



Installation Instructions

Bendix® Trailer ABS (with Spring Brake Valve) Universal Service Replacement Kit Intended for Universal Service Replacement of Any Brand of 2S/1M Trailer ABS

PREPARATION

Note: Prior to installation, examine the trailer's reservoir (air tank). The typical installation of this kit requires two nipple fittings on the reservoir (for the module and spring brake valve), as well as one other port in the reservoir. In rare cases where the previous braking system used a tank with only one nipple fitting, it is recommended that the reservoir also be replaced when installing this kit.

Prior to installation or performing service to ABS controllers always perform the following steps:

1. Follow all General Safety Guidelines as found on the back page of these instructions.
2. Inspect the vehicle for damage, chafing, etc. to current ABS unit, hoses or wiring and adjust routing of replacement installation as necessary.
3. Turn the power off.
4. Drain the air pressure from all reservoirs.
5. Remove as much contamination as possible prior to disconnecting electrical connections and air hoses.
6. Note the original controller assembly mounting position on the vehicle.

REMOVE THE ORIGINAL CONTROLLER

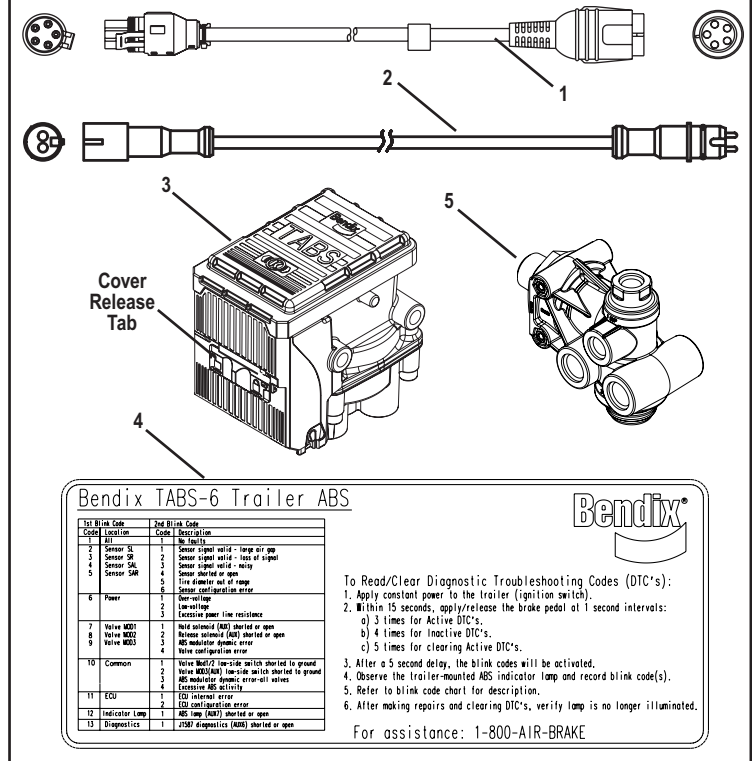
1. Disconnect the ECU connector and any modulator connector(s) from the controller.
2. Remove all air hoses connected to the unit, labeling/mark them to assist in re-installation. (Where necessary, use spray lubricant/penetrant on fittings to help remove them.)
3. Remove the controller assembly from the vehicle by removing the mounting bracket nuts or by rotating the entire assembly counterclockwise from the tank mount.
4. Disconnect the ABS sensors and remove the existing harness. Bendix recommends that only Bendix wheel speed sensors be used for Bendix ABS systems.
5. If the original spring brake valve is part of, or attached to the ABS controller (and so has already been removed in step 4 above) go directly to *Wheel Speed Sensor Replacement*.

REMOVE THE ORIGINAL SPRING BRAKE VALVE

1. Remove all air hoses connected to the spring brake valve, labeling/mark them to assist in re-installation. (Where necessary, use spray lubricant/penetrant on the fittings to help remove them.)
2. Where the spring brake valve is mounted directly to the reservoir (air tank) remove it by rotating the entire assembly counterclockwise.

