

DTC	C0210/33	Right Rear Wheel Speed Sensor Signal
DTC	C0215/34	Rear Speed Sensor LH Circuit
DTC	C1238/38	Foreign Object is Attached on Tip of Rear Speed Sensor RH
DTC	C1239/39	Foreign Object is Attached on Tip of Rear Speed Sensor LH

DESCRIPTION

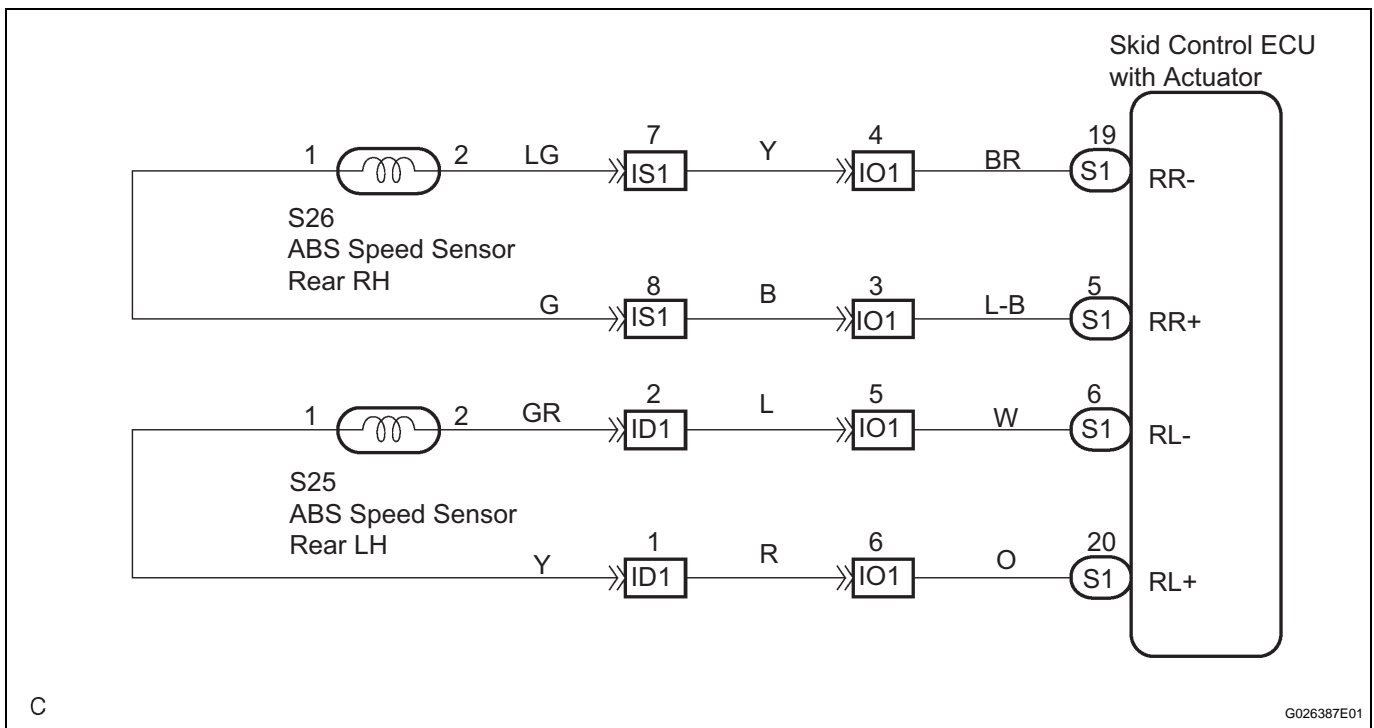
Refer to DTC C0200/31, C0205/32, C1235/35, C1236/36 (See page BC-24).

DTC No.	DTC Detection Condition	Trouble Area
C0210/33 C0215/34	1. All the following conditions continues for at least 1 second. - Vehicle speed is more than 6 mph (10 km/h). - Open or short in vehicle speed sensor signal circuit. 2. Momentary interruption of the sensor signal of faulty wheel has occurred 7 times or more. 3. Sensor signal circuit is open for 0.5 seconds.	<ul style="list-style-type: none"> • Right rear and left rear speed sensor • Each speed sensor circuit • Sensor rotor • Sensor installation
C1238/38 C1239/39	All the following conditions for at least 5 seconds. <ul style="list-style-type: none"> • Vehicle speed is more than 12 mph (20 km/h). • Vehicle speed sensor signal receives interference. 	<ul style="list-style-type: none"> • Right rear and left rear speed sensor • Sensor installation

HINT:

- DTC C0210/33 and C1238/38 are for the right rear speed sensor.
- DTC C0215/34 and C1239/39 are for the left rear speed sensor.

