DTC	C0210/33	RIGHT REAR SPEED SENSOR

DTC	C0215/34	LEFT REAR SPEED SENSOR

DTC	C1238/38	FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT REAR SENSOR

DTC	C1239/39	FOREIGN MATTER IS ATTACHED ON TIP OF LEFT REAR SENSOR

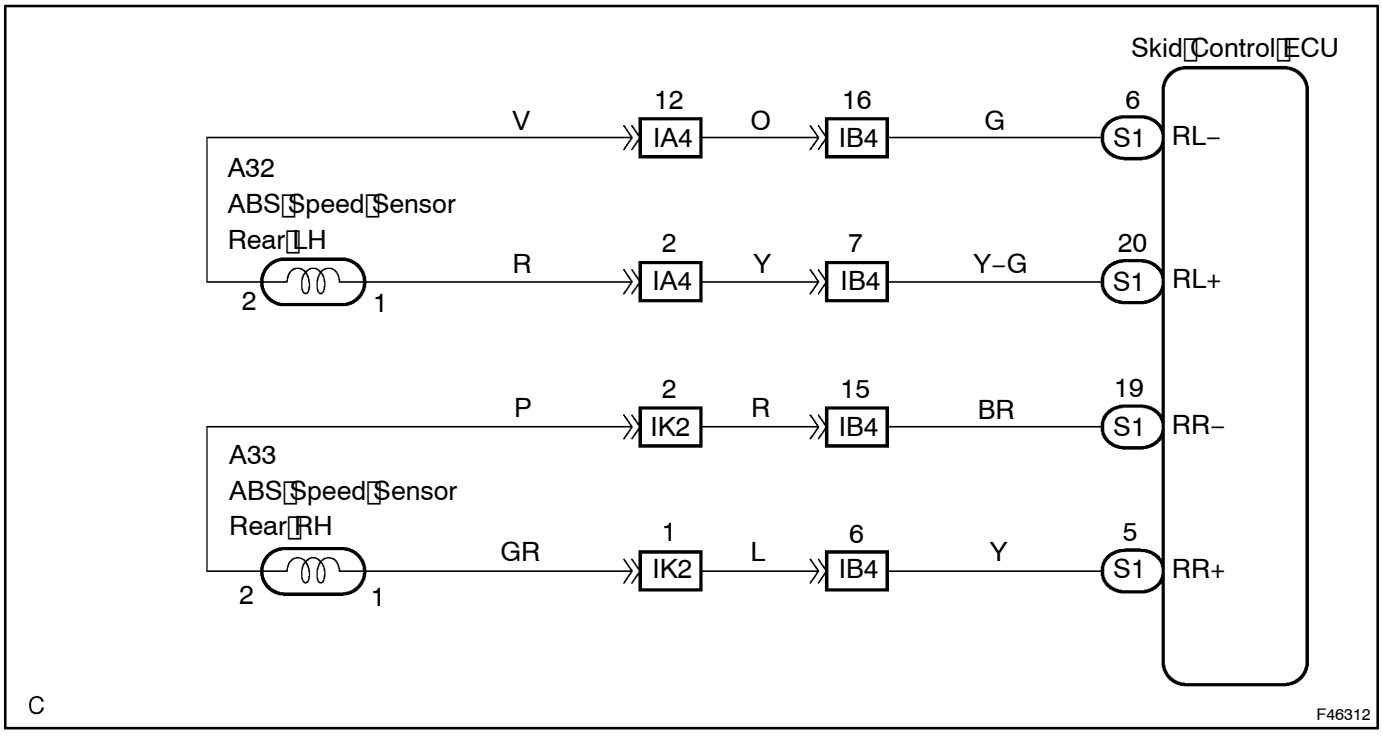
CIRCUIT DESCRIPTION

Refer to DTC C0200/31, C0205/32, C1330/35, C1331/36 on page 05–255.