KIT CONTENTS

Item No.	Description	Qty.
1	ABS Power Harness	1
2	Wheel Speed Sensor Harnesses	2
3	Trailer ABS Module	1
4	Identification Label	1
5	Spring Brake Valve	1



Bendix TABS-6 Trailer ABS

DTC	Blind Code	2S/1M Blink Code	Code Description
1	ABS	1	No fault
2	Sensor SC	1	Sensor signal valid - large air gap
3	Sensor SR	2	Sensor signal valid - fast air signal
4	Sensor SCL	3	Sensor signal valid - valve
5	Sensor SAR	4	Sensor shorted or open
		5	Line diameter out of range
		6	Sensor configuration error
6	Power	1	Over-voltage
		2	Low-voltage
		3	Excessive power line resistance
7	Valve MWD1	1	Hold solenoid (ABS) shorted or open
8	Valve MWD2	2	Release solenoid (ABS) shorted or open
9	Valve MWD3	3	ABS modulator solenoid shorted or open
		4	Valve configuration error
10	Common	1	Valve MWD1/2/3/4 non-side switch shorted to ground
		2	Valve MWD1/2/3/4 non-side switch shorted to ground
		3	ABS modulator solenoid shorted to ground
		4	Excessive ABS activity
11	ECU	1	ECU internal error
		2	ECU configuration error
12	Indicator Lamp	1	ABS lamp (ABS) shorted or open
13	Diagnosics	1	TP207 diagnostic (ABS) shorted or open

To Read/Clear Diagnostic Troubleshooting Codes (DTC's):

1. Apply constant power to the trailer (ignition switch).
2. Within 15 seconds, apply/release the brake pedal at 1 second intervals:
 - a) 3 times for Active DTC's,
 - b) 4 times for Inactive DTC's,
 - c) 5 times for clearing Active DTC's.
3. After a 5 second delay, the blink codes will be activated.
4. Observe the trailer-mounted ABS indicator lamp and record blink code(s).
5. Refer to blink code chart for description.
6. After making repairs and clearing DTC's, verify lamp is no longer illuminated.

For assistance: 1-800-AIR-BRAKE

FIGURE 1 - KIT COMPONENTS

3. In all other cases, inspect the original installation method and remove fasteners/brackets as necessary.

WHEEL SPEED SENSOR REPLACEMENT

Due to the critical safety function provided by any ABS product, Bendix does not assume responsibility for antilock system reliability or performance issues in situations where substitute non-Bendix® ABS components, not supplied by Bendix (for example, substituting a non-Bendix® wheel speed sensor or modulator valve) are used on a vehicle equipped with Bendix® ABS. In addition, use of alternate components in place of genuine Bendix components could lead to rejection of ABS warranty claims. See Bulletin TCH-013-009 for more details.

INSPECTION

Inspect the location selected for installation and clean as necessary.

NOTE: Inspect all components, including the replacement trailer ABS module, for any external damage, such as cracked valve ports, electronic housings, etc. Any components found to be damaged should not be installed on the vehicle and must be replaced.

INSTALLATION OF ABS CONTROLLER

1. The ABS Controller must be positioned and secured with the exhaust port oriented straight down:

Tank (nipple) mount unit - Install the nipple fitting into the ABS module supply port. Then rotate the entire assembly into the tank port until secure and aligned with the exhaust port down. Over-torquing of the tank nipple could cause damage to the Module.

Frame (bracket) mount unit - Torque the mounting nuts to 180-220 in-lbs.

2. Reconnect all air hoses and plugs to the modulator-valve assembly. Make certain that no thread sealing material enters the valve. All air hoses and fittings should be checked for leaks prior to returning the vehicle to service.
3. Reconnect the ECU and sensor electrical connectors to the unit. Slide the cover locking tab to gain access to the internal connections. Apply a moderate amount of non-conductive electrical grease to each connector pin before connecting harnesses.
4. Install the new ABS Power Harness, starting at the ECU and properly securing the harness every 18 inches to the power connector location. Likewise, install and secure the wheel speed sensor harnesses. Replace and lock the cover to the module.
5. Where the harness length is more than needed, reroute the harness, or tie extra harness length as shown in Figure 3.
6. The new controller may need to be reconfigured for proper operation. See the Service Data sheet SD-13-4767, available from www.bendix.com, for more details. Leakage and Operational Tests must be performed before returning the vehicle to service.

INSTALLATION OF SPRING BRAKE VALVE

1. The spring brake valve supplied is a tank (nipple) mount unit. Install the tank nipple fitting into the supply port until secure, but be sure not to over-torque the tank nipple as damage could be caused to the tank or valve.
2. The SRC-7000™ spring brake valve body rotates independently of the nipple. Rotate the valve until the exhaust port is pointing straight down.
3. Reconnect all air hoses and plugs to the spring brake valve assembly. Make certain that no thread sealing material enters the valve. All air hoses and fittings should be checked for leaks prior to returning the vehicle to service.

