

Installation Guide

L31230

2/07



Installation Instructions

AQ960514 - Haldex Trailer ABS 2S/1M

PLC Select ABS 1M (4 Delivery Ports) WNC Replacement Kit

General Information



The Haldex 2S/1M PLC Select ABS WNC Replacement Kit, part number AQ960514, is designed to replace or upgrade to PLC Technology on all WNC Trailer systems.

The kit includes all components required to replace the WNC ABS Systems MBS1 and MBS1P. The WNC MBS2 requires AQ15457 axle hardware kit and the AQ960514 kit. Installation instructions for AQ15457 are included in the AQ15457 kit.

SAFETY FIRST!

Please follow your company's safety procedure when you install this equipment. Be sure that you understand all instructions before you begin.

Prepare the vehicle as with any valve replacement procedure, by releasing all air pressure including air tanks, chocking the wheels, and ensuring adequate vehicle support.



AQ960514 Kit Components



ABS Power Cord



ABS Valve/ECU Assembly



Sensor



Sensor Wire Clip



Sensor Clip

The ABS Installation Kit includes the following items:

- (1) PLC Select Valve/ECU Assembly - 4 Port
- (1) ABS Power Cord Extension - 20 Feet (6 meter)
- (2) Sensors - 8 Feet (2.5 meter)
- (2) Sensor Retainer Clips
- (6) Sensor Wire Clips
- (1) Convolved Tubing (1/2" x 1')
- (1) Tubing (blue 3/8" x 5')
- (25) Tie Strap (6" long)
- (6) Tie Strap (24" long)
- (2) Tube Insert (3/8")
- (2) Tube Sleeve (3/8")
- (2) Hex Head Bolt (5/16" - 18 x 1-1/4")
- (4) Flat Washer (5/16")
- (2) Lock Nut (5/16" - 18)
- (1) Reducer Bushing (1/2 x 3/8" NPTF)
- (1) Dielectric Grease
- (1) L30030 ABS Manual
- (1) Installation Instructions (L31230)
- (1) ABS Warning Label
- (1) ABS Label (Lamp)
- (1) ABS Blink Code Label

Haldex Available Diagnostic Tools (Not Included): Blink Codes are Standard

PLC Info Center Hand Held (AQ15849)



PLC Computer Program (AQ15848)



Remove existing WNC ABS System



1. Cage the air chamber parking brake manually or with shop air. Remove all the vehicle wheels and drums on the ABS sensed axle(s) only.
2. Remove the ABS 5-pin power cord from the drop out connection located under the deck (just before the slider hoses) going to the ABS ECU assembly.
3. Remove and discard the (blue 3/8") tubing line from the trailer bulkhead fitting after the service slider hose to the Bendix R12 Service Relay Valve Service/Control port.

Note: Save the tube nuts. They will be re-used.

4. Remove and discard the old WNC ABS ECU assembly.
5. Remove and discard all of the old ABS sensor extension cables, ABS sensors and ABS sensor clips from the sensor blocks.
6. Disconnect the (4) delivery hoses from the Bendix R12 Service Relay Valve.

DO NOT cut the (4) delivery hoses they will be reinstalled later in the new Haldex PLC Select ABS 1M Assembly.

7. Remove all other air lines from the Bendix R12 Relay Valve.
8. Remove the Bendix R12 Service Relay Valve from the trailer frame by removing the two (2) mounting bolts from the frame rail. Discard the old bolts and nuts.
9. Remove the following two (2) fittings from the Bendix R12 Relay Valve;
(The tee in the Service/Control port (1/4" NPT) with the two attached fittings.)
(The 1/2" NPT by 5/8" tube 90° degree elbow fitting from the reservoir port.)

