety Warnings

WARNING: Only approved wire connection methods are recommended. Refer to the vehicle manufacturer's service manual to determine if soldering, sealing crimp connections, Add-A-Circuit, Posi-Tap, sealing butt connections, or OEM connections to open connection ports are approved. Never use plier tap products such as insulation displacement connectors (i.e. ScotchLoc connectors) when installing the Lytx event recorder.

WARNING: Never wire the Lytx event recorder in a manner that shares a connection with another aftermarket product in the vehicle. Independent connections should always be used.

WARNING: All wires that carry electrical current to the Lytx device must be fused. Failure to fuse the power, ground, and ignition wires can lead to serious personal injury and/or property damage. If any wires or cables containing fuses/fuse boxes need to be cut or otherwise shortened, always be certain to replace such fuses/fuse boxes or install new ones.

WARNING: Wire Protection: Take all necessary measures to protect all wire runs through a metal surface with a grommet or other device and all wire runs outside the vehicle cab with a loom. Always protect against wire fatigue and harness abrasion by properly attaching wires at closely spaced intervals, while avoiding contact with sharp edges or doing anything else that might result in exposed wires. All wires should be secured with tie wraps at least every one foot (30 cm/300 mm) or less. Do not over-tighten any tie wraps.

WARNING: Cable Routing: Make certain that neither the cable nor your installation activities interferes with any airbag-related mechanisms or otherwise risks affecting airbag deployment. Consult the vehicle manufacturer for the location of any airbag sensors and systems and restrictions that may apply.

WARNING — ALWAYS test the other vehicle components on the power circuit of the ER-SV2 to confirm their functionality, especially if the circuit is shared. All active faults in the vehicle system, other devices, and the ER-SV2 must be resolved prior to completing the installation.

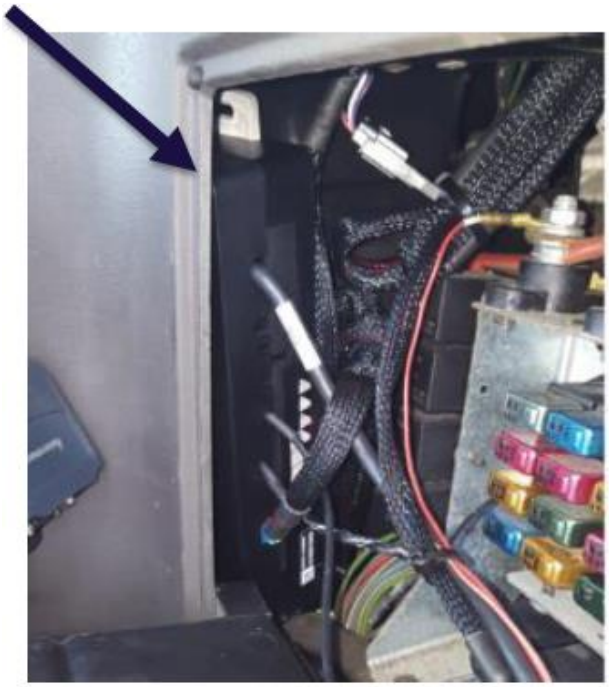
Base Unit Installation

See the ER-SV2 HDV Guide for details on selecting a mounting location and mounting the ER-SV2. Below are some options for mounting locations that have been used, including installing the Base Unit under the passenger seat, under the driver seat, or within the dashboard of the vehicle.

1. **2008+ ProStar/Workstar/DuraStar/TransStar:** Behind the center console.

2. **2004-2010 4300/8600:** Behind the center of the dash below the parking brake and below the heater controls. A light grey panel is removed to access the location.

3. **1999-2010 9100/9400:** Behind the center of the dash on the passenger side. Remove the dash panels with care to access this area of the tractor.



4. **1995-2003 4900/8100:** Zip screwed to the dog house, passenger side.

5. **2017 LT:** Base Unit is placed behind the doghouse cover, just like the ProStar.

Window Unit Placement

See the ER-SV2 HDV Guide for critical information on Window Unit mounting prior to mounting the Window Unit. The Window Unit is typically mounted near the center of the windshield on the passenger's side, with the bottom of the bracket placed in the "allowed" locations as described in the ER-SV2 HDV Guide. The road-facing camera must have a view through the wiper path to operate properly. The interior-facing lens must not interfere with or be able to be blocked by sun visors. Below are examples, including models where Window Unit placement is critical due to the specifics of the vehicle.

1. **Typical Window Unit Placement.**

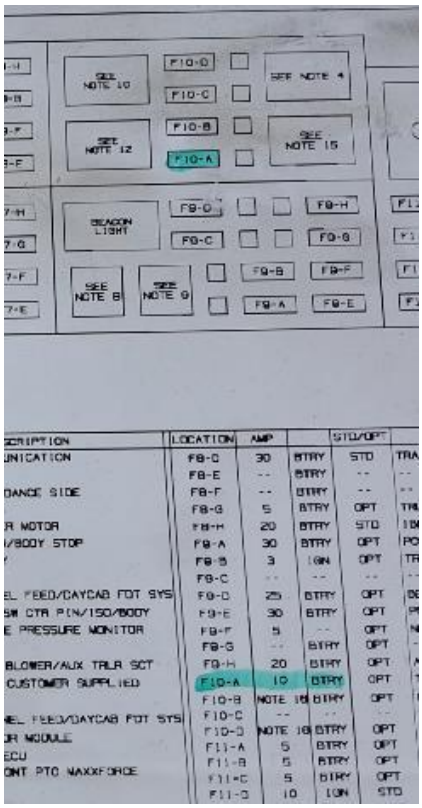
2. **Prostar/Workstar/DuraStar/TransStar** has an optional template to locate the bracket.

