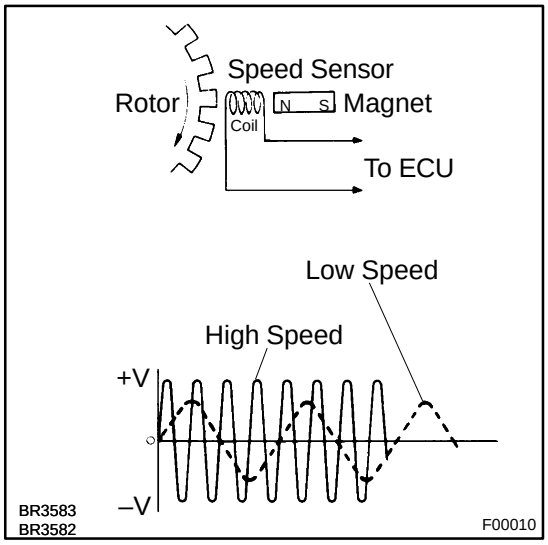
DTC	C0200/31	RIGHT FRONT SPEED SENSOR CIRCUIT

DTC	C0205/32	LEFT FRONT SPEED SENSOR CIRCUIT

DTC	C1235/35	FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT FRONT SENSOR

DTC	C1236/36	FOREIGN MATTER IS ATTACHED ON TIP OF LEFT FRONT SENSOR

CIRCUIT DESCRIPTION



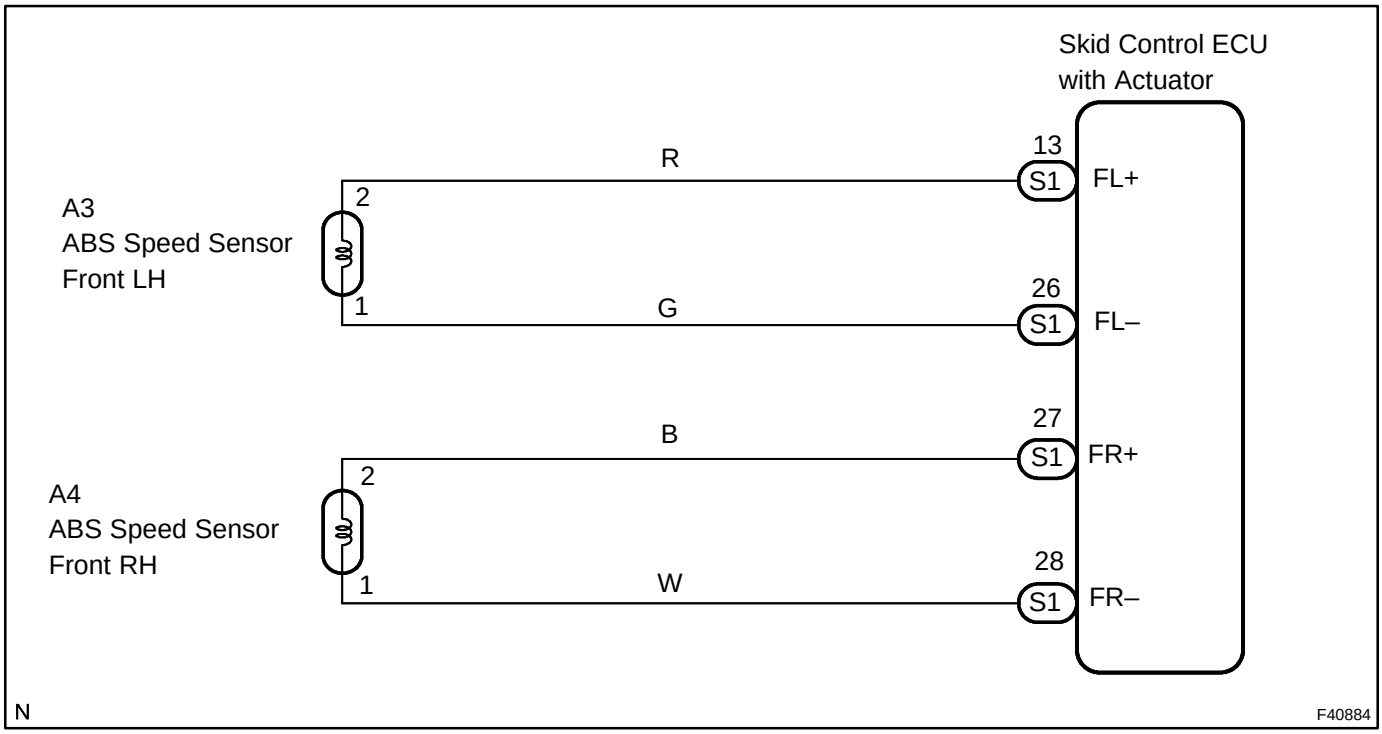
The speed sensor detects wheel speed and transmits the appropriate signals to the ECU. These signals are used for control of the ABS control system. Each of the front and rear rotors has 48 serrations.

When the rotors rotate, the magnetic field generated by the permanent magnet in the speed sensor induces 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	Detection of any of conditions 1. through 3.: 1. At vehicle speed of 10 km/h (6 mph) or more, pulses are not input for 15 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. The condition that the speed sensor signal circuit is open continues for 0.5 sec. or more.	• Right front and left front speed sensor • Each speed sensor circuit • Speed sensor rotor
C1235/35 C1236/36	At the vehicle speed of 20 km/h (12 mph) or more, the condition that noise is included in the speed sensor signal continues for 5 sec. or more.	• Right front and left front speed sensor • Speed sensor rotor

HINT:
DTC No. C0200/31 and C1235/35 is the right front speed sensor.
DTC No. C0205/32 and C1236/36 is the left front 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(FRONT SPEED SENSOR)

(a) Select the DATALIST mode on the hand–held tester.