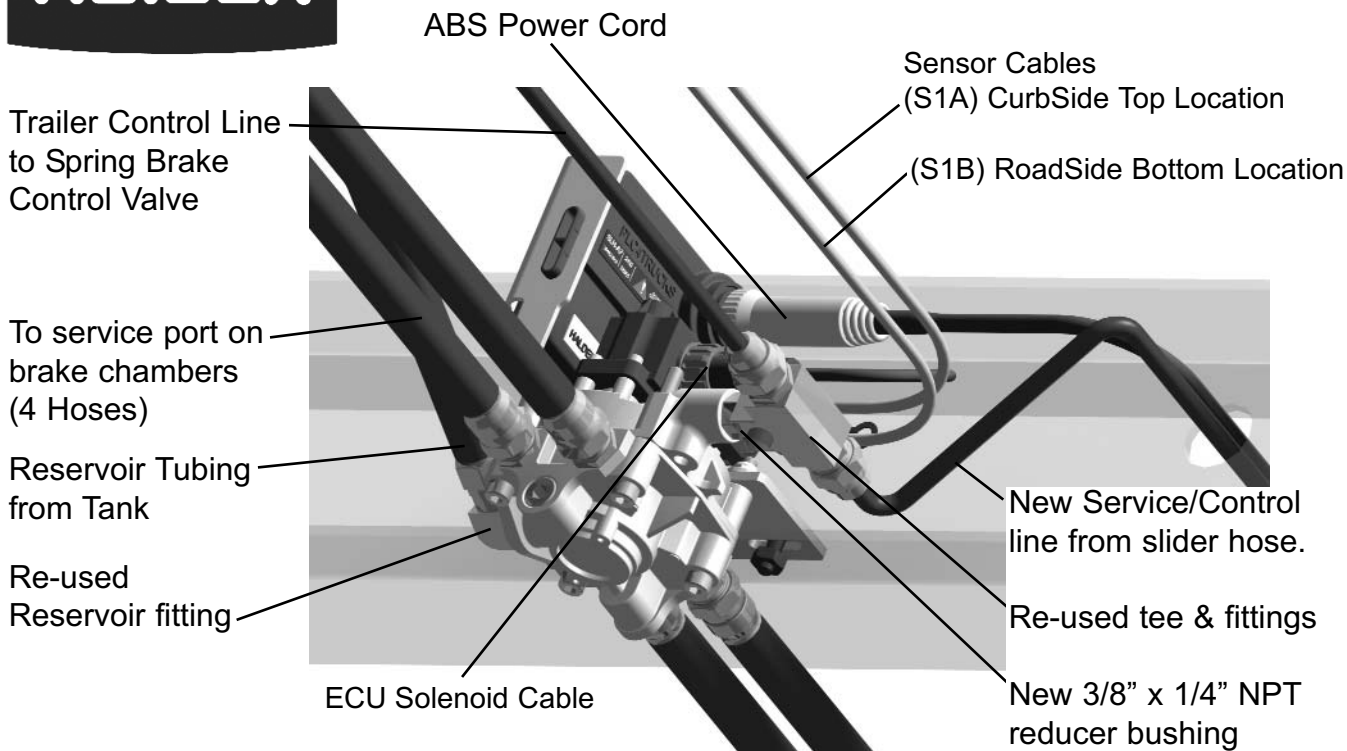
Note: Both fittings will be re-used in the Haldex PLC Select ABS 1M.

Installing Haldex ABS System

1. Mount the New Haldex PLC Select ABS 1M Assembly to the trailer frame rail. Install in the same location as the removed Bendix R12 Relay Valve. Using the (2) two new 5/16-18 x 1-1/4" long bolts, 5/16" flat washers, and lock nuts.
2. Install the following fittings in the New Haldex PLC Select ABS Assembly:
Service/Control Port: (Use Liquid Pipe Sealant)
 - New 3/8" NPT x 1/4" NPT reducer bushing from the kit.
 - The old 1/4" NPT tee fitting with the two attached fittings.Supply Reservoir Port:
 - The old 1/2" NPT x 5/8" tube 90° degree elbow.See valve installation illustration.
3. Attach and hand tighten the ECU Solenoid Cable to the ABS Valve Solenoid.