Wiring Installation

WARNING — Only a properly qualified technician should install and maintain the ER-SV 2. Any electrical work should be performed by an experienced technician that has the ability to install and troubleshoot advanced vehicle onboard components including multiplexed circuits. **Always test connections with a meter.** The following photos show the locations where the connection points have been found on various models. Where applicable, we have identified the model year vehicle. Other model year vehicles may have similar installation points.

Power, Ground and Ignition Locations

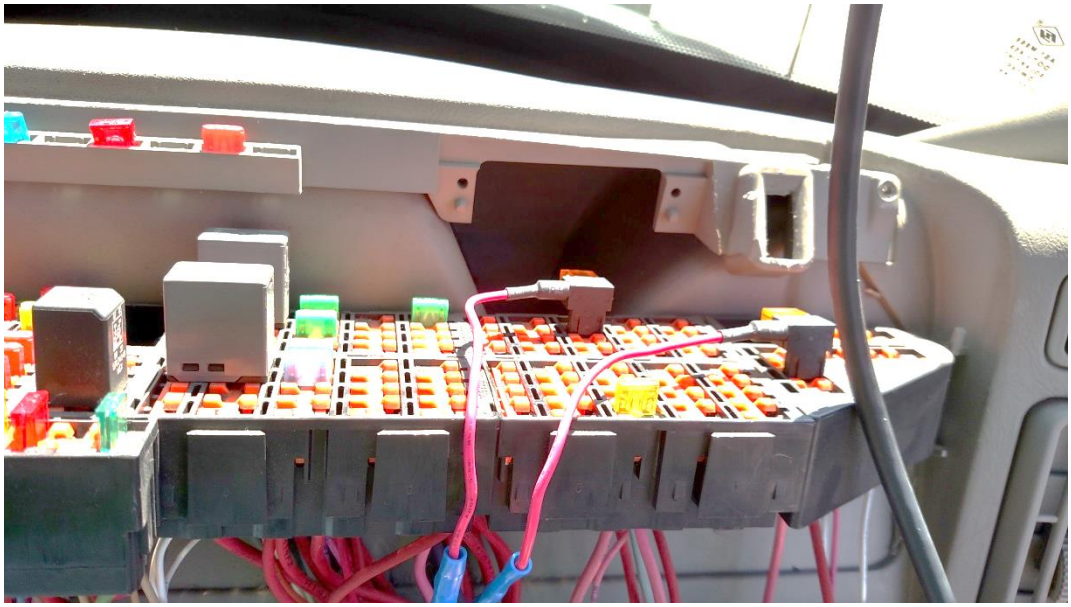
1. **Prostar/Workstar/DuraStar/TransStar:** Connections are located by the fuse panel on the passenger side of the truck. The constant power and ignition pins are inserted into the power distribution center **from below** the locations indicated below. International pins are used for these connections. If required, the power distrbution center can be unscrewed from the dash to allow easier access. **One side of the location will already be pinned, and the pin on ER-SV2 wiring harness must be oriented in the opposite direction as the existing pin.** This allows for a 5 amp fuse to be inserted from the top to complete the circuit. Ground is connected with a ring terminal and self tapping screw to the metal below the fuse panel.



a) Prostar/Workstar/DuraStar/TransStar Pin location for constant power:

b) Prostar/Workstar/DuraStar/TransStar Pin location for Ignition:

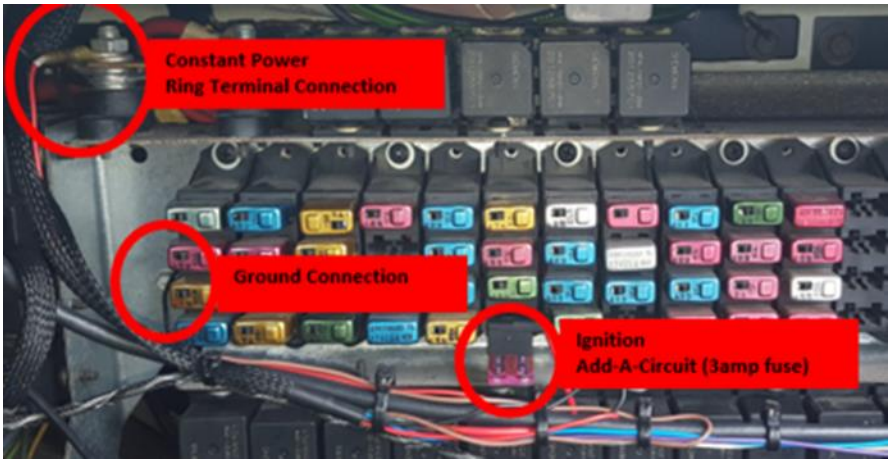
2. **2004-2010 4300/8600:** Connections are made by the fuse panel, which is located on top of the dash.



3. **1999-2010 9100/9400:** Connection points can be found behind the glove box.

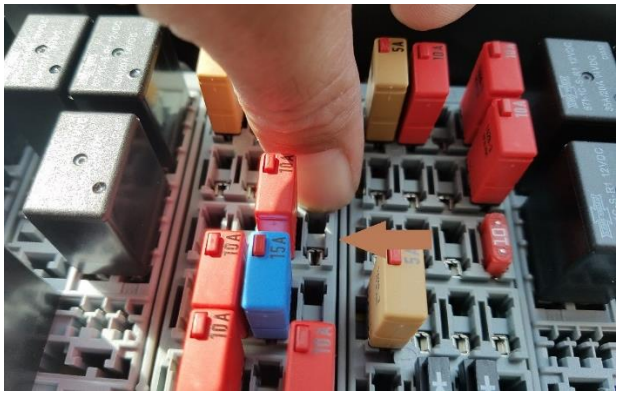
- **Constant Power**: Ring Terminal (to the top left of the relay panel)
- **Ignition:** Add-A-Circuit, 3-amp fuse (from the left, it's located in the 6th slot)
- **Ground**: Ring Terminal (left side of the relay panel)

NOTE: All power connections should be tested with a voltmeter before connecting.