WIRING DIAGRAM



HINT:

Start the inspection from step 1 when using the intelligent tester and start from step 3 when not using the intelligent tester.

1 READ VALUE OF INTELLIGENT TESTER (REAR SPEED SENSOR)

- (a) Connect the intelligent tester to the DLC3.
- (b) Start the engine.
- (c) Select the DATA LIST mode on the intelligent tester.

Item	Measurement Item / Range (Display)	Normal Condition
WHEEL SPD RL	Wheel speed sensor (RL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed
WHEEL SPD RR	Wheel speed sensor (RR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH)	Actual wheel speed

- (d) Check that there is no difference between the speed value output from the speed sensor displayed by the intelligent tester and the speed value displayed on the speedometer when driving the vehicle.

OK:

There is almost no difference in the displayed speed value.

HINT:

There is tolerance of +/- 10 % in the speedometer indication.

NG

Go to step 3

OK

2 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS

- (a) INSPECTION USING OSCILLOSCOPE:
 - (1) Connect the oscilloscope to terminals RR+ - RR- or RL+ - RL- of the skid control ECU.
 - (2) Drive the vehicle at approximately 19 mph (30 km/h), and check the signal waveform.

OK:

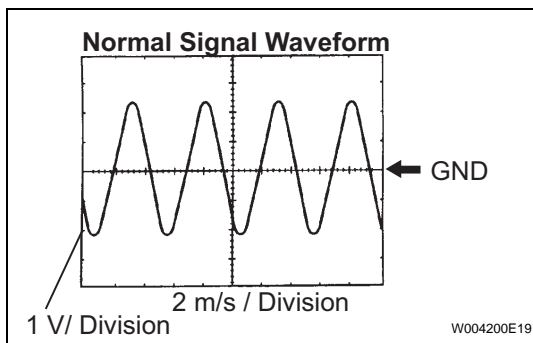
A waveform as shown in a figure should be output.

HINT:

- As vehicle speed (wheel revolution speed) increases, a cycle of the waveform narrows and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter attached to it.

NOTICE:

When replacing the ABS actuator assembly, perform zero point calibration (See page BC-5).



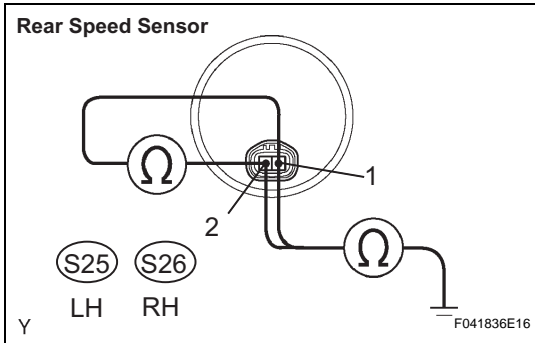
NG

Go to step 6

OK

REPLACE ABS AND TRACTION ACTUATOR

3 INSPECT REAR SPEED SENSOR



(a) 2WD

- (1) Disconnect the skid control sensor connector.
- (2) Measure the resistance according to the value(s) in the table below.

Resistance:

LH

Tester Connection	Specified Condition
(S25-1) - (S25-2)	0.9 to 2.1 kΩ

RH

Tester Connection	Specified Condition
(S26-1) - (S26-2)	0.9 to 2.1 kΩ

- (3) Measure the resistance according to the value(s) in the table below.

Resistance:

LH

Tester Connection	Specified Condition
(S25-1) - Body ground	10 kΩ or higher
(S25-2) - Body ground	10 kΩ or higher

RH

Tester Connection	Specified Condition
(S26-1) - Body ground	10 kΩ or higher
(S26-2) - Body ground	10 kΩ or higher

NOTICE:

Check the speed sensor signal after replacement (See page BC-16).

(b) 4WD

- (1) Remove the seat cushion seatback.
- (2) Disconnect the speed sensor connector S25 or S26.
- (3) Measure the resistance according to the value(s) in the table below.