Installation of the new Haldex ABS System



INSTALLING THE NEW HALDEX ABS SYSTEM (Continued)

4. Route and connect the new 5' piece of 3/8" blue control nylon tubing through the frame rail between the ABS Valve and bulkhead fitting located after the slider hoses. Cut to length as needed.
 - Re-use the tube nut from the old 3/8" blue control line.
 - Use the new tube inserts and tube sleeves provided in the kit.
5. Reinstall the existing 5/8" nylon tubing from (air tank) reservoir and connect to the 90 degree elbow reservoir port in the new Haldex PLC Select ABS Assembly.
6. Reinstall the four existing service brake delivery hoses to the new Haldex PLC Select ABS Assembly. Note: Use Liquid Pipe Sealant.
7. Installation of the new Haldex ABS 6 meter (20') ABS power cord extension.
 - Apply small amount of dielectric grease included in kit to each electrical pin connector. Connect ABS power cord to the ABS 5-pin drop out located under the trailer deck. Route the ABS power cord following the existing slider air hoses and tubing through the trailer frame rail holes. Attaching the other end of the ABS power cord connection to the new Haldex PLC Select ABS Assembly. Verify electrical locking key is securely seated on both ends.
 - Use 6" tie straps supplied every 6" - 8" to secure the power cord to the slider air hoses. The excess cable length should be wrapped using a dog bone method secured with tie straps.
8. Installation of the new Haldex sensors and sensor clips. Install sensor clips into the axle blocks from the inside out. Apply a small amount of dielectric grease on the sensor body/barrel before inserting into the sensor clips from inside out. Install sensor into sensor clips. Ensure sensors are pushed all the way into the sensor blocks and clips.
9.
 - Use hose clips (horseshoe shape) to secure sensor wires to air hoses spacing them every 6" - 12".
 - Use 24" tie-straps supplied as required to secure sensor wires to axle (**Do Not Over Tighten**). (See Speed Sensor Cable Routing Section)

Note: Do Not use teflon tape on fittings. It can break off and contaminate the air system!

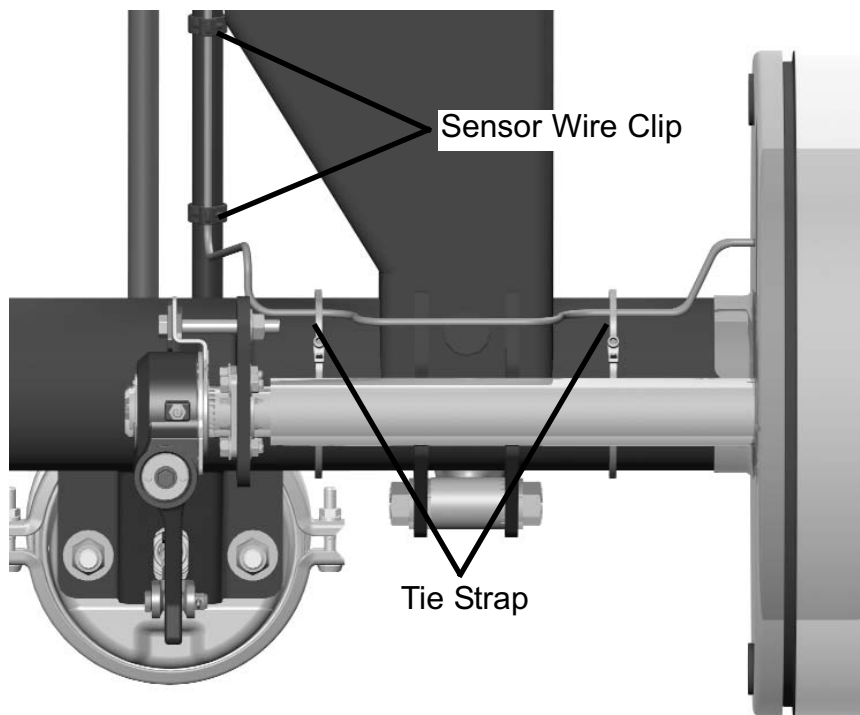
Speed Sensor Cable Routing



The preferred routing cable procedure is to route the speed ***sensor cables on the back side of axle housing*** along the air hoses between the 4 Port ABS valve and the brake actuators.

