

MERITOR WABCO

Technical Bulletin

Meritor WABCO ABS Sensor Tests

(Required for Warranty)

Warranty Information for Warranty Coverage

The following test procedures must be performed BEFORE replacing any Meritor WABCO speed sensor. Please be sure to enter the proper problem code — as identified in this bulletin — on the warranty claim form

Application

Before testing the sensors, refer to the vehicle specification sheet to identify the type of ABS installed on the vehicle: D or E version pneumatic ABS, C version hydraulic ABS or D version hydraulic ABS. The Pro-Link® 9000 or TOOLBOX™ Software may be used to identify D version pneumatic ABS. TOOLBOX™ software may be used to identify D version hydraulic ABS. C version hydraulic ABS is not compatible with either the Pro-Link 9000 or TOOLBOX™ software. For further assistance, contact ArvinMeritor's Customer Service Center at 800-535-5560.

Instructions

The tables referenced in the following test procedures refer to pinout tables. Refer to **Table A** and **Table B**. If sensor replacement is necessary, refer to the appropriate maintenance manual. Use the following chart to determine which table and maintenance manual you should use.

If the Type of ABS Installed on the Vehicle is:	USE	
	Table	Maintenance Manual
D Version Pneumatic ABS (Basic, Cab- or Frame-mounted)	A	30
E Version Pneumatic ABS (Basic, Universal or Frame-mounted)	A	0112
C Version Hydraulic ABS (Cab-mounted)	B	38
D Version Hydraulic ABS (Cab- or Frame-mounted)	B	39

NOTE: If you have C version pneumatic ABS on the vehicle, please refer to Meritor WABCO Maintenance Manual 28 for sensor tests.

WARNING

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury can result.

CAUTION

When troubleshooting and testing the ABS system do not damage the connector terminals.

Test 1: Sensor resistance and short to ground test
(Normally associated with an existing fault — **sensor short or open**)

1. Turn ignition OFF. Apply the parking brakes. Put blocks under the front and rear tires to prevent the vehicle from moving.
2. Disconnect the appropriate harness connector from the ABS Electronic Control Unit (ECU).
3. Inspect the connectors and terminals for corrosion, physical damage, or loose connections.
4. Use a Volt-Ohm meter to measure resistance (ohms) in two places:

Between the terminal pins — **resistance must be between 900-2000 ohms.**

From each terminal pin to the sensor case or to a good vehicle ground — **resistance must be infinite (open circuit).**

- A. If the proper ohm measurements are obtained, the sensor is not the cause of the fault. Reconnect the harness and clear the fault. If fault cannot be cleared, contact Meritor WABCO at 800-535-5560.
 - B. If the ohm readings are **not within** the proper specifications, continue testing the harness at each additional connector until you reach the last sensor connector.
 - C. If the sensor ohm readings are **not within** the proper specifications as measured at the sensor, record the readings and replace the sensor. Refer to the appropriate maintenance manual for complete instructions.
 - D. If the sensor ohms readings are **within** the proper specifications but **not within** the proper ohm specification at the ECU connector, either the harness or one of the connectors is at fault and must be repaired or replaced. Check sensor extension cable for broken wires or wear due to interference with moving components. Make necessary repairs. Refer to the appropriate maintenance manual for complete instructions.
5. The code for a sensor resistance problem is SENS1. Enter this code in the comments field of the warranty claim form.

If voltage is below minimum, readjust the sensor by pushing sensor in holder until it contacts the tooth wheel. Repeat AC voltage measurement. If voltage is still low, call Meritor WABCO at 800-535-5560.

If voltage is greater than 0.2 volts AC, but erratic speed signal failures continue to occur when the vehicle is driven, check the wheel bearing end play (refer to axle manufacturer's recommendations) and tooth wheel condition.

7. The code for a sensor voltage problem is SENS2. Enter this code in the comments field of the warranty claim form.

Table A: Pneumatic ABS — ECU Connector and Terminal Check Pins

ABS ECU	Sensor	Connector	Pins
D Full Function Cab Mount	LF	6-Pin	4 and 5
	RF	9-Pin	4 and 5
	LR	15-Pin	5 and 6
	RR	15-Pin	8 and 9
	LR (3rd Axle)	12-Pin	5 and 6
	RR (3rd Axle)	12-Pin	8 and 9
D and E Basic Cab Mount	LF	18-Pin	12 and 15
	RF	18-Pin	10 and 13
	LR	18-Pin	11 and 14
	RR	18-Pin	17 and 18
D and E Frame Mount	LF	X2-Black	7 and 8
	RF	X2-Black	5 and 6
	LR	X3-Green	1 and 2
	RR	X3-Green	3 and 4
	LR (3rd Axle)	X4-Brown	3 and 4
	RR (3rd Axle)	X4-Brown	5 and 6
E Universal Cab Mount	LF	18-Pin	12 and 15
	RF	18-Pin	10 and 13
	LR	18-Pin	11 and 14
	RR	18-Pin	17 and 18
	LR (3rd Axle)	15-Pin	2 and 5
	RR (3rd Axle)	15-Pin	11 and 14

Test 2: Sensor voltage output test (Normally associated with a stored fault — **excessive air gap or erratic speed signal**)

1. Turn ignition OFF. Apply the parking brakes. Raise the vehicle off the ground. Put blocks under the front and rear tires to prevent the vehicle from moving.
2. Disconnect the appropriate harness connector from the ABS ECU.
3. Inspect the connectors and terminals for corrosion, physical damage or loose connections. Make the necessary repairs.
4. Release the parking brakes.
5. Rotate the wheel by hand at 30 rpm (1/2 revolution per second).
6. Use a Volt-Ohm meter to measure the AC voltage across the terminal pins on the connector listed in the table while spinning the appropriate wheel at 30 rpm (1/2 revolution per second). **Minimum output voltage required — 0.2 volts AC.**

**Table B: Hydraulic ABS – ECU Connector
and Terminal Check Pins**

ABS ECU	Sensor	Connector	Pins
C Version Cab Mount	LF	35-Pin	15 and 32
	RF	35-Pin	17 and 34
	LR	35-Pin	18 and 35
	RR	35-Pin	16 and 33
D Version Cab Mount	LF	9-Pin	1 and 2
	RF	9-Pin	4 and 5
	LR	9-Pin	7 and 8
	RR	9-Pin	3 and 6
D Version Frame Mount	LF	X3-Green	5 and 8
	RF	X3-Green	4 and 9
	LR	X3-Green	3 and 10
	RR	X3-Green	6 and 7

MERITOR WABCO

Meritor WABCO Vehicle Control Systems

2135 West Maple Road
Troy, MI 48084-7121 USA
800-535-5560
meritorwabco.com

Information contained in this publication was in effect at the time the publication was approved for printing and is subject to change without notice or liability. Meritor WABCO reserves the right to revise the information presented or to discontinue the production of parts described at any time.

Copyright 2001
ArvinMeritor, Inc.
All Rights Reserved

Printed in USA

TP-99145
Revised 10-01
16579/22882