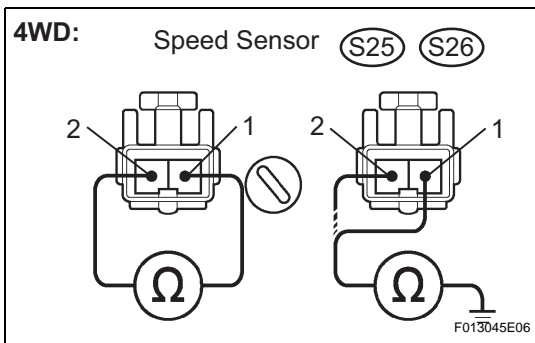
Resistance:

LH

Tester Connection	Specified Condition
S25-1 (RL+) - S25-2 (RL-)	0.9 to 1.3 Ω

RH

Tester Connection	Specified Condition
S26-1 (RR+) - S26-2 (RR-)	0.9 to 1.3 Ω



- (4) Measure the resistance according to the value(s) in the table below

**Resistance:
LH**

Tester Connection	Specified Condition
S25-1 (RL+) - Body ground	1 MΩ or higher
S25-2 (RL-) - Body ground	1 MΩ or higher

RH

Tester Connection	Specified Condition
S26-1 (RR+) - Body ground	1 MΩ or higher
S26-2 (RR-) - Body ground	1 MΩ or higher

NOTICE:
Check the speed sensor signal after the replacement. (See page BC-16)

NG → **REPLACE REAR SPEED SENSOR**

OK

4 CHECK HARNESS AND CONNECTOR (REAR SPEED SENSOR - SKID CONTROL ECU)

- (a) Disconnect the skid control ECU connector and the skid control sensor connector.
- (b) Measure the resistance according to the value(s) in the table below.

**Resistance:
LH**

Tester Connection	Specified Condition
S1-20 (RL+) - S25-1 (RL+)	Below 1 Ω
S1-6 (RL-) - S25-2 (RL-)	Below 1 Ω

RH

Tester Connection	Specified Condition
S1-5 (RR+) - S26-1 (RR+)	Below 1 Ω
S1-6 (RR-) - S26-2 (RR-)	Below 1 Ω

- (c) Measure the resistance according to the value(s) in the table below.

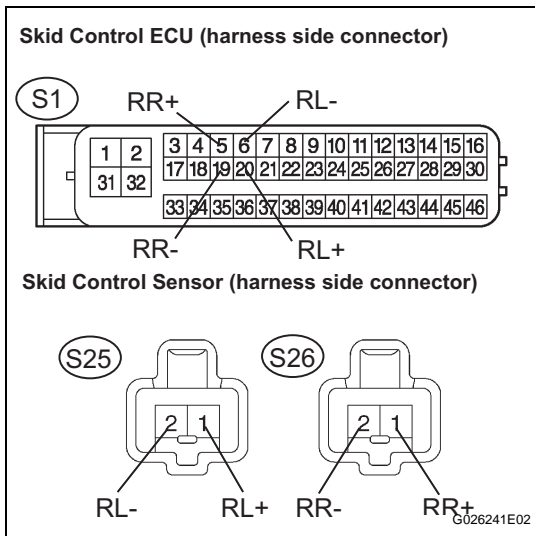
**Resistance:
LH**

Tester Connection	Specified Condition
S1-20 (RL+) - Body ground	10 kΩ or higher
S1-6 (RL-) - Body ground	10 kΩ or higher

RH

Tester Connection	Specified Condition
S1-5 (RR+) - Body ground	10 kΩ or higher
S1-19 (RR-) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**



OK

5 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS

(a) INSPECTION USING OSCILLOSCOPE:

- (1) Connect the oscilloscope to terminals RR+ - RR- or RL+ - RL- of the skid control ECU.
- (2) Drive the vehicle at approximately 19 mph (30 km/h), and check the signal waveform.

OK:

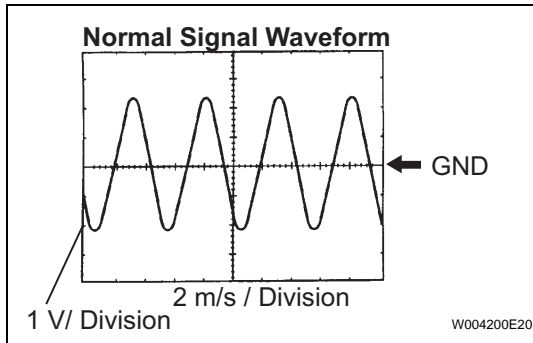
A waveform as shown in a figure should be output.

