

Installation Guide

L31234

7/07



Installation Instructions

AQ960515 - 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 AQ960515, is designed to replace or upgrade to PLC Technology on all WNC Trailer systems.

This kit (AQ960515) includes components required to replace the WNC ABS System MBS1 and MBS1P. The WNC MBS2 requires an axle hardware kit. The axle hardware kit is used in conjunction with the AQ960515 kit. Haldex offers two axle hardware kits.

- AQ15457 uses a ABS Weld-On sensor block.
- AQ15458 uses a ABS Bolt-On sensor block.

Note: Only one axle hardware kit is required per trailer.

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.

IMPORTANT NOTICE

*The data listed herein is correct to the best of Haldex's knowledge and belief, having been compiled from reliable and official sources of information. However, **HALDEX CAN NOT ASSUME ANY RESPONSIBILITY** for possible error or misapplication of the product. Final determination of the suitability of the products for the use contemplated by the Buyer is the sole responsibility of the Buyer. Haldex shall have no responsibility in connection with this suitability.*

IMPORTANT NOTICE

The description and specifications contained in this Installation Manual are current at the time of printing. Haldex Brake Products Corp. reserves the right to discontinue or modify its models and/or procedure and to change specifications at any time without notice.

AQ960515 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) L30030 ABS Manual
- (1) Installation Instructions (L31234)
- (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 ECM 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 can be re-used.

4. Remove and discard the old WNC ABS ECM 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.

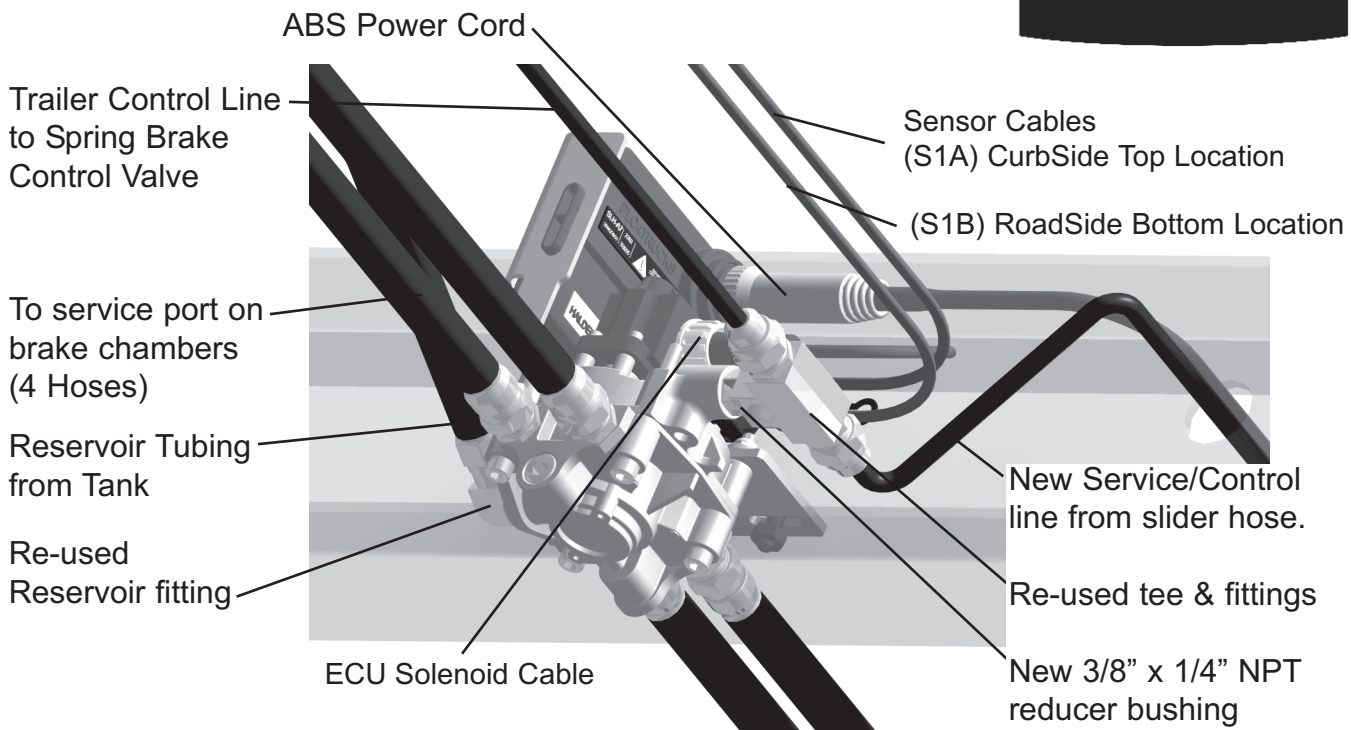
7. Remove all other air lines from the Bendix R12 Relay Valve.
8. Remove the Bendix R12 Service Relay Valve from the trailer frame by removing the two (2) mounting bolts from the frame rail or from the air tank if mounted. Discard the old bolts and nuts.
9. Remove the following two (2) fittings from 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: Save the fittings. They can be re-used in the Haldex PLC Select ABS 1M.