LEAKAGE AND OPERATIONAL TESTS

1. Before performing leak tests, block the wheels.
2. Fully charge air brake system and verify proper brake adjustment.

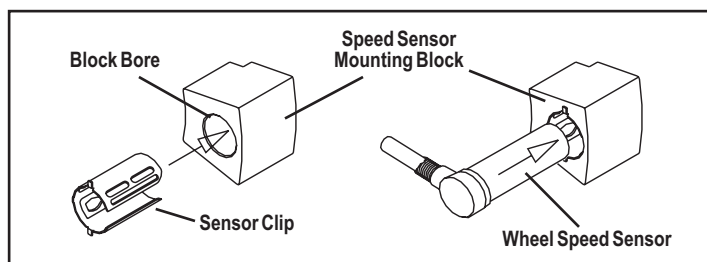


FIGURE 2 - SENSOR CLIP AND SENSOR INSTALLATION

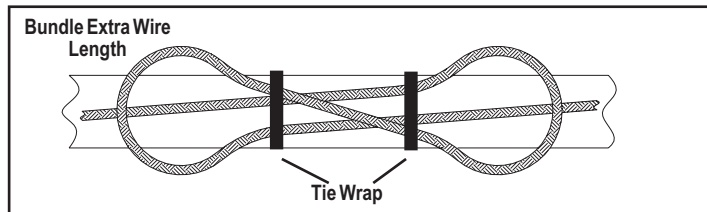


FIGURE 3 - BUNDLING EXTRA WIRE LENGTH

3. Make several trailer brake applications and check for prompt application and release at each wheel.
4. Check the modulator-valve body, spring brake valve and all air hose fittings for leakage by spraying each area with a soap solution:
 - Check the ABS solenoid body with the trailer service brakes fully applied. If leakage is excessive, replace the entire ABS module. A single 1" bubble within 3 seconds is permitted.
 - Check the relay exhaust port and the area around the retaining ring with the trailer service brakes released. A single 1" bubble within 3 seconds is permitted.
 - Check the relay exhaust port and the area around the retaining ring with the trailer service brakes fully applied. A single 1" bubble within 3 seconds is permitted.

If excessive leakage is detected at the relay exhaust port, perform the following test before replacing the ABS module: Apply the trailer spring brakes. Recheck for leakage around the exhaust port. If the exhaust port stops leaking, this indicates a leak between the emergency and service sides of the spring brake chamber. However, if the relay exhaust port continues to leak, replace the entire modulator-valve.
5. Apply power and monitor the controller power-up sequence to verify proper system operation. The warning lamp should come on for approx. 2.5 seconds and then go out.
6. Calibrate and set odometer parameters if necessary using a diagnostic tool.
7. Where a test track is available, test the ABS function by making an abrupt stop from a vehicle speed of about 20 MPH to check for proper function. The wheels should not enter a prolonged lock condition and ABS function should be audible. It is the responsibility of the technician to perform this test in a safe location.

ABS WIRING

The Bendix power wiring harness and connectors are weather resistant and sealed at the connector interface.

