

Bendix® Wheel Speed Sensor Checklist

(See Document BW8003 for Full Bendix Warranty Policy)



Preparation

CAUTION: Follow all standard safety precautions - see back page. Park the vehicle, chock the wheels and drain air system. Turn the ignition off.

Use Antilock Braking System (ABS) diagnostics to find the suspected sensor.

A. Inspect Physical Condition

Inspect the sensor cable for cuts, evidence of pinching or wear, or abrasions with wiring exposed. If any of the above conditions are noted, replace the sensor and clear the trouble codes according to the Electronic Control Unit (ECU) Service Data directions. Re-check the system before returning the vehicle to service.

B. Test Resistance and Voltage

The vehicle must be at ambient temperature (0 to 100°F, -18 to 38°C) for an accurate reading, so be sure that the wheel end area is not hot. Based on the ABS ECU diagnostic code, disconnect the suspected sensor harness. At the extreme top of the temperature range, the sensor resistance can vary from 1200-2700 ohms and still be within the operable range.

1. Inspect the connectors and terminals for corrosion, physical damage or loose connections. If possible, repair and/or clean the connectors.
2. Use a Volt-Ohm meter to measure resistance across the connector pins:

- check one → OK - between 1200 and 2700 ohms.
 Not OK - less than 1200 or more than 2700 ohms.

If not OK, replace the sensor. End test.

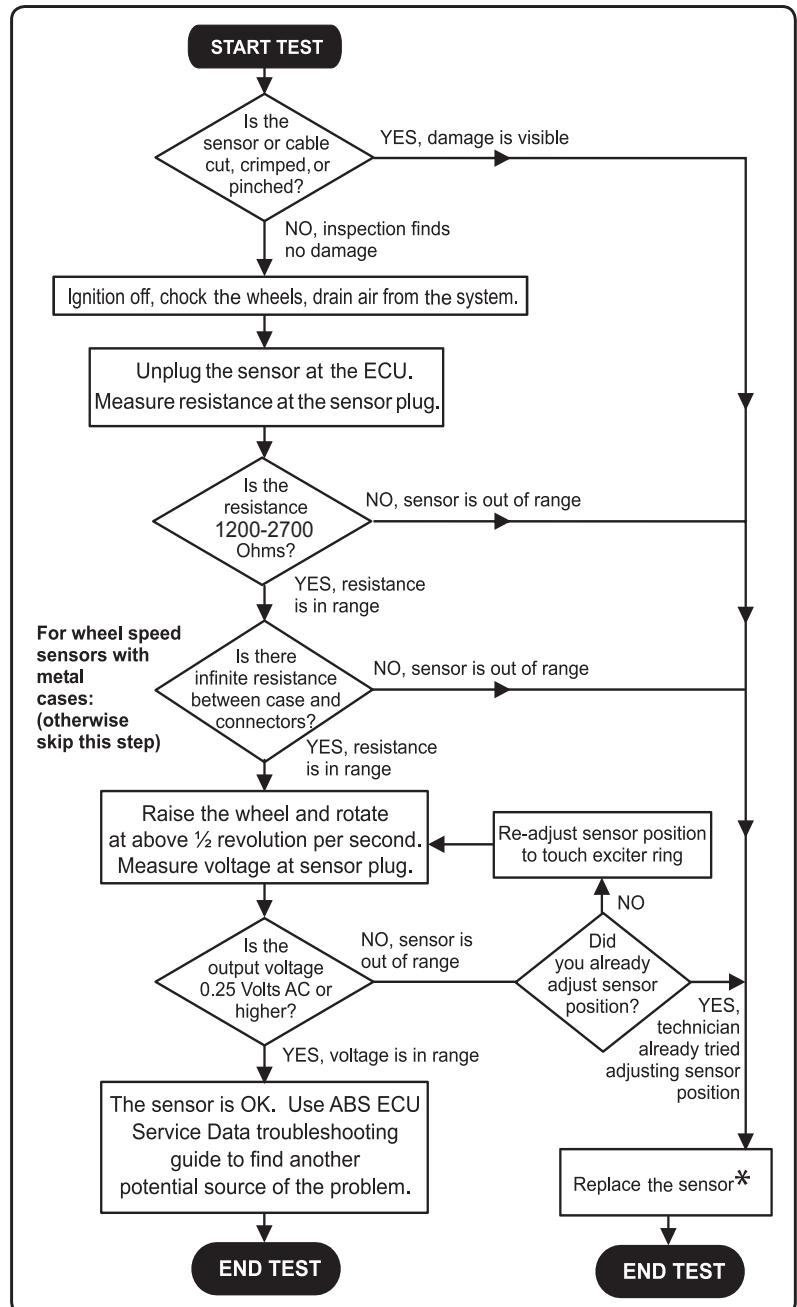
3. Confirm that chocks are in place on the vehicle. Raise the wheel off the ground to test the suspect wheel speed sensor.
4. Release the parking brakes.
5. By hand, slowly rotate the wheel at a rate of at least $\frac{1}{2}$ revolution per second. Using an **AC** voltage meter, measure the voltage at the ECU across the sensor terminals.