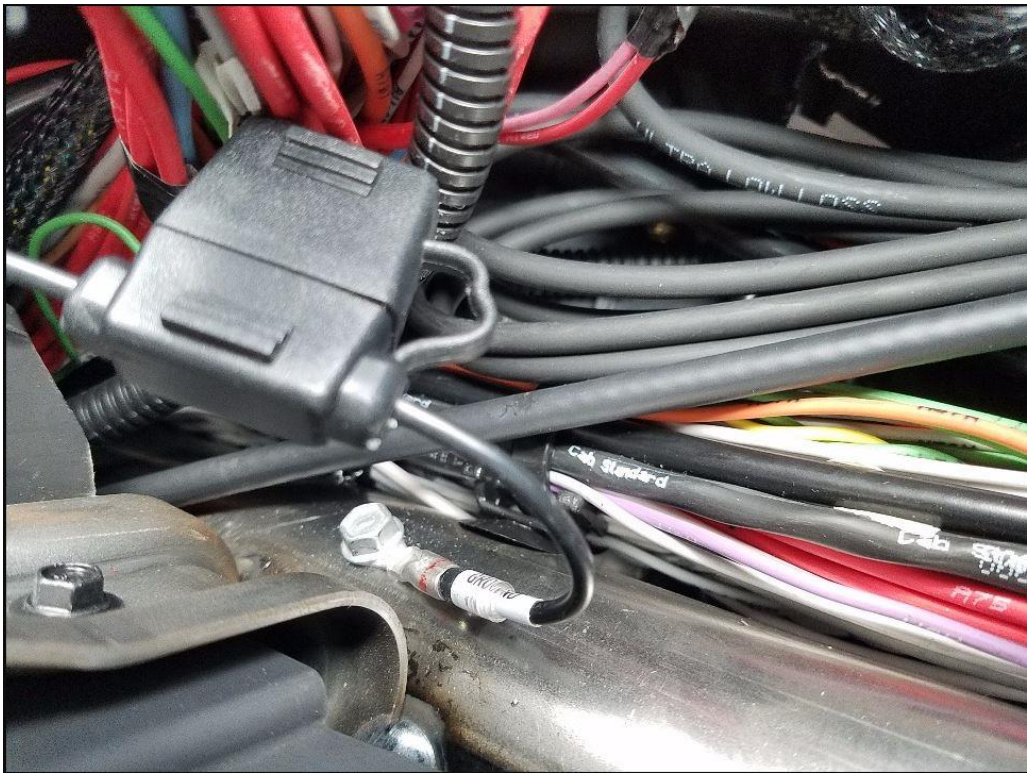


4. **1995-2003 4900/8100** (Picture unavailable): Connection points can be found at the fuse panel to the lower left of the dash. Add-A-Circuit's can be used for constant and ignition. Ground can be made with a ring terminal to the metal of the dash frame.

5. **2017 LT:** Power and ignition connections are made with Add-A-Circuits. International ProStar pins WILL NOT work for this truck. Constant fuse location – Block B5-A (if unused). Ignition fuse location – Block B4-J (if unused).



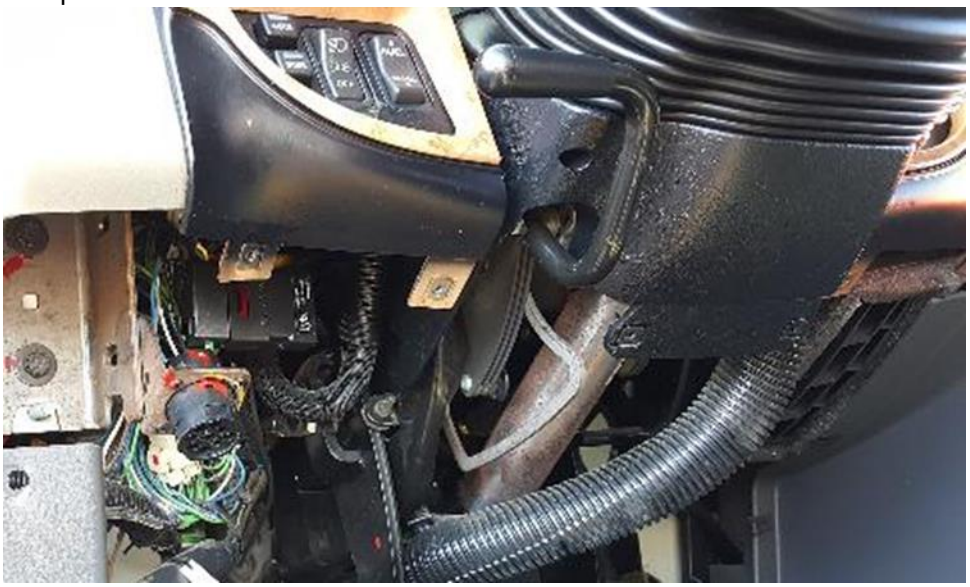
The ground connection point, much like the ProStar, is made with a tech screw to the support tube. However, this is accessed from under the fuse panel. It will be easier if you do this while the fuse panel is lifted out.