Installing The New Haldex PLC Select ABS 2S/1M System

1. On some WNC trailers depending on the year manufactured the Relay Valve is tank mounted. On those trailer units it is acceptable to tank mount the New Haldex Valve/ECU assembly with the flat frame mounting bracket still attached. Note: **Use a heavy wall 1/2" NPT steel pipe nipple** when installing this assembly directly to an air tank. Some of the following instructions may or may not apply depending on Valve/ECU mounting method.
2. 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. Use (2) two new 5/16-18 x 1-1/4" long bolts, 5/16" flat washers, and lock nuts.
3. 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.
 - The old 1/4" NPT tee fitting with the two attached synflex fittings.**Supply Reservoir Port:**
 - The old 1/2" NPT x 5/8" tube 90° degree elbow.See valve installation illustration on the next page.
4. Attach and hand tighten the ECU Solenoid Cable to the ABS Valve Solenoid.

Installation of the new Haldex ABS System



Installing The New Haldex PLC Select ABS 2S/1M System (Continued)

- Route and connect a 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 new tube inserts and tube sleeves.
- 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.
- Reinstall the four existing service brake delivery hoses to the new Haldex PLC Select ABS Assembly. Note: Use Liquid Pipe Sealant.
- Installation of the new Haldex ABS 6 meter (20') ABS power cord extension.
 - Apply small amount of dielectric grease 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.
- 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.
- 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 housing.**(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!

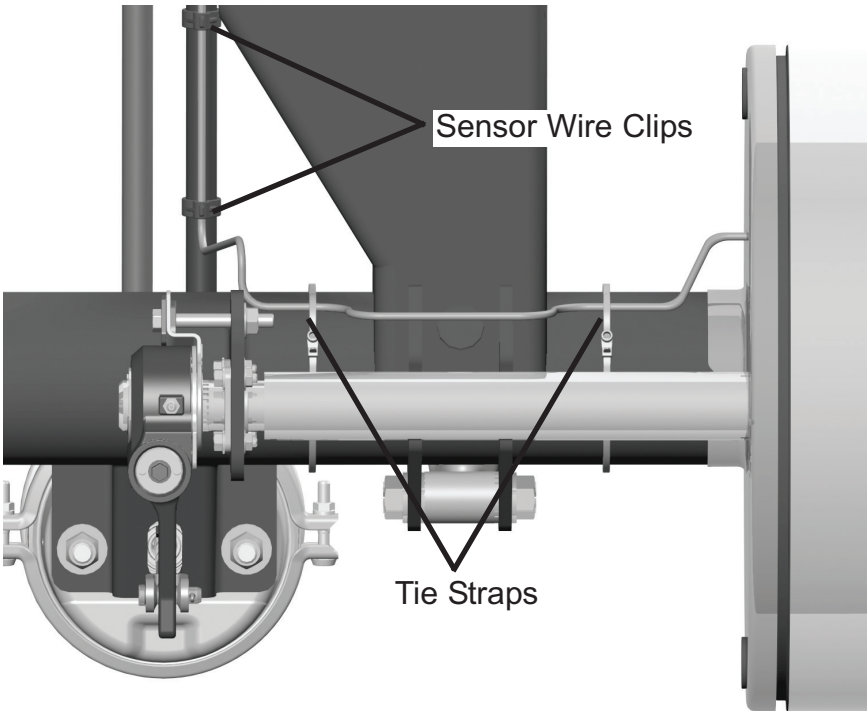


Speed Sensor Cable Routing

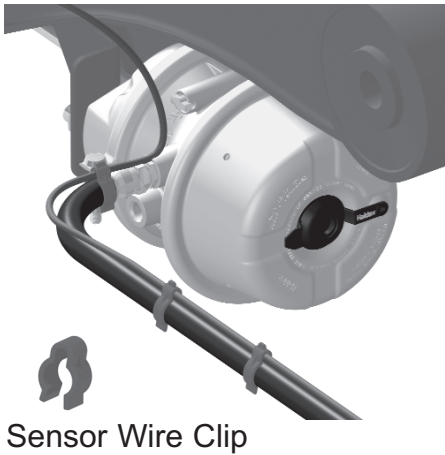
The preferred routing cable procedure is to route the speed **sensor cables on the back side of the axle housing** along the air hoses between the 4 Port ABS valve and the brake actuators.