- check one → OK - Output voltage is 0.25 Volt **AC** minimum
 Not OK - Output voltage is less than 0.25 Volt **AC**.

If voltage is not OK, reposition the sensor by gently pushing it closer toward the wheel until it touches the exciter ring. Repeat the voltage measurement.

If still not OK, replace the sensor. End test.

6. If the resistance (ohms) and voltage (V) readings are OK, the sensor itself is not the cause of the failure. Reconnect the sensor and examine the wiring harness and ECU connector for causes of failure, such as pinched wires, loose pins, abrasions, exposed wires, etc.



* WHEN REPLACING A SENSOR UNDER WARRANTY

NOTE: DO NOT CUT THE SENSOR CABLE WHEN REMOVING THE SENSOR so that a proper analysis can be completed by Bendix Warranty Engineers. Cut or frayed cables are **ineligible for warranty**.

- A. Use the new corresponding Bendix sensor service kit that contains the sensor and clamping sleeve.
- B. Clear the trouble code using the ECU Service Data instructions.
- C. Include this checklist when returning a sensor. It will help expedite your claim. Please fill out all applicable fields on this checklist and include:

ECU Model _____

VIN # _____

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 guidelines should be observed AT ALL TIMES:

- ▲ Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.
- ▲ Stop the engine and remove the 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.
- ▲ 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.
- ▲ 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, a Bendix® DRM™ dryer reservoir module, or a Bendix® AD-9si® air dryer, be sure to drain the purge reservoir.
- ▲ Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.
- ▲ Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
- ▲ 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.
- ▲ Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
- ▲ 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.
- ▲ The power MUST be temporarily disconnected from the radar sensor whenever any tests USING A DYNAMOMETER are conducted on a vehicle equipped with a Bendix® Wingman® system.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.

 **WARNING:** Not all wheels and valve stems are compatible with Bendix® Air Disc Brakes. Use only wheels and valve stems approved by the vehicle manufacturer to avoid the risk of valve stem shear and other compatibility issues.

WARNING: AVOID CREATING DUST. POSSIBLE CANCER AND LUNG DISEASE HAZARD.

While Bendix Spicer Foundation Brake LLC does not offer asbestos brake linings, the long-term effects of some non-asbestos fibers have not been determined. Current Occupational Safety and Health Administration (OSHA) Regulations cover exposure levels to some components of non-asbestos linings, but not all. The following precautions must be used when handling these materials.

Avoid creating dust. Compressed air or dry brushing must never be used for cleaning brake assemblies or the work area.

- ▲ Bendix recommends that workers doing brake work must take steps to minimize exposure to airborne brake lining particles. Proper procedures to reduce exposure include working in a well-ventilated area, segregation of areas where brake work is done, use of local filtered ventilation systems or use of enclosed cells with filtered vacuums. Respirators approved by the Mine Safety and Health Administration (MSHA) or National Institute for Occupational Safety and Health (NIOSH) should be worn at all times during brake servicing.
- ▲ Workers must wash before eating, drinking or smoking; shower after working, and should not wear work clothes home. Work clothes should be vacuumed and laundered separately without shaking.
- ▲ OSHA Regulations regarding testing, disposal of waste and methods of reducing exposure for asbestos are set forth in 29 Code of Federal Regulations §1910.001. These Regulations provide valuable information which can be utilized to reduce exposure to airborne particles.
- ▲ Material Safety Data Sheets on this product, as required by OSHA, are available from Bendix. Call 1-800-247-2725 and speak to the Tech Team or e-mail techteam@bendix.com.

Reference Documents:

Bendix® WS-24™ AntiLock Wheel Speed Sensor Service Data sheet.....	SD-13-4860
Bendix ABS Warranty Policy	BW8003
Bendix® ACom® Diagnostics PC Software	BW2329 (Free downloads available on bendix.com)
ABS Repair and Diagnostics DVD	BW2538

Visit the Literature Center on bendix.com for free downloads or to order copies of Service Data sheets and Warranty Policies.

For more information, contact your local Bendix representative or the Bendix Technical Assistance Team at 1-800-AIR-BRAKE (1-800-247-2725), Monday through Friday, 8:00 a.m. to 6:00 p.m. ET, and follow the instructions in the recorded message. Or, you may e-mail the Bendix technical assistance team at: techteam@bendix.com.