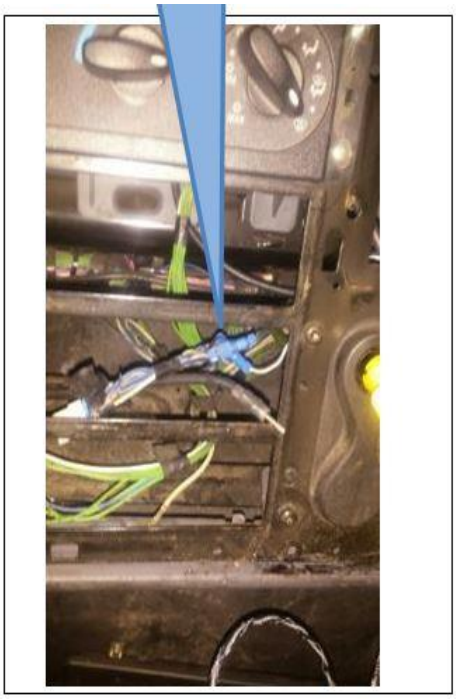
Vehicle Data Bus Connection

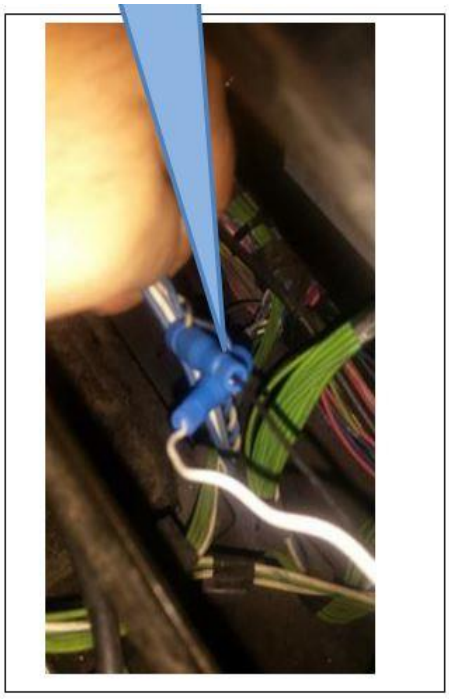
Class 8 vehicles 2008 and newer will have J1939 standard vehicle data bus (green and yellow twisted pair) which is read via the CAN bus coupler. Some 2006 and 2007 vehicles will also have J1939 available, but must be tested via LIT for engine speed. Vehicles 2007 and older will have J1708 vehicle data bus and must be physically tapped into. See the ER-SV2 HDV Guide for further information. For J1939 vehicles, after the CAN bus coupler is in place, use LIT to test for brake signal over the vehicle bus. If present, the physical brake signal connection will not be required.

1. **2008+ ProStar/Workstar/DuraStar/TransStar:** The CAN bus coupler is attached to the J1939 backbone behind the diagnostic port, to the left of the steering wheel. On some models removal of the lower panel will be needed to provide access to install the coupler.



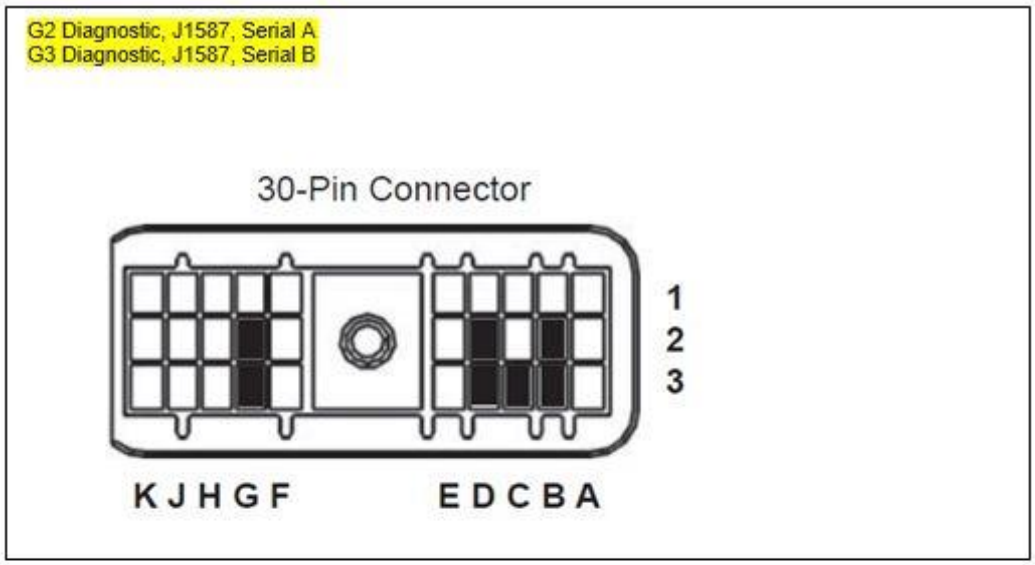
2. **1999-2006 4300/8600:** The J1708 harness is connected to the J1708 bus via Posi-Taps. The J1708 connections will be found behind the middle of the dash. They're a twisted pair. Test for voltage to confirm.