DTC No.	DTC Detecting 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 of faulty wheel continues for 1 second or more. (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.	• 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. • Vehicle speed is more than 12 mph (20 km/h). • Vehicle speed sensor signal receives.	• Right rear and left rear speed sensor • Each speed sensor circuit • Sensor installation

HINT:
DTC No. C0210/33, C1332/38 is the right rear speed sensor.
DTC No. C0215/34, C1333/39 is the left rear speed sensor.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Start the inspection from step 1 in case of using the hand–held tester and start from step 2 in case of not using the hand–held tester.

1 READ VALUE OF HAND–HELD TESTER (REAR SPEED SENSOR)

(a) Connect the hand–held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand–held tester.
(d) Check that there is no difference between the speed value output from the speed sensor displayed by the hand–held tester and the speed value displayed on the speedometer when driving the vehicle.

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

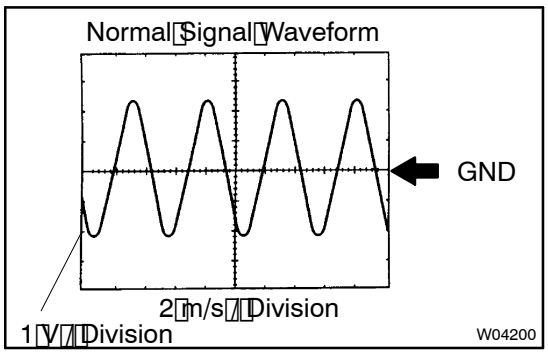
OK:
There is almost no difference in the displayed speed value.

HINT:
There is tolerance of ±10% in the speedometer indication.

NG → **Go to step 3**

OK

2 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS



INSPECTION USING OSCILLOSCOPE

(a) Connect the oscilloscope to terminals RR+ – RR– or RL+ – RL– of the skid control ECU.
(b) 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:

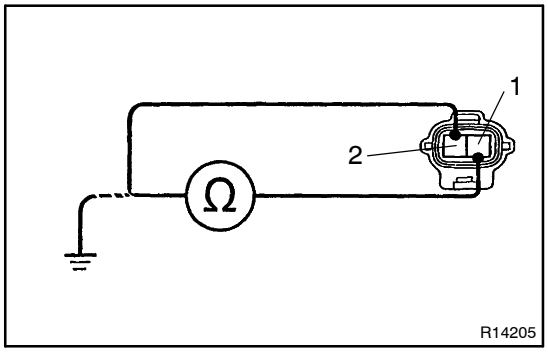
- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform narrows and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign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

NG → **Go to step 6**

OK

REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32–43)

3 INSPECT REAR SPEED SENSOR



(a) Disconnect the rear speed sensor connector.

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

Standard:

Tester Connection	Specified Condition
1 – 2	0.9 to 1.3 kΩ at 20°C

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

Standard:

Tester Connection	Specified Condition
1 – Body ground	10 kΩ or higher
2 – Body ground	10 kΩ or higher

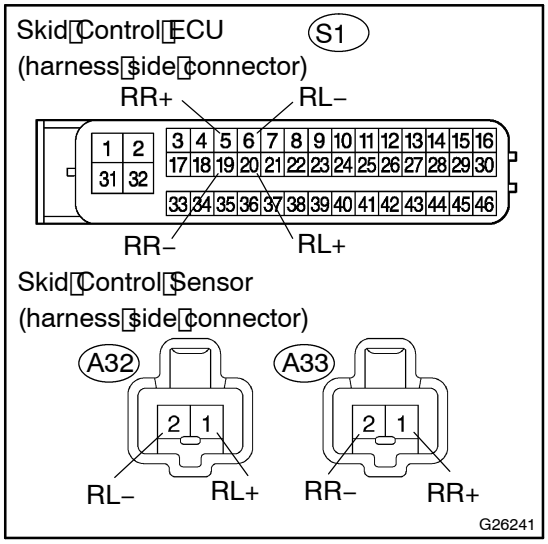
NOTICE:

Check the speed sensor signal after replacement (see page 05–234).

