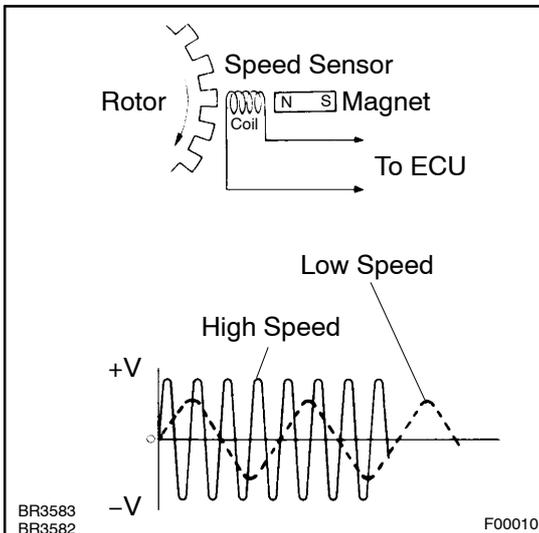


CIRCUIT INSPECTION

DTC	C0200 / 31 - C0215 / 34	Speed Sensor Circuit
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CIRCUIT DESCRIPTION



The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used for control of both the ABS & TRC control system. The front and rear rotors each have 48 serrations.

When the rotors rotate, the magnetic field emitted by the permanent magnet in the speed sensor generates an AC voltage. Since the frequency of this AC voltage changes in direct proportion to the speed of the rotor, the frequency is used by the ECU to detect the speed of each wheel.

DTC No.	DTC Detecting Condition	Trouble Area
C0200 / 31 C0205 / 32 C0210 / 33 C0215 / 34	Detection of any of conditions 1. through 4.: 1. At vehicle speed of 10 km/h (6 mph) or more, pulses are not input for 15 sec. (When RL and RR wheels are faulty for 200 sec.) 2. Momentary interruption of the speed sensor signal occurs at least 7 times in the time between switching the ignition switch ON and switching it OFF. 3. Continuous noise occurs in to the speed sensor signals with the vehicle speed at 20 km/h (12 mph) or more continues for 5 sec or more. 4. The speed sensor signal circuit is open circuit continues for 0.5 sec. or more.	<ul style="list-style-type: none"> • Right front, left front, right rear and left rear speed sensor • Each speed sensor circuit • Speed sensor rotor • ABS & TRC ECU

HINT:

DTC No. C0200 / 31 is for the right front speed sensor.

DTC No. C0205 / 32 is for the left front speed sensor.

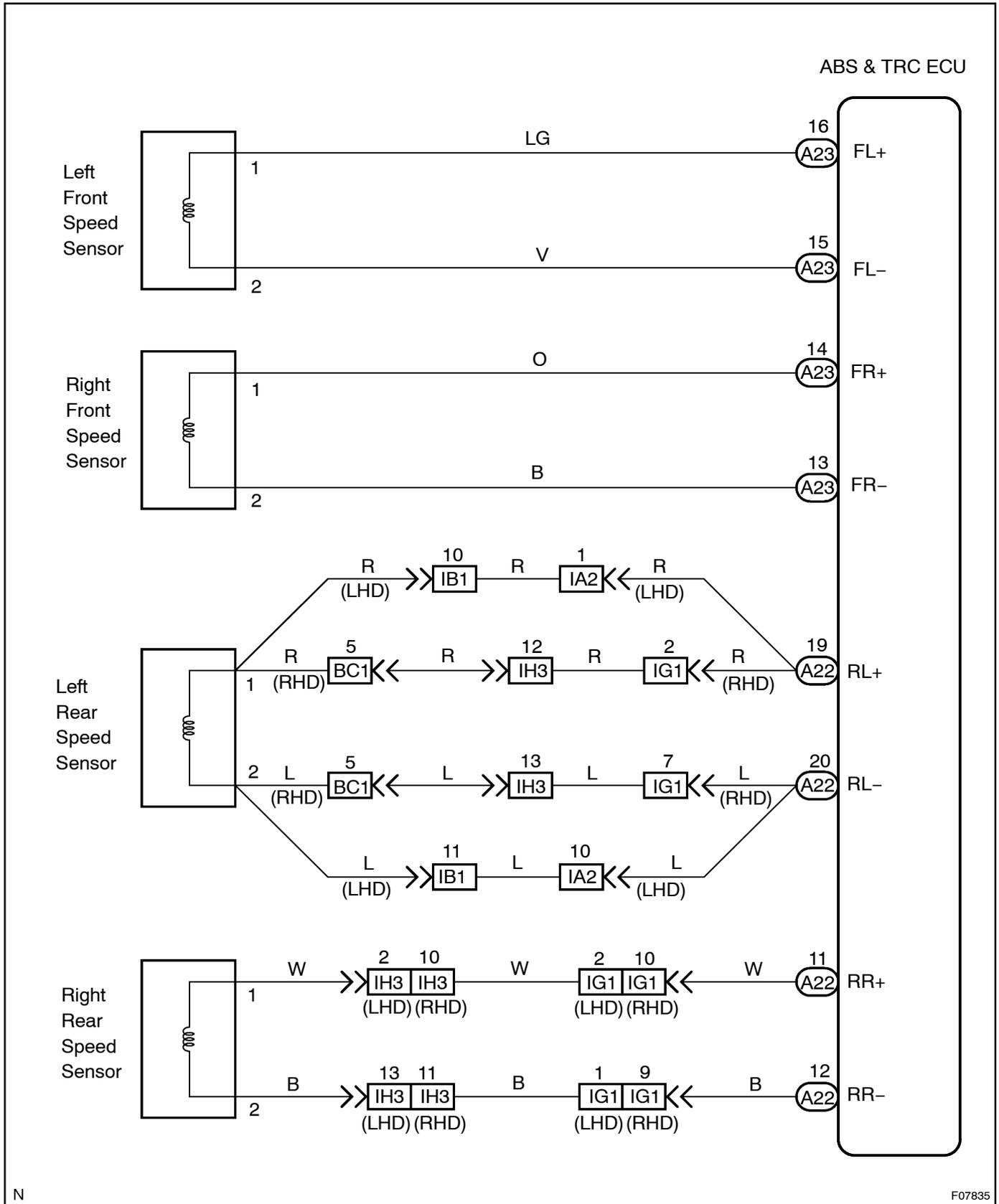
DTC No. C0210 / 33 is for the right rear speed sensor.