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

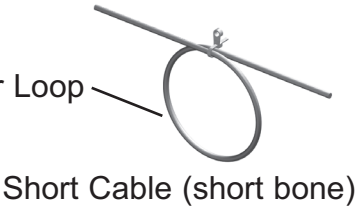
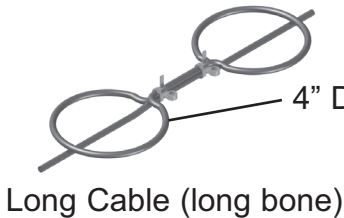
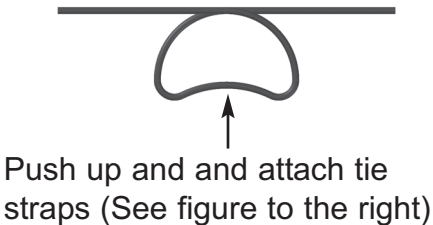
Allow some slack in the cables to accommodate movement between chassis components. Excess cable length must not be allowed to hang free. Excess cable must be bundled and attached to the chassis or air lines to prevent damage due to vibration and abrasion. See method below for securing extra cable length.



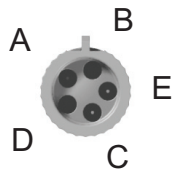
Sensor wire clips are used to secure sensor cable to brake hoses



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



Pin Out for ABS Power Cord:



- "A" - Stop Light (Red)
- "B" - Permanent (Blu)
- "E" - Ground (Wht)
- "C" - Cab Lamp (Wht/Yel)
- "D" - Trailer Lamp (Grn/Wht)

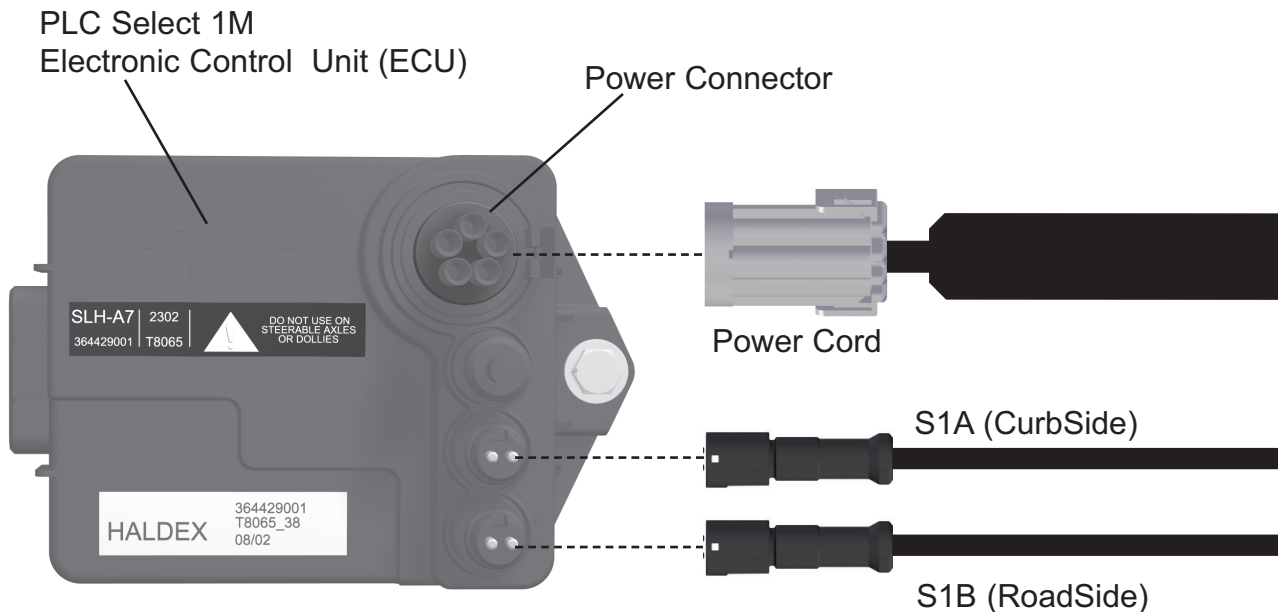
Haldex recommends that the Red, White and Blue wires should be 12 gage Min size.

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 instructions are included in the AQ15473 kit . Test each pin to ensure proper operation.