Tie straps may be used to secure sensor cable to the axle. Sensor clips are used to secure speed sensor cabling to air hoses.

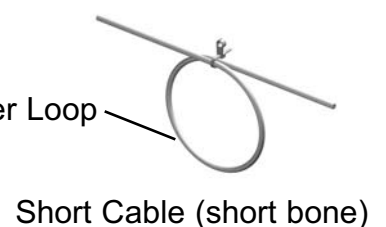
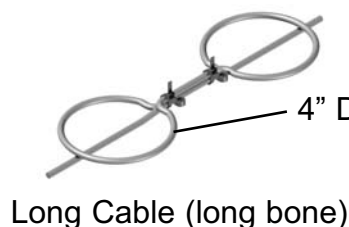
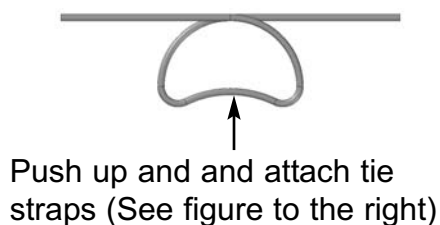
Leave some slack in cable to accommodate movement between chassis components. Excess cable must not be allowed to hang free, but must be bundled and attached to the chassis or air lines to prevent damage due to vibration and abrasion. See method below for securing extra cable length.



Sensor wire clips are used to secure sensor cable to brake hoses

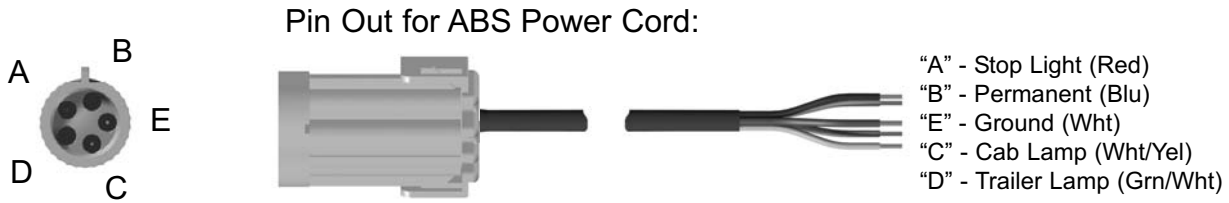


Excess cable length may be taken up in either a "Short Bone" or a "Long Bone" method and secured with tie straps. **DO NOT** coil the cable into a loop smaller than 4" in diameter. Do not over tighten the tie straps when the cable is coiled, as this could cause a cable failure.