NG → **REPLACE REAR SPEED SENSOR (SEE PAGE 32–47)**

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.

Standard:

LH:

Tester Connection	Specified Condition
S1–20 (RL+) – A32–1 (RL+)	Below 1 Ω
S1–6 (RL–) – A32–2 (RL–)	Below 1 Ω

RH:

Tester Connection	Specified Condition
S1–5 (RR+) – A33–1 (RR+)	Below 1 Ω
S1–19 (RR–) – A33–2 (RR–)	Below 1 Ω

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

Standard:

LH:

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

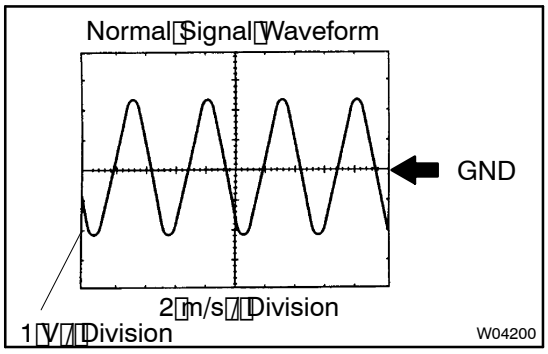
RH:

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



INSPECTION USING OSCILLOSCOPE

(a) Connect the oscilloscope to terminals RR+ – RR– or RL+ – RL– of the skid control ECU.

(b) 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:

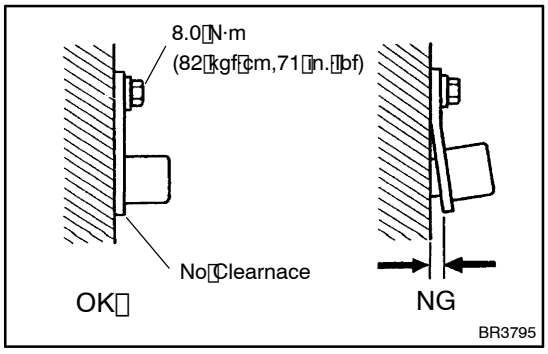
- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform narrows and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign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

NG	Go to step 6

OK

REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32–43)

6 INSPECT REAR SPEED SENSOR INSTALLATION



(a) Check the speed 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:

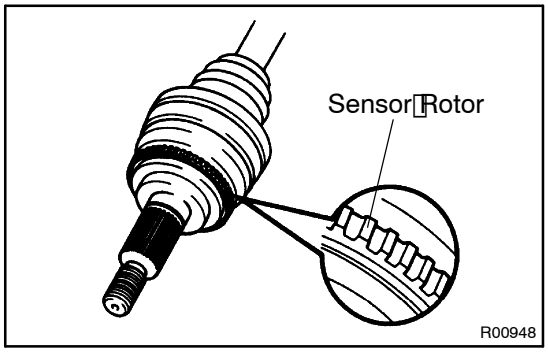
Check the speed sensor signal last (see page 05–234).

NG	REPLACE REAR SPEED SENSOR (SEE PAGE 32–47)

OK

7	INSPECT SPEED SENSOR ROTOR AND SENSOR TIP

(a) Remove the rear speed sensor (See page 32–47).
(b) Check the sensor tip.
OK:
No scratches or foreign matter on the sensor tip.



(c) Remove the rear drive shaft (See page 30–40).
(d) Check the sensor rotor serrations.
OK:
No scratches, missing teeth or foreign matter.

HINT:
If foreign matter is attached, remove it and after reassembling, check the output waveform.

NOTICE:
Check the speed sensor signal last (See page 05–234).

NG → **CLEAN OR REPLACE SPEED SENSOR AND SENSOR ROTOR SERRATIONS**

OK

REPLACE ABS & TRACTION ACTUATOR ASSY (SEE PAGE 32–43)