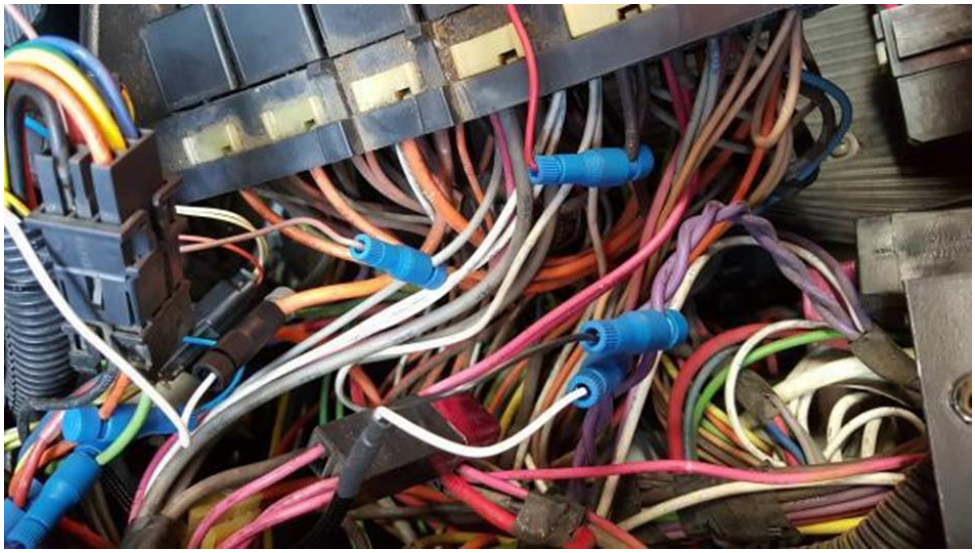


3. **2007-2010 4300/8600**: The J1939 can be found behind the diagnostic connector and also to the left of the fuse panel.

4. **1999-2010 9100/9400:** The J1708 harness must be connected to the J1708 bus via Posi-Taps. The J1708 connections can be found on the Bendix harness by the driver's left foot. The J1708 wires are a twisted pair. Test for voltage to confirm.



5. **1995-2003 4900/8100:** The J1708 harness is connected to the J1708 bus via Posi-Taps. The J1708 connections can be found behind the fuse panel to the lower left of the dash. The J1708 wires are a twisted pair of purple wires. Test for voltage to confirm.



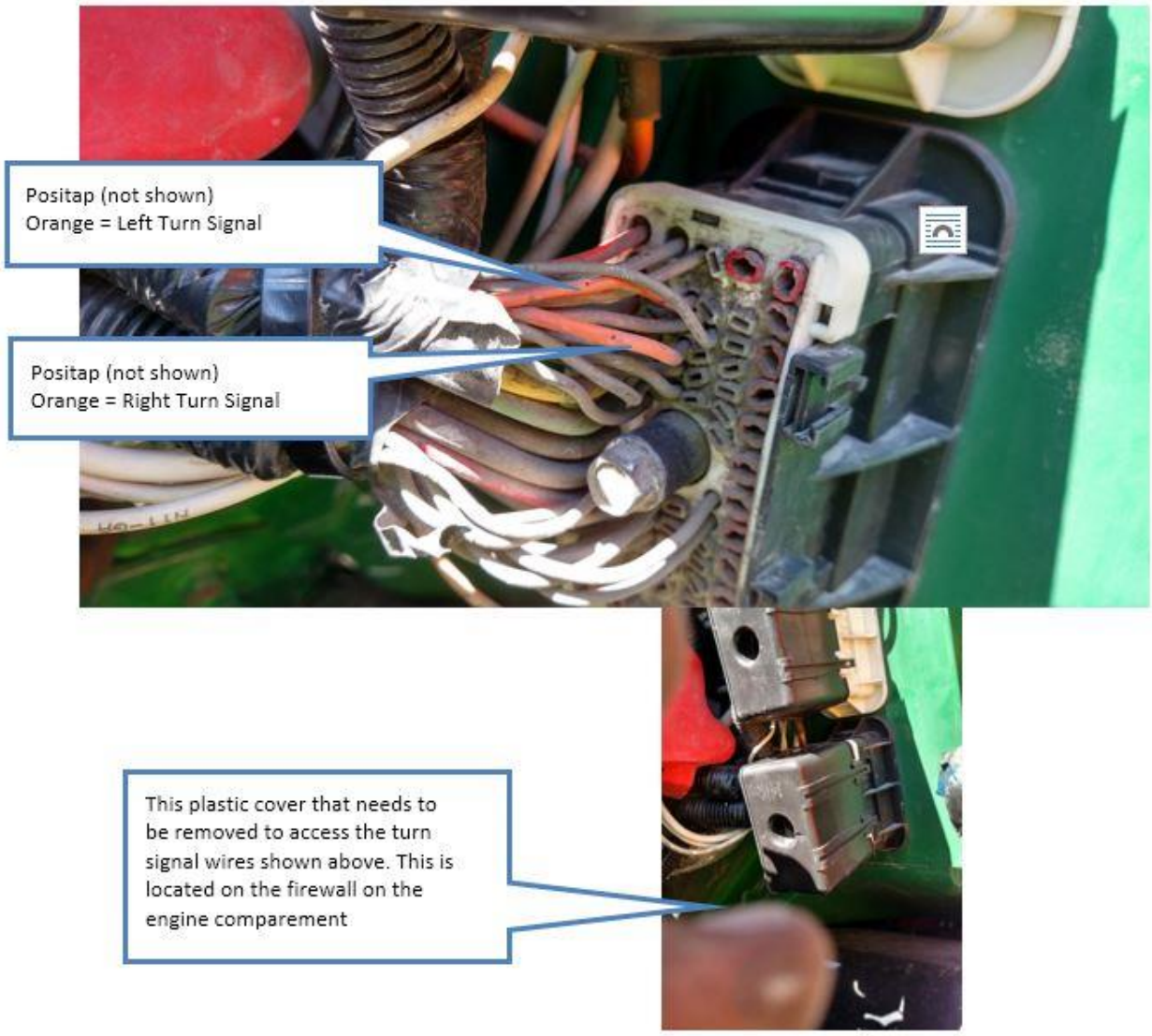
5. **2017 LT:** The data connection can be made with a CAN coupler from the plug going to the Bendix unit, behind the front cover, on the passenger side.