DTC No. C0215 / 34 is for the left rear speed sensor.

Fail safe function:

If any trouble occurs in the speed sensor circuit, the ECU cuts off current to the ABS solenoid relay and prohibits ABS & TRC controls and the brake system becomes normal.

WIRING DIAGRAM



N

F07835

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	Check output value of speed sensor.
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PREPARATION:

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON and push the hand-held tester main switch ON.
- (c) Select the DATALIST mode on the hand-held tester.

CHECK:

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 by the speedometer when driving the vehicle.

OK:

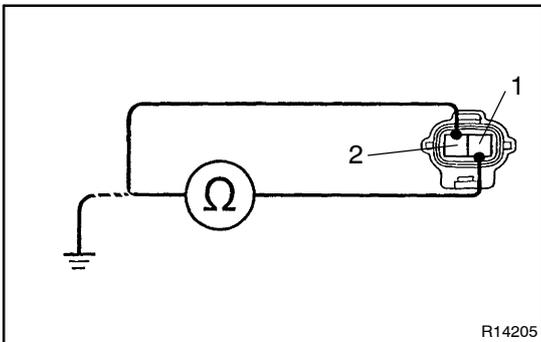
There is almost no difference from the displayed speed value.

OK

Check and replace ABS & TRC ECU.

NG

2	Check speed sensor.
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Front:

PREPARATION:

- (a) Remove the front fender liner.
- (b) Make sure that there is no looseness at the connector lock part and connecting part of the connector.
- (c) Disconnect the speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

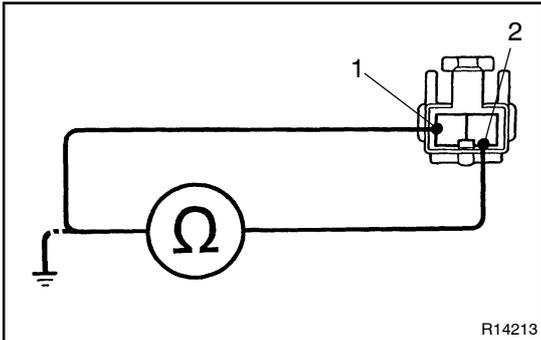
Resistance: 1.4 – 1.8 kΩ at 20 °C

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 10 MΩ or higher

**Rear:****PREPARATION:**

- (a) Remove the seat cushion and seatback.
- (b) Make sure that there is no looseness at the connector lock part and connecting part of the connector.
- (c) Disconnect the speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

Resistance: 0.9 – 1.3 kΩ at 25 ± 5 °C

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 1 MΩ or higher

**NOTICE:**

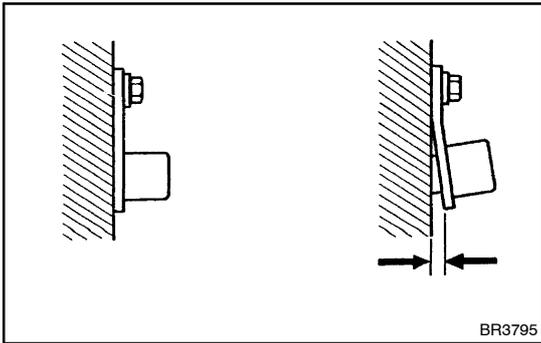
Check the speed sensor signal last (See page DI-223).