Power Cord - Pin Out



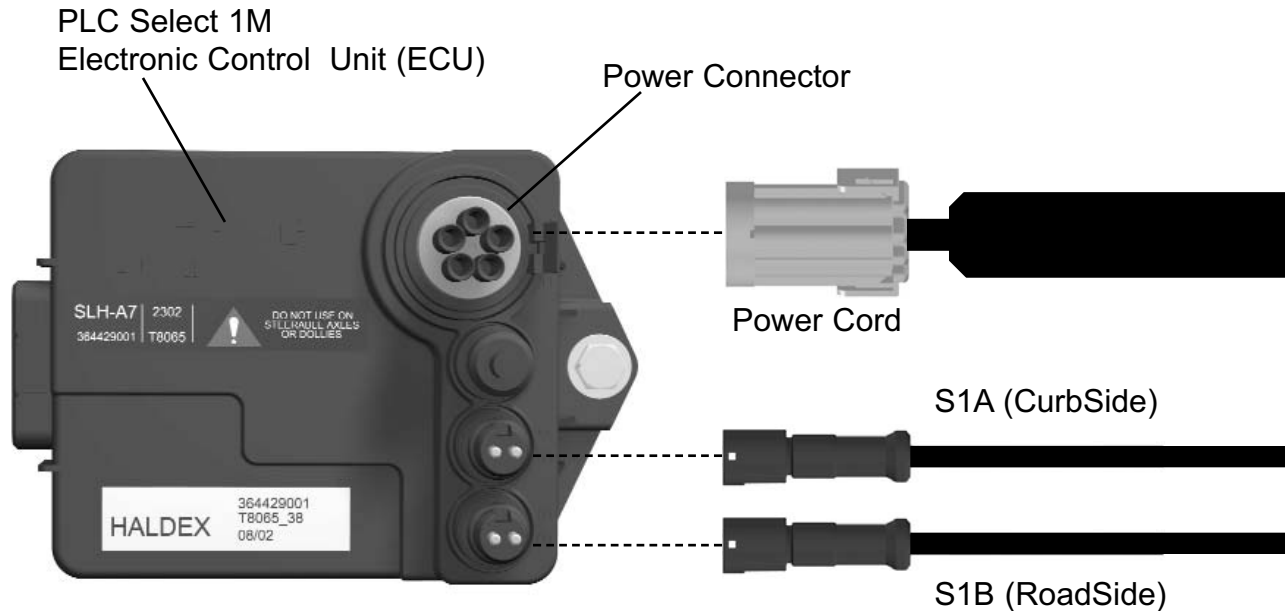
Haldex recommends that the Red, White and Blue should be 12 gage Min.

EXISTING TRAILER POWER CORD

1998 or newer trailers should be equipped with a standard 5-way round power cord drop-out from the harness. Test each pin to ensure proper operation.

If the existing trailer ABS power cord connection needs to be replaced, use Haldex Kit #AQ15473 5-pin replacement connector. Installation instruction are included in the AQ15473 kit . Test each pin to ensure proper operation.

