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Document ID: IK0400040

Availability: ISIS, FleetISIS, IsSIR

Major System: BRAKES

Current Language: English

Other Languages: [Portuguese](#)

Viewed: 7437

Revision: 7

Created: 9/19/2007

Last Modified: 7/19/2021

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Coding Information

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Title: General Wheel Speed Sensor Troubleshooting

Applies To: Bendix and Wabco Wheel Speed Sensors

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

07/19/2021 - Updated to include wheel bearing spec, Updated author

04/05/2018 - Author updated for feedback purposes

05/04/2015 - Revised iKnow to new format

DESCRIPTION

This document will guide the user through general abs wheel speed sensor diagnostics.

For specific manufactures wheel speed sensor diagnostics please refer to the resources section in this article.

SYMPTOM(s)

ABS light illuminated

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
ABS LIGHT	Wheel speed sensor fault

Customer Observations or Concerns:

ABS light illuminated

SPECIAL TOOL(s) / SOFTWARE

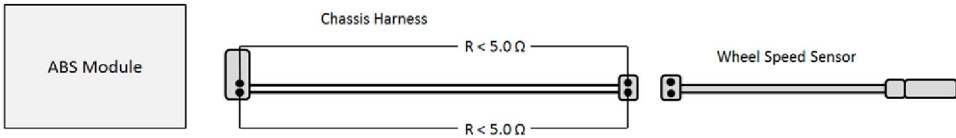
Tool Description	Tool Number	Comments	Instructions
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ABS Software		Specific ABS system software	Make certain ABS diagnostic software is up to date
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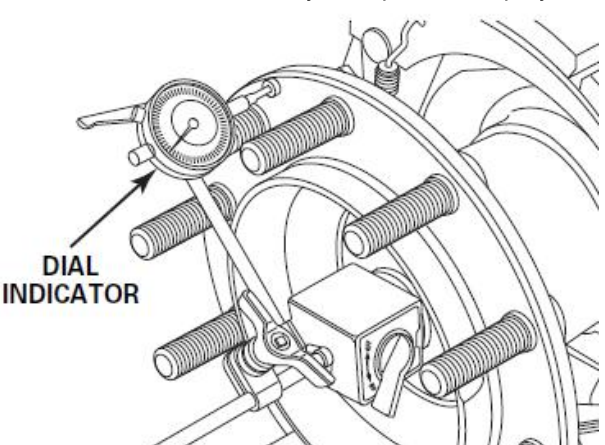
SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required	Notes
J1939 cable	3519281C2	1	if needed

DIAGNOSTIC STEP(S)

Step	Action	Decision
#1	<p>DIAGNOSTIC:</p> <p>Inspect and test wiring to the wheel speed sensor. With the sensor disconnected from the harness and chassis harness unplugged from the ECU check each sensor wire in the chassis harness for continuity using a suitable volt/ohm meter.</p> <p>Does each wire end to end read less than < 5 ohms?</p> <p>Note: This test is performed to check the chassis harness for any wiring issues.</p> 	<p>Yes. Proceed to step 2</p>
		<p>No. Identify and repair open or shorted circuit.</p>

Step	Action	Decision
#2	<p>DIAGNOSTIC:</p> <p>Check each chassis harness wire to chassis ground.</p> <p>Is the reading greater than >100k ohms.</p>	<p>Yes. Proceed to step 3</p>
		<p>No. Repair short to ground in chassis harness.</p>

Step	Action	Decision
#3	DIAGNOSTIC: Inspect the wheel ends for excessive play. Use a dial indicator to verify acceptable endplay of 0.001" to 0.005".  <p>DIAL INDICATOR</p>	Yes. Adjust the wheel bearings as required to eliminate excessive wheel end movement.
		No. Proceed to step 4
	Is there excessive wheel end play?	

Step	Action	Decision
#4	DIAGNOSTIC: Check the tone ring and make sure there is not excessive corrosion. Is there excessive corrosion?	Yes. Replace the tone ring.
		No. Proceed to step 5

Step	Action	Decision
#5	DIAGNOSTIC: Make sure the sensor is held firmly in the holder and pushed all the way against the tone ring. Is the sensor held in firmly?	Yes. Proceed to step 6
		No. Inspect sensor holder and replace sensor sleeve.

Step	Action	Decision
#6	DIAGNOSTIC:	Yes.

Park the vehicle on a hard, flat surface, turn the engine off, set the parking brake, and block the wheels to prevent the vehicle from moving in either direction. Raise the wheel from the suspect wheel speed. Reconnect the wheel speed sensor to the chassis harness (you will be checking AC voltage at the ABS module sensor terminals). Release the parking brakes. By hand, rotate the wheel at a rate of at least ½ revolution per second. Using an AC voltage meter, measure the voltage at the ABS module across the sensor terminals.

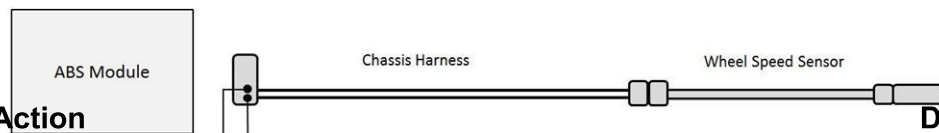
Is the output voltage greater than 0.25 Volt AC?

Proceed to step 7

No.

If output voltage is less than 0.25 Volt AC

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



Step Action

DIAGNOSTIC:

Re-test. If the code logs again, temporarily switch the left and right side sensor wiring at the ECU. Re-test for codes. If the sensor fault code now logs as the opposite wheel end check the wiring between the ECU and the wheel sensor. If the fault still logs as the same wheel end contact Tech Service as the ECU may need to be replaced.

Did the fault log as the opposite wheel end?

#7

NOTE:

If when you switch the wires at the ECU and the fault changes sides and you can't find anything wrong with the wiring, you need to overlay the wires all the way from the ECU to the sensor eliminating as many connectors as possible. You can use 1939 datalink wire part number 3519281C2.

Decision

Yes.

This indicates a problem still in the wiring harness or the specific wheel end.

Please recheck chassis harness for wiring issues.

Please recheck wheel end for excessive play or damaged components.

No.

If the fault still logs as the same wheel end contact Tech Service as the ECU may need to be replaced.

REPAIR STEP(s)

Please reference master service information for specific wheel speed sensor replacement information.

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

OTHER RESOURCES

[Master Service Information Site](#)

[IK0400080 Bendix Diagnostic Guides](#)

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Feedback Information

Viewed: 7436

Helpful: 482

Not Helpful: 741

Staff ID	Client ID	Comments	Created Date
	DY15008	You received the following feedback From: DY15008 - Thaddaeus Romberg Email Address: tromberg@astleford.com Job Classification: SE008, Service Technician Dealer: ASTLEFORD INTL TRUCKS Feedback: I'm really not liking the diag on step 2. If I get any reading at all on meter of resistance to ground, I overlay the circuit. Even a megohm will trip intermittent faults. Especially on Bendix.	7/20/2021 12:16:13 PM