6. **2016 9900 Eagle:** Data connection can be found behind the switch panel in the center console.

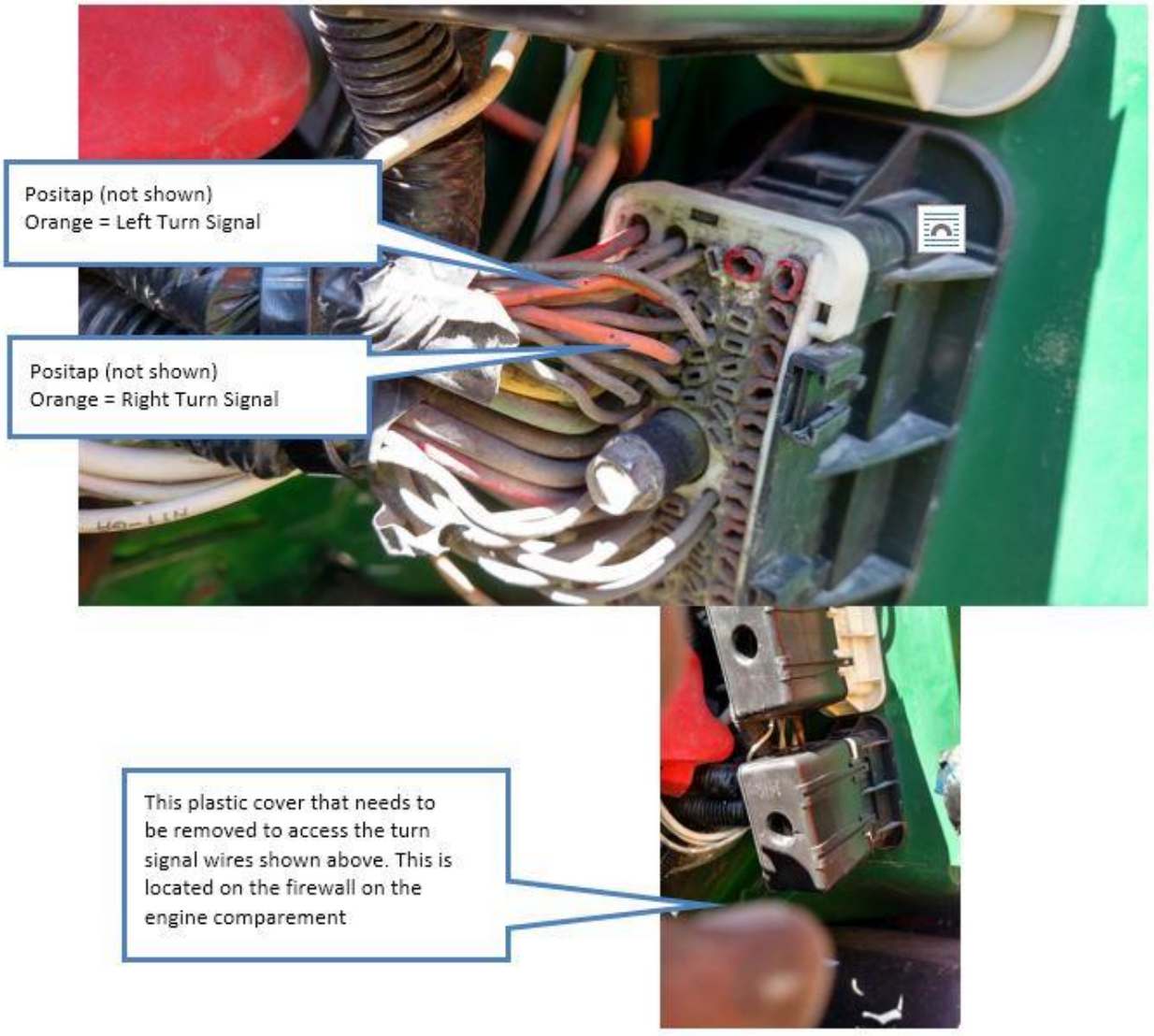
Turn Signal Connections

Turn signal connections are made from the input wires to a turn signal wire on the vehicle that cycles between 0V and 12V/24V when activated. **Always test connections with a meter.** The following photos show the locations where turn signals have been found on various models. Where applicable, we have identified the model year vehicle. Other model year vehicles may have similar installation points. Turn signal wires can always be found at the lights under the hood as a last resort.

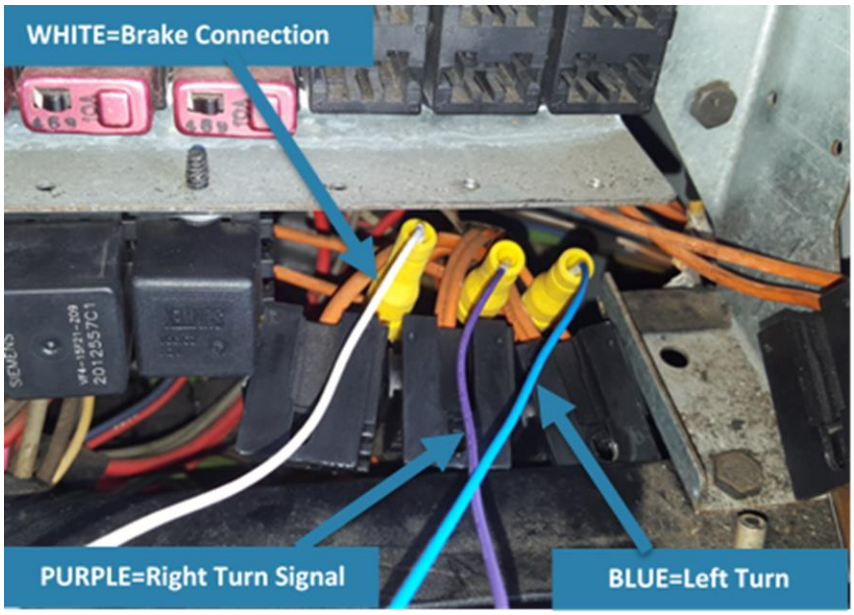
1. **2008+ ProStar/Workstar/DuraStar/TransStar:** The turn signals can be found on the other side of the firewall in the engine compartment. Both wires are orange.