(b) 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 in the displayed speed value.

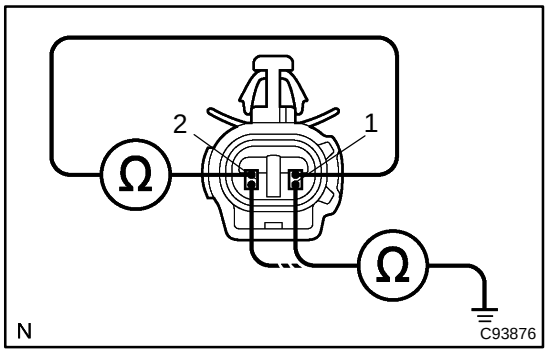
HINT:

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

OK	Go to step 5

NG

2 INSPECT FRONT SPEED SENSOR



(a) Remove the fender liner.
(b) Disconnect the speed sensor connector.
(c) Measure resistance between terminals 1 and 2 of the speed sensor connector.
OK: 0.6 – 2.5 kΩ or 0.9 – 1.8 kΩ at 20°C
(d) Measure resistance between each of terminals 1 and 2 of speed sensor connector and body ground.
OK:
Resistance: 1 MΩ or higher

NG	REPLACE SPEED SENSOR FRONT RH

NG	REPLACE SPEED SENSOR FRONT LH

NOTICE:
Check the speed sensor signal last (See page 05–297).

OK

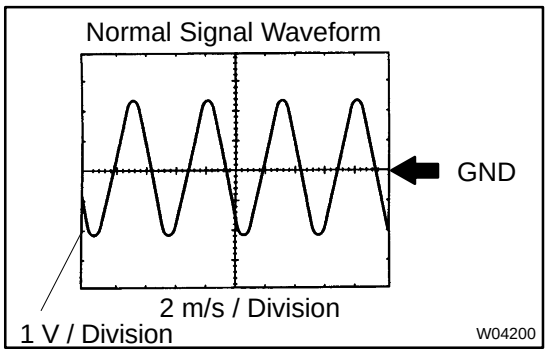
3 CHECK HARNESS AND CONNECTOR(FRONT SPEED SENSOR – SKID CONTROL ECU)

(a) Check for open and short circuit in harness and connector between each front speed sensor and skid control ECU (See page 01–30).

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS



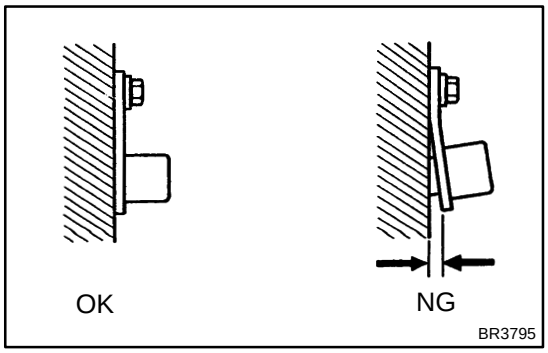
(REFERENCE) INSPECTION USING OSCILLOSCOPE
(a) Connect the oscilloscope to the terminal FR+ – FR– and FL+ – FL– of the skid control ECU.
(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

HINT:
- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter 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 deposited on it.

OK	CHECK AND REPLACE BRAKE ACTUATOR ASSY

NG

5 INSPECT FRONT SPEED SENSOR INSTALLATION



(a) Check the speed sensor installation.
OK:
The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

NG → **REPLACE SPEED SENSOR FRONT RH**

NG → **REPLACE SPEED SENSOR FRONT LH**

NOTICE:
Check the speed sensor signal last (See page 05–297).

OK

6 INSPECT SPEED SENSOR TIP

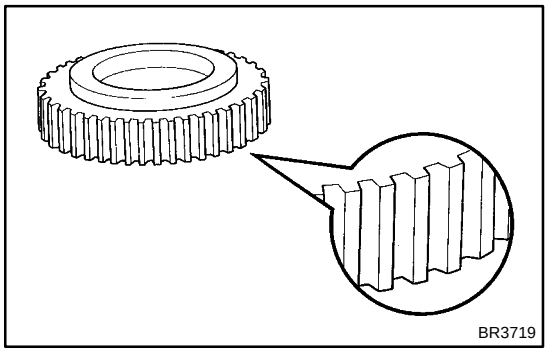
(a) Remove the front speed sensor (See page 32–44).
(b) Check the sensor tip.
OK:
No scratches or foreign objects on the sensor tip.

NG → **CLEAN OR REPAIR SPEED SENSOR**

NOTICE:
Check the speed sensor signal last (See page 05–297).

OK

7 INSPECT SPEED SENSOR ROTOR



(a) Remove the front speed sensor rotor (See page 30–6).
(b) Check the sensor rotor serrations.
OK:
No scratches, missing teeth or foreign objects.

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

NG → **CLEAN OR REPAIR SPEED SENSOR ROTOR**

NOTICE:
Check the speed sensor signal last (See page 05–297).

OK

CHECK AND REPLACE BRAKE ACTUATOR ASSY (See page 05–306)