3	Check for open and short circuit in harness and connector between each speed sensor and ABS & TRC ECU (See page IN-32).
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4 Check sensor installation.



CHECK:

Check the speed sensor installation.

OK:

The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle or rear axle carrier.

NG

Replace speed sensor.

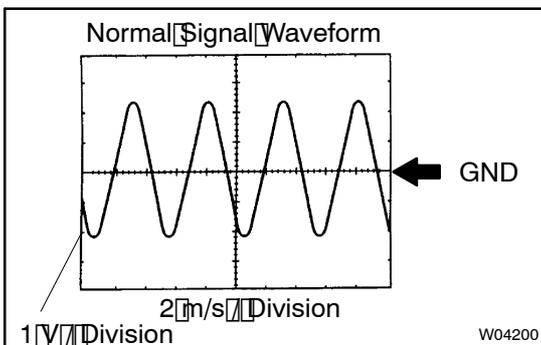
NOTICE:

Check the speed sensor signal last (See page DI-223).

OK

5 Check speed sensor and sensor rotor serrations.

(REFERENCE) INSPECTION USING OSCILLOSCOPE



PREPARATION:

- Remove the ABS & TRC ECU with connectors still connected.
- Connect the oscilloscope to the terminals FR+, FL+, RR+ or RL+ and GND of the ABS & TRC ECU.

CHECK:

Drive the vehicle with about 20 km/h (12 mph), and check the signal waveform.

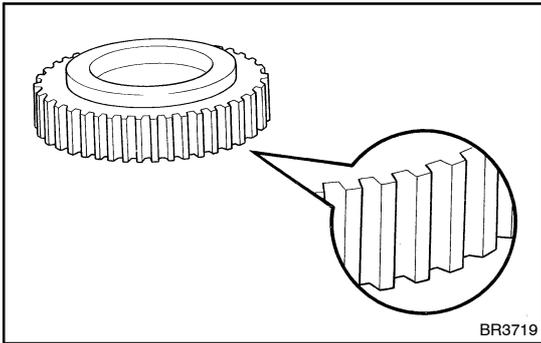
HINT:

Check the stuck of the foreign objects on the sensor tip in case of noise occurrence.

OK

Check and replace ABS & TRC ECU.

NG

6 Check sensor rotor and sensor tip.**Front:****PREPARATION:**

Remove front speed sensor rotor (See page SA-13).

CHECK:

Check the sensor rotor serrations.

OK:

No scratches, missing teeth or foreign objects.

PREPARATION:

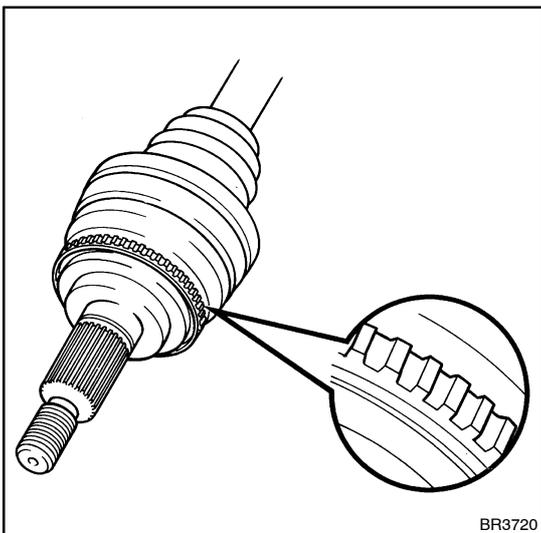
Remove the front speed sensor (See page BR-54).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.

**Rear:****PREPARATION:**

Remove the drive shaft (See page SA-56).

CHECK:

Check the sensor rotor serrations.

OK:

No scratches, missing teeth or foreign objects.

PREPARATION:

Remove rear speed sensor (See page BR-57).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.

NG**Replace speed sensor or rotor.****NOTICE:**

Check the speed sensor signal last (See page DI-223).

OK**Check and replace ABS & TRC ECU.**