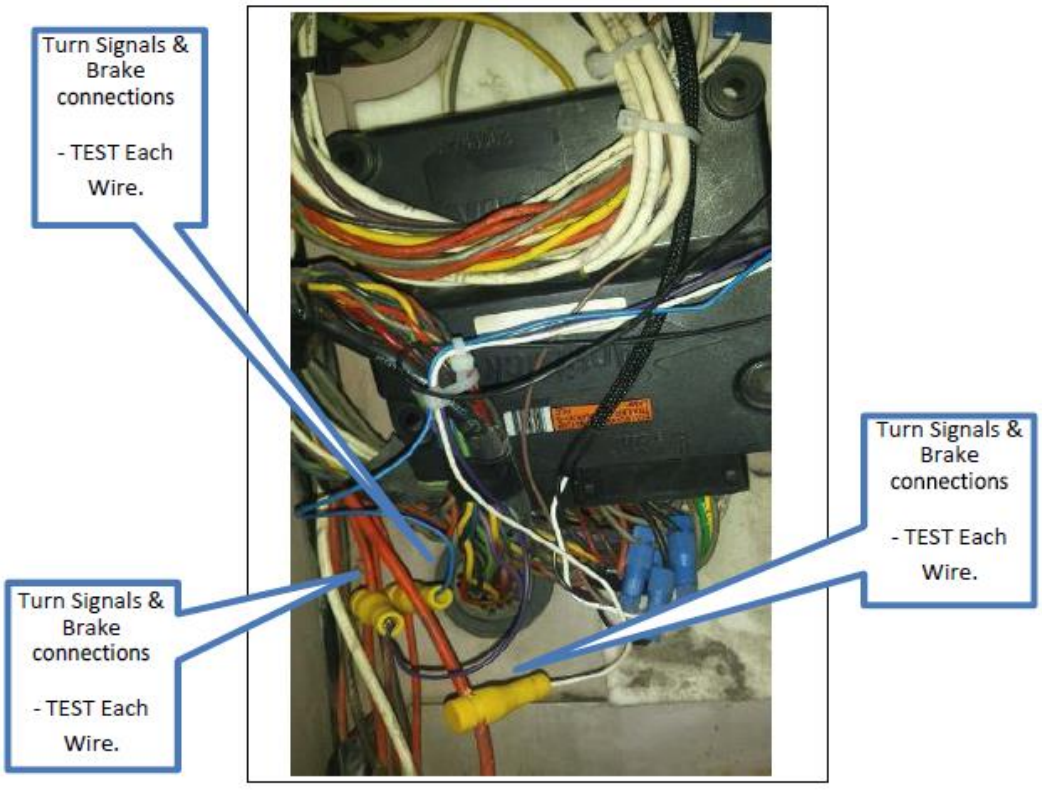


2. **2004-2010 4300/8600:** The turn signals can be found on the other side of the firewall in the engine compartment. Both wires are orange.



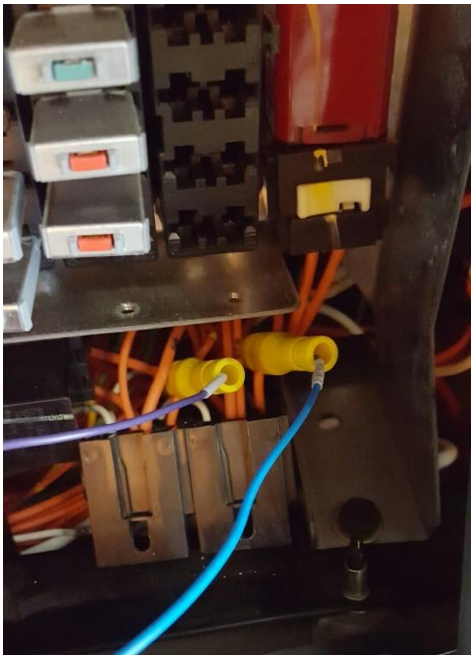
3. **1999-2010 9100/9400:** The turn signals and brake connections are made with yellow Posi-Tap connectors inside the cab. Depending on the mode, they can be found below the fuse panel or near the driver side kick panel. The signal wires will be orange and cannot be identified by any numbering. Each wire will need to be tested for proper signals.





4. **1995-2003 4900/8100:** The turn signal and brake connections are made using a Posi-tap connection method inside the cab. The wires cannot be identified by any numbering. The trigger wires will be found behind the fuse panel on the driver side. Each wire will need to be tested for the Right, Left, and Brake signals. The right turn signal will be a Green wire. The left turn signal will be an Orange wire.

5. **2016 9900 Eagle:** Turn signals are found at the relays by the fuse panel.