PLC Select 1M ECU Overview

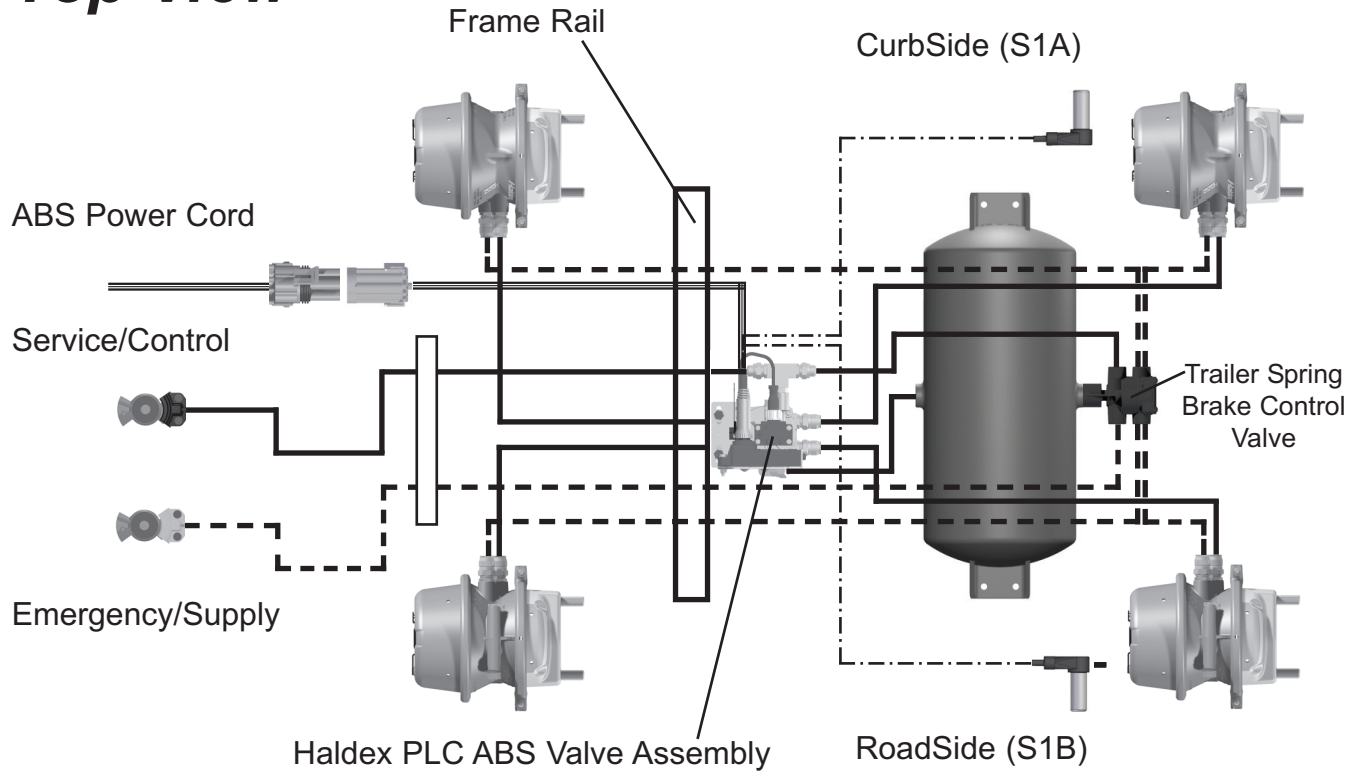


Note: Always apply a small amount of dielectric grease to each electrical pin connector.



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. Haldex recommends using sensor wire clips (See Sensor Cable Routing Page 5).
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 charged 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 by using a late model tractor where the Blue No. 7 wire is hot to power up the ABS System. When the ABS lamp turns off, accelerate the vehicle to over 10 miles per hour. Apply and hold a hard service brake application to stop the vehicle. This will activate the ABS System. 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 800-643-2374. Or refer to the ABS section on our website www.hbsna.com.

Haldex ABS Label Installation:

- Remove the old existing WNC Blink Code label by the trailer ABS Lamp.
- Install the New Haldex Blink Diagnostic Decal by the trailer ABS Lamp.
- Install the New Haldex ABS Warning Lamp Decal by the trailer ABS Lamp.
- Install the New Haldex PLC ABS Equipped Decal at any one of the following customer approved trailer locations:
 - On the driver side to the rear of the trailer next to the New Haldex Blink Diagnostic Decal or ABS Warning Lamp Decal.
 - At the nose of the trailer or on the trailer frame rail.

The Haldex logo consists of the word "Haldex" in a white, bold, sans-serif font, centered within a black rounded rectangular background.

**Technical Service
&
Engineering Support**

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

**In Canada, please call:
1-800-267-9247**

Haldex offers proprietary vehicle technology solutions to the global vehicle industry within specific niches. We focus on products to improve safety, the environment and vehicle dynamics.

We are enhancing our competitive capabilities and building long-term customer relationships through high performance, low total costs to the customer through the product's service life, ethical business practices and commitment to long-term partnerships. Haldex operations are divided into four business areas: Commercial Vehicle Systems, Hydraulic Systems, Garphyttan Wire and Traction Systems.

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