HINT:

- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform narrows and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter attached to it.

NOTICE:

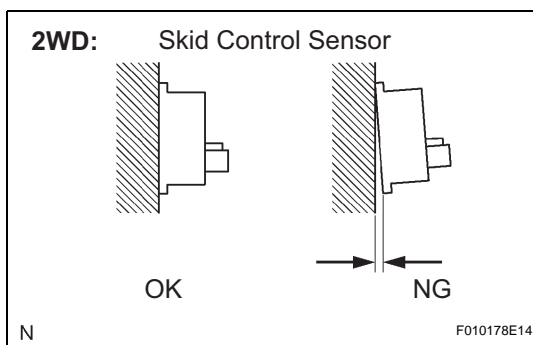
When replacing the ABS actuator assembly, perform zero point calibration (See page BC-5).



NG

Go to step 6

OK

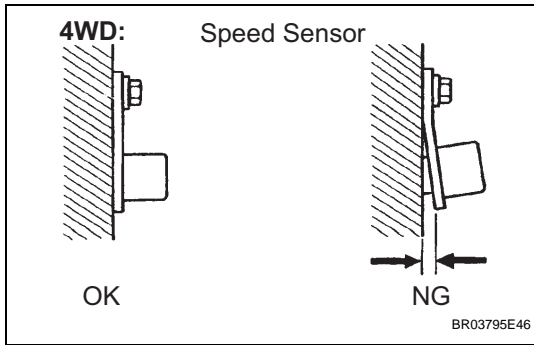
REPLACE ABS AND TRACTION ACTUATOR**6 INSPECT REAR SPEED SENSOR INSTALLATION**

(a) 2WD

- (1) Check the sensor installation.

OK:

There is no clearance between the sensor and rear axle carrier.



(b) 4WD

(1) Check the sensor installation.

OK:

There is no clearance between the sensor and rear axle carrier.

The installation bolt is tightened properly.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

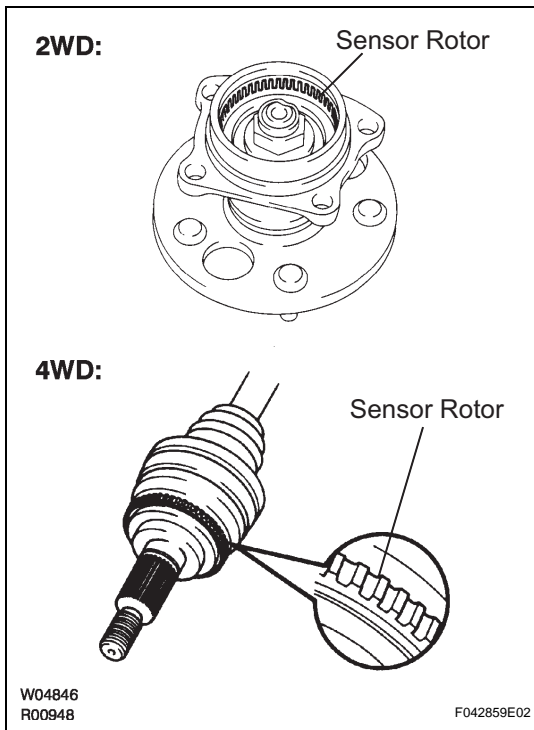
NOTICE:

Check the speed sensor signal after the replacement (See page BC-16).

NG → **REPLACE REAR SPEED SENSOR**

OK

7 INSPECT SENSOR ROTOR



(a) Check the sensor rotor serrations.

OK:

No scratches, missing teeth or foreign objects.

Result

Result	See Procedure
OK	A
NG (for 2WD)	B
NG (for 4WD)	C

NOTICE:

Check the speed sensor signal after the replacement (See page BC-16).

B → **REPLACE REAR AXLE HUB AND BEARING ASSEMBLY**

C → **REPLACE REAR DRIVE SHAFT ASSEMBLY**

A

8 INSPECT REAR SPEED SENSOR TIP

- (a) Remove the rear speed sensor (See page [BC-116](#)).
- (b) Check the sensor tip.

OK:**No scratches or foreign matter on the sensor tip.****NOTICE:****Check the speed sensor signal after the replacement (See page [BC-16](#)).****NOTICE:****When replacing the ABS actuator assembly, perform zero point calibration (See page [BC-5](#)).**

NG

CLEAN OR REPLACE SPEED SENSOR

OK