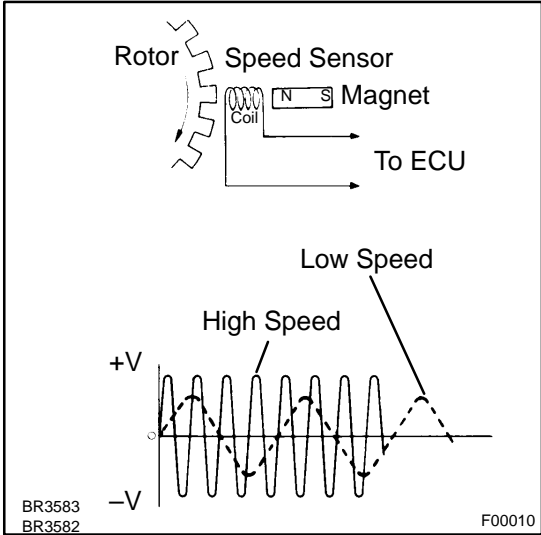


<b>DTC</b>	<b>31, 32, 33, 34</b>	<b>Speed Sensor Circuit</b>
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### CIRCUIT DESCRIPTION



The speed sensor detects the wheel speed and sends the appropriate signals to the ECU. These signals are used for control of both the ABS and TRAC control systems. 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
31, 32, 33, 34	<p>Detection of any of conditions (1) through (3):</p> <p>(1) At vehicle speed of 10 km/h (6mph) or more, pulse are not input for 15 sec.</p> <p>(2) Momentary interruption of the speed sensor signal occurs at least 7 times in the time between switching the ignition switch ON and switching is OFF.</p> <p>(3) Abnormal fluctuation of speed sensor signals with the vehicle speed 20 km/h (12 mph) or more.</p>	<ul style="list-style-type: none"> <li>• Right front, left front, right rear and left rear speed sensor</li> <li>• Open or short in each speed sensor circuit</li> <li>• Sensor rotor</li> </ul>

#### HINT:

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

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

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

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

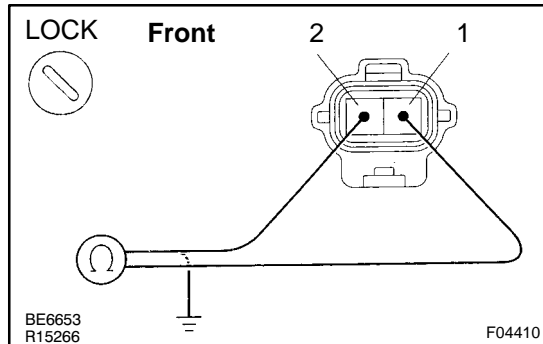
Fail safe function:

If trouble occurs in the speed sensor circuit, the ECU cuts off current to the ABS solenoid relay and prohibits ABS (& TRAC) control.

[illegible]

## INSPECTION PROCEDURE

## 1 Check speed sensor.

**Front****PREPARATION:**

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

**CHECK:**

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

**OK:**

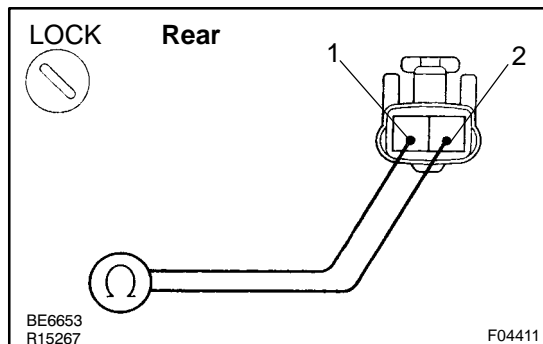
**Resistance: 0.6 – 2.5 kΩ**

**CHECK:**

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

**OK:**

**Resistance: 1 MΩ or higher**

**Rear****CHECK:**

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

**OK:**

**Resistance: 0.6 – 2.2 kΩ**

**CHECK:**

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

**OK:**

**Resistance: 1 MΩ or higher**

**NG**

**Replace speed sensor.**

**NOTICE:**

Check the speed sensor signal last (See page [DI-408](#)).