PLC Select 1M ECU Overview

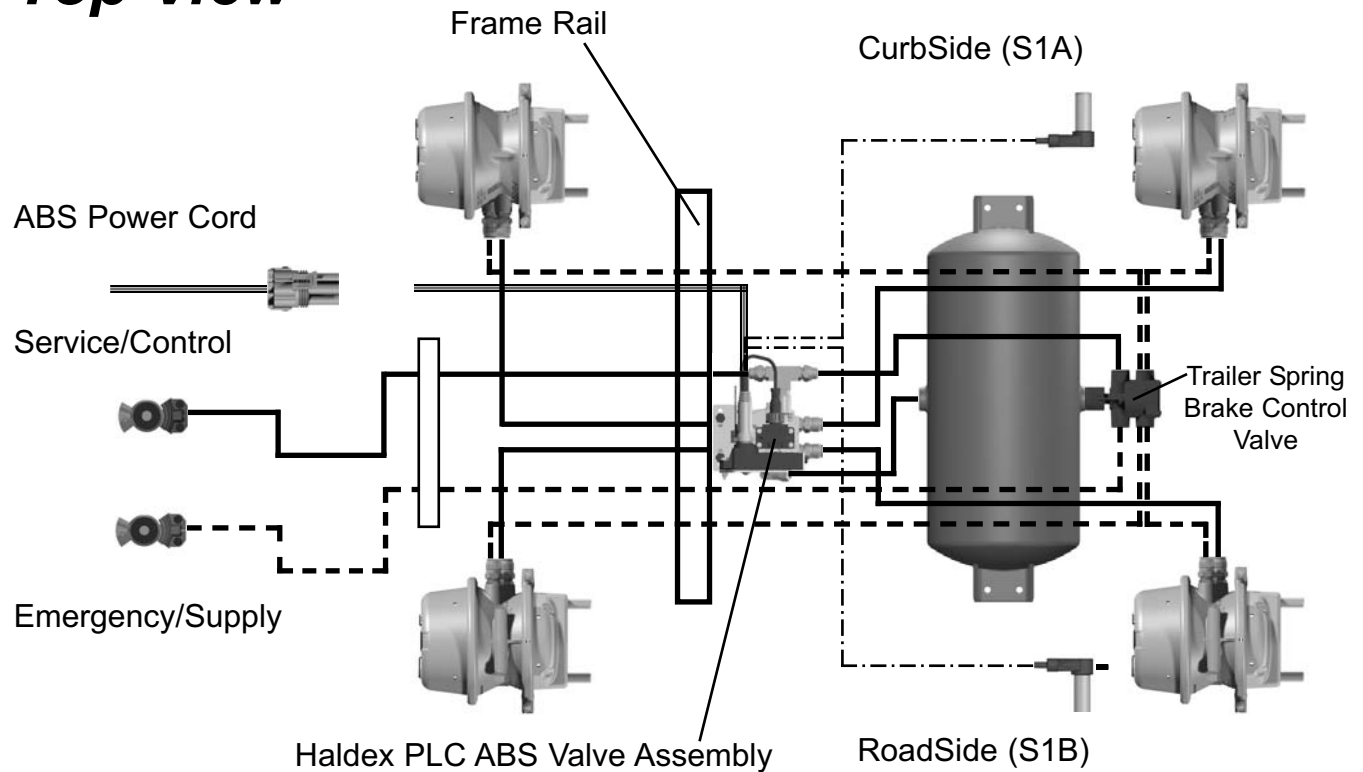


Note: Always apply a small amount of dielectric grease (included in kit) to each electrical pin connector.

Plumbing Schematic & Sensor Location



Top View



Note: Clean and inspect all reinstalled electrical connections. Apply a thin coat of dielectric grease to all electrical connections prior to installation.

AIR SYSTEM OPERATION TESTS:

1. Visually inspect to ensure no hoses or wires are left unattached.
2. All loose hoses and sensor wires need to be secured. Use sensor wire clips included in kit (See Sensor Cable Routing).
3. Fully charge Emergency gladhand on the trailer air system.
4. Operate the spring brake system, test for leaks and proper application and release of the spring brakes.
5. Charge both the Emergency and Service gladhand. Test for leaks and proper application and release of the service brakes.



Testing the ABS System

Two simple tests will ensure proper operation of the Haldex PLC Select ABS System.

While still in the shop with the air system fully charged, apply 12 VDC permanent power (Blue No. 7 pin) only from a fully charge battery cart. The valve should “blow down” and you should hear a brief shot of air. The ABS lamp should illuminate for about 3 seconds and then turn off. Repeat test with stoplight power (Red No. 4 pin) only. The ABS lamp should illuminate for about 3 seconds and then turn off.

Next road test the trailer and its ABS System. Use a late model tractor with permanent (Blue No. 7) power to power up the system. When the ABS lamp turns off, bring the vehicle over 10 miles per hour. Make and hold a hard service brake application to stop the vehicle and activate the ABS. If the ABS lamp remains off, the system is functioning correctly.

In the event that either test failed, refer to detailed testing procedures in the enclosed service manual (L30030).

If you have any questions on this product or any of the innovative products offered by Haldex, contact your local distributor for complete details. Technical service or troubleshooting help can be obtained by calling Haldex and asking for the ABS Technical Support line at 800-643-2372. (www.hbsna.com) refer to ABS section.

Technical Service & Engineering Support

**In the U.S. please call:
1-800-643-2374 (#2)**

**In Canada, please call:
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