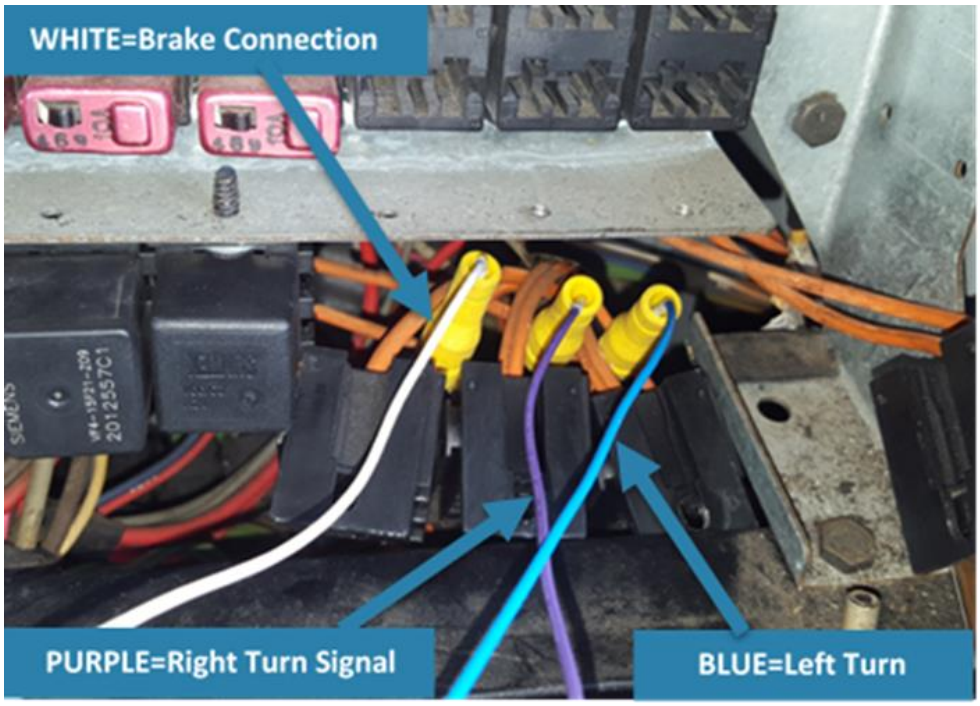
Brake Signal Connection

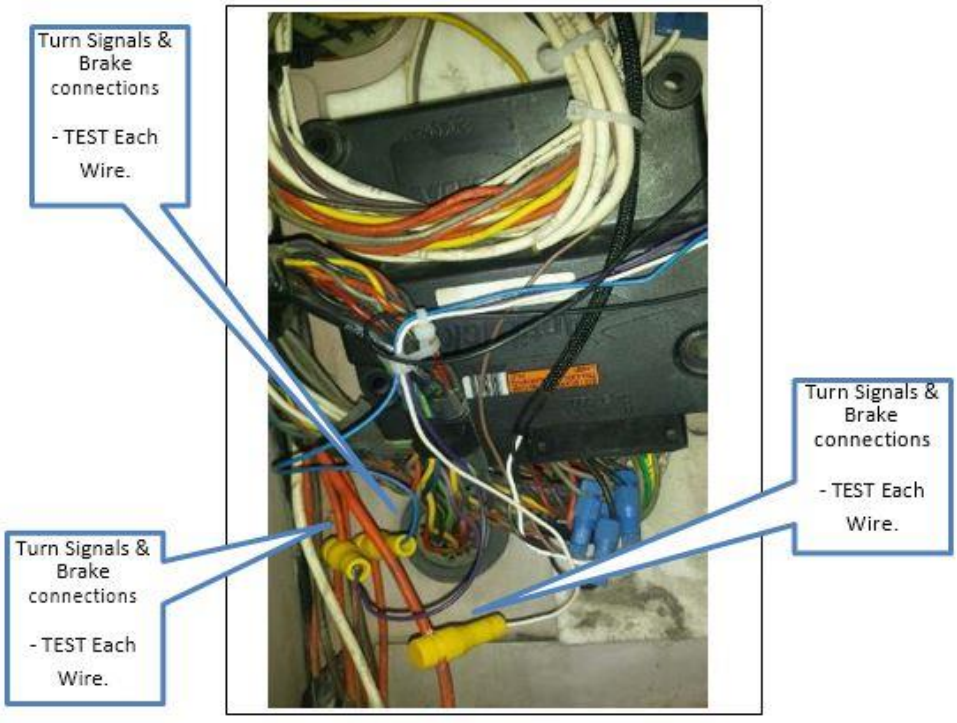
The brake signal input is often available over the vehicle data bus for vehicles 2008 and newer. When it is not, it must be physically connected to a discrete brake signal wire. **Always test connections with a meter.** The following photos show the locations where the brake signal connection has been found on various models. Where applicable, we have identified the model year vehicle. Other model year vehicles may have similar installation points.

1. **2008+ ProStar/Workstar/DuraStar/TransStar:** Available on J1939 bus. See the Lytx Installation Tool instructions for testing information.

2. **2004-2010 4300/8600:** Available on J1939 and J1708 bus. See the Lytx Installation Tool instructions for testing information.

3. **1999-2010 9100/9400:** The turn signals and brake connections are made with yellow Posi-Tap connectors inside the cab. Depending on the mode, they can be found below the fuse panel, or near the driver side kick panel. The signal wires will be orange and cannot be identified by any numbering; each wire will need to be tested for proper signals.





4. **1995-2003 4900/8100:** The turn signal and brake connections are made using a Posi-tap connection method inside the cab. The wires cannot be identified by any numbering. The trigger wires will be found behind the fuse panel on the drivers side. Each wire will need to be tested for the Right, Left, and Brake signals. The brake wire will vary in color, but is located behind the fuse panel and is a very large wire.

Note: If you find any updates to recommend for this guide or an option available for use on other models or years of vehicles, please email installfeedback@lytx.com*.*

ER-SV2 – LYTX US TECHNICAL SUPPORT CENTER
866.910.0403 or support@lytx.com