**OK**

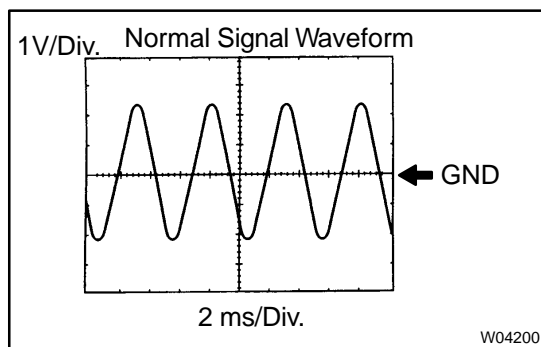
- 2** Check for open and short in harness and connector between each speed sensor and ECU (See page [IN-29](#)).

**NG**

Repair or replace harness or connector.

**OK**

- 3** Check speed sensor and sensor rotor installations.



**REFERENCE: INSPECTION USING OSCILLOSCOPE**

**PREPARATION:**

- (a) Remove the ABS ECU with connector still connected.
- (b) Connect the oscilloscope to the terminals FR+, FL+, RR+ or RL+ and GND of the ABS ECU.

**CHECK:**

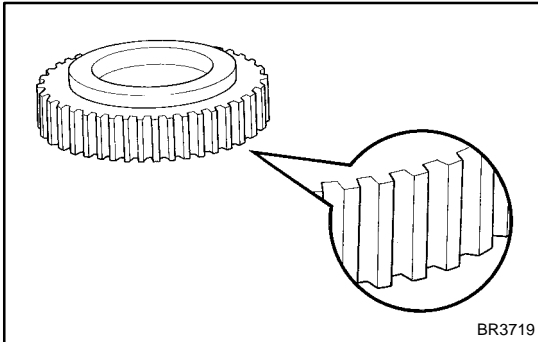
Drive the vehicle at 30 km/h (19 mph), and check the signal waveform.

**OK**

Turn the IG switch OFF, check and replace ABS ECU.

**NG**

# 4 Check sensor rotor and sensor installation.



## Front

### PREPARATION:

Remove front speed sensor rotor (See page [SA-12](#)).

### CHECK:

Check sensor rotor serrations.

### OK:

**No scratches or missing teeth.**

### CHECK:

Check the front speed sensor installation.

### OK:

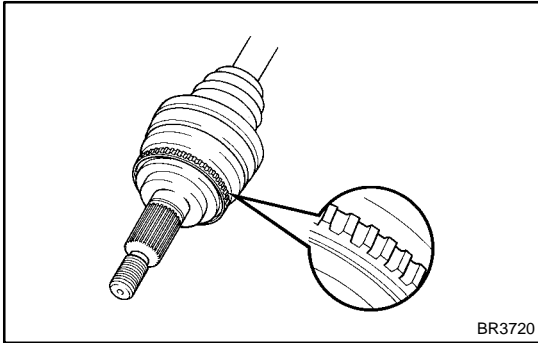
**The installation bolt is tightened properly.**

### CHECK:

Check the sensor tip.

### OK:

**No scratches or foreign objects on the sensor tip.**



## Rear

### PREPARATION:

Remove the drive shaft (See page [SA-42](#)).

### CHECK:

Check the sensor rotor serrations.

### OK:

**No scratches or missing teeth.**

### CHECK:

Check the rear speed sensor installation.

### OK:

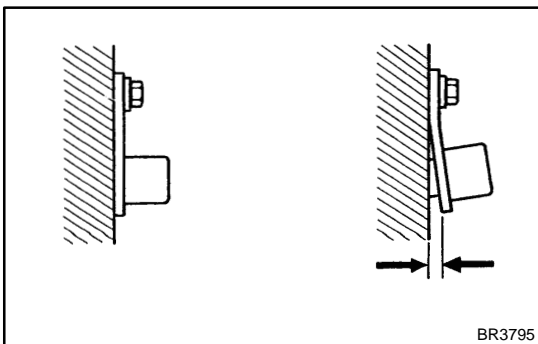
**The installation bolt is tightened properly and there is no clearance between the sensor and rear axle carrier.**

### CHECK:

Check the sensor tip.

### OK:

**No scratches or foreign objects on the sensor tip.**



NG

Replace speed sensor or rotor.

### NOTICE:

Check speed sensor signal last (See page [DI-408](#)).

OK

Turn the IG switch OFF, check and replace ABS (& TRAC) ECU.