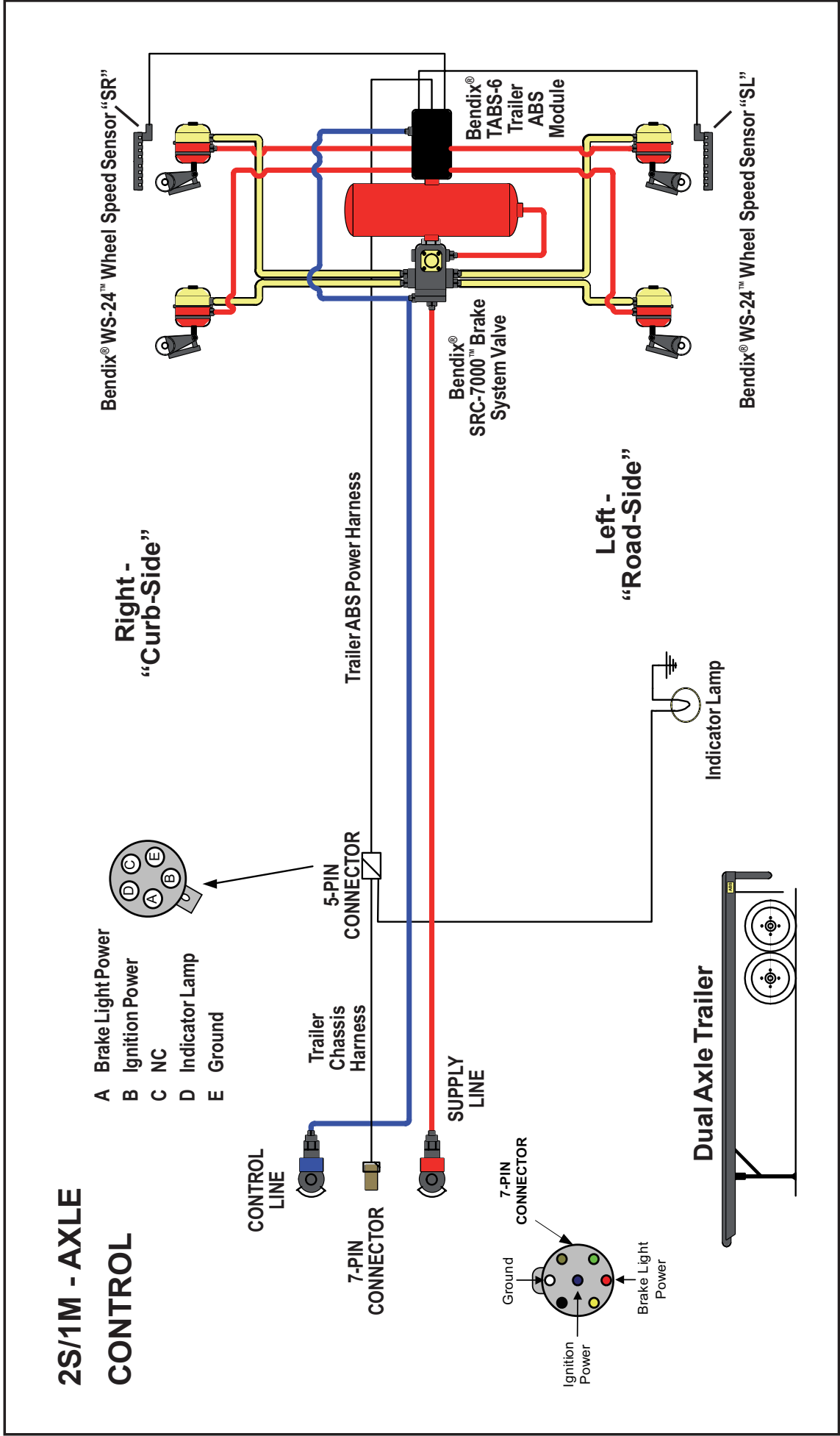


FIGURE 4 - TRAILER ABS 2S/1M SYSTEM SCHEMATIC FEATURING BENDIX SRC-7000 SPRING BRAKE VALVE

General Safety Guidelines

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning **ANY** work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.

TROUBLESHOOTING

For troubleshooting the ABS Controller, Diagnostic Trouble Code (DTC) information can be retrieved from the controller by using blink code diagnostics shown on the yellow label included in the kit, or a diagnostic tool. See the Service Data sheet SD-13-4767, available on www.bendix.com, for more details.

For troubleshooting the SRC-7000™ Spring Brake Valve, see the Service Data sheet SD-03-4656, available on the Bendix website, www.bendix.com, for more details.

CONTACTING BENDIX

www.Bendix.com

The Bendix on-line troubleshooting guides help you determine the cause of any performance issues with the braking system. For additional troubleshooting information please see the Service Data sheets included in this kit.

BENDIX TECHNICAL ASSISTANCE TEAM

For direct personal technical support, call the Bendix technical assistance team at 1-800-AIR-BRAKE (1-800-247-2725-2-1),

Monday through Friday, 8:00 A.M. to 6:00 P.M. EST, and follow the instructions in the recorded message.

Or, you may e-mail the Bendix technical assistance team at: techteam@bendix.com.

To better serve you, please record the following information before calling the Bendix Tech Team:

- Bendix product model number, part number and configuration.
- Vehicle make and model.
- Vehicle configuration. (Number of axles, tire size, etc.)
- System performance symptoms. When do they occur?
- What diagnostic trouble codes (DTCs) have been identified using blink codes or diagnostic tools?
- What troubleshooting / measurements have been performed?
- What Bendix service data literature do you have or need?

